

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-level. Please consult the Schedule of Classes (<https://enr-apps.as.cmu.edu/open/SOC/SOCServlet>) each semester for course offerings and for any necessary pre-requisites or co-requisites.

70-100 Global Business

Fall and Spring: 9 units

The course provides a comprehensive overview of business, including how enterprises determine goals, strategies and operational tactics in competitive markets and the increasingly global environment. It covers different types of businesses - entrepreneurial and corporate, industries, markets, and economies. Students learn about the role of business in society, the various functional areas that make business work, and how companies develop plans and processes to achieve their goals for customers, shareholders, and employees. The course has special emphasis on providing a broad overview of business to augment students' major area of study for their professional development. Several sections of the course in the Fall semester are reserved for first-year business students only.

Course Website: <http://tepper.cmu.edu/prospective-students/course-page/70100/global-business>

70-105 Business Leadership Endeavor: Intern

Spring: 1 unit

Business Leadership Endeavor (BLE) is a 3-year undergraduate business course sequence that provides personal development and professional preparation. 70-105 Business Leadership Endeavor: Intern is a one unit course that all Tepper School first-year BA students are required to take during their spring semester to start the BLE sequence. Students in 70-105 become familiar with leadership competencies that will contribute to achievement of personal goals, conduct a self assessment and put together a personal development plan. Students should expect to devote a minimum of 18 hours to preparation of their personal development plan, including attendance at class (2 scheduled), events and presentations, self assessment, learning about activity opportunities, and discussing options with upper class students for completion over their sophomore and junior years. The outcome of the 70-105-205-305 BLE course sequence is student readiness for a professional life of leadership and global citizenship. This course is available to business students only.

70-110 Business Computing

Spring: 9 units

Students will learn how individuals and organizations use computing technologies to support and improve their businesses. At an individual level, students will build their skills with Microsoft Excel and other personal productivity tools. At an organizational level, the class looks at ways in which businesses of all sizes and types leverage computing technologies to run their businesses more efficiently, make better business decisions, and create new business opportunities. This course is reserved for first-year Business students; others may enroll by special permission from the UBA office only.

70-122 Introduction to Accounting

Fall and Spring: 9 units

This course provides the knowledge and skills necessary for the student to understand financial statements and financial records and to 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.

Course Website: <http://tepper.cmu.edu/prospective-students/course-page/70122/introduction-to-accounting>

70-160 Graphic Media Management

Fall and Spring: 9 units

This course covers fundamental topics related to graphic media. Modern graphic techniques are studied in context of the historical developments that underlie them. The greatest emphasis is placed on the current graphic processes, but studying their historical development gives the learner better understanding of their applications today, as well as a sense of the direction in which technology can be expected to move in the future. Information from this course can provide professionals in all industries with tactical advantages in choosing among graphic media options when allocating their media budgets. This course is designed to equip students with a measure of graphic literacy, which refers to the skills and knowledge needed to produce graphic documents that enhance the communication aims of the author. Graphic literacy is an invaluable skill for success in the communication age wherein most professionals are engaged in some aspect of producing graphic documents. Topics of investigation include: traditional printing methods, typography, color reproduction, digital photography, digital cinema, papermaking, electronic paper, graphic displays, inks & coatings, finishing techniques, document security, electrophotographic printing, inkjet printing, large format printing, and holography. Open to undergraduates of all class years. No prerequisites.

Course Website: <http://tepper.cmu.edu/prospective-students/course-page/70160/graphic-media-management>

70-196 Publishing on the World Wide Web

Fall and Spring: 9 units

This is an introductory course in Publishing on the World Wide Web. The class has both a classroom component and a lab component. Over the past two decades, the World Wide Web has become an essential communications venue for private individuals and businesses alike. The classroom component of this course examines a variety of topics related to web publishing including: the design and usability of web sites, the appropriate use of file formats, the emergence of e-commerce, the integration of other media, the increased use of mobile devices, the sudden rise of social media, the increased use of 3D environments on the web, the delivery of streaming media across the web, and other topics. The lab component of the class takes the students through a series of exercises beginning with HTML and CSS and progressing to the use of Adobe Dreamweaver, one of the premiere web development software programs. Students use these tools to make well-designed functional websites exhibiting the principles learned in the classroom component of the class. The students are instructed in some of the latest web publishing methods, such as the use of HTML5, CSS3, and fluid grid design which allows the same HTML file to be automatically reconfigured for mobile devices, tablets, and desktop computers. Scripting languages and the development of databases for websites are beyond the scope of this class. Open to undergraduates of all class years. No prerequisites. Formerly course number 70-643.

