MANAGEMENT (MG-GY)

MG-GY 999X PhD Dissertation in Technology Management (3-9 Credits)
Typically offered occasionally
Students are required to complete 24 credits of doctoral dissertation research. | Prerequisite: Passing grade in Doctoral standing or instructor's permission.
Grading: Satisfactory/Unsatisfactory
Repeatable for additional credit: Yes
Prerequisites: RE-GY 9990 AND Restriction: Academic Plan = PHD Human-Cntr Tech Innov Desg-PHD.

MG-GY 6013 Organizational Behavior (3 Credits)
Typically offered occasionally
Introduction to theory, research and practice to better understand human behavior in organizations. Topics include motivation and job satisfaction; decision making; group dynamics; work teams; leadership; communication; power, politics and conflict; organization culture, structure and design; impact of technology; management of work stress; organizational change and development; and career management. Analysis of organizational behavior problems by self assessments, case studies and simulations. | Prerequisite: Graduate Standing
Grading: Grad Poly Graded
Repeatable for additional credit: No

MG-GY 6013G Organizational Behavior (3 Credits)
Typically offered Fall
Introduction to theory, research and practice to better understand human behavior in organizations. Topics include motivation and job satisfaction; decision making; group dynamics; work teams; leadership; communication; power, politics and conflict; organization culture, structure and design; impact of technology; management of work stress; organizational change and development; and career management. Analysis of organizational behavior problems by self assessments, case studies and simulations. | Prerequisite: Graduate Standing
Grading: Grad Poly Graded
Repeatable for additional credit: No

MG-GY 6023 Economics and Strategy (3 Credits)
Typically offered Fall and Spring
This is a course in Economics, Strategy and the Firm with a primary focus on the needs of managers. It draws upon a range of concepts and tools from the fields of Industrial Organization and Strategic Management to review the cognitive building blocks that provide an economic foundation to strategic thinking. Strategy is ultimately about value creation and capture of economic value. Value-based strategies show that a firm that introduces a technological innovation creates value, and if it fails to protect it from competition it will be driven out of business. This basic level of insight is linked to the rich tradition in economics to untangle some ambiguities surrounding these concepts and provide a deeper understanding of strategic decisions made by managers within the bounds imposed by competition. | Prerequisite(s): Graduate Standing
Grading: Grad Poly Graded
Repeatable for additional credit: No
Prerequisites: Graduate Standing.

MG-GY 6023G Economics and Strategy (3 Credits)
Typically offered Spring
This is a course in Economics, Strategy and the Firm with a primary focus on the needs of managers. It draws upon a range of concepts and tools from the fields of Industrial Organization and Strategic Management to review the cognitive building blocks that provide an economic foundation to strategic thinking. Strategy is ultimately about value creation and capture of economic value. Value-based strategies show that a firm that introduces a technological innovation creates value, and if it fails to protect it from competition it will be driven out of business. This basic level of insight is linked to the rich tradition in economics to untangle some ambiguities surrounding these concepts and provide a deeper understanding of strategic decisions made by managers within the bounds imposed by competition. | Prerequisite(s): Graduate Standing
Grading: Grad Poly Graded
Repeatable for additional credit: No
Prerequisites: Graduate Standing.

MG-GY 6033 Financial Analysis for Tech Managers (3 Credits)
Typically offered Fall and Spring
The course will focus upon accounting issues as well as financing and investment functions/decisions of the financial manager as applied to practical real world situations. We will first cover basic concepts of accounting (including cost accounting); as well as basic concepts of finance. Some of the course will involve analysis of actual case studies of real business situations. In the process of analyzing the cases students will be able to apply these accounting and finance concepts to actual business problems and their solutions. | Prerequisite(s): Graduate Standing
Grading: Grad Poly Graded
Repeatable for additional credit: No
Prerequisites: Graduate Standing.

MG-GY 6033G Financial Analysis for Tech Managers (3 Credits)
Typically offered Fall
The course will focus upon accounting issues as well as financing and investment functions/decisions of the financial manager as applied to practical real world situations. We will first cover basic concepts of accounting (including cost accounting); as well as basic concepts of finance. Some of the course will involve analysis of actual case studies of real business situations. In the process of analyzing the cases students will be able to apply these accounting and finance concepts to actual business problems and their solutions. | Prerequisite(s): Graduate Standing
Grading: Grad Poly Graded
Repeatable for additional credit: No
Prerequisites: Graduate Standing.

