Undergraduate Business Administration Program

Courses

Note on Course Numbers
Each Carnegie Mellon course number begins with a two-digit prefix which designates the department offering the course (76-xxx courses are offered by the Department of English, etc.). Although each department maintains its own course numbering practices, typically the first digit after the prefix indicates the class level: xx-1xx courses are freshmen-level, xx-2xx courses are sophomore level, etc. xx-6xx courses may be either undergraduate senior-level or graduate-level, depending on the department. xx-7xx courses and higher are graduate courses. Please consult the Schedule of Classes (https://en-apps.as.cm.edu/open/SOC/SOCServlet) each semester for course offerings and for any necessary pre-requisites or co-requisites.

70-100 Global Business
Fall: 9 units
This course examines the fundamental issues in the development of new markets for products and services globally. In addition, it provides a foundation for understanding the functional areas of business and how they contribute to management of a firm. Students use this foundation knowledge to analyze cases and complete projects in order to gain an understanding of some of the key issues affecting a wide range of the most important global industries. First year students can also gain a better understanding the vast array of career possibilities available to those who study business. This course is restricted to first-year business majors and students may not receive credit for both 70-100 and 70-101.

70-101 Introduction to Business Management
Fall and Spring: 9 units
This course examines the fundamental issues in the development of new markets for products and services globally. In addition, it provides a foundation for understanding the functional areas of business and how they contribute to management of a firm. Students use this foundation knowledge to analyze cases and complete projects in order to gain an understanding of some of the key issues affecting a wide range of the most important global industries. First year students can also gain a better understanding the vast array of career possibilities available to those who study business. Students may not receive credit for both 70-100 and 70-101.

70-122 Introduction to Accounting
All Semesters: 9 units
This course provides the knowledge and skills necessary for the student to understand financial statements and financial records and make use of the information for management and investment decisions. Topics include an overview of financial statements and business decisions; the balance sheet, the income statement, and the cash flow statement; sales revenue, receivables, and cash; cost of goods sold and inventory; long-lived assets and depreciation, and amortization; current and long-term liabilities; owners’ equity; investments in other corporations; an introduction to financial statement analysis and international issues dealing with financial statements.

70-160 Graphic Media Management
Fall: 9 units
This course provides a foundation for the study of graphic communications management by investigating the processes and materials used in the graphic arts. The subjects examined include typography, papermaking, ink technology, electronic imaging, process control and color separation.

70-194 Publishing Management in the Information Age
Spring: 9 units
As the digital era transforms the publishing industry, this course addresses how best to manage the opportunities brought about by profound technological changes. The course focuses on the management of intellectual property, the publishing process, career opportunities and the impacts of new technologies. Lectures, guest speakers and student business simulations integrate learning.

70-201 Professional and Service Projects
All Semesters: 9 units
Professional service is important in career development because it creates opportunities to use skills and knowledge, develop leadership abilities, develop professional networks, and to learn the importance of community involvement and social values in business practice. Students complete a variety of activities with these objectives over a period of up to four (4) semesters to satisfy this course requirement.

70-207 Probability and Statistics for Business Applications
Fall: 9 units
Elementary ideas in probability, statistics and data analysis presented in the context of their importance to modern business management. Prerequisites: 21-120 or 21-121.

70-208 Regression Analysis
Fall and Spring: 9 units
This course focuses on the statistical analysis of the relationship between two or more random variables. In particular, we examine the estimation of the conditional mean of the dependent variable as a function of independent variables using linear regression. We draw on statistical theory to determine the precision of our estimates and to conduct inference about the population, and we examine a number of applications to business, finance and economics throughout the course. Prerequisites: (21-120 or 21-121 or 21-112 or 21-116) and (36-220 or 70-207 or 36-247 or 36-310 or 36-201) and (72-100 or 73-110).

70-311 Organizational Behavior
Fall and Spring: 9 units
This course examines the factors which influence individual, group and firm behavior in the context of the workplace. Topics covered include perception, group behavior, decision making, motivation, leadership and organizational design and change. Prerequisites: 76-214 or 76-245 or 76-236 or 76-327 or 76-331 or 76-347 or 82-085 or 76-100 or 76-101.

70-321 Negotiation and Conflict Resolution
9 units
This course will complement the technical and diagnostic skills you have learned in other courses at Tepper. A basic premise of the course is that, while you will need analytical skills to discover optimal solutions to problems, you will also need a broad array of negotiation skills to implement these solutions and make sure that they are truly effective. Your long-term effectiveness - both in your professional and personal life - is likely to depend on your negotiating abilities. This course will give you the opportunity to develop these skills experientially and to understand the analytical frameworks that underlie negotiations. Prerequisites: 76-101 or 82-085 or 76-100.