Course Website: <http://tepper.cmu.edu/prospective-students/course-page/70196/publishing-on-the-world-wide-web>

70-205 Business Leadership Endeavor: Analyst

Spring: 4 units

Business Leadership Endeavor (BLE) is a 3-year undergraduate business course sequence that provides students with personal development and professional preparation. 70-205 Business Leadership Analyst is a 4-unit spring semester course that continues the BLE sequence for all Tepper School of Business sophomore BA students. Students registered for 70-205 track their progress on leadership development activities and competency building contributing to achievement of personal goals according to their development plan. Students should expect to devote about 72 hours to planning, participation and reflecting on activities in addition to completing an updated personal development plan for completion during their junior year. The outcome of the BLE course sequence is student readiness for a professional life of self-reliant leadership and global citizenship. The outcome of the 70-105-205-305 BLE course sequence is student readiness for a professional life of leadership and global citizenship.

70-207 Probability and Statistics for Business Applications

Spring and Summer: 9 units

Elementary ideas in probability, statistics, and data analysis are presented in the context of their importance to modern business management. Prerequisites: 21-112 or 21-120

Course Website: <http://tepper.cmu.edu/prospective-students/course-page/70207/probability-and-statistics-for-business>

70-208 Regression Analysis

Fall and Summer: 9 units

This class 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 21-112) and (36-207 or 70-207 or 36-220 or 36-201 or 36-247) and (73-100 or 73-102)

Course Website: <http://tepper.cmu.edu/prospective-students/course-page/70208/regression-analysis>

70-257 Optimization for Business

Spring: 9 units

This course provides a mathematical foundation for the application of optimization techniques to business problems, as well as the practical implementation of these methods. Mathematical optimization techniques have been applied for decades in the context of logistics, supply chain management, and strategic planning, with great success. In recent years, the application of mathematical optimization has penetrated, and in some cases (re-)defined, many other areas such as the (financial) service industry, analytical marketing, health care, and web-based businesses. In this course, the most important methods and techniques underlying mathematical optimization are studied. These include linear programming, integer programming, and nonlinear programming as basic mathematical methodologies. Based on these, we also consider methodologies for particular problem classes such as network models and traveling salesman problems. During the course we will emphasize mathematical modeling, that is, creating a mathematical description that reflects a given practical problem described in words. Motivated by these mathematical models, we then discuss the necessary mathematical techniques for finding optimal solutions. Lastly, we consider the solution of these problems using optimization software, i.e., we represent the mathematical models in Excel and use Excel Solver to compute an optimal solution.

70-305 Business Leadership Endeavor: Manager

Spring: 4 units

Business Leadership Endeavor (BLE) is a 3-year undergraduate business course sequence that provides students with personal development and professional preparation. 70-305 Business Leadership Endeavor: Manager is a 4 unit spring semester course that completes the BLE sequence for all Tepper School junior BA students. Students registered for 70-305 synthesize their leadership development activities and assess achievement of personal goals according to their development plan and the BLE Competency Model. BLE Competencies are collaboration, innovation, critical thinking, network building, self-reliance and global citizenship. Students should expect to devote about 70 hours to professional development, leadership and service activities, self assessment, and presentation of insights about their future entry into professional life. BLE "managers" are instructive role models for BLE "interns" and "analysts", emblematic of how the BLE course sequence readies students for a professional life of leadership and global citizenship. This course is not available to non-business students.

Prerequisite: 70-205

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: 76-245 or 76-327 or 76-347 or 76-331 or 76-100 or 76-102 or 76-101

Course Website: <http://tepper.cmu.edu/prospective-students/course-page/70311/organizational-behavior>

70-318 Managing Effective Work Teams

Fall: 9 units

Over the past decade, managers have greatly expanded their use of teams to accomplish a wide variety of organizational objectives. Teams have emerged as a favorite work arrangement for such ongoing activities as developing new products, providing professional services, and starting new businesses. Temporary groups are frequently assembled for a multitude of purposes, such as making difficult decisions, solving cross-functional problems, generating ideas, or performing unique tasks. Indeed, groups and teams can be found at every level of the organization, from production crews on the shop floor to top management teams in the executive suite. Moreover, advances in communication technology have created the potential for people who are dispersed across the globe to collaborate virtually, creating many new opportunities and challenges for leaders of such teams. Teams are not a panacea, however. Even as they become a way of life in many organizations, widespread myths and misconceptions about teams often stand in the way of effective teamwork. At their worst, teams sometimes create more problems than they solve. The core content of the course is a series of team and group exercises, case analyses, and readings. The exercises are framed and analyzed in terms of readings, lecture, and in-depth class discussions. Much of the learning that occurs in the course will involve exercises, simulations, and cases that draw on students' current experiences in the class as well as their previous experiences in teams and organizations outside of this class.

70-321 Negotiation and Conflict Resolution

Fall and Spring: 9 units

This course will complement the technical and diagnostic skills you have learned in other courses. 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.

Prerequisite: 76-101

Course Website: <http://tepper.cmu.edu/prospective-students/course-page/70321/negotiation-and-conflict-resolution>

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 the 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: 76-101 or 76-102

Course Website: <http://tepper.cmu.edu/prospective-students/course-page/70332/business-society-and-ethics>

70-339 Information Technology for Finance

Spring: 9 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.