MG-GY 6073 Marketing (3 Credits)
Typically offered occasionally
This course emphasizes the imperative to be customer-focused in the information sectors. Topics include market definition and redefinition due to technological change; analysis of customer decisions; strategic choices of markets and products; positioning for competitive success; product pricing, distribution and communications decisions; new product development; market-system dynamics and the value chain. | Prerequisite: Graduate Standing
Grading: Grad Poly Graded
Repeatable for additional credit: No

MG-GY 6103 Management Science (3 Credits)
Typically offered occasionally
This course introduces major concepts and methods associated with Management Science, which deals with the application of quantitative modeling and analysis to management problems. Students learn to employ important analytical tools, to determine the assumptions used, and to recognize the limitations of such methods. The course discusses methods of linear and nonlinear programming, queuing, decision analysis, simulations and game theory. The course also introduces modeling with spreadsheets. | Prerequisite: Graduate Standing
Grading: Grad Poly Graded
Repeatable for additional credit: No
Prerequisites: Graduate Standing.

MG-GY 6123 Human Resource Management (3 Credits)
Typically offered occasionally
Introduction to the broad range of human resource functions and their organizational role. Addresses issues in managing people that impact not only HR professionals but also line managers. The course is divided into four modules: (1) an overview of HRM from a strategic perspective; (2) the management of human resources, including recruitment and selection, performance management, compensation and benefits, training and career support; (3) human resource challenges, including diversity, procedural justice and ethics, collective bargaining and managing change and innovation; and (4) professional roles in HRM. | Prerequisite: Graduate Standing
Grading: Grad Poly Graded
Repeatable for additional credit: No
Prerequisites: Graduate Standing.

MG-GY 6181 Talent Management Systems (1.5 Credits)
Typically offered occasionally
In this survey course, students gain a knowledge and understanding of the strategies and range of processes, methods and tools that organizations use in effective Talent Management programs. The focus is on developing and managing leadership talent and on Talent Management practices for general management, professional, technical and other positions. Topics include identifying and competing for critical talent pools; alignment and integration of HR practices; recruiting and employment branding; identifying, selecting, developing, reviewing and managing leadership talent; retention and recognition strategies; and career paths and career planning. | Instructor's permission and graduate standing.
Grading: Grad Poly Graded
Repeatable for additional credit: No
Prerequisites: Graduate Standing or instructor's permission.

MG-GY 6183 Communication for Tech Managers (3 Credits)
Typically offered Fall and Spring
This highly interactive and participative experience introduces powerful concepts and approaches for effective technical communication, strategy, and delivery. Deliverables will include written documents and oral presentations. You will present both individually and in a team, and will receive feedback to improve your presentation effectiveness. | Prerequisites: Graduate Standing
Grading: Grad Poly Graded
Repeatable for additional credit: No
Prerequisites: Graduate Standing.

MG-GY 6193 Statistics for Data Analysts (3 Credits)
Typically offered Fall and Spring
The course is an excellent introduction to statistical tools used in any aspect of business. It covers thoroughly key probability concepts and statistical techniques used in the analysis of financial, economic and accounting data. In addition to descriptive statistics, probability, and hypothesis testing, this course also covers regression analysis and time series analysis with an emphasis on model formulation and interpretation of results. The use of spreadsheets (to facilitate most of the analysis in this class) will be introduced and developed as well through case studies based on real-world data and problems in business and economics, so you will have acquired a working knowledge of spreadsheet after this class. The focus is on understanding underlying concepts rather than on memorizing mathematical formulas while the lectures concentrate on statistical concepts and applications using spreadsheets rather than rigorous math proof for the entire semester. | Prerequisites: Graduate Standing
Grading: Grad Poly Graded
Repeatable for additional credit: No
Prerequisites: Graduate Standing.

MG-GY 6193G Statistics for Data Analysts (3 Credits)
Typically offered Spring
The course is an excellent introduction to statistical tools used in any aspect of business. It covers thoroughly key probability concepts and statistical techniques used in the analysis of financial, economic and accounting data. In addition to descriptive statistics, probability, and hypothesis testing, this course also covers regression analysis and time series analysis with an emphasis on model formulation and interpretation of results. The use of spreadsheets (to facilitate most of the analysis in this class) will be introduced and developed as well through case studies based on real-world data and problems in business and economics, so you will have acquired a working knowledge of spreadsheet after this class. The focus is on understanding underlying concepts rather than on memorizing mathematical formulas while the lectures concentrate on statistical concepts and applications using spreadsheets rather than rigorous math proof for the entire semester. | Prerequisites: Graduate Standing
Grading: Grad Poly Graded
Repeatable for additional credit: No
Prerequisites: Graduate Standing.