70-332 Business, Society and Ethics
Fall and Spring: 9 units
The course draws upon actual cases to explore fundamental questions faced by businesses operating in the United States and elsewhere in the world. What justifies governmental regulation of your business? What are the rights of employers and employees? How does the law protect consumers? What laws protect the environment? How do you choose the best legal form for your business? What are the lines of power within a corporation? What protections are available to shareholders? How do antitrust laws protect competition? What responsibilities does a business have to the community in which it operates? What is the ethical foundation on which business ought to be conducted? The course puts businesses in their legal and ethical context. Prerequisites: 76-100 or 82-085 or 76-101.
70-339 Information Technology for Finance
6 units
The financial services industry is a leader in the use of information technology. Firms in banking, securities, investments, insurance and financial marketplaces are among the most information intensive and innovative users of technology. The course will examine the role and potential of technology in this industry. The course begins with a description of the financial markets, specifically, equity, foreign exchange, and derivatives, and the systems that enable them. It considers exchanges, ECNs, ATS’s Order Management Systems, Straight through Processing, Fix Protocol, and post trading clearance and settlement. It covers the design, evaluation and execution of popular trading strategies that are used by professionals in the various markets. There is increasing interest, in particular, on systematic trading strategies and execution systems because of their scalability and transparency. The course covers both Algorithmic and High Frequency Trading and analyzes issues regarding latency, scalability, and reliability.
Prerequisites: 70-391.

70-340 Business Communications
Fall and Spring: 9 units
Business Communications develops and sharpens your written, oral, and interpersonal communication, introducing you to common forms of professional writing and speaking in specific business situations. The course explores crucial rhetorical issues that impact your ability to communicate and achieve your objectives as a business leader.
Prerequisites: 76-104 or 76-101 or 82-085.

70-341 Organizational Communication
Fall: 9 units
Much of the work in groups and organizations consists of communication. You communicate to get information that will be the basis of decisions, to provide a vision for the people who work for and with you, to coordinate activity, and to sell yourself and your work. The goal of this course is to identify sources of communication problems within an organization and ways to overcome them. To do this requires that we know how communication normally works, what parts are difficult, and how to fix it when it goes wrong. The focus of this course is on providing you with a broad understanding of the way communication operates within dyads, work groups, and organizations. This course is not a practicum in public speaking or writing, although you will get some experience writing, speaking and managing impressions. Rather the intent is to give you theoretical and empirical underpinnings for the communication you will undoubtedly do when you return to work. Readings come from both the research and the managerial literatures. Among the topics considered are managerial communication, persuasion and conformity, self presentation and person perception, social networks. Cases and group projects give you an opportunity to apply what you’ve learned.
Prerequisites: 36-207 or 36-201 or 36-247 or 36-217 or 36-225 or 36-220 or 70-207.

70-342 Managing Across Cultures
Spring: 9 units
This course is designed for students who expect to do business in other countries or work with people from other cultures. It provides an intellectual framework for understanding other cultures (and eventually one’s own) as well as detailed studies of particular countries. It discusses how culture defines organizations, contracts, personal relationships, attitudes toward authority, time and space, ethics, wealth, and subcultures, and how these affect business. Student teams study a culture of their choice and make presentations, based on interviews and literature research.
Prerequisites: 76-101 or 82-085 or 76-100.

70-345 Business Presentations
Fall and Spring: 9 units
In this course, students prepare, present, discuss, and critique the different oral presentations currently practiced in business. Topics include developing verbal and physical presence; planning presentations based on audience needs and expectations; projecting personal credibility, professionalism, and appropriate emotional responses; and using various multi-media technology. Assignments and cases will cover informative and persuasive presentations, which will vary from term to term and may include talks such as formal public introductions; explanations of policy and/or procedures; employee training sessions; state-of-the-company addresses; sales presentations; team-driven strategic plans; public interviews with a hostile press; and talks on other more free-ranging topics.
Prerequisites: 73-270 or 70-340.

70-350 Business Acting
9 units
This course provides a uniquely broadening educational experience for business students through an exploration & understanding of the process of Acting & the unique performer/audience relationship. Using techniques of Acting, the course will concern itself with: a new self-awareness & greater confidence in public communication; the expansion & diversification of one’s range of personal expression; methods to more effectively shape a public performance & of empowering the student to put his/her best Self forward when in contact with an audience; & a re-investment in passion.

70-364 Business Law
Fall and Spring: 9 units
The external political, social and legal environment of the firm and its managers. Legal and regulatory matters, United States and multinational, will be considered, including restrictive trade practices laws and regulations, acquisitions and mergers, licensing, franchising, officers’ and directors’ responsibilities and liabilities, manufacturers’ responsibilities and liabilities, securities regulation, environmental protection, intellectual property, labor unions, trade associations, employee rights and duties, the attorney-client relationship; values in a business society; social implications of business policies, and corporate social responsibility. The effects of laws upon day-to-day business administration. Contracts, sales, commercial paper, the Uniform Commercial Code, credit transactions, bankruptcy, insurance, agency, partnership, incorporation and corporate governance.
Prerequisites: 82-085 or 76-101 or 76-100.

70-365 International Trade and International Law
Fall: 9 units
The course discusses the international legal system and laws that affect international trade. It covers the Foreign Corrupt Practices Act, treaties and concessions, shipping and customs, appointment of foreign sales agents, resolution of trade disputes, international mergers and joint ventures, international competition law, UN sales convention, international trade organizations (IMF, WTO, World Bank, etc.), risk insurance, cultural factors, international E-Commerce and intellectual property.
Prerequisites: 73-100 or 73-110.

70-366 Intellectual Property and E-Commerce
Spring: 6 units
This course covers the basics of doing business on the internet with emphasis on E-Commerce issues such as intellectual property, cyber squatting and commercial transactions.
Prerequisite: 76-101.