Prerequisite: 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: 76-102 or 76-101

Course Website: <http://tepper.cmu.edu/prospective-students/course-page/70340/business-communications>**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: 36-220 or 36-225 or 36-247 or 36-217 or 70-207 or 36-207 or 36-201

Course Website: <http://tepper.cmu.edu/prospective-students/course-page/70341/organizational-communication>**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: 76-102 or 76-101

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: 70-340 or 73-270

Course Website: <http://tepper.cmu.edu/prospective-students/course-page/70345/business-presentations>**70-347 Publishing Management in the Information Age**

Fall and Spring: 9 units

In this course, the publishing industry is studied from a variety of perspectives, but, primarily, with reference to the changes that have been caused by the phenomenon referred to as the information age. The information age is characterized by the ability of individuals to transfer information freely and have instant access to knowledge that would have been difficult or impossible to find previously. The digitization of information and the rise of electronic media have confounded the traditional publishing houses who have struggled to find their footing in this new environment. The information age has also provided new forms of information dissemination and inexpensive means of self-publishing and on-demand publishing. This course examines the history of the publishing industry in western society including books, magazines, and newspapers. It then looks at the disruptive effect that the information age has had in this industry and at the new publishing paradigms that are evolving to take advantage of digital media. The course also includes lab experiences using Adobe InDesign to help students develop skills in designing and preparing pieces for publication by a variety of media. The lab experiences culminate in an independently published book that is written, designed, and assembled entirely by the students in this course. The book stands as a showcase for the research and journalistic skills of the students, as well as, a clear demonstration of the students' proficiency in the content and skills taught in this course. Although this course is open to undergraduates of all class years, it is aimed at 3rd and 4th year students. No prerequisites. The course has been previously listed as number 70-194.

70-348 Cross-Cultural Business Communications

Intermittent: 9 units

This course considers cultural behaviors, assumptions, values, and conflicts surrounding business communication across cultures. It will begin with an evolving definition of "culture" and consider several cultural variables that may affect communicative success (i.e. collectivist/individualist cultures, high-/low-context languages, monochronic/polychronic cultures). Students will research and present findings on the characteristics of specific cultures. They will prepare business documents and presentations that build on the knowledge and skills acquired in 70-340, Business Communication, and reflect new sensitivities to the needs of specific cross-cultural audiences. This course is offered only at the Carnegie Mellon-Qatar campus.

Prerequisites: 76-101 or 67-250 or 15-221

70-349 Color Reproduction & Management

All Semesters: 9 units

Today, we are bombarded by color media in many forms. In the competitive advertising world, the accurate reproduction of color in various media is both a challenge and a necessity. This course examines topics related to the use of color and its reproduction in a variety of media, including photography, print, television, cinema, the Internet. Of prime importance are issues related to the successful specification, transfer, measurement, and application of color to maximize communication efficiency. Students will study the physical nature of light and properties of color, as will the perceptual and psychological aspects of color. The separation of color and the control parameters for optimum color realism will be examined. Modern methods for managing color files to achieve consistent color appearance through different media will be an important focus of the course. The course contains a laboratory component consisting of a series of in-depth exercises in Adobe PhotoShop giving students an opportunity to apply color correction and image manipulation techniques, and to become more adept at using this important software tool. Although this course is open to undergraduates of all class years, it is aimed at 3rd and 4th year students.

70-350 Acting for Business

Fall and Spring: 9 units

Acting for Business (formerly entitled "Business Acting") is an opportunity to unlock your potential as a communicator through becoming proficient, thorough and masterful at the principles and through a practical interpretation of the techniques of Acting. The course concerns itself with: a new self-awareness and greater confidence in public communication; the expansion and diversification of one's range of personal expression; methods to more effectively shape a public performance and of empowering the student to put his/her best self forward when in contact with an audience; and a re-investment in passion. The course focuses on the goals of: 1) solving issues regarding personal confidence; 2) commanding the space; 3) expanding one's personal comfort zone; 4) achieving the "Audience-Pleasing Form;" 5) utilizing the V.A.T. Communication Tools and 6) beginning to learn the stages in the "Seven Stages to Executive Presence." The participants identify their individual challenges and confront those challenges head-on through the various assignments.

Course Website: <http://tepper.cmu.edu/prospective-students/course-page/70350/acting-for-business>

70-352 Business Acting

Spring: 3 units

This is a one-week course that is offered only at CMU in Qatar. 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.

