

Martin Tuchman School of Management

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Martin Tuchman School of Management (MTSM) is one of NJIT's six schools and colleges, serving as the university's business school. MTSM has 35 faculty and over 900 students. The mission of the Tuchman School is to educate and prepare our graduates for life-long success as management professionals, corporate leaders and academic scholars in the dynamic, technology-driven world of global business.

Embedded within New Jersey's leading technology institution, the Tuchman School integrates fundamental business principles with technical knowledge and critical-thinking skills and leverages strengths across the university from engineering and computing to architecture and social science. All our graduate programs are STEM-designated; and all of our academic programs provide hands-on learning experiences with advanced business and management cloud-based solutions.

NJIT's Martin Tuchman School of Management is a top business school as evidenced by its accreditation from AACSB, The Association to Advance Collegiate Schools of Business. AACSB accreditation represents the highest standard of achievement for business schools worldwide. All of our undergraduate and graduate degrees are accredited.

Programs

- Management - M.S. (<http://catalog.njit.edu/graduate/management/management/ms/>)
- Management of Technology - M.B.A. (<http://catalog.njit.edu/graduate/management/management/technology-mba/>)

Business Data Science - Ph.D. (<http://catalog.njit.edu/graduate/management/management/business-data-science-phd/>)

Programs

- Business Analytics (<http://catalog.njit.edu/graduate/management/management/business-analytics-cert/>)
- Financial Technology (<http://catalog.njit.edu/graduate/management/management/financial-technology-cert/>)
- Innovation and Entrepreneurship (<http://catalog.njit.edu/graduate/management/management/innovation-and-entrepreneurship-cert/>)
- Management of Technology (<http://catalog.njit.edu/graduate/management/management/management-of-technology-cert/>)
- Mini-MBA (<http://catalog.njit.edu/graduate/management/management/mini-mba-cert/>)

ACCT 615. Management Accounting. 3 credits, 3 contact hours.

This course builds on traditional concepts of financial (accrual accounting, financial statements) and managerial accounting (break-even analysis, alternate choice decisions, profit planning, and transfer pricing) and develops the skills executives need for financial statement and strategic cost analyses. Explores financial statement preparation and strategic decisions of value chains and activity-based management. Emphasizes Microsoft Excel skills necessary for executive planning and control.

ACCT 640. Big Data Analytics for Accounting. 3 credits, 3 contact hours.

Prerequisites: ACCT 615. This course is intended to provide students with an understanding of data analytic thinking and terminology as well as hands-on experience with data analytics tools and techniques. Students should leave this course with the skills necessary to translate accounting and business problems into actionable proposals that they can competently present to managers and data scientists.

BDS 725. Independent Study I. 3 credits, 3 contact hours.

Restriction: graduate standing and school consent. This is a self guided independent course where the student works closely with a faculty member to study selected topics in business data science.

BDS 726. Independent Study II. 3 credits, 3 contact hours.

Prerequisite: BDS 725. Restriction: graduate standing and school consent. This is a self guided independent course where the student works closely with a faculty member to study selected topics in business data science.

BDS 790A. Doctoral Dissertation & Res. 1 credit, 1 contact hour.

Ph.D. students who defend their dissertation proposal successfully must register for this (790A) course each semester until they complete all degree requirements. Research and writing instruction in the area of business data science are carried out under the supervision of a designated graduate faculty member. The completed written dissertation should be a substantial contribution to the knowledge of the topic under consideration and should be of sufficient merit to warrant publication in a leading scientific or technical journal.

BDS 791. Doctoral Seminar. 0 credits, 0 contact hours.

BDS 792B. Pre-Doctoral Research. 3 credits, 3 contact hours.

Ph.D. students who pass their Qualifying Examination (QE) must then register for 3 credits of pre-doctoral research (792B) per semester until they successfully defend their dissertation proposal. Research and writing in the area of business data science is carried out under the supervision of a designated graduate faculty member to prepare the student for a dissertation proposal.

ECON 610. Managerial Economics. 3 credits, 3 contact hours.

Managerial Economics covers the role of economic theory in management analysis and decisions. The study of demand, cost, and supply theories from a business viewpoint are also covered. This course is about economic principles and their relevance to business decision-making. The course examines the interaction of information, economic incentives and market competition and how these interact to determine prices, products available, profits, and patterns of trade and organization.

ENTR 725. Independent Study. 3 credits, 3 contact hours.