70-371 Operations Management
Fall and Spring: 9 units
This course is an introduction to production and operations management that covers both manufacturing and services. It deals with strategic issues (design of flexible supply), planning issues (capacity management), and operational issues (inventory managementand information). The linkage between strategy and tactics will be emphasized. The students will learn concepts and tools that will help them to manage from the “boardroom” to the “toolroom.”
Prerequisites: (21-257 or 21-292) and (36-202 or 36-247 or 36-220 or 36-310 or 70-207).

70-374 Forecasting and Data Mining
6 units
Students will use state-of-the-art software on large data sets to illustrate key techniques for finding patterns in data and using them to make better, more effective business decisions. Prerequisite: 70-208.
Prerequisite: 70-208.
70-376 Energy Systems
Intermittent: 9 units
This course will provide students with an understanding of the systems and markets that provide energy to businesses and consumers. Students will be introduced to the sources and uses of energy, and how they have evolved and the possible paths over which they may evolve in the next decades. The course places an emphasis on electric energy, the single largest energy source in many industrial economies, but also covers natural gas, oil, and selected other primary energy sources. Students will learn the energy flows in the USA and the world, as well as the business-relevant characteristics of the engineered systems that provide the energy in various forms. Both traditional and emerging energy sources will be discussed, and students will understand the difference between an energy carrier and an energy source. We will also discuss some of the issues that arise without proper management of the physical risks of energy systems. Students will learn some of the history of electric power regulation and the inconsistent subsidy structures that have provided opportunities and challenges for energy companies and investors, including discussion of how emissions restrictions affect fuel, engineering, investment, and project finance choices. The history of electric power markets will be discussed, with an eye to examining the opportunities that market changes create for business. No prerequisites.

70-381 Marketing I
All Semesters: 9 units
An introduction to the nature and fundamentals of the marketing activity. Topics include an analysis of the economic factors influencing buyer behavior, marketing research, market segmentation, development of marketing programs (new product, price, advertising and distribution decisions), and international marketing. Prerequisites: 76-100 or 76-214 or 76-327 or 76-236 or 76-331 or 82-085 or 76-245 or 76-347.

70-385 Consumer Behavior
All Semesters: 9 units
Marketing, in particular, begins and ends with the consumer – from determining consumer needs to ensuring customer satisfaction. In this course, we will explore the most recent scientific research in marketing, psychology, and behavioral economics on judgment and decision-making. We will develop your ability to understand and influence what people want, how people decide what and when to buy, and whether people will be satisfied or dissatisfied with their decisions. These psychological insights are particularly useful for marketing strategy, brand positioning, and marketing communication decisions, but also yield insight into common biases in judgment and decision making, beyond marketing, to which you would otherwise fall prey. Why are people willing to drive across town to save $5 on a tank of gasoline, for example, when they would not drive a minute to save $5 on a refrigerator. We will discuss some of these applications in class. In addition, we will examine the methodology of market research (specific to consumer behavior) to build the tools you will need to interpret and base decisions on it. Prerequisite: 70-381.

70-391 Finance
Fall and Spring: 9 units
This introductory finance course provides students with the foundational knowledge in the practice of managerial finance that is needed for business analytics and decision-making. It also serves as a basis and prerequisite for more advanced classes in both finance and business. The main topics covered in the course are Financial Markets, Net Present Value, The Objective of the Firm, Discounted Cash Flow, Portfolio Theory and the Cost of Capital, The Efficient Markets Hypothesis, The Capital Structure of the Firm, and Business Valuation. Time permitting, the course also provides an introduction to option markets and derivative securities. Prerequisites: (70-122 and 73-230 and 70-208) or (70-122 and 73-100 and 21-370 and 36-226) or (70-122 and 73-100 and 21-370 and 70-208).

70-393 Open Innovation
Intermittent: 6 units
This course will introduce students to the new and emerging concepts of innovation. No company can afford to rely internally for ideas and breakthroughs alone. The new environment of R&D replaces the logic of an earlier era, where innovation was closed off from outside ideas, technologies, and assets. The new paradigm of Open Innovation literally opens up the corporation to collaboration and partnering along the entire value chain. The goal of this course is to identify the sources of innovative success and failure inside corporations, and how companies can develop and sustain a capability to innovate. Students will be introduced to the practical application of Open Innovation, through a combination of course work utilizing one text book on Open Innovation, case studies, and guest speakers from leading information technology, industrial manufacturing and bio science companies. Practical real world examples of companies from these industries ranging from Cisco and Apple to Intel, Eli Lilly and Procter and Gamble would be discussed and their current innovative strategies will be debated.

70-395 Funding Entrepreneurial Ventures
All Semesters: 9 units
So you want to do a startup and you know that you need funding. There are multiple ways to fund a new venture: bootstrapping, economic development, angels, venture capitalists. The question is what are these funders looking for in an early stage investment? What is important to them? How do they decide which companies to invest in and which not? This class looks at funding from the funder’s point of view and provides the student with a framework of the investment process: investment criteria, sourcing, selection, due diligence, deal structure, valuation, post investment involvement. Real companies seeking funding are used for the final project in which students will be expected, as investment teams, to make investment decisions and convince their fellow investors (the class) to join them (or not). This is a highly interactive and project class. There will be multiple guest speakers. Prerequisites: Students are highly encouraged to take any of the introductory entrepreneurship classes offered in various schools and departments. While no financial background is required, this class will not cover the basics of entrepreneurship from the entrepreneur’s perspective, but will be looking from the investor point of view.