Prerequisite: 76-101

Course Website: <http://tepper.cmu.edu/prospective-students/course-page/70364/business-law>**70-365 International Trade and International Law**

Fall and Spring: 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 73-102

Course Website: <http://tepper.cmu.edu/prospective-students/course-page/70365/international-trade-and-international-l>**70-366 Intellectual Property and E-Commerce**

Spring: 6 units

The course is intended to instruct students on the creation of the Internet and the World Wide Web, including the creation of the Domain Naming System. The course will provide an understanding of how the WWW "Web" operates (from its creation to the present), how the laws of various countries interact with the Web; how issues of privacy are addressed and the role of private parties and government in monitoring privacy. The course will examine how intellectual property is created and protected; who owns the property; and the role of ownership of the intellectual property interacts with antitrust laws. The course examines how contracts are formed and administered on the Web by entities created to minimize taxes and personal liability risks for the owners/shareholders of those entities.

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 management and 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: 70-207 or 36-201 or 36-220 or 36-225 or 36-207 or 36-247

Course Website: <http://tepper.cmu.edu/prospective-students/course-page/70371/operations-management>**70-374 Data Mining & Business Analytics**

Intermittent: 9 units

Interest in big data analytics has skyrocketed recently. The recent explosion in large-scale high-resolution data enables managers to ask and answer questions regarding businesses and consumers at a whole new level. Managers are faced with data about businesses and consumers that are growing faster than they can be utilized. Data mining enables business to extract useful consumer behavior and preferences from seemingly tremendous and unorganized data, which then can be utilized for data-driven decision-making and competitive advantage. Applications can be found in e-commerce, sales, marketing, finance, operations, etc. In this hands-on introductory class, you will learn the basic concepts and techniques of data mining in addition to when and how they can be applied to improve many aspects of business and consumers' welfare. We will discuss the marvelous power of data mining concepts and tools applied to data via troves of current real-world examples, such as recommender systems, customer segmentation, etc. Throughout the course, we will use R, a powerful open-source statistical language and one of the main tools in data mining and business analytics, fast becoming a mainstream tool. With this tool, you will learn about variety of exploratory and predictive data analytics techniques such as Naïve Bayes classifier, nearest neighbor approaches, decision trees, clustering algorithms, etc.

Prerequisites: 70-208 or 36-202 or 36-208

70-376 Energy Systems

Fall: 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.

Course Website: <http://tepper.cmu.edu/prospective-students/course-page/70376/energy-systems>**70-381 Marketing I**

Fall and Spring: 9 units

An introduction to the nature and fundamentals of marketing and consumer behavior. Topics include an analysis of the economic and psychological factors influencing buyer behavior, marketing research, market segmentation, and the development of marketing programs (new product, price, advertising and distribution decisions).

Prerequisites: 76-101 or 76-102

Course Website: <http://tepper.cmu.edu/prospective-students/course-page/70381/marketing>**70-385 Consumer Behavior**

Spring: 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 people are 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

70-386 Applied Behavioral Decision Making For Business

Intermittent: 6 units

This course is intended to give future managers, consultants, and policy makers an introduction to the insights and applications of behavioral decision making. Behavioral decision making is the interdisciplinary study of how people make decisions. It draws together research from psychology, economics, political science, and management, among other fields. Topics include heuristics and biases in inference and prediction, risk perceptions and attitudes, and the roles of group and emotional processes in decision making. In this course we will address applications of these findings from the various behavioral sciences to the study of business. This course is offered only at the Carnegie Mellon-Qatar campus.

Prerequisites: (36-201 or 70-207) and 73-100

70-391 Finance

Fall and Spring: 9 units

Firms create value by making good investment decisions. Finance is the field of management science tasked with making this happen. It is a set of tools with which firms identify good investments and decide how to pay for them. Paying for them ultimately involves getting money from households. Therefore, finance also describes the investment decisions of households and the resulting allocation of the economy's resources across firms and time. This course is the introductory finance course in the undergraduate business program. 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 will also provide an introduction to option markets and derivative securities. Upon completing the course a student will be able to consider a large and complex business problem, make some assumptions, structure the firms' cash flows in a spreadsheet, calculate the value of different solutions to the problem, and make a decision.

Prerequisites: (73-100 or 73-102) and (36-217 or 36-201 or 70-207 or 36-207 or 36-225)

Course Website: <http://tepper.cmu.edu/prospective-students/course-page/70391/finance>**70-395 Funding Entrepreneurial Ventures**

Fall: 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.

Course Website: <http://tepper.cmu.edu/prospective-students/course-page/70395/funding-entrepreneurial-ventures>**70-398 International Finance**

Spring: 9 units

International Finance is an elective course designed to give students the opportunity to analyze real-world problems in international capital markets. Topics covered include: exchange rate determination and quoting, international parity relations, foreign exchange hedging strategies using forwards and options, foreign exchange exposure management, international bond market, currency swap market, global equity market, international portfolio risk assessment and performance measurement. Students develop problem solving and communication skills with presentations and critical discussions of case studies.

Prerequisite: 70-391

70-401 Management Game

Fall and 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. Student teams assume the role 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. The course is reserved for senior-year business majors and additional majors.

