OPERATIONS MANAGEMENT (OPMG-GB)

OPMG-GB 2150 Decision Models & Analytics (1.5 Credits)
Typically offered occasionally
This course introduces the basic principles and techniques of applied mathematical modeling for managerial decision-making. You will learn about the toolkit of prescriptive analytics, and practice how to employ it for quantitative decision-making. The central theme of the course is learning about optimization modeling. That is, students will learn how to convert business problems into models that can be solved using modern optimization algorithms. More generally, students will: • Develop mathematical models that can be used to improve decision making within an organization. • Sharpen their ability to structure problems and to perform logical analyses. • Practice translating descriptions of decision problems into formal models, and investigate those models in an organized fashion. • Identify settings in which models can be used effectively and apply modeling concepts in practical situations. • Strengthen their analytics skills, focusing on how to use the prescriptive analytics to improve decision-making. For more information visit https://sites.google.com/stern.nyu.edu/sterndma/home
Grading: Grad Stern Graded
Repeatable for additional credit: No

OPMG-GB 2250 Decision Models and Analytics (2.5 Credits)
Typically offered occasionally
One of the most crucial skills for a modern manager is knowing how to use data to make decisions. In Decision Models & Analytics, you will learn how to use modern analytics tools, such as optimization and simulation, to solve complex business problems. Whether you want to pursue a career in finance, consulting, technology, operations or marketing, knowing how to model and solve complex problems will make you a more effective decision-maker and give you a competitive edge. Find out more by visiting sterndma.com.
Grading: Grad Stern Pass/Fail Executive MBA
Repeatable for additional credit: No
Prerequisites: MBA student and COR1-GB 2314.

OPMG-GB 2306 Supply Chain Management (Business Logistics) (3 Credits)
Typically offered occasionally
The function of supply chain management is to design and manage the flow of material and information, starting from the raw materials until finished goods reach customers. Typically, logistics-related costs account for 20 to 25 percent of firms' total costs. On the revenue side, the supply chain decisions have a direct impact on market penetration and customer service. With the globalization of the economy and advances in information technology, supply chain design and coordination have become important tools for gaining competitive advantage. Therefore, the objectives of the course are to (1) develop an understanding of individual components of the supply chain (such as order management transportation, network design, distribution channel management, after-sales service, and customer service strategy) and their interrelationships with other functions of firms, such as marketing, manufacturing, and accounting; (2) impart analytical and problem-solving skills necessary to develop solutions for a variety of logistics problems; (3) understand the complexity of interfirm and intrafirm coordination in implementing programs such as "quick response" and "vendor-managed inventories" and (4) develop the ability to design logistics systems and formulate integrated supply chain strategy, so that all components are not only internally synchronized but also tuned to fit corporate strategy, competitive realities, and market needs.
Grading: Grad Stern Graded
Repeatable for additional credit: No
Prerequisites: MBA student and COR1-GB 2314.

OPMG-GB 2308 Retail Operations & Supply Chain Management (3 Credits)
Typically offered occasionally
A supply chain is comprised of all the parties involved in fulfilling a customer request. The integrated management of this network is a critical determinant of success in today's competitive environment. With increasing competition around the globe, supply chain management is both a challenge and an opportunity for companies. Hence a strong understanding of supply chain management concepts and the ability to recommend improvements should be in the toolbox of all managers. The objective of this course is to introduce you to the key concepts and techniques that will allow you to analyze, manage and improve supply chain processes for different industries and markets, with a special focus on the fashion and apparel industry. At completion of this course, you will have the skills to assess supply chain performance and make recommendations to increase supply chain competitiveness.
Grading: Grad Stern Graded
Repeatable for additional credit: No

OPMG-GB 2312 Operations in Panama: A Man, A Plan, A Canal: Panama (3 Credits)
Typically offered occasionally
This advanced elective from the IOMS department will be a three (3) credit course studying the major businesses operating in Panama. During a one-week visit, students will observe and study the intricacies of the Panama Canal from an operations management point of view. Process techniques and strategies abound within this fascinating operation. Although the canal is certainly the country's major attraction, financial revenues from the canal have allowed Panama to emphasize other developments including extensive real estate projects and major tourism improvements. The specific topics that will be studied include: * The Panama Canal and its effect on the global shipping supply chain, * History of the building of the canal and independence of Panama, * Modern banking and real estate development, * Economic growth in the tourism industry, * Urban development and infrastructure of major cities. All of the classes, tours, speaker sessions and group meetings must be attended by students for course credit. No exceptions. The course will be limited in enrollment. Details will be announced.
Grading: Grad Stern Graded
Repeatable for additional credit: No
Corequisites: MBA student and COR1-GB 2314.