MG-GY 6203 Data Visualization for Business Intelligence (3 Credits)
Typically offered Fall and Spring
Huge volumes of data are generated, stored and analyzed to drive complex technical and business decisions by providing actionable insights. To achieve this end-users across the industry, need to visualize the data in diverse representations and perform explanatory and exploratory analysis. The course will provide a graduate-level introduction to Data Visualization, as a human perception friendly approach to convey concepts and analysis based on appropriately presented field data. It will systematically introduce building blocks, including types of data, visual elements and design approaches with many examples; provide a basic introduction to the latest visualization software tools as well as programming technologies, such as R and D3; and review several case studies of their application in producing business intelligence.
Grading: Grad Poly Graded
Repeatable for additional credit: No

MG-GY 6203G Data Visualization for Business Intelligence (3 Credits)
Typically offered Fall
Huge volumes of data are generated, stored and analyzed to drive complex technical and business decisions by providing actionable insights. To achieve this end-users across the industry, need to visualize the data in diverse representations and perform explanatory and exploratory analysis. The course will provide a graduate-level introduction to Data Visualization, as a human perception friendly approach to convey concepts and analysis based on appropriately presented field data. It will systematically introduce building blocks, including types of data, visual elements and design approaches with many examples; provide a basic introduction to the latest visualization software tools as well as programming technologies, such as R and D3; and review several case studies of their application in producing business intelligence.
Grading: Grad Poly Graded
Repeatable for additional credit: No

MG-GY 6271 Managing Human Resource Technology in Organizations (1.5 Credits)
Typically offered occasionally
Examination of factors critical to the effective organizational adoption and utilization of technology in human re source applications.
Topics covered include: project management; HR data and process standardization; organizational governance; the unique security requirements of HR data; metrics; and HR process and technology outsourcing. By understanding these issues and how organizations can address them, students will be better prepared to more effectively plan and implement HR process re-engineering and technology enablement. | Prerequisite: Graduate Standing. Co-requisite: MG-GY 6123 or instructor's permission.
Grading: Grad Poly Graded
Repeatable for additional credit: No

MG-GY 6303 Operations Management (3 Credits)
Typically offered occasionally
This course focuses on developing a deeper understanding of the role that operations management plays in determining business strategy and in developing competitive advantage. The primary emphasis is on how to develop and effectively manage operations in knowledge-intensive enterprises. Participants discuss the operational design and managerial implications when the emphasis of the operations group is more on knowledge management than on production and facilities management; managing the effective integration of technology, people and operating systems; understanding the complexities and challenges of operations management; the challenges of developing and managing supply chain networks; and the critical role of technology in developing operational capabilities in an organization. | Prerequisite: Graduate Standing
Grading: Grad Poly Graded
Repeatable for additional credit: No

MG-GY 6343 Human Capital Engineering & Analytics (3 Credits)
Typically offered occasionally
This course examines and applies the valuation and management of intangible assets in designing and managing post-industrial organizations. As organizations increasingly rely on technology to produce value, these technological solutions require interactions with other forms of value creation like Human Capital Management, Intellectual Property development and Organization Culture. The first part of the course focuses on human capital engineering using an interdisciplinary approach, drawing on diverse fields including industrial-organizational psychology, industrial engineering, economics and artificial intelligence to create a holistic view of how work in its various forms creates value. The second part of the course addresses workforce analytics, providing the student with a knowledge and understanding of current best practices, issues, and decision points in building an effective human capital analytic program. This part of the course will also focus on data structure and design to enable automation and predictive modeling and will place an emphasis on technology-enabled reporting.
Grading: Grad Poly Graded
Repeatable for additional credit: No

MG-GY 6361 Managing Business Process Reengineering (1.5 Credits)
Typically offered occasionally
Explores the organization effectiveness issues associated with large scale change through Process Reengineering, Toyota Production System (TPS), and Six Sigma programs. The course develops a thorough understanding of how processes can be designed, measured and maintained to optimize customer value creating performance. Techniques for defining performance requirements and managing process improvement on a large or small scale will be explored. | Prerequisites: MG-GY 5050 or equivalent
Grading: Grad Poly Graded
Repeatable for additional credit: No

MG-GY 6373 Human Capital Big Data, Predictive Analytics, & ROI (3 Credits)
Typically offered occasionally
This course examines theories and applications of human capital, including its definitions, predictive analyses, and determining its value to the business by leveraging big data. The course will take a systems view and integrate human capital perspectives, concepts, and methods from economics, finance, psychology and business process re-engineering. Students will learn statistical methods to build predictive models of human capital and the software tools to conduct predictive analytics with big data. They will learn how to determine the economic and productivity benefits of human capital and human capital interventions (e.g., monetary and non-monetary rewards, job re-design, engagement, etc.) and how to communicate these benefits to senior management and key stakeholders in support of important organizational decisions. | Prerequisites: Graduate Standing & MG-GY 5050; Corequisite: MG-GY 6123
Grading: Grad Poly Graded
Repeatable for additional credit: No
Prerequisites: Graduate Standing; Corequisites: MG-GY 6123.