70-397 Introduction to Entrepreneurial Finance
Fall: 6 units
This course covers the financing of high-growth entrepreneurial firms with a focus on venture capital. We will discuss the issues entrepreneurial firms in high-growth, innovative industries face when funding their investments and how venture capital and angel investing can mitigate them. Issues will include business plan evaluation, the economics of venture capital funds and the sources of value in entrepreneurial firms. Major topics include a detailed look at the financial market (angels, venture capital and private equity), an analysis of assets and liabilities in an entrepreneurial firm, structuring the ownership of start-ups, and the multiple valuation methods available for investment assessment. Rather than preparing students to become venture capitalists or angel investors, the course provides material to help potential entrepreneurs navigate the financing environment. The course provides an excellent introduction to “Entrepreneurial Finance: Valuation and Deal Structure” (70-496) in Mini 4.

70-398 International Finance
Fall: 9 units
International Finance covers the major international financial markets and how firms use them to solve business problems. The course begins with an institutional and analytical description of the markets for foreign exchange, eurocurrency deposits, currency swaps and currency options. It goes on to examine how financial institutions and non-financial firms use these markets for asset management and foreign currency risk management. Applications and cases change from year-to-year to reflect current events. Recent examples are the disruption in the LIBOR markets associated with the 2007-2009 financial crisis, the risk-return characteristics of the foreign-currency carry trade and the growing importance of China and other trade surplus countries in understanding global capital flows and sovereign wealth funds. The risk-management component of the course emphasizes the strengths and weaknesses of the Value-at-Risk methodology in the context of exchange rates and the 2007-2009 financial crisis.
Prerequisites: 70-391 and 73-200.
70-401 Management Game
Spring: 12 units
This course is designed to integrate the managerial concepts and techniques studied earlier in the curriculum and to focus on elements of organizational structure and behavior. Students will take on the role of managers and managers' responsibility to a Board of Directors comprised of alumni of the MBA program and business masters students. Emphasis is placed on the development of top management of firms competing in an international economy simulated by the Carnegie Mellon University Management Game. Each team is responsible to a Board of Directors comprised of alumni of the MBA program and business masters students. Emphasis is placed on the development and implementation of sound organizational decision structures as well as the formulation of effective competitive strategies.
Prerequisites: (70-381 and 70-371 and 70-121 and 70-391) or (70-371 and 70-391 and 70-381 and 70-122).

70-414 Technology Based Entrepreneurship for CIT
Fall: 9 units
This course exposes students to the nuances of financing new ventures, getting them started legally and marketing their products or services. Students pull together all the ideas and information from different functional aspects of their projects into coherent and persuasive mini-business plans that serve as roadmaps for building their businesses; and useful instruments to find sufficient financing for the new ventures, so that they can convince the outside world that these opportunities are viable, with substantial potential for success. Prerequisite: 70-414 or 70-415 or 70-420 or 70-422 or 15-390
Prerequisites: 70-420 or 70-414 or 15-390 or 70-415 or 70-421.

70-419 Entrepreneurship Practicum: Apprentice
All Semesters: 9 units
Topics covered include: identifying a business opportunity, building a team, finance, managing risk, and understanding your competitive advantage. We put a "real world" perspective on entrepreneurship, innovation and leadership. The output of the course is a mini-business plan or venture opportunity screening document that can be developed into a business plan in a subsequent course entitled New Venture Creation or through independent study. No prerequisites.

70-420 Entrepreneurship for Scientists
9 units
Entrepreneurship for Scientists is an introductory course in entrepreneurship. The course primarily targets non-business students and assumes no background in business. Students majoring in science, computer science, engineering, the humanities or the arts are exposed to fundamental concepts and issues around innovation and entrepreneurship. The course provides a foundation for starting a new venture and innovating new technologies and products within existing organizations. Topics covered will include: identifying a business opportunity, building a team, finance, equity investment, managing risk, market understanding, and competitive advantage. Emphasis will be on team projects, including developing an investor pitch for an original idea.

70-421 Entrepreneurship for Computer Scientists
All Semesters: 9 units
This course is primarily for non-business school students; it includes most of 70-415, assumes no background courses in business and involves additional sessions for core business concepts. Students with majors in science, technology, engineering or computer science are exposed to fundamental concepts and issues in innovation, business and entrepreneurship. Students can expect to gain a basic understanding of functional areas such as finance, funding, marketing, sales and management. Student Status: Sophomore.

70-422 Managerial Accounting
Intermittent: 9 units
The purpose of this course is to provide an introduction to the measurement and allocation of costs. Emphasis will be given to the use of cost information in decision making in organizations. The course will cover standard topics in cost accounting, such as cost behavior and relevant costs, and will connect these to broader issues in microeconomics, decision theory, corporate finance, and operations management. Classes will be a mixture of conventional lectures and laboratory experiments.
Prerequisites: 70-122 and (36-202 or 70-207).