This is a self guided independent course where the student works closely with a faculty member to study selected topics in entrepreneurship.

FIN 516. Principles of Financial Management. 3 credits, 3 contact hours.

Fundamentals of financial management divided into two segments: investment and corporation finance.

FIN 600. Corporate Finance I. 3 credits, 3 contact hours.

This course introduces concepts and analytical tools to identify and solve Financial Management problems. After introducing the corporation, the course focuses on how firms invest in real assets (capital budgeting) and how they raise money to pay for assets (financing). Practical problems in valuing bonds, stocks and other investments will be based on the time value of money. The trade-off between risk and return will be introduced with the Capital Asset Pricing Model.

FIN 610. Global Macro Economics. 3 credits, 3 contact hours.

This is an introductory graduate course for entering masters students. This course introduces various concepts relating to macroeconomics and the financial system from both a theoretical and institutional perspective. Thus fiscal and monetary policy and actions are covered but taught using a macroeconomic model that helps identify how particular actions affect economies as well as specific financial institutions.

FIN 611. Intro to Topics in Fin Tech. 3 credits, 3 contact hours.

Prerequisites: Students must have taken an introductory programming course prior to enrolling in FIN 611 that concentrated on learning at least one of Python, Java, MATLAB, C/C++, or R. The financial services industry is presently undergoing dramatic changes as recent technological advances have enabled the automation of former workflows. This course will survey current trends in the Financial Technology (FinTech) industry. Students will have the opportunity to develop their own software related to FinTech ideas discussed during this course.

FIN 616. Data Driven Financial Modeling. 3 credits, 3 contact hours.

Prerequisite: FIN 600. Financial modeling is of critical importance to asset allocation, pricing, trading strategy development, and risk management. By introducing basic and current financial modeling techniques, this course equips students with new analytic and modeling tools (e.g., spreadsheet modeling) to tackle rapidly changing and dynamic financial markets. In particular, this course delivers modeling frameworks such as regression analysis, forecasting, Monte-Carlo simulation and optimization. In addition, it illustrates how to apply these frameworks in financial contexts such as portfolio management, term structure estimation, capital budgeting, risk measurement, risk analysis in discounted cash flow models, and the pricing of European, American, exotic, and real options.

FIN 618. Public and Private Financing of Urban Areas. 3 credits, 3 contact hours.

Ties government's budget, tax policy, allocation of resources between public and private sectors, with the structure, development, and growth needs of urban metropolitan areas. Focuses on problems of poverty, transportation, land-use, economic base, relation between central cities and suburban areas, and alternative engineering and economic solutions. Same as MIP 618 and Tran 604.

FIN 620. Adv Financial Data Analytics. 3 credits, 3 contact hours.

Prerequisites: FIN 616 or instructor's approval, and familiarity with at least one programming language (for example, C, Java, Python, R or MATLAB). The financial services industry contains numerous data driven applications. For example, large financial institutions utilize Python in tandem with other established technologies to build, enhance, and maintain portions of their core IT and modeling systems. There are also many hedge fund and asset management firms that make heavy use of Python programming when it comes to efficient financial application and data analytics development. Establishing a quantitative view and mastering analytical approaches are critical nowadays for students and professionals in the finance industry. This course will provide essential skills in financial data analytics.

FIN 624. Corporate Finance II. 3 credits, 3 contact hours.

Prerequisite: FIN 600. The trade-off between risk and return will be examined in the context of historical analysis, portfolio optimization, the Capital Asset Pricing Model and other alternative models. The course will begin with a discussion of the Modigliani and Miller results and introduce bankruptcy, taxes, information asymmetries and other market imperfections. Financial options, put-call parity and option pricing will be introduced.

FIN 626. Financial Investment Institutions. 3 credits, 3 contact hours.

Prerequisite: FIN 600. This course introduces the role of banking institutions and investment banks in the domestic and international money market and capital environment to financial managers. It covers financial instruments and services of financial intermediaries that are crucial to business management. Further topics of discussion range from the financial services and facilities of regional banks to money-center banking institutions. Alternatives of project financing, lending requirements and regulations, project financing, and the role of intermediaries in local and international transactions. In addition we will focus on the private placement procedures of a variety of securities in the capital market and the unique role undertaken by the investment banking firms. Finally, we provide insights about the public offering process for existing venture capitalized firms.

FIN 627. International Finance. 3 credits, 3 contact hours.

