MANAGERIAL ECONOMICS

15.002 Sloan Innovation Period Requirement
Prereq: None
G (Fall, IAP, Spring, Summer)
Units arranged [P/D/F]

Units assigned to MBA students upon completion of the Sloan Innovation Period requirement. MBAs only.
T. Walor

15.010 Economic Analysis for Business Decisions
Prereq: 14.01
G (Fall)
4-0-5 H-LEVEL Grad Credit

15.011 Economic Analysis for Business Decisions
Prereq: 14.01
G (Fall)
4-0-5

Introduces students to principles of microeconomic analysis used in managerial decision-making. Topics include demand, cost and surplus analysis, the behavior of competitive and non-competitive markets, sources and uses of market power, and game theory and competitive strategy, with applications to various business and public policy decisions. Antitrust policy and other government regulations are also discussed. 15.010 restricted to first-year Sloan master's students. 15.011 primarily for non-Sloan School students.
J. Doyle

15.012 Applied Macro- and International Economics
Prereq: None
G (Spring; first half of term)
2-0-4

Uses case studies to investigate the macroeconomic environment in which firms operate. First half of course develops the basic tools of macroeconomic management: monetary, fiscal, and exchange rate policy. Discusses recent emerging market and financial crises, examining their causes, how best to address them, and how to prevent them from recurring in the future. Second half evaluates different strategies of economic development. Topics include growth, the role of debt and foreign aid, and the reliance on natural resources.
R. Rigobon, T. Suri, L. Thurow

15.013 Industrial Economics for Strategic Decisions
Prereq: 15.010 or 15.011
G (Fall)
3-0-9 H-LEVEL Grad Credit

Applies principles of industrial economics most relevant for corporate strategy to analysis of particular industries. Topics include market structure and its determinants; rational strategic behavior in small numbers situations; strategies for price and nonprice competition; dynamic pricing, output, and advertising decisions; entry and entry deterrence; network externalities, investments in real options, evolution of industries.
R. Pindyck, R. Schmalensee

15.014 Macroeconomic Development and Sustainability
Prereq: 15.012 or 15.015
G (Fall; second half of term)
2-0-4 H-LEVEL Grad Credit

Builds on 15.012 to establish an understanding of the development processes of societies and economies, the role of social entrepreneurship, and consequences for sustainability. Discusses current challenges that face emerging markets: health and the HIV epidemic, education and poverty, the emergence of financial and other markets, inflation and the role of commodity prices, macroeconomic management and the implications for policy. Across all dimensions, considers the roles of private and social entrepreneurs, as well as the public sector.
R. Rigobon, T. Suri

15.015 Macro and International Economics
Prereq: Permission of instructor
G (Fall; first half of term)
2-0-4 H-LEVEL Grad Credit

Focuses on the policy and economic environment of firms. Subject divided in three parts: study of the closed economy and how monetary and fiscal policy interacts with employment, GNP, inflation, and interest rates; examination of national economic strategies for development and growth, and study of the recent financial and currency crises in emerging markets; study of the problems faced by transition economies and the role of institutions both as the engine of growth, and as the constraints for policy. Restricted to Sloan Fellows in Innovation and Global Leadership.
R. Rigobon

15.018 Global Economic Challenges
Prereq: Permission of instructor
G (Spring; first half of term)
3-0-3 H-LEVEL Grad Credit

Builds on the basic tools of macro and international economics to provide in-depth analysis of major global economic challenges. First half of course examines causes of, and responses to, financial crises. Begins with historical examples and builds up to the current global crisis. Covers topics such as bubbles, financial contagion, capital controls, and crisis prediction. Second half explores major global economic challenges, such as aging populations, global warming, massive trade imbalances, sovereign wealth funds, inequality and poverty, oil and commodity markets, outsourcing, foreign aid, international institutions, and the implications of increased competition from the BRICs (Brazil, Russia, India, and China) and "frontier" economies. Completion of 15.012 or 15.015 recommended.
K. Forbes

15.021J Real Estate Economics
(Same subject as 11.433J)
Prereq: 14.01, 15.010, or 15.011
G (Fall)
4-0-8 H-LEVEL Grad Credit

See description under subject 11.433J.
W. C. Wheaton

15.023J Global Climate Change: Economics, Science, and Policy
(Same subject as 12.848J, ESD.128J)
(Subject meets with 12.348J, 15.026J)
Prereq: Calculus II (GIR); 5.60; 14.01 or 15.010; or permission of instructor
G (Spring)
3-0-6 H-LEVEL Grad Credit