Prerequisites: 70-122 and 70-371 and 70-381 and 70-391

Course Website: <http://tepper.cmu.edu/prospective-students/course-page/70401/management-game>**70-414 Entrepreneurship for Engineers**

Fall: 9 units

This introductory course in entrepreneurship 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.

Course Website: <http://tepper.cmu.edu/prospective-students/course-page/70414/entrepreneurship-for-engineers>**70-415 Introduction to Entrepreneurship**

Fall and Spring: 9 units

This course is designed primarily to provide an overview of entrepreneurship, develop an entrepreneurial frame of mind and learn the rudiments of how to differentiate an idea from an opportunity. Students come up with a business idea and explore its potential for becoming a viable business. They learn to do market research and experience first-hand the rewards and difficulties in dealing with people in the real world. They will meet entrepreneurs and business professionals as part of the course and learn how to make effective presentations - both written and oral. Other important aspects of the course include self-assessment to determine one's strengths and weaknesses, understanding the "magic" of leadership and gaining an entrepreneurial perspective on life.

Course Website: <http://tepper.cmu.edu/prospective-students/course-page/70415/introduction-to-entrepreneurship>**70-416 New Venture Creation**

Spring: 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.

Prerequisites: 70-425 or 70-415 Min. grade C or 70-420 Min. grade C or 70-421 Min. grade C or 70-414 Min. grade C or 15-390

70-420 Entrepreneurship for Scientists

Fall: 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.

Course Website: <http://tepper.cmu.edu/prospective-students/course-page/70420/entrepreneurship-for-scientists>

70-421 Entrepreneurship for Computer Scientists

Fall: 9 units

This course is primarily for non-business school students; it includes most of Introduction to Entrepreneurship (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 year or higher.

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 (36-207 or 70-207 or 36-201)

70-423 Technology-Based Entrepreneurship

Spring: 9 units

This course is offered only at Carnegie Mellon's campus in Qatar. This course is designed as an introduction to entrepreneurship and basic business concepts for engineering and science students. There are no prerequisites. Students learn basic business concepts, business models, entrepreneurial thinking, idea generation, opportunity recognition, and the basics of accounting, marketing and strategy development. There is no final examination. Instead, students, working in teams, generate an original idea for a startup business and prepare a business plan and an investor presentation, which sets forth the basic strategies, business models and evaluates the opportunity afforded by their original idea. This course also is consistent with the broad mission of Carnegie Mellon University in Qatar's entrepreneurship program, which is described below. The broad mission of the entrepreneurship program at Carnegie Mellon University in Qatar is three-pronged: a.To encourage and develop entrepreneurial and innovative thinking in a business setting, whether or not it is a startup company; b.To obtain the basic skills to start a new venture; c.To stimulate self-evaluation for life direction.

70-424 Corporate Financial Reporting

Fall and 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 emphasizes 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

Course Website: <http://tepper.cmu.edu/prospective-students/course-page/70424/corporate-financial-reporting>**70-425 Entrepreneurship for the Creative Industries**

Spring: 9 units

This is an introductory course designed primarily for undergraduates in the College of Fine Arts who want to create new businesses, products, services, or thriving careers as independent artists. Students can expect to develop an entrepreneurial mindset, learn how creative firms and industries are structured, and build practical skills for finding, evaluating and putting entrepreneurial opportunities into action. We will analyze real world examples, for-profit and not-for-profit, from film, art, architecture, fashion, music, media, theater, retail, and design. The class will explore the core functional areas critical to building entrepreneurial entities, including teams, ideation, marketing and sales, financial analysis, and funding. Interdisciplinary teams will generate ideas and explore their potential as viable businesses or sustainable not-for-profits. Lectures, guest speakers, case studies, and exercises will also be integrated.

70-427 Modern Banks: Strategy and Regulation

Spring: 9 units

This course focuses on (1) the financial statement analysis of banks and bank-like financial institutions (thrifts, mortgage banks, and commercial banks); and (2) the accounting and disclosure rules for financial instruments they hold (interest rate risk disclosures, loan loss disclosures, fair value accounting for financial instruments, securitization accounting, derivatives and hedge accounting, and market risk disclosures). The main goal of the course is to provide students with an in-depth understanding of how financial reports provide unusually specific and detailed (but not perfect) information about certain risks and performance of these financial institutions. Their financial statements increasingly are based on fair value accounting and their financial reports include increasingly extensive risk and estimation sensitivity disclosures. Both fair value accounting and risk and estimation sensitivity disclosures are necessary ingredients for financial reports to convey financial institutions' risk and performance in today's world of complex, structured, value and risk partitioning financial instruments and transactions. While financial institutions often report imperfect (or worse) fair value measurements and risk and estimation sensitivity disclosures, careful joint analysis of the information they do provide invariably yields important clues about their risks and performance. While this course is most relevant to students interested in financial institutions, much of the accounting material also pertains to a varying extent to other types of firms. For example, many firms securitize their accounts receivable or hedge their commodity, interest rate, or foreign exchange risk using derivatives.