70-424 Corporate Financial Reporting
Spring: 9 units
This course is designed to strengthen your ability to correctly interpret financial statements and their accompanying disclosures. The course is aimed at anyone whose career might involve working with accounting data, and should be especially useful for those interested in consulting and financial analysis. Throughout the semester we will discuss the key disclosure rules in the United States, the communication methods available to managers, managers' incentives and ability to exert discretion over reported earnings, and the interplay between a company's corporate strategy and its financial reporting policies and practices. The course revolves around a number of topics of recent interest to the business community including the quality of earnings, mergers and acquisitions, purchased R&D, post employment benefits, executive compensation, and intangible assets.
Prerequisite: 70-122.

70-428 Financial Statement Analysis
9 units
This course is about fundamental analysis using financial statements. We develop and apply technologies for understanding and identifying firm activities that generate shareholder value and for developing valuation benchmarks. The ultimate goal of such analysis is to aid the security valuation and risk analysis exercises. This course is intended to help students establish a good foundation and introduce students the basics of equity and debt analysis techniques.
Prerequisite: 70-122.

70-430 International Management
Spring: 9 units
This course uses the case method to examine the strategic and operational issues in management practice and decision-making that are important in operating a business that spans national borders. Topics include political and economic risk assessment, technology transfer, cultural analysis, and economic risk assessment, technology transfer, cultural analysis, negotiation, social responsibility, organization structure, supply chain management and trends in foreign direct investment and their impact on developing strategies for entering and becoming successful in international markets.

70-437 Organizational Learning and Knowledge Management
9 units
Managing knowledge effectively is key to the performance and competitiveness of both entrepreneurial and established organizations. The course examines why some organizations are better than others at learning from experience and developing new knowledge. The course stresses how organizations innovate or create new knowledge, how they retain knowledge, and how they transfer knowledge. Strategic implications of new results on organizational learning and knowledge management are also developed. Students will acquire a greater appreciation of the dynamics of organizations and factors contributing to their performance. A mix of lectures, guest presentations, cases and exercises are used to increase your ability to create, retain and transfer knowledge effectively in organizations.
Prerequisites: 36-202 or 36-208 or 36-217 or 36-220 or 36-225 or 36-226 or 70-208.
70-438 Commercialization and Innovation
9 units
Commercialization and Innovation is targeted at entrepreneurs and innovators who are interested in introducing innovations into the marketplace through organizations whether they are start-up, emerging, or mature companies. In this class you will learn how to evaluate, develop and describe: current or targeted industries in terms of the competitive landscape (signals for opportunities for change, competitive landscape, and strategic choices); market opportunities for customer/user needs (jobs to be done, job executors, and context); business models appropriate for these markets; potential solutions identified to address customer/user need (minimum viable product concept), and identification for high-need market segments and entry points (MEP), and strategies for growth. The class covers concepts and tools for analysis such as disruptive and sustained innovation, open innovation, outcome driven innovation (and, an agile form – needs driven innovation), platforms and networked innovation, business model analysis, monetizing intellectual property (IP), and value chain positioning. The pedagogical approach for the course is to use lectures, cases, and visiting speakers actively engaged with innovation. Team-based projects are carried out by student teams starting who start with understanding opportunities in emerging industry contexts (e.g., cloud computing, 3D manufacturing, the industrial Internet, healthcare IT, biotechnology, etc.). Project areas are selected based on student interest, and progress from industry analysis to understanding need, and then with development of proposed solutions for significant needs identified by the teams. Students will be expected to present their work during the course both verbally and in written form. Prerequisites: (73-150 or 73-230) and (70-414 or 70-415 or 70-420 or 70-421).

70-440 Corporate Strategy
Fall: 9 units
This course is designed to provide the student with a general management perspective and an understanding of the total business enterprise. It builds upon previous course work in functional areas and provides insights and analytical tools which a general manager should have in order to plan and implement successful business strategy. The student will analyze complex business problems and formulate realistic strategic solutions. Emphasis is placed on the practical application of business theory by the student in his/her business career.
Prerequisites: 70-371 and 70-391 and 70-381 and 70-122.

70-443 Digital Marketing and Social Media Strategy
6 units
Prerequisite: 70-451.

70-449 Social, Economic and Information Network
Spring: 6 units
This is a new course exploring the networked nature of social, market and information interactions and building simple models for them that explain their qualitative behavior. Topics include how opinions, trends and fads grow and spread, and the politics, economics and technology of on-line networks. Methods discussed will include similarity and centrality measures in social networks, auctions and matching markets in economic networks, the structure of the web, models of web search and sponsored search auctions in information networks. Models of network dynamics will also be introduced, such as the formation of cascades, the diffusion of innovation, network effects, power laws and rich-get-richer phenomena, the small world phenomenon and epidemic models.
Prerequisite: 70-451.

70-451 Management Information Systems
Fall: 9 units
The objectives of this course are to provide students with basic knowledge of the technology used in computer-based information systems and to enable them to acquire the skills for analyzing how to manage this technology in business. There is a strong emphasis on how to become both an intelligent user of information systems and also an effective participant in the design process of these systems. Credit will not be allowed for both 70-451 and the Information Systems major course 67-272.
Prerequisites: 15-102 or 15-125 or 15-120 or 15-112 or 15-127 or 15-111 or 15-100 or 15-105 or 15-110.

70-453 Technology Consulting
Spring: 9 units
This course is designed to provide students with a basic understanding of how to develop and implement computer-based management information systems. Students will be introduced to a variety of system development concepts and techniques. These can include traditional approaches such as top-down or structured analysis, problem definition, feasibility analysis, enterprise analysis and data flow diagrams, as well as interactive and iterative development approaches such as prototyping and object-oriented concepts and techniques. The course also explores topics related to successful implementation of systems such as testing strategies, project management, user-oriented design and software maintenance. Students will work in teams to analyze, design and build a small information system.
Prerequisite: 70-451.