Introduces scientific, economic, and ecological issues underlying the threat of global climate change, and the institutions engaged in negoti-

ating an international response. Develops an integrated approach to analysis of climate change processes, and assessment of proposed policy measures, drawing on research and model development within the MIT Joint Program on the Science and Policy of Global Change. Graduate students are expected to explore the topic in greater depth through reading and individual research.
H. D. Jacoby, R. G. Prinn

15.024 Applied Economics for Managers
Prereq: Permission of instructor
G (Summer)
3-0-6 H-LEVEL Grad Credit

Develops facility with concepts, language, and analytical tools of economics. Primary focus on microeconomics, analysis of markets and strategic interactions among firms. Emphasizes integration of theory, data, and judgment in the analysis of corporate decisions, and in the assessment of the changing global business environment. Restricted to MIT Sloan Fellows in Innovation and Global Leadership.
T. Stoker

15.025 Game Theory for Strategic Advantage
Prereq: 15.010
G (Spring)
3-0-6 H-LEVEL Grad Credit

Develops and applies principles of game theory relevant to managers' strategic decisions. Topics include how to reason about strategies; "irrational" actions, reputation, and beliefs; entry deterrence; strategic substitutes and complements; brinkmanship and negotiation; and auctions. Applications to a variety of business decisions that arise in different industries.
Staff

15.026J Global Climate Change: Economics, Science, and Policy (New)
(Same subject as 12.348J)
(Subject meets with 12.848J, 15.023J, ESD.128J)
Prereq: Calculus II (GIR); 5.60; 14.01 or 15.010; or permission of instructor
U (Spring)
3-0-6

See description under subject 15.023J. 12.340 recommended for undergraduates.
H. D. Jacoby, R. G. Prinn

15.031J Energy Decisions, Markets, and Policies (New)
(Same subject as 14.43J, 21A.341J)
Prereq: 14.01 or permission of instructor
U (Spring)
4-0-8

Structured around choices and constraints regarding sources and uses of energy by households, firms, and governments. Introduces managerial, economic, political, social and cultural frameworks for describing and explaining behavior at various levels of aggregation; includes examples of cost-benefit, organizational and institutional analyses of energy generation, distribution, and consumption. Topics include the role of markets and prices; financial analysis of energy-related investments; institutional path dependence; economic and political determinants of government regulation and the impact of regulation on decisions; other forms of government action and social norms regarding desired behavior and opportunities for businesses and consumers, including feedback into the political/regulatory system. Examples drawn from a wide range of countries and settings.
D. Lessard, R. Schmalensee, S. Silbey

15.034 Data Analysis for Management
Prereq: None
G (Fall)
3-0-6

Enables students to understand and conduct careful empirical work using regression analysis as used in business fields such as finance, marketing and strategy, as well as in general business planning and forecasting. Emphasizes model formulation, intuition, and critical evaluation of results. Learning is primarily through empirical work done by student groups; delivered through problem sets, short write-ups, presentations and debates.
R. Rigobon, T. Stoker

15.040 Special Seminar in Managerial Economics
Prereq: 15.010, 15.012
G (Fall, Spring)
Units arranged H-LEVEL Grad Credit
Can be repeated for credit

Group study of current topics related to managerial economics not otherwise included in curriculum.
T. M. Stoker

OPERATIONS RESEARCH/ STATISTICS

15.053 Optimization Methods in Management Science
Prereq: None
U (Spring)
4-0-8

Introduces students to the theory, algorithms, and applications of optimization. The optimization methodologies include linear programming, network optimization, integer programming, and decision trees. Applications to logistics, manufacturing, transportation, marketing, project management, and finance.
J. B. Orlin

15.054J The Airline Industry
(Same subject as 1.232J, 16.71J, ESD.217J)
Prereq: None
G (Fall)
3-0-9

See description under subject 16.71J.
P. P. Belobaba, A. I. Barnett, C. Barnhart, R. J. Hansman, T. A. Kochan, A. R. Odoni