Prerequisite: FIN 600. Examines financing of exports and imports, managing multicurrency working capital, international aspects of capital budgeting, cost of capital and their relationship with political, economic, and financial risk. Explores financial innovations and their impact on the firm's financial strategy and performance of overall productivity. Discusses the tax consequences and principal-subsidary relationship of the multinational enterprise. Introduces international money and capital markets, instruments, derivatives, and institutions.

FIN 634. Mergers, Acquisitions, and Restructuring. 3 credits, 3 contact hours.

Prerequisite: FIN 600. Focuses on identifying and evaluating potential and international companies for mergers and acquisitions as well as structuring of deals. The financial, social and managerial implications of these changes in corporate ownership will be examined. Topics are: financing M&As, deal structuring, tax implications, valuation, broker/finder agreements, merger negotiations, and post-merger integration.

FIN 641. Derivatives Markets. 3 credits, 3 contact hours.

Prerequisite: FIN 600. This course introduces students to futures, options, and other derivative securities. Topics include option valuation models, principles of forward and futures pricing, structure of markets for derivative securities, and strategies for hedging and speculation.

FIN 642. Derivatives and Structured Finance. 3 credits, 3 contact hours.

Prerequisite: FIN 641. This is a second course in financial derivatives. It continues the study of derivatives from FIN 641 (Derivatives Markets), covering additional types of options and underlying assets. The second part of the course is devoted to structured finance, including securities backed by mortgages and other types of assets.

FIN 643. Term Structure of Interest Rates. 3 credits, 3 contact hours.

Prerequisites: FIN 642, MATH 605. This course provides the student with a basic understanding of models of the term-structure of interest rates and the pricing of derivatives on bonds and other interest-rate-based securities. Topics covered include arbitrage-free pricing principles, continuous-time interest-rate models, no-arbitrage term structure models, multifactor models, forward measure approach, market models and model calibration.

FIN 644. Credit Risk Modeling. 3 credits, 3 contact hours.

Prerequisites: FIN 643, MATH 605. This course covers types of credit risk, measurement of credit risk, and methods for changing exposure to credit risk using credit derivatives. Current models for pricing credit derivatives will be analyzed and applied.

FIN 650. Investment Analysis and Portfolio Theory. 3 credits, 3 contact hours.

Prerequisite: FIN 600. This is a course on the theory and practice of investment and portfolio theory. We will study several quantitative techniques for portfolio construction. Mathematical and statistical analysis will be used during this examination. Theories of asset pricing based upon the relationship between risk and return will be included. We will also discuss criteria for selecting specific securities in different asset classes, such as, stocks, bonds, and derivatives.

FIN 655. Financial Innovations and Market Failures. 3 credits, 3 contact hours.

Prerequisite: FIN 600. This reading intensive course introduces concepts and problems from derivative markets, entrepreneurial finance, and financial market failures (including financial bubbles). The course focuses on valuation of futures and options (including real options), strategy and incentives for new finance, and information asymmetry and market failures, especially financial market bubbles.

FIN 700. Seminar in Theory and Research in Financial Management. 3 credits, 3 contact hours.

Prerequisites: FIN 624 or FIN 626. Only open to those students who do not do a thesis. The theory and applied tools of financial management. Presented in seminar format with several students working as a team to analyze and resolve an issue in financial management.

FIN 701. Thesis in Financial Management. 3 credits, 3 contact hours.

Prerequisites: FIN 624 or FIN 626; waived with approval of the assistant dean for graduate programs. Examines: What is research? Why do research? What are the objectives of research? Covers the need for research, criteria for good research and research design, concept of measurement, sampling design, primary data collection, experimentation and simulation, statistical and other types of analysis, and reporting of research findings.

FIN 725. Independent Study. 3 credits, 3 contact hours.

This is a self guided independent course where the student works closely with a faculty member to study selected topics in finance.

FIN 780. Theory and Practice of Financial Research. 3 credits, 3 contact hours.

Prerequisites: Approval from PhD program director. Students enrolling in this course should be familiar with basic finance concepts such as time value of money, present value discounting, and fundamental econometric analysis tools such as ordinary least squares linear regression. This course provides an in-depth review of current topics in the empirical asset pricing literature. In addition, this course will survey core asset pricing ideas including market efficiency and the capital asset pricing model. However, it will also explore novel applications of machine learning and data science techniques to portfolio and asset management. This course will also explore the failure of classical equilibrium models to explain asset prices and new developments in cross-sectional asset pricing which improve such issues. The course will also provide potential explanations for the existence and persistence of pricing anomalies in the stock market.