MG-GY 6463 Supply Chain Management (3 Credits)
Typically offered occasionally
This course introduces supply-chain management and covers its qualitative and quantitative aspects. The underlying objective is to: (1) introduce students to the standard business concepts (and associated terminology) involved in the retailing and supply-chain management; (2) develop skills in understanding and analyzing retailing, marketing, logistics, operations, channel management and allied issues and the interactions between them; and (3) examine and discuss the important role played by technology and integration at various points in the supply chain. | Prerequisite: graduate standing.
Grading: Grad Poly Graded
Repeatable for additional credit: No

MG-GY 6503 Management of Information Technology and Information Systems (3 Credits)
Typically offered occasionally
This course is designed for managers who need to understand the role and potential contribution of information technologies in organizations. The focus of the course is on different information technologies and their applications in managing business critical data, information and knowledge. The course concentrates on the current state of IT in organizations, challenges and strategic use of IT, IT infrastructure and architecture, building, implementing and managing IT applications, and emerging issues such as intelligent systems, business process reengineering, knowledge management and group support systems. | Prerequisite(s): Graduate Standing
Grading: Grad Poly Graded
Repeatable for additional credit: No

MG-GY 7503 Digital Business Management (3 Credits)
Typically offered Fall and Spring
This course will explore several trends that have emerged in Digital Business in terms of Customers, Competition, Data, Innovation, Technology and Value Propositions. We will learn about the world's most innovative Digital Business companies, their organization and strategies. We will also examine the failures and lessons learned of legacy business in the digital age. | Prerequisite: Graduate Standing
Grading: Grad Poly Graded
Repeatable for additional credit: No
Prerequisites: Graduate Standing.

MG-GY 7703 Entrepreneurship (3 Credits)
Typically offered occasionally
This course focuses on entrepreneurship and venture creation as key engines for wealth creation and successful business strategy in the modern, innovation- intensive, high-tech economy. The course deals with key issues such as: (1) assessing attractiveness of opportunities; (2) launching a new venture; (3) nurturing, growing and entrepreneurial venture; (4) obtaining the necessary financial, human and technology resources; (5) managing the transition from a small entrepreneurial firm to a large, sustainable, professionally managed but still entrepreneurial corporation; and (6) being an entrepreneur and promoting entrepreneurship in a large corporation. | Prerequisite: Graduate Standing
Grading: Grad Poly Graded
Repeatable for additional credit: No

MG-GY 7953 Global Innovation (3 Credits)
Typically offered occasionally
This course focuses on global technology-enabled innovation. Topics covered include accessing global sources of innovation, coordination and organization of activities worldwide, new product development globally, the role of revitalized global R&D, growing prominence of IT and e-Business in global innovation, and the role of alliances and linkages with customers, suppliers and other third parties. | Prerequisite: Graduate Standing
Grading: Grad Poly Graded
Repeatable for additional credit: No

MG-GY 7953G Global Innovation (3 Credits)
Typically offered Spring
This course focuses on global technology-enabled innovation. Topics covered include accessing global sources of innovation, coordination and organization of activities worldwide, new product development globally, the role of revitalized global R&D, growing prominence of IT and e-Business in global innovation, and the role of alliances and linkages with customers, suppliers and other third parties. | Prerequisite: Graduate Standing
Grading: Grad Poly Graded
Repeatable for additional credit: No

MG-GY 8203 Project Management (3 Credits)
Typically offered occasionally
This course focuses on managing technology- based projects, ranging from individual research and development to large-scale and complex technological systems. It covers topics such as feasibility and risk analyses, project selection and portfolio optimization, functional and administrative structures, coordination and scheduling of activities, personnel planning, negotiations and contracts, cost estimation, capital budgeting, cost controls and effective matrix management. | Prerequisite: Adviser's approval and Graduate Standing
Grading: Grad Poly Graded
Repeatable for additional credit: No
Prerequisites: Graduate Standing.