70-455 Modern Data Management
Spring: 9 units
The objective of this course is to learn how to manage data for making critical business decisions. “Data Management” in this course includes the analysis of various sizes and types of data and their synthesis into fact-based, data-driven recommendations. The course teaches the use of advanced functions in Excel, the abstraction and representation of business situations as entity relationship diagrams, the transformation of such diagrams into database schemata, and the use of Structured Query Language to manipulate cloud-based databases. By the end of this course students should be able to analyze data of varying sizes with varying tools and synthesize clear business recommendations. Our goal is to impart fundamental analytical skills that allow our students to exploit the data rich business environment of today. There will be a large number of in-class, hands-on exercises throughout the course to familiarize you with these topics. Be prepared to bring your laptops. No specific computer skills are required.
Prerequisite: 70-451.

70-460 Mathematical Models for Consulting
Fall: 9 units
This course covers a wide variety of mathematical models and techniques used by consultants and which lie at the heart of much decision-support software. Building on the basic methods from the operations research courses, we will discuss the benefits and limitations of different modeling and solving techniques, e.g., linear, integer and stochastic models, to strategic, tactical and operational level decision making, and examine the most successful recent work from real life applications in detail. While doing so, we will follow primarily a practical spreadsheet based approach to provide hands-on experience with software such as Excel Solver.
Prerequisites: 21-257 or 21-297 or permission of the instructor.
Prerequisites: 21-297 or 21-257.

70-462 Stochastic Modeling and Simulations
All Semesters: 9 units
This hands-on course on computer simulation of business, service, and manufacturing systems (that are subject to uncertainty or risk) takes the perspective of the consultant whose job is to analyze stochastic decision problems by building a simulation model and using it to understand the behavior of the system and explore the effects of alternative decisions. Two modeling methodologies will be presented: 1) Models of both static and dynamic, that can be implemented as mathematical expressions in a spreadsheet; and 2) discrete-event models that utilize the event scheduling formalism. @Risk, from Palisade Corporation, is the tool that will be used to demonstrate how to build and execute spreadsheet simulation and Arena, from Rockwell Software, is the tool that will be used to demonstrate how to build discrete-event simulation models for service and manufacturing applications. Upon completion of the course students will be able to carry out the entire process of designing the model, implementing it in the appropriate software, executing the simulation, collecting and analyzing output data, and using the results of the analysis to evaluate alternative decisions.
Prerequisites: 36-225 or 70-207 or 36-202.
70-465 Strategic Information Technology
Spring: 9 units
This course is about business strategy for technology-intensive industries. Examples of such industries are computer hardware and software, media and entertainment, telecommunications and e-commerce. We will explore the unique economic circumstances facing firms in these industries and identify strategies that enable firms to succeed given these circumstances. You will learn to analyze pricing strategies including versioning and bundling, product standardization decisions; managing product complements; exploiting network effects; managing platform competition. This course will help you understand the unique economic characteristics seen in today’s technology-intensive markets and how they impact the strategic interactions among firms and consumers. We will study, for example: Why firms in the IT industry give away their best products for free. Why makers of video gaming consoles subsidize end users (but tax game developers) while computer operating system makers subsidize software developers (but overcharge end users). Why Sony won the Blu-Ray format war against HD-DVD which was sponsored by a whole array of companies. In order to understand how firms strategically interact with consumers in technology-intensive industries this course will use a combination of simple but rigorous analytical models, emerging theories, and formal case studies. Prerequisites: 21-120 and (21-256 or 21-259) and 73-100 and 73-230.

70-471 Supply Chain Management
Spring: 9 units
During the course we will discuss the basic issues of Supply Chain Management like inventory management, risk pooling, network planning, and supply contracts as well we some of the more concurrent issues. In the face of a globalizing economy we will discuss procurement and outsourcing strategies, global logistics and risk management. As supply chains generally cross firm boundaries we will look at supply chain integration, and alliances from a supply chain perspective. Also, as more and more information can be gathered about customers you will learn how to judge the value of this information and whether or not one should adopt a customer specific pricing model. The above issues will be covered at a general strategic level but whenever possible you will also learn how to quantitatively make trade-offs between alternatives. Prerequisite: 70-371.

70-474 Quality Management and Productivity
Spring: 9 units
The goal in this course is twofold: (i) to develop a high-level understanding of the ideas and philosophies concerning quality in business processes; and (ii) to develop expertise with the tools used to evaluate and improve quality. The goal of the course is not to indoctrinate students into any single quality assurance framework, but rather to teach them the techniques that are commonly central to any effective quantitative quality design and maintenance program. Applications involve both manufacturing and services; we will examine financial services in some detail. We will conclude with a discussion of the core concepts of Six Sigma.

70-476 Healthcare Management to Services Operations Management
Intermittent: 9 units
This course gives an overview of the key entities in the U. S. healthcare system and lays out the challenges and opportunities that healthcare executives face. We will identify the main components of the healthcare value chain and explore how they operate in an increasingly complex and dynamic environment. We will focus on how core quantitative management principles can be applied in design and analysis of an efficient healthcare system from operations, finance, and marketing perspectives and study the impact of strategic implementation of operations improvement programs. We will follow an integrated, hands-on approach providing opportunities to the students in finding ways to improve the management and delivery of healthcare in real-life settings. Prerequisites: (36-202 or 36-208 or 70-208) and 70-371.