HRM 601. Managing Organizational Behavior in Technology-Based Organizations. 3 credits, 3 contact hours.

Organizational behavior, in its most general sense, addresses how organizations work. The sub-topics within this general domain are all concerned with the general question of how to design organizations, processes, and policies that enhance individual, team and organizational performance. The course provides the concepts and tools to conduct meaningful analyses to address challenges and find opportunities. Topics covered include: organizational structure, coalitions and teams, organizational culture, power and politics in organizations, personality, conflict and negotiation, leadership, motivating employees, and organizational change.

HRM 606. Human Resource Management. 3 credits, 3 contact hours.

Management of human resources in business, industry, and government; developing personnel programs including wage and job classification, training, employee and labor relations, and accident prevention. Particular attention is directed to cases and roles involving both line and staff managers.

HRM 610. Seminar on Leadership Skills. 3 credits, 3 contact hours.

Leadership theory and research is used to provide a foundation for developing leadership skills in work organizations. This course covers all aspects of leadership properties and processes. Concepts and theory are reinforced with case studies and experiential learning exercises. Topics include charismatic leadership, forming and realizing a vision, motivating and socializing followers, conflict resolution, negotiation, power and authority, and values and ethics.

HRM 630. Managing Technological and Organizational Change. 3 credits, 3 contact hours.

Managing planned and unplanned change in organizations. The change process is studied in relation to technology-driven changes in the workplace and to other environmental factors. Focuses on planned and unplanned systemic change, such as downsizing, re-engineering, mergers, and acquisitions.

HRM 640. Cultures in Organization. 3 credits, 3 contact hours.

Prerequisite: HRM 601. Cultures and subcultures in organizations are studied from an ethnographic perspective. Managerial and professional cultures are studied as are engineering and R&D cultures. Organizational cultures are also studied in detail using case studies, with an emphasis on understanding culture as a control mechanism in modern organizations.

HRM 685. Cross Cultural Management Studies. 3 credits, 3 contact hours.

Provides insight into the institutional fabric and social and communication behavior of other cultures to better understand problems arising from cultural aspects of managing and doing business in various countries. Focus will be with the manager acting in various cultural environments, not restricted to the traditional human resource function at corporate headquarters. Cultural differences and technologies are also examined.

MGMT 501. Management Foundations. 3 credits, 3 contact hours.

This course provides foundation knowledge for MSM and MBA students whose undergraduate coursework does not include coursework in accounting and finance. It therefore, serves as a pre-qualifier for the MSM and MBA programs.

MGMT 590. Coop Work Experience I. 1 credit, 1 contact hour.**MGMT 591. Coop Work Experience II. 1 credit, 1 contact hour.****MGMT 592. Coop Work Experience III. 1 credit, 1 contact hour.****MGMT 593. Coop Work Experience IV. 0 credits, 0 contact hours.**

Prerequisites: One immediately prior 3-credit registration for graduate co-op work experience with the same employer. Requires approval of departmental co-op advisor and the Division of Career Development Services. Must have accompanying registration in a minimum of 3 credits of course work.

MGMT 610. Foundations of Management in Organizations. 3 credits, 3 contact hours.

Presented during the residence week for the Executive Program. Includes management accounting, managerial economics, statistics, operations research, marketing, MIS, and finance.

MGMT 620. Management of Technology. 3 credits, 3 contact hours.

This course will focus on the management of technology-based innovations. It will examine how industries are transformed by new technologies, how managerial decisions shape product evolution, and how managerial competencies affect the innovation performance of firms.

MGMT 625. Distribution Logistics. 3 credits, 3 contact hours.

This course examines distribution logistics emphasizing techniques used to optimize corporate profit and customer service; transportation modes; inventory policies; warehousing and order processing; and the best logistics gross margin.

MGMT 630. Decision Analysis with Quantitative Modeling. 3 credits, 3 contact hours.

Introduction to the methodology of decision analysis using computer based techniques and systems analysis. Introduces concepts of modeling, probability, and choice. Addresses the philosophy and detailed methods involved in decision analysis. Methods are applied to address routine and special business decisions.

MGMT 635. Data Mining and Analysis. 3 credits, 3 contact hours.

This course provides an introduction to data mining with an emphasis on large scale databases as a source of knowledge generation and competitive advantage. Specific topics include: framing research questions; data modeling; inferential data mining techniques; and evaluation and deployment of data mining systems.