MG-GY 8213 Information Security for Managers (3 Credits)
Typically offered occasionally
This course focuses on the principles of information security and privacy from a risk management perspective. The students will learn why security is important to the enterprise and the impacts of security and privacy failures. Attacks will be discussed in terms of the goals of the attackers, their capabilities, and concepts of the attack's operation. Each of the major security controls will be discussed in terms of the kinds of attacks they are meant to thwart, the concept of the defensive operation of both technology and related processes, and management issues relating to that control.
Grading: Grad Poly Graded
Repeatable for additional credit: No

MG-GY 8223 Agile Project Management (3 Credits)
Typically offered Fall and Spring
This course will prepare studies to apply agile methods in project management. The class is designed to be highly interactive, with students working through case studies throughout the semester and applying the strategies and processes to project management simulations. At the end of the course, students will be able to describe the history, principle, and values of the Agile Manifesto and agile project management. Students will be able to justify the need for agile project management for specific projects, define why it is different from other project management lifecycles, and describe the methodologies for application. Students will be prepared to begin studying for Agile professional licensure exams once completing this course. | Prerequisites: Graduate Standing
Grading: Grad Poly Graded
Repeatable for additional credit: No
Prerequisites: Graduate Standing.

MG-GY 8233 Quality Management/Six-Sigma (3 Credits)
Typically offered Fall and Spring
Quality Management is a comprehensive approach for leading and operating an organization, aimed at continually improving performance over the long term by focusing on customers while addressing the needs of all stakeholders. The bottom line of QM is results: increased productivity, efficiency, customer satisfaction/delight, and world-class performance. This course will present the various QM frameworks, concepts, and quality improvement tools, including, TQM, Six Sigma, Lean and Lean Six Sigma, etc. that are necessary for implementing the quality culture that characterizes world-class organizations of the 21st century. We will, explore the key actions necessary for transforming manufacturing and service firms into world-class organizations that deliver ever-improving value to their customers, clients, and constituents. | Prerequisites: Graduate Standing
Grading: Grad Poly Graded
Repeatable for additional credit: No
Prerequisites: Graduate Standing.

MG-GY 8303 Human Resource Management Systems (3 Credits)
Typically offered Fall and Spring
To gain a fairly complete understanding of the role and function of HR in any organization and how it must leverage the use of supportive HR TECHNOLOGY to accomplish strategic initiatives. This will include understanding the role of Human Resources Management systems in support of specific functions and processes within the HR function such as recruiting, performance management, benefits administration, and government compliance, as well as an understanding of the overall objective of the function itself in helping any organization achieve and maintain success and profitability and viability. The workforce or the "human" resource is the one resource that cannot be copied by a company's competitors. As such, the management of Human Resources is most critical to the eventual survival of any organization. The use of Workforce Analytics to gain "Actionable Insights" that drive corporate initiatives and overall strategies is a critical need that will determine the success of any entity. HR responsibilities for dealing with the multi-generations in the workplace, the gig economy and the increasing prevalence of Artificial Intelligence (AI) and its resultant impact on the way work gets accomplished will be a strong focus. The role of technology via the planning for, implementation of, and utilization approach of comprehensive HRIS /HRMS will be a strong undercurrent throughout the semester. This course takes the perspective of "what Human Resources can do for you as an employee and for your organization and its workforce" and focuses on how the function of HR must work within an organizational "big" picture, position itself as a Strategic Partner – adding value to the organization and using HR Technology to do so. | Anti-Requisite: MG-GY 6123
Grading: Grad Poly Graded
Repeatable for additional credit: No
Prerequisites: Graduate Standing; Anti-Requisite: MG-GY 6123.

MG-GY 8363 Fundamentals of Information Security Management (3 Credits)
Typically offered Spring
The course and lectures will cover some of the fundamental areas of information security including cyber threats, identity & access management, data protection, incident response, third party risk, security monitoring, security outsourcing, and mobile security.
Grading: Grad Poly Graded
Repeatable for additional credit: No

MG-GY 8401 Programming for Business Intelligence and Analytics (1.5 Credits)
Typically offered Fall and Spring
Data will increasingly drive business decisions across industries. While statistics provides methods for analyzing, forecasting and evaluating data, programming provides methods for extracting, manipulating and visualizing data. This 1.5 credit course will meet for 7 weeks throughout the semester to complement Statistics for Business Analysts. Through a focus on case studies, students will gain the programming experience needed for electives in several knowledge areas pertinent to data science. By learning integrative approaches to formulating problems, students can take programming out of the lab and into industry.
Grading: Grad Poly Graded
Repeatable for additional credit: No

MG-GY 8411 Data Engineering (1.5 Credits)
Typically offered Fall and Spring
This course complements Statistics for Business Analysts, in coordination with Programming for Business Intelligence and Analytics. Through a focus on case studies, students will gain the experience needed for electives in several knowledge areas pertinent to data science. By learning how to structure and organize data for descriptive (unsupervised) and predictive (supervised) modeling, students can take preparation of data for AI out of the lab and into industry.
Grading: Grad Poly Graded
Repeatable for additional credit: No