Prerequisites: 70-122 and 70-391

70-428 Financial Statement Analysis

Fall and Spring: 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. Taking Finance (70-391) before this course is recommended, though not a formal prerequisite. Prerequisite: 70-122

Course Website: <http://tepper.cmu.edu/prospective-students/course-page/70428/financial-statement-analysis>**70-429 Accounting for Financial Institutions**

Fall: 9 units

The banking sector is important because it drives the financial growth of an economy. This sector accepts deposits from the public and issues loans, and thus the banking sector expands in response to positive changes in retail, corporate and government business demand. Similarly, if a slowdown occurs this results in a reduction in demand for banking sector services. As a result, the important starting point for a financial analyst, who wants to assess current and future economic growth, are the financial statements of banks and the information they contain. To extract this information, however, requires being able to read and interpret the financial statements of a bank. These statements are very different from reading traditional corporate financial statements. As a result, the first objective of this course is to learn how to read financial statements generated from the banking sector including how to interpret and evaluate these statements. The banking sector in Qatar is unique because it has two important and separate subsectors — Islamic and conventional banking. Each of these subsectors have a different banking business model which in turn generate differences in their financial statements. As a result a second important objective for this course is to learn how to read and evaluate the financial statements from each of these subsectors. 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, 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 Strategic Management

Intermittent: 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 focuses on how organizations innovate or create new knowledge, how they retain knowledge, and how they transfer knowledge throughout enterprises. 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 successful performance. A mix of lectures, cases and exercises are used to increase your ability to create, retain and transfer knowledge effectively in organizations.

Prerequisites: 36-225 or 36-226 or 70-208 or 36-220 or 36-202 or 36-217 or 36-208

70-438 Commercialization and Innovation

Spring: 9 units

This course targets innovators and entrepreneurs who are interested in introducing innovations to the marketplace through start-up, emerging and established organizations. Class participants will learn how to evaluate, develop and implement opportunities for innovation, using an emergent or iterative approach (the lean methodology). Selected industries of interest of importance for economic growth are analyzed. Opportunities for driving or anticipating change are examined using prevailing SET factors (societal, economic, technology). Students then learn a methodology to identify Signals of change involving three customer groups and one non-customer group - undershot customers, non-consumers, overshoot customers, in addition to the nonmarket contexts. The Competitive set is analyzed and strategic choices are made. The Resources, Processes and Values (RPV) of the competitive set are analyzed and utilized for informed decision making. Prerequisites: (73-102 or 73-100) and (70-414 or 70-415 or 70-425 or 70-420 or 70-421)

70-440 Corporate Strategy

Spring: 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.

70-443 Digital Marketing and Social Media Strategy

Spring: 9 units

This course explores issues related to digital and social media marketing. This is a hands-on class where you will use real world data, case studies and participation in Google online marketing challenge. The following topics would be covered in detail: (a) Search Engine Optimization - you will learn how search engines, keyword auctions, and search engine marketing work, and how to optimize your pay per click advertisement efforts; (b) Econo-Mining - you will also learn on how firms are getting or can get useful information from user generated content using text mining and opinion mining capabilities to drive their product development, placement and advertisement decisions. Using real world data you will analyze whether the traditional approaches for driving advertising or product development strategy are in alignment with what you learn from user generated content; (c) Social Media Marketing - you will learn how to design a social media marketing campaign. What are the key ingredients that make such campaigns successful? How do you run a campaign for a viral product; (d) Forecasting Demand Using Publicly Available Online Search Data - you will learn how to build better forecasting models for demand using Google search data (Google Trends and Insights); (e) Wisdom of the Crowds: we will cover how to design crowdsourcing contests, what and how to crowdsource. You will also learn what prediction markets are, how they work, how to design them, when prediction markets are successful and what kinds of questions are best suited for prediction markets.

Course Website: <http://tepper.cmu.edu/prospective-students/course-page/70443/digital-marketing-and-social-media-stra>

70-447 Client Consulting Project: Strategic Management of the Enterprise

Fall: 12 units

This is a project course for senior business majors offered in partnership with real-world client companies. Teams of five to six students are given a client to engage with for the semester on a specific consulting project assignment. Students will learn about the challenges of the multi-dimensional and complex issues faced by managers, including learning the concepts and skills to handle ambiguity, perform a persuasive data analysis, and communicate the findings effectively. Students will develop a deeper understanding of how organizations can co-ordinate and leverage synergies across a range of disciplines by effective deployment of technologies and organizational structures and processes. Teams will have an opportunity to work with clients on a wide mix of problems spanning multiple functions, including strategy, operations, technology and marketing. Specifically, teams will address issues such as big data, mobile application strategies, supply chain, digital media, complexity management, health care delivery models and healthcare marketing strategy. Regular meetings with the instructor will be scheduled to guide teams during client engagement and co-ordinate with the executives at their client company. The deliverables will be in the form of a report/prototype and a final presentation to the client's executive team. No classes to attend, but weekly team meetings with times to be determined. The course is for undergraduate business seniors only, and enrollment is by special permission. Prerequisites: 70-371 and 70-381 and 70-391