70-480 International Marketing
Spring: 9 units
This course is designed to provide students with a basic understanding of global marketing opportunities, key issues, and strategies. It introduces the main characteristics of international markets and addresses the impact of global environmental factors (economic, social, legal, and cultural) on marketing decisions such as market entry, product development, pricing, promotion, and distribution. The objective of the course is to help students acquire knowledge of major international marketing concepts and develop cross-cultural sensitivities and skills that would enable them to identify, analyze, and solve international marketing problems. Corequisite: 70-381.

70-481 Marketing Research
Spring: 9 units
The purpose of this course is to teach multiple research techniques used in marketing. This course is an applied marketing course that gives insight into how various techniques are used in marketing research firms. There are three projects and a final. The first project is designed to teach students about research survey methods. The second is an experiment in which the whole class is involved. The third, an individual project, is designed to teach quantitative research techniques. Prerequisites: 73-360 or 70-208 or 70-381.

70-483 Advertising and Marketing Communications
Intermittent: 9 units
This course is designed to help students develop an integrated marketing communications plan to build enduring brand values. Students will work in groups on developing a MarCom plan for a real company. Several marketing managers of the company will come to class, present background information about the company, and the brand/product that students will be working on. The course contains three parts: 1 — frameworks for brand management used to select target audiences and set communications objectives; 2 — the evaluation of alternative creative messages (e.g., youtube videos), testing ad effectiveness, and assessing the effectiveness of the mix as a whole (traditional and non-traditional media); and 3 — non-traditional marketing tools such as social media, viral marketing, and event and guerilla marketing. Prerequisite: 70-381 Student Status: Junior Prerequisite: 70-381.

70-485 Product and Brand Management
Spring: 9 units
In this course you will progress through a series of roles, from product assistant to group product manager, that give you the opportunity to experience what is like to do product and brand management. Through interactive lectures, case discussions and assignments, you will learn how to conduct analysis and make decisions that face product managers in industry. This course covers consumer and business to business marketing, including brand strategy, new product introduction, pricing and product line profitability, distribution strategy, marketing communications integration, and brand/product portfolio management. Time is also spent on building effective internal, cross-functional and external customer and agency relationships. By progressing through case-based roles from product/brand assistant to group brand/product manager, you will learn the principles of product and brand management and understand what it is like, and what it takes, to be a successful marketing leader. Prerequisite: 70-381.

70-487 Customer Management Using Probability Models
6 units
Forecasting is a critically important activity for all firms. This course provides simple but powerful models that use readily available purchasing data to capture underlying patterns in customer behavior. More importantly, learn how to use these models to provide accurate forecasts for what these customers will do in the future, as well as the right way to think about modeling customer activity. Using this way of thinking, it is possible to see that consistent behavioral patterns exist across different marketing channels (e.g., offline, online and catalog) and even across seemingly different domains (e.g., grocery and music). The tools are very general in their applications and can also be used for various Decision Analysis applications that manufacturing managers and consultants as well as information technology professionals are often faced with. Prerequisite: 70-381 Student Status: Junior Prerequisite: 70-381.

70-488 Interactive Marketing
All Semesters: 6 units
In this course we analyze what happens to marketing practice when cheap and powerful computers and communication networks are used to mediate markets. This course focuses on several areas where the presence of computers and networks are likely to have the most profound affect on the field of marketing. These areas include branding, promotion, competitive strategy, channel conflict, pricing and marketing information goods, and identifying and differentiating customers. We will use both lectures, cases, and analysis of real-world datasets to analyze these issues. Prerequisite: 70-381.
70-492 Investment Analysis
Spring: 9 units
Students build a strong foundation in Modern Portfolio Theory as well as equilibrium and no arbitrage approaches to asset pricing. Common stocks and fixed income securities (including mortgage-backed securities) are the principal markets of interest, with tangential coverage of forward, option, and currency markets. Empirical projects entail applications of trading strategies, portfolio management, and the characteristics of financial market data.
Prerequisites: 70-391 or 21-370.

70-495 Corporate Finance
Fall and Spring: 9 units
Students develop an advanced financial perspective on how firms make investment, financing, and management decisions. The course starts with simple net present value rules and builds the theoretical framework to address more sophisticated issues and problems including risk management, mergers, acquisitions, executive compensation, corporate governance, and dividend payout policies. Theory is supplemented with numerous case study examples.
Prerequisites: 21-370 or 70-391.

70-496 Entrepreneurial Finance: Valuation & Deal
Fall: 6 units
This case-based course studies the financing and valuation of high-growth entrepreneurial firms in the venture capital market. We address the requirements and limitations of a wide array of valuation techniques from the perspective of both the demand and supply side of the market. The entrepreneur’s perspective (demand) concerns identifying financing needs and value. The investor’s perspective (supply) requires the use a set of tools to evaluate, structure and price financing deals. The tools include discounted cash flow, the VC method, comparables analysis and real options. Venture capitalists act as financial intermediaries and provide both capital and guidance to entrepreneurial firms. These facts introduce unique twists on valuation and deal selection. The course will include four cases over the mini which require group work, class participation and group presentations.
Prerequisite: 70-391.