MG-GY 8413 Business Analytics (3 Credits)
Typically offered Fall and Spring
Business analytics is a set of data analysis and modeling techniques for understanding business situations and improving business decisions. This course introduces business analytics concepts, methods and tools with concrete examples from industry applications. In the first part of the course, we will focus on descriptive analytics and exploratory data analysis concepts with a refresher on basic probability and statistics. In the second part, we will cover principles, techniques, and techniques for spatial data, time series, and text as data. The final part of the course will introduce a project that links business impact and modern data analytics techniques for managerial decision making in functional areas, including finance, marketing, and operations. | Prerequisites: (MG-GY 6193 or MG-GY 9753) and MG-GY 8401 and Graduate Standing
Grading: Grad Poly Graded
Repeatable for additional credit: No
Prerequisites: (MG-GY 6193 or MG-GY 9753) and MG-GY 8401 and Graduate Standing.

MG-GY 8421 Programming for Generative AI (1.5 Credits)
Typically offered Fall and Spring
The course will teach students to use Generative AI to connect problems and solutions through data. During the semester, we will focus on developing intelligent systems through Generative AI. Students will study tools and techniques enabling them to surface insights from spreadsheets, extract information from text, and develop more efficient and effective code. Our emphasis on practical examples will give students experience with applications in various domains. We will gain technical skills in programming, modeling and querying which will provide us a better understanding of emerging technologies. Along the way, we will study responsible usage patterns to understanding Generative AI in context. | Prerequisite: MG-GY 8401
Grading: Grad Poly Graded
Repeatable for additional credit: No
Prerequisites: MG-GY 8401.

MG-GY 8423 Machine Learning for Business (3 Credits)
Typically offered Fall and Spring
Machine learning is about extracting or discovering knowledge from data. This course will cover fundamental machine learning algorithms used to understand business situations and improve business decisions. In machine learning, there are three types of commonly used algorithms: supervised (predictive), unsupervised (descriptive) and reinforcement learning algorithms. In the first part of the course, we will focus on supervised learning algorithms including K-Nearest Neighbors, Linear Regression, Logistic Regression, Decision Tree, Support Vector Machine (SVM), Naive Bayes, bagging and boosting algorithms. The second part of the course will cover unsupervised algorithms including K-means clustering and dimensionality reduction. The last part of this course will cover Reinforcement learning algorithms, especially Markov Decision Process. We will use python as our main programing language. | Prerequisites: (MG-GY 8413 or MG-GY 9753) and MG-GY 8401 and Graduate Standing
Grading: Grad Poly Graded
Repeatable for additional credit: No
Prerequisites: (MG-GY 8413 or MG-GY 9753) and MG-GY 8401 and Graduate Standing.

MG-GY 8613 Product Design Studio (3 Credits)
Typically offered Fall and Spring
This introductory design studio will guide students through the digital product design process, mimicking industry practice: user research, ideation, visual design, prototyping, user testing, interaction design, and creating final mock-ups and presentations. Classes will introduce various tools and techniques of the trade, and provide smaller individual exercises for practice while culminating in a semester-long team project. Students will be expected not only to get hands-on in Figma creating designs, but also engaging in design critique sessions to help train their visual and interaction design craft. Ideal for aspiring product designers and entrepreneurs seeking to create early mock-ups, it also benefits students interested in understanding the design process for roles like product managers or software developers. | Prerequisites: Graduate Standing
Grading: Grad Poly Graded
Repeatable for additional credit: No
Prerequisites: Graduate Standing.

MG-GY 8623 Design Strategies (3 Credits)
Typically offered Fall and Spring
As change has become one of the only constants in today's economy, established businesses are being disrupted, and business strategies need to be constantly re-framed. To be successful companies cannot only acquire more customers. They also need to successfully meet their customers' changing needs, leverage technology to create new value propositions that are meaningful to them and generate revenues and sustainable growth for the business. To address these new demands, managers and entrepreneurs alike need a different set of tools and frameworks. Design thinking, a human-centered approach to innovation, one that starts with understanding what customers need and strategically connects to the organization that offers such a set of tools. This course draws on design thinking to equip students taking this class with tools to address business challenges and develop innovative new products, services, and brand experiences, transformative value propositions and creative strategies and business models. The course's premise is that strategy in design rather than simply problem-solving. In other words, to resolve a given strategic issue, one needs to truly explore options before making a choice. Participants in this class will learn tools and develop skills that allow them to explore multiple options and develop new, creative and sustainable strategies. | Prerequisites: Graduate Standing
Grading: Grad Poly Graded
Repeatable for additional credit: No
Prerequisites: Graduate Standing.