OPMG-GB 2313 Operations in Entertainment: Las Vegas (3 Credits)
Typically offered occasionally
When we think of entertainment, perhaps the most popular location that comes to mind is Las Vegas. Behind the glitter and excitement in Las Vegas are industries dedicated to supplying entertainment to customers. Operations address the supply side of business, including how products are produced and how services are supplied. This course goes behind the scenes in Las Vegas to observe and analyze the operations involved in performing this supply function. This course presents an opportunity to observe and study the entertainment industry including strategy formation and decision-making that are quite unique. The entertainment comes in various forms. The underlying driver is certainly gaming, but the industries surrounding the various forms of gambling have become major profit centers separate from the millions made on the casino floors. During a one-week visit to Las Vegas, students will observe and study some of the major operating industries that comprise the broad scope of entertainment in this city. Although the Operations Management models, techniques and strategies in this field are applicable anywhere; Las Vegas is the epicenter of the industry.
Grading: Grad Stern Graded
Repeatable for additional credit: No
Corequisites: MBA student and COR1-GB 2314.

OPMG-GB 2316 Operations Consulting: An Experiential Approach (3 Credits)
Typically offered occasionally
This is an experiential course in operations consulting. Students will learn the foundational consultant frameworks for addressing operations problems for real organizations. The basic approach begins with problem identification, followed by data analysis, solution evaluation, and the proposal of final recommendations. For any business, the production of products and the creation of services require processes that optimize the strategic objectives of the business. Students will analyze the connections between a firm's operations and organizational strategy. Then, during company site visits, students, in the role of consultants, will talk with operations executives to uncover the capabilities required of the firms to employ their operations on location. They will observe, first-hand, the operations processes for services and manufacturing. In an elite, behind-the-scenes view students will study the processes that underlie systems of production, distribution, transportation, logistics, fulfillment, service, and product development for an array of organizations. In context, students will explore the intersection of technology, process, and strategy that enable a competitive advantage in today's global markets. Finally, through a culminating final project, students will identify a business to serve as their consulting project and produce a set of recommendations.
Grading: Grad Stern Graded
Repeatable for additional credit: No
Prerequisites: MBA student and COR1-GB 2314.

OPMG-GB 2350 Decision Models and Analytics (3 Credits)
Typically offered occasionally
The course builds on the technique of Linear Programming that we introduced in the core ops course. Decision Models is offered by various faculty members in the Operations department. You will learn how to model business problems and solve them in Excel. In addition, you will learn how to construct and solve optimization and simulation models. The Class is 100% focused on hands-on problem solving. More details available at https://sites.google.com/stern.nyu.edu/sterndma/home.
Grading: Grad Stern Graded
Repeatable for additional credit: No

OPMG-GB 2351 Decision Making Under Uncertainty (3 Credits)
Typically offered occasionally
This course introduces the basic concepts, principles, and techniques of decision making under uncertainty. You will learn how to model complex business problems that involve risk and uncertainty with the help of spreadsheet models. The course covers analytical models such as Decision Tree, Stochastic Optimization, Simulation & Optimization, and Dynamic Optimization. The course is hands-on. The emphasis will be on model formulation and interpretation of results, not on mathematical theory. This course does NOT require the course "Decision Models and Analytics" (DMA) as a prerequisite. This course emphasizes optimization models with uncertain parameter values. In contrast, the DMA course focuses on various deterministic optimization models and Monte Carlo simulation. You are encouraged to take both courses. Examples covered in this course come from a wide range of business applications, including: · Financial and operational hedging strategies for risk management (currency exchange rate, stock price, etc.) · Option pricing (European options, American options) · Real option approach to the valuation of investment opportunities · Capacity planning for new product development (drugs, cell phones, etc.) · Optimal timing for market entry · Choosing a portfolio of supply contracts that balance risk and cost · Inventory management with random demand
Grading: Grad Stern Graded
Repeatable for additional credit: No
Prerequisites: MBA student and COR1-GB 1305.