70-449 Social, Economic and Information Networks

Spring: 9 units

Interaction is a fundamental part of social science: firms market products to consumers, people share opinions and information with their friends, workers collaborate on projects, agents form alliances and coalitions. In this course, we will use the emerging field of social networks to put structure on this diverse mass of connections. Using a mixture of theoretical, empirical, and computational methods, we will learn about the structure and function of social networks. We will look at how an individual's position in a social network reflects her role in the community. We will learn to identify tastemakers and trendsetters by looking at how information moves through our increasingly connected society. We will consider how our own position in the social network affects our behavior, opinions, and outcomes. And we will explore where social networks come from, and what affects their structure. The material in this course will be interdisciplinary, drawn from the fields of math, computer science, physics, sociology, political science, and economics. By the end of the course, you will have the tools and knowledge needed to analyze social networks on your own. The course is capped with a project where you will use your skills to answer your own questions.

Prerequisites: 73-230 Min. grade C and (70-207 or 36-201 or 36-207)

Course Website: <http://tepper.cmu.edu/prospective-students/course-page/70449/social-economic-information-networks>

70-453 Business Technology for 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. Prerequisites: 70-451 or 70-110

Course Website: <http://tepper.cmu.edu/prospective-students/course-page/70453/business-technology-for-consulting>

70-455 Modern Data Management

Spring: 9 units

The goal of this class is to learn organizing, analyzing, querying, interpreting and drawing conclusions from structured data, and modeling business scenarios in relational databases. Thus, the notion of "Data Management" here includes both data analysis and synthesizing conclusions into fact-based, data-driven recommendations. CONTENT 1. advanced Excel functions (e.g., Pivot tables, lookup functions, connecting Excel to relational databases) 2. synthesis (i.e. the ability to create data-driven charts and top-down recommendations) 3. the use of SQL to create and query relational databases 4. data modeling and relational design, i.e. the abstraction and representation of business situations as Entity Relationship (ER) diagrams and the transformation of those into normalized database schemas. CLASSROOM EXPECTATIONS: 1) Cold-calling: I follow an active learning approach requiring high introspection/ reflection/ learning via readings/ preparations before classes, and high interaction during class where students share their insights. This "flipped classroom" requires that you learn the material I post before coming to class. In class, I like to focus on applying skills as much as possible. It also implies that I will cold call students as integral part of our classroom experience. 2) Final exam: This class has proctored midterm and final exams that are comprehensive and by design difficult. But class grades are "soft-curved," i.e. overall class participation and class performance across years determines cut-off percentages. One of the homeworks for this class is solving the final exam from a prior year. 3) The class cannot be audited nor taken pass/fail.

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: 21-292 or 21-257 or 70-257

Course Website: <http://tepper.cmu.edu/prospective-students/course-page/70460/mathematical-models-for-consulting>

70-462 Stochastic Modeling and Simulations

Intermittent: 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, 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 36-201 or 36-207 or 70-207 or 36-220

70-465 Technology Strategy

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

Fall: 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 as 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

70-477 Real Options: Creating Value Beyond NPV

Fall: 9 units

Real options analysis is an approach to the management of operational assets that exploits managerial flexibility in decision-making and combines it with market-driven valuation of cash flows. This approach assumes that managers use all the available information when making decisions. It is thus particularly useful when managing projects that involve dynamic and state-contingent choices among alternatives (options), especially of a strategic nature. Examples include investing in and developing new products or technology, expanding/reducing manufacturing capacity, and suspending/resuming production. The valuation of financial options is the conceptual basis of real options management (but this course does not assume prior knowledge of this topic). Real options analysis extends this fundamental market-driven valuation approach to a much broader spectrum of business applications that feature dynamic decision-making. It thus contrasts the standard net present value rule used by static discounted cash flow analysis. The resulting managerial decisions and asset valuations can be very different when real options analysis is used rather than static discounted cash flow analysis. The course learning objectives are to (i) develop the students ability to take an unstructured problem and implement real options analysis in a structured manner; (ii) integrate market-driven valuation and dynamic decision-making techniques into a practical, yet rigorous, business analytics toolkit; and (iii) provide examples of successful practice and applications in a variety of industries.

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.