MG-GY 8643 New Product Development (3 Credits)
Typically offered occasionally
The dynamics of technology and the pressures of competition drive enterprises to make their product development and production processes strategically more effective and economically more efficient in time and cost. The course deals with the state of the art in new product activities for services and manufacturing firms and examines in-depth the marketing, technology and manufacturing technology linkages. | Prerequisite: Graduate Standing
Grading: Grad Poly Graded
Repeatable for additional credit: No
Prerequisites: Graduate Standing.

MG-GY 8673 Technology Strategy (3 Credits)
Typically offered occasionally
This course examines in depth the strategic technological decisions that a general manager faces. From entrepreneurial start-ups to established companies, in dynamic as well as mature environments, a firm must create a conscious process of formulating and implementing a technology strategy to serve its business interests. Such a strategy guides investments in research and development, selection among and timing of alternate technologies, organization and communications, formation of alliances and funding of ventures. | Prerequisite: Graduate Standing
Grading: Grad Poly Graded
Repeatable for additional credit: No

MG-GY 8683 Economics and Strategies for Digital Platforms (3 Credits)
Typically offered Fall and Spring
The goal of this course is to equip students with the economic tools and strategic thinking necessary to understand how platform markets function and how to carefully analyze, evaluate and develop strategies for digital platforms. This course will cover topics that help inform platform strategy, such as two-sided markets, first mover advantage, network effects, the chicken-or-egg dilemma, monetization strategies, freemium models, intellectual property rights, startup strategy, crowdsourcing applications, platform governance and regulation issues, among others. The course will apply strategic thinking to the study of business cases of different platforms. | Prerequisites: Graduate Standing
Grading: Grad Poly Graded
Repeatable for additional credit: No
Prerequisites: Graduate Standing.

MG-GY 8691 AI-Based Business Model Innovation (1.5 Credits)
Typically offered Fall and Spring
This course offers the students an opportunity to grasp the background and practices of Artificial Intelligence (AI) for business innovation. The students will develop a sound understanding of the concepts, terminology, methods, technologies, and use cases related to AI-based challenges and opportunities in contemporary business practice and innovation. The students will learn the key concepts and methods of AI, data science (DS), machine learning (ML), neural networks (NN), deep learning (DL), exploratory data analysis (EDA), advanced analytics, and modeling and their applications. To mimic today's business realities, the students will form small teams (made of four-to-five students) to collaboratively work on real-life use cases across diverse industries. The students will communicate in writing and present orally their findings, focusing on actionable insights related to AI Based Business Innovation. We will examine the privacy, regulatory and ethical corollaries of AI applications and how AI can be used to improve decision-making, strategy, execution, & customer experience and transform business. | Prerequisites: Graduate Standing
Grading: Grad Poly Graded
Repeatable for additional credit: No
Prerequisites: Graduate Standing.

MG-GY 8771 Ethical Leadership and Entrepreneurship (1.5 Credits)
Typically offered Fall and Spring
Entrepreneurs and social ventures often begin by providing direct services to affected communities to address social problems. Sometimes, not often, that journey can lead to recognizing the scale of impact created directly by the service provided and uncovering the entire scope of the problem. But, not understanding the gap between the service provided and the real scale of the problem leads to ineffective social ventures.
Grading: Grad Poly Graded
Repeatable for additional credit: No

MG-GY 8813 Design for Innovation with AI & ML (3 Credits)
Typically offered Spring
Product and service innovations are increasingly delivered through digital platforms built on artificial intelligence (AI), and in particular machine learning (ML). The goal of this course is to expose students to methods for understanding the opportunities and challenges that designing with AI and ML foreground. The course adopts a human-centered perspective and systemic approach that considers the impact of these technologies on ethical concerns, sustainability and social innovation. Students will learn skills and techniques for conceptualizing digital platforms that use A.I. and ML to support innovative product-service systems, including design research and prototyping. This will enable students to explore how a diversity of stakeholders can benefit from and contribute to these emerging technologies. Throughout this process, students will reflect on the context in which the ML products and services they propose will be used, and their potential impact on diverse stakeholders.
Grading: Grad Poly Graded
Repeatable for additional credit: No

MG-GY 8823 Digital Civics for Social Innovation (3 Credits)
Typically offered Fall
This course will equip students with an understanding of how digital technologies and government open data can be used to innovate democratic participation and improve government services, and help to create equitable smart cities. Case studies presented by guest speakers including public interest technology practitioners and researchers, and officers of NYC agencies, will provide a platform to support students in identifying opportunities for digital innovation and designing systems that help to support sustainability, democracy, resilience, and inclusion. Students will put their learning into practice by prototyping civic technology solutions. This course is suitable for all students, and does not require a specialist technical background or prior design experience.
Grading: Grad Poly Graded
Repeatable for additional credit: No