MGMT 640. New Venture Management. 3 credits, 3 contact hours.

This course is for the student who is considering starting or managing a new business. The course combines classroom instruction in business management and a term project involving the analysis of a business case study. The course is designed to build upon and integrate the student's previously acquired business knowledge and skills into an understanding of how to start and run a new business.

MGMT 641. Global Project Management. 3 credits, 3 contact hours.

The course reviews key elements of project management frameworks with a particular focus on global projects, which include people from various organizations working in different countries across the world, both face-to-face and virtually. Such projects vary in complexity based on the number of organizations, locations, cultures, languages and time-zones involved. It discusses people, technology and processes relevant to managing global projects and virtual teamwork.

MGMT 645. New Venture Finance. 3 credits, 3 contact hours.

This course is designed to provide students with an understanding of the problems and opportunities posed by financing and growing a technology-based business. Students will study financial conditions of the new businesses and examine the effect of growth upon cash flow while exploring optimal sources of capital.

MGMT 648. Distribution Channel Management. 3 credits, 3 contact hours.

Prerequisite: MRKT 330 Utilizing a strategic perspective, this course augments the understanding of how a firm can effectively manage the distribution system or network of alliances among agents, wholesalers, distributors and retailers to attain a sustainable competitive advantage. This course focuses on developing and implementing strategies for planning, organizing and controlling the various external institutions, agencies as well as in-house units that ultimately deliver products and services to consumer and business-to-business markets. In addition to electronic channels, the topics studied in the distribution process include channel strategy, channel design, channel management, as well as the selection, motivation, and performance assessment of resellers.

MGMT 649. Convention, Creativity and Innovation. 3 credits, 3 contact hours.

This course explores the role of creativity and disruptive thinking in relation to the development of new products, processes, technologies and industries. It begins with a focus on the behavioral aspects of creativity and disruptive thinking and includes exercises and tools to challenge conventional thinking. Disruption is then studied through a strategic lens with an emphasis on understanding the conditions under which radical change is appropriate and when it is not.

MGMT 650. Knowledge Management. 3 credits, 3 contact hours.

Students will learn the principles of the knowledge management process. At the end of the course, students will have a comprehensive framework for designing and implementing a successful knowledge management effort and be able to assist in the development of knowledge.

MGMT 654. Management Consulting. 3 credits, 3 contact hours.

Management Consulting is a course that examines the business of management consulting beginning with the use of management consultants and the basic economics of their business. It then builds on this initial foundation to explore in depth the development of strategic consulting that spans a wide range of topics, businesses and functional organization issues in both a domestic and international economic and institutional context.

MGMT 655. Global Competitiveness. 3 credits, 3 contact hours.

Improves knowledge of the issues involved in international business operations and their management. Develops skills in selecting key issues and familiarization with emerging methods for organizing and managing international operations. Emphasis will be on companies with technological, product, production, or design focus.

MGMT 656. Public Policy and Business. 3 credits, 3 contact hours.

This course explores the relationship between business and government with a focus on regulatory policies and public/private partnerships. Areas of focus include sustainability and environmental regulations, trade policies and their influence on international commerce, public policy concerning the Internet and emerging digital technologies, patent rights, and opportunities for public/private partnerships with regard to fostering economic development.

MGMT 660. Managing Supply and Value Chains. 3 credits, 3 contact hours.

This course is focused on the flow of products, information and revenue across supply and value chains in organizations. Special emphasis is placed on emerging e-business models and their effects on supply and value chains, and customer relationship management. The course also includes a survey of relevant information technologies.

MGMT 670. International Business. 3 credits, 3 contact hours.

Covers the scope and the essential characteristics of international business in the world economy; MNEs as economic, political, and social institutions; national and international control; functional management and operations; country evaluation; and regional market analysis.

MGMT 680. Entrepreneurial Strategy. 3 credits, 3 contact hours.

For the student who is considering starting and/or managing a new business. Integrates knowledge of the different aspects of business that have been learned as separate subjects. Provides an understanding of the decisions that guide the overall operations of an entrepreneurial business organization and how it interacts with its markets, competitors, and suppliers. Combines classroom instruction in business strategy along with case analysis of small firms. Should be taken in the last semester of the program, unless prior arrangement has been made with the instructor or the graduate advisor. Taken in the final semester only.

MGMT 682. Business Research Methods I. 3 credits, 3 contact hours.