70-497 Derivative Securities
Fall: 9 units
In this course students will learn how to price derivative securities such as futures, options, volatility derivatives and credit default swaps. In addition to covering canonical valuation formulae, students will use numerical simulation methods. The course will also cover various aspects of using derivative securities for risk management purposes. The emphasis of the course lies in solving practical applications using Excel.
Prerequisite: 70-391.

70-499 Internship
All Semesters
BA students are strongly encouraged to undertake internships. Students doing an internship of an academic nature do so under the supervision of a faculty member and receive a letter grade. Non-academic internships are possible for pass-fail credit with the approval of the Department Director. Enrollment by permission of the BA Program.

70-500 Honors Thesis I
Fall and Spring
Business students with outstanding academic records may undertake an Honors Thesis. The topic is of the student’s choice but must have some original aspect in the question being explored, the data set, or in the methods that are used. It must also be of sufficient academic rigor to meet the approval of a faculty advisor with expertise in the project’s area. Students enroll each semester in a 9-unit independent study course with their faculty advisor for the project (70-500 in the fall and 70-501 in the spring). Students and their faculty advisor develop a course description for the project and submit it for approval as two 9-unit courses to the BA department. Enrollment by permission of the BA Program.

70-501 Honor Thesis II
Spring
Business students with outstanding academic records may undertake an Honors Thesis. The topic is of the student’s choice but must have some original aspect in the question being explored, the data set, or in the methods that are used. It must also be of sufficient academic rigor to meet the approval of a faculty advisor with expertise in the project’s area. Students enroll each semester in a 9-unit independent study course with their faculty advisor for the project (70-500 in the fall and 70-501 in the spring). Students and their faculty advisor develop a course description for the project and submit it for approval as two 9-unit courses to the BA Department. Enrollment by permission of the BA Program.

70-502 Independent Study in Management
All Semesters
Students with a special interest in Management/Production not covered by a formal Business course may develop an Independent Study Course in that area. Readings and work to be completed are by agreement between the student and an individual faculty member. Enrollment by permission of the BA Program.

70-503 Independent Study in Marketing
All Semesters
Students with a special interest in Marketing not covered by a formal Business course may develop an Independent Study Course in that area. Readings and work to be completed are by agreement between the student and an individual faculty member. Enrollment by permission of the BA Program.

70-504 Independent Study in Organizational Behavior
All Semesters
Students with a special interest in Organizational Behavior not covered by a formal Business course may develop an Independent Study Course in that area. Readings and work to be completed are by agreement between the student and an individual faculty member. Enrollment by permission of the BA Program.

70-505 Independent Study in Finance
All Semesters
Students with a special interest in Finance not covered by a formal Business course may develop an Independent Study Course in that area. Readings and work to be completed are by agreement between the student and an individual faculty member. Enrollment by permission of the BA Program.

70-506 Independent Study Management Information Systems
All Semesters
Students with a special interest in Management Information Systems not covered by a formal Business course may develop an Independent Study Course in that area. Readings and work to be completed are by agreement between the student and an individual faculty member. Enrollment by permission of the BA Program.

70-507 Independent Study in Business Communications
All Semesters
Students with a special interest in Business Communications not covered by a formal Business course may develop an Independent Study Course in that area. Readings and work to be completed are by agreement between the student and an individual faculty member. Enrollment by permission of the BA Program.

70-508 Independent Study in International Management
All Semesters

70-635 Desktop Publishing
Spring: 9 units
This course presents a variety of topics related to desktop publishing in a hands-on laboratory environment. The topics covered include PostScript, file formats, fonts, trapping, illustration programs, image processing programs, page assembly programs, imposition, preflighting, output issues to films, plates, or disk and an introduction to new media.

70-637 Interactive Media Design Management
Fall: 9 units
Applications of computer systems in creating and managing electronic print and new media projects, with emphasis on the latter in creating effective communication pieces. Goals are the ability to use desktop publishing applications, animations and authoring applications, and the ability to input and use different types of information, including text, photographs, illustrations, animations, sound effects and voice.

70-641 Color Reproduction and Management
Spring: 9 units
This course presents an in-depth view of the issues and technologies related to color reproduction. The theory, perception, specification and measurement of color are presented. Color separation techniques, color proofing, color management and the control of color production are all considered. Special effects and color manipulation are examined.
70-643 Publishing on the World Wide Web

This course addresses topics related to the rapidly evolving area of WWW publishing, which has moved into the mainstream. Today, virtually every major newspaper, magazine, and book publisher has an active website. In addition, the Internet is used as a publishing medium by millions of other individuals and companies. In this course, the rush to WWW publishing is studied in context of the evolution of the internet; the lure of interactivity; the maturing desktop publishing revolution; and the continued development of tools and standards that lower the barriers to entry. The lecture topics encompass the history, technology, business applications and the design of materials to be published on the web. The course includes a lab component where the students perform individual and group projects to improve their design and applications skills.

70-650 Independent Study: Graphic Communications Management

Students with a special interest in Graphic Media not covered by a formal Business course may develop an Independent Study Course in that area. Readings and work to be completed are by agreement between the student and an individual faculty member. Enrollment by permission of the BA Program.