MG-GY 8863 From Correlation to Causation: Data Science for Decision Making (3 Credits)
Typically offered Fall
While machine learning models are capable of exploiting correlations within high-dimensional data to perform predictions, uncovering the causal mechanisms — understanding if and how an intervention X causes an outcome Y — is vital for informed decision-making in business and policy. This course builds upon a foundation of basic statistics and programming to explore the essential principles of causal inference within data science. It provides practical training in applying causal inference techniques. First, the course will introduce tools for understanding causal structures, including graphical causal models. The course will then cover key methodologies in causal inference, such as propensity score matching, difference-in-differences, synthetic control methods, and more advanced techniques like instrumental variable (IV) estimations and causal machine learning models. This course serves as an introduction to the cutting-edge field of causal inference, with a focus on project-based and hands-on learning approach. | Knowledge of Python and basic statistics are preferred.
Grading: Grad Poly Graded
Repeatable for additional credit: No

MG-GY 8873 Urban Computing and Artificial Intelligence (3 Credits)
Typically offered Spring
The course aims to equip students with the technical and analytical capacity to use state-of-the-art AI techniques for urban data science. It also seeks to foster thought leadership by encouraging critical thinking about the societal implications of urban computing and AI applications. This course begins with a recap of deep learning methods for spatial-temporal data and its practical applications in urban management. The course then delves into generative AI, providing an overview of models such as GPT and Large Language Models (LLMs), with a focus on practical applications for urban governance and modeling. The course concludes by introducing limitations and open questions including fairness and bias issues, techniques for causal inference and decision-making, and modeling urban complexity. This comprehensive course aims to not only provide technical skills but also to nurture a deep understanding of the broader implications and potentials of urban computing and AI in shaping future cities.
Grading: Grad Poly Graded
Repeatable for additional credit: No

MG-GY 9013 Design Thinking for Creative Problem Solving (3 Credits)
Typically offered occasionally
This course explores creativity and design-led innovation, important notions in today's world where companies are looking for creative, innovative and collaborative employees. This course deals in an applied and original way with the topic of creativity. The assumption underlying the course is that there is no such thing as creativity as a concept but that there is a creative process involving people, materials and a context. The emphasis in the course is on experiencing different methods and techniques that can help us be more creative in our work practices, careers and lives. In sum, you will learn creative problem solving techniques and design thinking skills to come up with new ideas and turn problems into opportunity while developing key skills for today's organizations when they are looking at hiring people: communication and collaboration skills, project experience and a portfolio of innovative techniques. | Prerequisite: Graduate Standing
Grading: Grad Poly Graded
Repeatable for additional credit: No
Prerequisites: Graduate Standing.

MG-GY 9503 MOT Capstone Project Course (3 Credits)
Typically offered occasionally
This course provides an integrative and state-of-the-art intellectual experience for participants at the conclusion of the program. The course is divided into two half semesters. The first half semester enables participants to focus on discerning the overarching trends which are driving innovation in various industry sectors. The class is divided into small groups each of which develops a comprehensive view of a particular industry sector. In the second half of the course, participants focus on the culminating project of the IM program. Participants can choose to do their final projects on firms, issues related to technology management or as an outgrowth of the emphasis on entrepreneurship in the program, a business plan. Participants are encouraged to employ relevant concepts and insights that they have acquired during the course of the program. | Prerequisite: Graduate Standing
Grading: Grad Poly Graded
Repeatable for additional credit: No
Prerequisites: Graduate Standing.

MG-GY 9753 Selected Topics in Management (3 Credits)
Typically offered occasionally
Students analyze and discuss current topics in various fields. |
Prerequisites: Graduate standing.
Grading: Grad Poly Graded
Repeatable for additional credit: Yes
Prerequisites: Tandon Graduate students.

MG-GY 9781 Selected Topics in Management (1.5 Credits)
Typically offered occasionally
Students analyze and discuss current topics in various fields. |
Prerequisites: Department's Chair's permission and Graduate standing
Grading: Grad Poly Graded
Repeatable for additional credit: Yes

MG-GY 9913 Independent Research (3 Credits)
Typically offered occasionally
In this course, students undertake directed individual study or supervised readings in advanced areas of the thematic electives and are advised by the doctoral adviser. Three credits required. Prerequisite: Doctoral standing or instructor's permission. Co-Requisite: None.
Grading: Grad Poly Graded
Repeatable for additional credit: Yes
Prerequisites: Graduate Standing.