A comprehensive introduction to business research methods covering the fundamental concepts of problem definition and the research process including quantitative and qualitative research, survey research, observation methods and experimental research methods. The course also covers data analytics, including advanced descriptive and predictive analysis models, involving inferential statistics, regression and correlation analyses and non-parametric methods. The course emphasizes problem solving using advanced quantitative software tools such as SPSS, Minitab, SAS, Matlab, Python and R. Students will be required to work on business research case studies and projects involving the collection and/or treatment of large data sets, as well as to develop research constructs and hypotheses and to write and present reports documenting research findings and recommendations.

MGMT 685. Operations Research and Decision Making. 3 credits, 3 contact hours.

Introduces the concepts of objective functions and constraints, concepts of value and utilities, optimization algorithms, networks, and game theory. Covers models of linear programming, inventory systems, multi-criteria decision-making, project management, and transportation planning. Topics discussed from probabilistic and deterministic approaches.

MGMT 686. Corporate Governance. 3 credits, 3 contact hours.

Presents inter-disciplinary perspectives on the rights, responsibilities and roles of the corporation in society. Focuses on the relationships among owners, managers, and other stakeholders. Analyzes corporate control mechanisms including ownership concentration, executive compensation, boards of directors, and the market for corporate control. Includes changes in political/legal/regulatory institutional environments over time, and develops a comparative international framework.

MGMT 688. Internet Law and Policy Issues. 3 credits, 3 contact hours.

Includes historical and constitutional foundations, crimes, and torts in cyberspace, virtual property (patents online, copyrights in digital information, trade secrets in cyberspace, and cybermarks), electronic commerce contracting, electronic commerce, electronic money and the law, and information technology and online infringement of rights of intellectual property.

MGMT 691. Legal and Ethical Issues in a Digital World. 3 credits, 3 contact hours.

Explores the legal and ethical responsibilities of managers. Analyzes the extent to which shareholders should be allowed to exercise their legitimate economic, legal, and ethical claims on corporate managers; the extent of regulation of a particular industry, individual rights of the employee and various corporate interests, corporate responsibility to consumers, society, conservation of natural resources and the environment, and global intellectual property rights.

MGMT 692. Strategic Management. 3 credits, 3 contact hours.

Prerequisites: Completion of 18 credits in the MBA curriculum including ACCT 615, FIN 600, HRM 601 and MRKT 620. This course focuses on the Strategic Integration of the different functional areas in management providing a top management perspective to the role of chief executive in an organization. An integral part of this course is to understand the roles of both competitive environment and the organization's experience in developing corporate strategy to gain competitive advantage. We also emphasize ethical issues related to corporate strategies.

MGMT 699. ST in Management. 3 credits, 3 contact hours.

The study of new and/or advanced topics in the various fields of business and their application not regularly covered in any other business course.

MGMT 710. Forecasting Methods for Business Decisions. 3 credits, 3 contact hours.

Covers the application of forecasting techniques to various phases of business and management decision making. Topics include forecasting with cyclical and seasonal series; Box-Jenkins modeling; regression modeling; use of stochastic models; and the linkage of management forecasts to macro forecasts. Actual models in use will be reviewed and evaluated.

MGMT 725. Independent Study. 3 credits, 3 contact hours.

This is a self guided independent course where the student works closely with a faculty member to study selected topics in management.

MGMT 726. Independent Study II. 3 credits, 3 contact hours.**MGMT 735. Deep Learning in Business. 3 credits, 3 contact hours.**

Prerequisites: FIN 620 or instructor's approval or advanced graduate standing. This course provides an in-depth study of data mining and machine learning, with a focus on business applications. As the business market becomes increasingly complicated and depends on data, analysts and fund managers must make better and faster decisions using available data. Data mining and machine learning make use of powerful tools and techniques to unlock the value inherent in available market data and routinely help managers uncover hidden patterns and correlations in data and gain insights to improve the decision-making in the market. The course is practice-oriented and develops the required skills to apply machine learning in the stock market and other business areas. Students will better understand the techniques for data mining and machine learning as well as gain hands-on knowledge of the contemporary analysis tools of data mining and machine learning. The course will enable students to better understand the major concepts, approaches, and techniques for data mining and machine learning. The included learning material provides adequate technical depth for students to know how data-driven technologies work. Coverage includes data mining and machine learning processes, methods, and techniques; the role and management of data; tools and metrics; and integration with Big Data.

MGMT 740. Innovation & Entrepreneurship. 3 credits, 3 contact hours.