15.060 Data, Models, and Decisions
Prereq: Permission of instructor
G (Fall)
3-0-6 H-LEVEL Grad Credit

Introduces students to the basic tools in using data to make informed management decisions. Covers introductory probability, decision analysis, basic statistics, regression, simulation, linear and nonlinear optimization, and discrete optimization. Computer spreadsheet exercises, cases, and examples drawn from marketing, finance, operations management, and other management functions. Restricted to first-year Sloan master's students.
D. Bertsimas, R. Freund, G. Perakis, A. S. Schulz

15.062J Data Mining: Finding the Data and Models that Create Value
(Same subject as ESD.754J)
Prereq: 15.060, 15.074, or 15.075
G (Fall; first half of term)
2-0-4 H-LEVEL Grad Credit

Introduction to a class of methods known as data mining or machine learning that assist managers in recognizing patterns and making intelligent use of massive amounts of electronic data collected via the internet, e-commerce, electronic banking, point-of-sale devices, bar-code readers, and intelligent machines. Topics selected from logistic regression; association rules; tree-structured classification and regression; cluster analysis; discriminant analysis;

and neural network methods. Examples of successful applications in areas such as credit ratings, fraud detection, marketing, customer relationship management, investments, and logistics are covered. Introduction to data-mining software.
R. Welsch

15.063 Communicating with Data
Prereq: Permission of instructor
G (Summer)
3-0-6 H-LEVEL Grad Credit

Introduces statistical tools and communication skills for using data to influence management decisions. In real-life decisions, decision makers use both analytical and intuitive approaches to understand problems and to persuade others to act. Statistical tools are important, but statistical arguments are often met with skepticism. Subject covers decision analysis, communication principles, probability, testing theories, statistical sampling and regression, and misuses of statistics, with exercises and examples drawn from marketing, finance, operations management, strategy, and law. Restricted to MIT Sloan Fellows in Innovation and Global Leadership.
A. Barnett

15.064J Engineering Probability and Statistics
(Same subject as ESD.751J)
Prereq: Calculus II (GIR)
G (Summer)
4-0-8 H-LEVEL Grad Credit

Modeling and analysis of uncertainty and variation. Probability models and distributions, regression, and basic statistical procedures pertinent to manufacturing and operations. Introduction to experimental and robust design, statistical process control, and forecasting. Use of a data analysis package such as JMP or Minitab. Primarily for Leaders for Global Operations students.
A. I. Barnett, R. Welsch

15.066J System Optimization and Analysis for Manufacturing
(Same subject as 2.851J, ESD.750J)
Prereq: Calculus II (GIR)
G (Summer)
4-0-8 H-LEVEL Grad Credit

Introduction to mathematical modeling, optimization, and simulation, as applied to manufacturing. Specific methods include linear programming, network flow problems, integer and nonlinear programming, discrete-event simulation, heuristics and computer applications for manufacturing processes and systems. Restricted to Leaders for Global Operations students.
S. C. Graves, J. P. Clark, J. Gallien

15.067 Competitive Decision-Making and Negotiation
Prereq: None
G (Fall, Spring; partial term)
3-0-3

Learn tools to achieve negotiation objectives fairly and responsibly. Negotiation skills developed by active participation in a variety of negotiation settings: an oil price (repetitive Prisoners' Dilemma) negotiation; fair division of a valuable art collection and a series of integrative bargaining cases between two and more than two parties over multiple issues; e.g. owners of an online vendor of mid-priced wines negotiates sale of the company to a large chain; two companies negotiate an IT deal. Several complex team negotiations follow. Grades depend solely on effective negotiation with class counterparts. Students must complete all negotiation exercises in order to receive a grade.
G. M. Kaufman

15.068 Statistical Consulting
Prereq: 15.060
G (Spring)
3-0-6 H-LEVEL Grad Credit

Addresses statistical issues as a consultant would face them: deciphering the client's question; finding appropriate data; performing a viable analysis; and presenting the results in compelling ways. Real-life cases and examples.
A. I. Barnett

15.070J Advanced Stochastic Processes
(Same subject as 6.265J)
Prereq: 6.431, 15.085J, or 18.100
Acad Year 2009–2010: G (Fall)
Acad Year 2010–2011: Not offered
3-0-9 H-LEVEL Grad Credit

Analysis and modeling of stochastic processes. Topics include measure theoretic probability, martingales, filtration, and stopping theorems; elements of large deviations theory; Brownian motion and reflected Brownian motion; stochastic integration and Ito calculus; functional limit theorems. Applications to finance theory, insurance, queueing and inventory models.
D. Gamarnik, D. Shah