OPMG-GB 2354 Decision Analytics for Sports (3 Credits)
Typically offered occasionally
In recent decades, more and more sports organizations have reached out to the application of advanced management methods, in particular statistical, data analysis and operations research/management science techniques. The use of data, and now Big Data, has become entrenched in the business of sport. The analysis of sports data has taken on new dimensions and has become as sophisticated as that of any other endeavor. This course is an examination of the application of those techniques to success in sports. The structure of the course is to examine the use of them to four main areas of interest: player performance measurement, in-game decision-making, player selection/team building, and general administration such as marketing, pricing, contracts, stadium management etc. Emphasis will be place on the use of advanced decision analytics techniques including but not limited to regression analyses, probability models, hypothesis testing, optimization techniques, simulation modeling and others to improve player and team performance. The course will consist of lectures, guest speakers, and field visits. There will be homework assignments using the analytic techniques discussed. Lastly there will be a group project due at the end of the semester.
Grading: Grad Stern Graded
Repeatable for additional credit: No
Prerequisites: MBA student and (COR1-GB 2314 or OPMG-GB 2350) and COR1-GB 1305.

OPMG-GB 2360 Real Estate Development and Entrepreneurship (3 Credits)
Typically offered occasionally
This course will introduce students to the broad aspects of real estate development from an operations perspective. It is directed to students interested in real estate development from the point of view of three classes of investors: * an entrepreneurial investor, looking to buy a coop, condo or small property for individual use or rental * a working general partner of a small group of investors, who will actually manage and-or be responsible for overseeing the property after purchase * a passive outside investor, who may be searching for an investment that is limited in liability to the original investment. In real estate development, operating decisions will determine whether or not a deal will be successful and meet overall financial goals. Although most students will not work full-time in the real estate industry, property investments will arise as opportunities to increase passive income and wealth. Understanding how these deals are created and managed will allow investors to choose deals with the highest probability of success. The real estate topics discussed in the course will include all types of development: residential, hotel, office, retail, land and industrial properties. In addition to case studies, class lectures and discussions, some outstanding entrepreneurial developers will be invited as guest speakers to reinforce the ideas taught in class. The class will include a real estate development project, with group presentations to the class and potential outside investors.
Grading: Grad Stern Graded
Repeatable for additional credit: No

OPMG-GB 3110 Foundations of AI Agents (1.5 Credits)
Typically offered occasionally
This hands-on course gives MBA students a practical foundation in generative and agentic AI. Students will work directly with neural networks, embeddings, transformers, and large language models (LLMs). The students will learn how to build AI agents that are capable of learning by interacting with the environment, planning, and making automated business decisions. Students will explore recent advances in reinforcement learning and AI simulators that undergird agentic AI systems. Through applied projects, students will develop working mental models and learn to prototype and evaluate AI tools for real business problems. The course prepares students to lead the implementation and integration of AI systems for large-scale decision-making.
Grading: Grad Stern Graded
Repeatable for additional credit: No

OPMG-GB 3255 Operations Strategy (2.5 Credits)
Typically offered occasionally
There is an increasing awareness that operations should contribute to the global competitive stance of a business and not merely be a place where the firm's products or services are produced. This can be done by contributing distinctive competence or capability to the business, and continually improving the products and process of the business. In the OM core course, students study the basic aspects of how firms produce their products and services to gain a competitive advantage, and take a tactical or short-term look at operations. This course is a natural follow-up to the core course. Students examine the strategic and long-term policies of the firm, and learn how the operations strategies and policies are developed to be consistent with corporate and overall business strategies. To do this effectively, students examine, through case studies, how firms' operations play an important role in building and shaping their competitive posture. This course helps students to (1) recognize the strategic and policy implications that can be gained from managing operations; (2) develop a framework for allocating resources and managing the operations function in ways that distinguish firms from their competitors; (3) analyze, develop, and formulate operations strategies to exploit competitive opportunities; (4) visualize how operations strategies can and must be linked to overall business strategies, as well as the financial and marketing strategies; and (5) highlight effective examples involving continuous improvement and implementation of operations strategies.
Grading: Grad Stern Pass/Fail Executive MBA
Repeatable for additional credit: No

OPMG-GB 3321 Stochastic Processes (3 Credits)
Typically offered occasionally
This Doctoral course will serve as an introductory course to stochastic processes We will closely follow the book Stochastic Processes by Ross The course will begin with a one week review of basic concepts in probability and then proceed to the study of Poisson processes renewal processes discrete time Markov chains and finally continuous time Markov chains The are no prerequisites for the course however a calculus based understanding of probability is helpful Courses in analysis and measure theory are not required A tentative course outline is as follows
Grading: Grad Stern Graded
Repeatable for additional credit: No

OPMG-GB 3330 Revenue Management and Pricing (3 Credits)
Typically offered occasionally
REVENUE MGMT & PRICING
Grading: Grad Stern Graded
Repeatable for additional credit: No
Prerequisites: MBA student and COR1-GB 2314.