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: (70-208 or 36-202) and 70-381

Course Website: <http://tepper.cmu.edu/prospective-students/course-page/70481/marketing-research>**70-482 Pricing Strategy**

Intermittent: 9 units

Pricing is a critical marketing decision which enables a firm to translate customer value into profit. This course provides a first survey of pricing concepts. Instead of discussing pricing in isolation, we focus on the interplay between pricing and other aspects of marketing, such as positioning, branding and advertising. To this end, we provide a formal treatment of pricing concepts in the framework of game theory. Finally, we also discuss non-pricing tools that firms can use in order to capture customer value. Specifically, we cover cases wherein firms generate a profit while keeping their services free, a phenomena that is widely observed among Internet firms. This course has no formal prerequisite, but a willingness to study formal (i.e., mathematical) models is assumed. Any previous exposure to microeconomics analysis and game theory will be helpful.

Course Website: <http://tepper.cmu.edu/prospective-students/course-page/70482/pricing-strategy>**70-483 Advertising and Marketing Communications**

Intermittent: 9 units

"Integrated Marketing Communications (IMC) is a strategic business process used to plan, develop, execute, and evaluate coordinated, measurable, persuasive brand communication programs over time with consumers, customers, prospects, and other targeted, relevant external and internal audiences." (source: Don Schultz). IMC is specifically designed to ensure that all communication strategies and messages are unified and integrated across all channels and, importantly, begin with the consumer/customer. It is critical that marketers understand the limitations of marcom tactics as well as how to best leverage and integrate marcom tactics for the strongest, most consistent and authentic brand voice in the targeted marketplace. The entire IMC process is driven by the customer, and in the case of our discussions in this class, the consumer. The course is designed to help students understand the integrated marketing communications model, the strategy and tools of the marketing mix and what makes an iconic brand. The course is designed in five sections: Part One focuses on understanding brands - iconic brands, terminology and types of branding. Part Two focuses on the understanding of consumer behavior - one of the, if not the most critical part of understanding marketing. Brands are built and defined in the minds of consumers. Part Three focuses on IMC and the framework used by brand management to develop strategy, and understand audience segmentation and brand positioning to drive IMC. Part Four focuses on understanding the IMC tactics available to marketers including advertising, social media and digital marketing, events and public relations. Part five concludes with the deeper study of an iconic brand.

Prerequisite: 70-381

Course Website: <http://tepper.cmu.edu/prospective-students/course-page/70483/advertising-and-marketing-communication>**70-485 Product and Brand Management**

Fall: 9 units

Product managers are essentially the "CEO" of the product line. Brand and product management provides strategic vision and leadership for the product and service, both 1) understanding the market opportunity and what must be done for successfully delivering on the brand promise and 2) leading across the organization, often without authority, to achieve that success. Product/service success in a dynamic market is subject to many factors, including marketplace needs, reactions and activities of competition, the strategy and change within one's own firm, operating and financial constraints, demand forecast uncertainty, and more. By taking this course, 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

70-488 Marketing Digital Media

Spring: 6 units

(Formerly titled "Interactive Marketing") In this course we analyze how marketing practice changes when products are distributed and consumed in digital formats. This course focuses on several areas where digitization is likely to have the most profound affect on the field of marketing. These areas include promotion, competitive strategy, channel conflict, pricing, and identifying and differentiating customers. We will use both lectures, cases, and analysis of real-world datasets to analyze these issues.

Prerequisite: 70-381

70-491 Responsible Finance

Fall: 9 units

One of the outcomes from the financial crash of 2008 and the resulting credibility gap faced by traditional financial institutions has been a strong growth in the Responsible Finance sector with Thomson Reuters estimating investments in this sector at US\$59 trillion. The purpose of the Responsible Finance course is to introduce the students to this rapidly growing sector and help them gain an understanding of the driving forces behind the growth as well as the knowledge of the products in this space. The course be delivered in modules covering Islamic Finance, Social Banking and challenges posed by FinTech to the conventional Banking Market. Given that these markets are expected to challenge the traditional banking sector, this course complements our existing selection of finance electives to help students get a comprehensive view of the global financial sector and gain access to a broader job market that goes beyond traditional banking.

Prerequisite: 70-391

70-492 Investment Analysis

Fall: 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: 21-370 or 70-391

70-495 Corporate Finance

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

Spring: 9 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.

Prerequisites: 70-391 or 21-370

Course Website: <http://tepper.cmu.edu/prospective-students/course-page/70497/derivative-securities>

70-499 Internship

Fall and Spring

Business Administration students doing an internship for academic credit may enroll in this course for either three or six units with a pass/no pass grade. Enrollment is by special permission only. Students must submit an internship agreement form to their academic advisor for approval to receive credit. Once approved, the student will be enrolled by their advisor.

70-500 Honors Thesis I

Fall

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 Director. Enrollment by permission of the BA Program.

70-502 Independent Study in Management

Fall and Spring

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

Missing Course Description - please contact the teaching department.

70-514 Independent Study: Graphic Media Management

Fall and Spring

This course enables students to independently pursue special topics related to graphic media. Enrollment is by permission of the Instructor and the Executive Director of the Business Administration program.