Prerequisites: MGMT 640 (or equivalent) or permission of instructor. This course is designed to introduce the Ph.D. students to the extensive literature in innovation and entrepreneurship. The course builds on the early works by economists and sociologists, and progresses towards the most recent research. By discussing the early works and latest research, the course explores extant knowledge in Innovation and Entrepreneurship, the boundary conditions of the theories in Innovation and Entrepreneurship, and the possible avenues for future research.

MGMT 782. Business Research Methods II. 3 credits, 3 contact hours.**MIS 620. E-Commerce Technologies. 3 credits, 3 contact hours.**

Intended to develop a basic understanding of the Internet and its underlying technologies as a foundation for e-commerce with an introduction to e-commerce applications. Addresses the technology for MIS managers to effectively manage the launching of e-commerce infrastructures. Covers data communication and networking, EDI, intranets and extranets, bandwidth and security issues.

MIS 625. Management Strategies for E-Commerce. 3 credits, 3 contact hours.

Prepares students for effective management of internet-based businesses and electronic commerce and oversight of global business activities in an increasingly competitive environment. Introduces Internet concepts and infrastructure. Examines current and proposed Internet services forming the basis of Internet commerce. Covers corporate intranets and extranets and their applications to corporate computing, seamless e-commerce, and other emerging services such as VPN. Issues are discussed, with special emphasis on security.

MIS 645. Information Technology and Competitive Advantage. 3 credits, 3 contact hours.

This course introduces the field of Information Systems, the study of how people, processes, structure, and technology are used to make an organization more effective. It examines the major areas in the field, analyzing the major issues, trends, and problems. It surveys the role of information systems in organizations and how these systems support organizational objectives and organizational structure, as well as sustain competitive advantage. It discusses basic concepts including the system's point of view, the organization of a system, the nature of information and information flows, as well as how people process information, and related cognitive concepts. The course examines the activities and resources utilization in global IT network management, knowledge management, Big Data, Business Analytics, AI, IoT, Cloud Computing, Global Supplies and Value Chains. Finally, the course examines the emerging issues related to intellectual property rights and obligations, as well as the related political, social, security and ethical issues governing the use of modern information systems.

MIS 648. Decision Support Systems for Managers. 3 credits, 3 contact hours.

Prerequisite: MIS 645. Covers the use of decision support systems to support management decision making in a real world environment. Topics include: establishing and measuring decision support systems success criteria, software tools, model management, elements of artificial intelligence, and statistics. Justification, design, and use of decision support systems.

MIS 680. Management Science. 3 credits, 3 contact hours.

Introduction to the methodology of decision making applying the techniques of operations research and system analysis to managerial problems. Introduction to the concept of objective functions and constraints, concepts of value and utilities, optimization algorithms, networks and game theories. Elementary mathematical model linear production systems, inventory systems, multi-criteria decision making, project management and transportation planning. Topics will be discussed from the deterministic as well as stochastic points of view.

MIS 685. Data Mgmt for Business Appl. 3 credits, 3 contact hours.

Prerequisite: Students must have taken a database course, such as MIS 385 or equivalent. This course introduces data management problems and technologies for business applications. It covers the concepts of relational database, data quality and cleaning, data warehouse and business intelligence, data integration, information extraction, data governance and security issues, and big data for managerial applications. Students will gain hands-on experience on data management through course assignments.

MIS 699. Selected Topics In Mis. 3 credits, 3 contact hours.**MIS 701. Thesis in Information Systems Management. 3 credits, 3 contact hours.**

Prerequisites: MIS 645, MIS 648, CS 675, CS 679 or waived with approval of the Dean. Examines what is research? Why do research? What are the objectives of research? Covers need for research, criteria for good research and research design, concept of measurement, sampling design, primary data collection, experimentation and simulation, statistical and other types of analysis, and reporting of research findings.

MIS 725. Independent Study. 3 credits, 3 contact hours.

This is a self guided independent course where the student works closely with a faculty member to study selected topics in management information systems.

MRKT 620. Global Marketing Management. 3 credits, 3 contact hours.

Designed to help prepare students to become effective managers overseeing global market activities in an increasingly competitive environment. It will examine the impact of global economic, financial, cultural, political, and legal factors on the development of marketing programs and on the marketing/R&D and marketing/manufacturing interfaces.

MRKT 630. Models Of Consumer Behavior. 3 credits, 3 contact hours.