OPMG-GB 3370 Independent Study (3 Credits)
Typically offered occasionally
Independent Study
Grading: Grad Stern Graded
Repeatable for additional credit: No
Prerequisites: MBA student and COR1-GB 2314.

OPMG-GB 3371 Independent Study (3 Credits)
Typically offered occasionally
Independent Study
Grading: Grad Stern Graded
Repeatable for additional credit: No
Prerequisites: MBA student and COR1-GB 2314.

OPMG-GB 3392 Operations via Marketplaces (3 Credits)
Typically offered occasionally
In recent years, a new mode of business operations has emerged: operating via a marketplace. While classical models of operations involved procuring and deploying capacity, several of the most successful companies in recent years have instead created private marketplaces where they match demand with external agents on the supply side. In this course, we will explore what are the advantages and disadvantages of this business model, as well as study how to design and run such marketplaces. This will include topics such as market equilibration, decentralization, allocation and pricing mechanisms, market thickness, and credibility of mechanisms.
Grading: Grad Stern Graded
Repeatable for additional credit: No

OPMG-GB 4101 Research Practicum-Ops I (1 Credit)
Typically offered occasionally
RESEARCH PRACTICUM-OPS I
Grading: Grad Stern Pass/Fail
Repeatable for additional credit: No

OPMG-GB 4102 Research Practicum-Ops 2 (1 Credit)
Typically offered occasionally
RESEARCH PRACTICUM-OPS 2
Grading: Grad Stern Pass/Fail
Repeatable for additional credit: No

OPMG-GB 4103 Research Practicum-OM (1 Credit)
Typically offered occasionally
RESEARCH PRACTICUM-OM
Grading: Grad Stern Pass/Fail
Repeatable for additional credit: No

OPMG-GB 4104 Research Practicum-Ops 4 (1 Credit)
Typically offered occasionally
RESEARCH PRACTICUM-OPS 4
Grading: Grad Stern Pass/Fail
Repeatable for additional credit: No

OPMG-GB 4105 Research Practicum-Ops 5 (1 Credit)
Typically offered occasionally
RESEARCH PRACTICUM-OPS 5
Grading: Grad Stern Pass/Fail
Repeatable for additional credit: No

OPMG-GB 4150 Teaching Practicum-Ops (1 Credit)
Typically offered occasionally
TEACHING PRACTICUM-OPS
Grading: Grad Stern Pass/Fail
Repeatable for additional credit: No

OPMG-GB 4321 Choice Models in Operations (3 Credits)
Typically offered occasionally
Choice Models in OperationsUnderstanding how customers make choices is crucial for demand forecasting in several applications in the areas of operations marketing and even online recommendations This graduate level course deals with the theory and applications of choice models The course is divided into three parts The first part is dedicated to the development of choice models from first principles rooted in rationality and utility theory Our development will stitch togetherthrough a unified framework the diverse approaches taken in the literature over the past several decades The aim is to provide a solid understanding of the strengths and limitation of the various model classes The second part of the course will deal with various applications using choice models The primary focus will be on decision problems such as classical assortment and pricing decisionsThe final part of course will focus on some emerging developments and nonclassical applications of choice models in the areas of personalized recommendations voting rank aggregation of sports teams webpages etc The detailed syllabus is available at httppagessternnyuedu~sjagabatSyllabusChoiceModelsInOpspdf
Grading: Grad Stern Graded
Repeatable for additional credit: No

OPMG-GB 4333 Advanced Topics in Data-Driven Decision Making (3 Credits)
Typically offered occasionally
Machine learning has become central to decision making in many application areas. This seminar course aims to introduce students to recent literature in using machine learning for data-driven decision making, with a strong emphasis on applications. We will cover recent breakthroughs in using machine learning in diverse areas including healthcare, revenue management, inventory management and social-good. The class will also include several guest speakers who will join us to discuss their contributions in these areas.
Grading: Grad Stern Graded
Repeatable for additional credit: Yes

OPMG-GB 4334 Convex Optimization (3 Credits)
Typically offered occasionally
Convex Optimization
Grading: Grad Stern Graded
Repeatable for additional credit: No

OPMG-GB 4336 Planning and Scheduling: Theory and Applications (3 Credits)
Typically offered occasionally
This course aims at covering optimization topics in deterministic as well as in stochastic planning and scheduling. The objective is to expose the students to optimization techniques as well as techniques that are commonly used for proving properties of interest in deterministic as well as stochastic models, which may turn out to be useful in the models their are analyzing in their own research. The course also focuses on the relationships between stochastic models and their deterministic counterparts.
Grading: Grad Stern Graded
Repeatable for additional credit: No