15.071 The Edge: Decision Methodologies for Managers
Prereq: 15.053 or 15.060
G (Spring)
3-0-6 H-LEVEL Grad Credit

Presents real world examples, in which quantitative methods provide a significant competitive edge that has led to a first order impact on a variety of some of today's most important companies. Examples include: finance (quantitative asset management and options pricing), sports, health care, revenue management, supply chains, and the internet. The class outlines the competitive landscape, presents the key quantitative methods that created the edge (data mining, dynamic optimization, simulation), and discusses the impact of these methods. Team projects.
D. Bertsimas

15.072J Queues: Theory and Applications
(Same subject as 6.264J)
Prereq: 6.262
G (Spring)
3-0-9 H-LEVEL Grad Credit

Modeling and analysis of queueing systems, with applications in communications, manufacturing, computers, call centers, service industries and transportation. Topics include birth-death processes and simple Markovian queues, networks of queues and product form networks, single and multi-server queues, multi-class queueing networks, fluid models, adversarial queueing networks, heavy-traffic theory and diffusion approximations. Covers state of the art results which lead to research opportunities.
D. Bertsimas, D. Gamarnik, J. N. Tsitsiklis

15.073J Logistical and Transportation Planning Methods
(Same subject as 1.203J, 6.281J, 16.76J, ESD.216J)
Prereq: 6.041
G (Fall)
3-0-9 H-LEVEL Grad Credit

See description under subject 1.203J.
R. C. Larson, A. R. Odoni, A. I. Barnett, J. B. Orlin

15.074J Statistical Reasoning and Data Modeling
(Same subject as ESD.755J)
Prereq: 6.041, 15.060, or permission of instructor
G (Fall)
4-0-8 H-LEVEL Grad Credit

Designed for students who have some acquaintance with probability and/or statistics and want exposure to a wider range of topics and exam-

ples. The first half reviews statistics and regression by addressing advanced topics like variable selection, regression and data diagnostics, visualization, and robust methods. The second half continues with data-mining including stratified sampling, classification, logistic regression, and clustering; design of experiments and analysis of variance; time series analysis and forecasting; process control; and Bayesian methods. Use of statistical computing systems including Excel add-ins and stand-alone packages. Case studies involving finance, management science, consulting, and engineering systems. Open to undergraduates.
R. E. Welsch

15.075 Statistical Thinking and Data Analysis
Prereq: 6.041 or *Coreq: 18.440*
U (Fall)
4-0-8

Introduces statistical data analysis, concentrating on techniques used in management science and finance. Topics chosen from applied probability, sampling, estimation, hypothesis testing, linear and logistic regression, analysis of variance, categorical data analysis, and misuses of statistics.
A. I. Barnett

15.077J Statistical Learning and Data Mining
(Same subject as ESD.753J)
Prereq: 6.431, 15.085J, or 18.440; 18.06 or 18.700
G (Spring)
4-0-8 H-LEVEL Grad Credit

Advanced introduction to the theory and application of statistics and data mining, concentrating on techniques used in management science, finance, consulting, engineering systems, and bioinformatics. First half builds the statistical foundation for the second half which concentrates on data-mining, supervised learning, and multivariate analysis. First half topics selected from sampling, theory of estimation, testing, nonparametric statistics, analysis of variance, categorical data analysis, regression analysis, MCMC, EM, Gibbs sampling, hidden Markov models, and Bayesian methods. Second half topics selected from logistic regression; principal components and dimension reduction; discrimination and classification analysis including trees (CART), partial least squares, nearest neighbor and regularized methods, support vector machines, boosting and bagging, clustering, independent component analysis, and nonparametric regression. R, S+, MATLAB, SAS, or similar statistics package used for data analysis and data mining.
R. E. Welsch

15.078J Models, Data and Inference for Socio-Technical Systems (New)
(Same subject as ESD.86J)
Prereq: ESD.83, 6.041, or permission of instructor
G (Spring)
3-0-9

See description under subject ESD.86J.
R. Larson, R. Welsch

15.081J Introduction to Mathematical Programming
(Same subject as 6.251J)
Prereq: 18.06
G (Fall)
4-0-8 H-LEVEL Grad Credit