Provides students a framework, the buyer decision process model, to analyze how and why products and services are selected and purchased. Impact of consumer decisions on the marketing strategies of organizations is emphasized. Focus on quality management of the marketing function to determine customer needs; provide the appropriate products, prices, distribution systems, and promotion messages; and measure customer satisfaction after purchase and use.

MRKT 631. Marketing Research. 3 credits, 3 contact hours.

Provides a research and managerial perspective on advanced marketing research methods and analytical techniques. Topics include problem formulation, research design, data collection and analysis, managerial report writing. Students will acquire experience by developing and executing their own marketing research project using sophisticated computerized analytical techniques.

MRKT 632. Marketing Strategy for Technology-Based Organizations. 3 credits, 3 contact hours.

As technology continuously transforms products and business models and provides new competitive advantages that firms can capitalize on, this course introduces the marketing challenges of firms in the hyper-competitive environment. It provides students with an overview of marketing strategies: pricing, product, promotion, and place. Ethical issues are discussed as well as other course concepts using case analysis, videos, class discussion, and term projects.

MRKT 636. Design and Development of High Technology Products. 3 credits, 3 contact hours.

This course focuses on identifying customer needs for specific product characteristics and the development of innovative new products. It covers the knowledge, process, and techniques involved in identifying new product opportunities, screening new product concepts, product testing, market testing, product positioning, and development of marketing strategy and implementation plans.

MRKT 637. Marketing Communications and Promotions. 3 credits, 3 contact hours.

Communications, sales promotion, and public relations are examined from the perspective of the manager. Topics include advertising and promotion research, media selection, creative production of electronic and print materials, and the budgeting and control of their use. Field research will be stressed as part of the course project requirement.

MRKT 638. Sales Management for Technical Professionals. 3 credits, 3 contact hours.

Focuses on the promotion and sales of products in the business-to-organization market. All elements of the marketing communications mix are covered according to their importance in that market: selling, sales promotion, trade advertising, and publicity. The latest techniques are reviewed and discussed using case histories and student projects. Issues of global competitiveness, high technology products, and the role of total quality management in marketing communications are emphasized.

MRKT 642. International Marketing Management. 3 credits, 3 contact hours.

Focus on multinational enterprise in the global market, emphasizing special managerial skills required to adapt sound marketing practices to foreign cultural, political, economic and financial environments. Foreign opportunities and marketing strategies are examined. Students prepare a marketing plan for entry into an international market after conducting appropriate research.

MRKT 645. Digital Marketing Strategy. 3 credits, 3 contact hours.

Introduction to the use of the Internet and electronic commerce in the development of marketing strategy. Examines the characteristics of electronic markets, the use of Internet for data collection and market research, the Internet as a communication and distribution medium, and the development of Internet-based marketing strategies.

MRKT 655. Sales Process and Analytics. 3 credits, 3 contact hours.

The course focuses on the dynamic field of sales management, and specifically the field of Business-to-Business (B2B) sales. During this course, students will see the most distinctive characteristics of the B2B environment, in contrast with the Business-to-Consumer (B2C) one (typically the focus of marketing degrees and certificates). Particularly, students will learn the importance of relationship sales within B2B. The course also covers the different types of selling, emphasizing the most relevant types in B2B selling, such as value and solution selling.

MRKT 725. Independent Study. 3 credits, 3 contact hours.

This is a self guided independent course where the student works closely with a faculty member to study selected topics in marketing.

MRKT 753. Marketing Science. 3 credits, 3 contact hours.

Prerequisite: MRKT 631. Emphasizes the quantitative model building approach to complex problems of marketing decision making. Utilizes principles of quantitative decision making to understand large amounts of data to lead to improvements in marketing effectiveness. Such areas of marketing as buyer behavior, pricing, promotion, advertising, sales force management, and new product planning will be analyzed.

MRKT 766. Seminar in Marketing Analytics. 3 credits, 3 contact hours.

Requires a background in graduate level business and computer programming, or permission of the Ph.D. in Business Data Science program director. This is a seminar course designed to introduce PhD students to the most relevant literature in Marketing Analytics. The series of seminars covers a wide variety of quantitative metrics and models to improve marketing decision making in both offline and online settings. Through discussions of the existing literature, the course will challenge students to review the advanced topics in the literature at the cross section of marketing (including but not limited to marketing science, consumer behaviors on social networks, digital marketing and data science) to foster critical thinking among doctoral students, and to explore new avenues for research in Marketing Analytics.