OPMG-GB 4337 Theoretical Foundations of Machine Learning and Sequential Decision Making (3 Credits)
Typically offered occasionally
Machine learning has become an indispensable part of many application areas, in science, engineering and business disciplines. But machine learning is not a single approach rather, it consists of a dazzling array of seemingly disparate frameworks and paradigms. This course aims to uncover the common foundational principles underlying this diverse array of techniques. The course has two components: offline learning (before the midterm) and online learning (after the midterm) and will provide students with a solid theoretical foundation in machine learning and allow them to start accessing the expanding literature in related topics.
Grading: Grad Stern Graded
Repeatable for additional credit: No

OPMG-GB 4338 Advanced Topics in Operations for Societal Impact (3 Credits)
Typically offered occasionally
Operations management and operations research offer tools and methodologies that can be leveraged to address pressing societal challenges. For instance, essential medical supplies must be allocated efficiently to healthcare facilities to meet demand, while in grocery stores, pricing and markdown optimization can be leveraged to reduce food waste. This PhD seminar class will focus on high-impact domains such as healthcare, sustainability, and social inequality. Through the study of research papers in these areas, students will explore a diverse range of methodologies, including optimization, machine learning, empirical methods, and modeling. The course will require students to present research papers, actively engage in class discussions, and complete a research project. By the end of the course, students will gain a deep understanding of existing research and methods for societal impact, as well as the key challenges that remain in these domains.
Grading: Grad Stern Graded
Repeatable for additional credit: No

OPMG-GB 4341 No-Regret Learning in Games (3 Credits)
Typically offered occasionally
Machine learning has become an indispensable part of many application areas, in science, engineering and business disciplines. However, in real-world applications, the environment is often not stationary as assumed by the standard ML framework. Instead, it consists of many agents, each of whom is involved in decision making processes and each of whose actions impact all others' outcomes. The course has two components: online learning in adversarial environments where the game-theoretical component is embedded in the abstract adversarial environment; and multi-agent learning in which an underlying (unknown) game is driving the rewards/costs of all agents. We will spend 6 weeks on each. The course will provide students with a solid theoretical foundation learning in games and allow them to start accessing the expanding literature in related topics.
Grading: Grad Stern Graded
Repeatable for additional credit: No

OPMG-GB 6006 Supply Chain Management (3 Credits)
Typically offered occasionally
The function of supply chain management is to design and manage the flow of material and information, starting from the raw materials until finished goods reach customers. Typically, logistics-related costs account for 20 to 25 percent of firms total costs. On the revenue side, the supply chain decisions have a direct impact on market penetration and customer service. With the globalization of the economy and advances in information technology, supply chain design and coordination have become important tools for gaining competitive advantage. Therefore, the objectives of the course are to (1) develop an understanding of individual components of the supply chain (such as order management, transportation, network design, distribution channel management, after-sales service, and customer service strategy) and their interrelationships with other functions of firms, such as marketing, manufacturing, and accounting (2) impart analytical and problem-solving skills necessary to develop solutions for a variety of logistics problems (3) understand the complexity of interfirm and intrafirm coordination in implementing programs such as quick response and vendor-managed inventories and (4) develop the ability to design logistics systems and formulate integrated supply chain strategy, so that all components are not only internally synchronized but also tuned to fit corporate strategy, competitive realities, and market needs.
Grading: Grad Stern Graded
Repeatable for additional credit: No

OPMG-GB 6054 Decision Analytics for Sports (3 Credits)
Typically offered occasionally
In recent decades, more and more sports organizations have reached out to the application of advanced management methods, in particular statistical, data analysis and operations research/management science techniques. This course is an examination of the most advanced applications of those techniques. The structure of the course is to examine the use of them to four main areas of interest: player performance measurement, in-game decision-making, player selection/team building, and general administration such as marketing, pricing, contracts, stadium management etc. Emphasis will be place on not only how the application of Analytics has improved each of these situations, but how those decisions relate to business decisions in any other field of commerce. For example all businesses have to evaluate employees, make tactical and strategic decisions about how they operate, must maintain a good portfolio of assets in particular recruit and retain quality employees, and have to be good at administering the overall business.
Grading: Grad Stern Graded
Repeatable for additional credit: No

OPMG-GB 9904 Dissertation Seminar Operations Management (4 Credits)
Typically offered occasionally
Dissertation Seminar Operations Management
Grading: Grad Stern Graded
Repeatable for additional credit: No