See description under subject 6.251J.
J. N. Tsitsiklis, D. Bertsimas

15.082J Network Optimization
(Same subject as 6.855J, ESD.78J)
Prereq: 6.046J, 6.251J, 15.081J, or permission of instructor
Acad Year 2009–2010: Not offered
Acad Year 2010–2011: G (Spring)
3-0-9 H-LEVEL Grad Credit

Network models for industrial logistics systems, transportation systems, communication systems, and other applications. Emphasizes a rigorous treatment of algorithms and their efficiency. Algorithms for shortest paths, maximum flows, minimum cost flows, traffic equilibrium, and network design. Implementation issues.
A. S. Schulz

15.083J Integer Programming and Combinatorial Optimization
(Same subject as 6.859J)
Prereq: 15.081J or permission of instructor
Acad Year 2009–2010: G (Fall)
Acad Year 2010–2011: Not offered
3-0-9 H-LEVEL Grad Credit

In-depth treatment of the modern theory of integer programming and combinatorial optimization, emphasizing geometry, duality and algorithms. Topics include formulating problems in integer variables, enhancement of formulations, ideal formulations, integer programming duality, linear and semidefinite relaxations, lattices and their applications, the geometry of integer programming, primal methods, cutting plane methods, connections with algebraic geometry, computational complexity, approximation algorithms, heuristic and enumerative algorithms, mixed integer programming and solutions of large scale problems.
D. J. Bertsimas, A. S. Schulz

15.084J Nonlinear Programming
(Same subject as 6.252J)
Prereq: 18.06, 18.100
G (Spring)
3-0-9 H-LEVEL Grad Credit

See description under subject 6.252J.
R. M. Freund, D. P. Bertsekas, G. Perakis

15.085J Fundamentals of Probability
(Same subject as 6.436J)
Prereq: Calculus II (GIR)
G (Fall)
4-0-8 H-LEVEL Grad Credit

See description under subject 6.436J.
J. N. Tsitsiklis, D. Bertsimas

15.093J Optimization Methods
(Same subject as 6.255J)
Prereq: 18.06
G (Fall)
4-0-8 H-LEVEL Grad Credit

Introduces the principal algorithms for linear, network, discrete, nonlinear, dynamic optimization and optimal control. Emphasis on methodology and the underlying mathematical structures. Topics include the simplex method, network flow methods, branch and bound and cutting plane methods for discrete optimization, optimality conditions for nonlinear optimization, interior point methods for convex optimization, Newton's method, heuristic methods, and dynamic programming and optimal control methods.
D. Bertsimas, P. Parrilo

15.094J Systems Optimization: Models and Computation
(Same subject as 1.142J)
Prereq: 18.06 or permission of instructor
G (Spring)
4-0-8 H-LEVEL Grad Credit

A computational and application-oriented introduction to optimization modeling of large-scale systems using state-of-the-art optimization algorithms and software. Model formulation and solution techniques include linear, nonlinear convex, and non-convex optimization, discrete optimization, and semidefinite optimization. Application domains include transportation, telecommunications, pattern classification, structural and engineering design, and financial engineering. Students develop formulation and solution skills in homework assignments, and formulate and solve a problem aligned with their interests in a final project.
R. M. Freund

15.097 Special Seminar in OR/Statistics
Prereq: Permission of instructor
G (Fall, Spring)
Units arranged H-LEVEL Grad Credit

Group study of current topics related to operations research/statistics not otherwise included in curriculum.
G. Perakis, A. S. Schulz

15.098 Special Seminar in Applied Probability and Stochastic Processes
Prereq: 6.431
G (Spring)
2-0-4 H-LEVEL Grad Credit
Can be repeated for credit

Doctoral student seminar covering current topics in applied probability and stochastic processes.
D. Gamarnik, D. Shah

15.099 Special Seminar in Operations Research
Prereq: 15.081J
G (Fall, Spring)
Units arranged H-LEVEL Grad Credit
Can be repeated for credit

Doctoral student seminar covering current topics related to operations research not otherwise included in the curriculum.
D. Bertsimas, R. Freund, T. L. Magnanti, J. B. Orlin, G. Perakis, A. S. Schulz

Civil and Environmental Engineering: 1.151, 1.155, 1.202, 1.203J, and 1.205

Electrical Engineering and Computer Science: 6.041, 6.231, 6.245, 6.262, 6.431, and 6.435

Management: 15.034, 15.070, 15.075, and 15.098

Mathematics: 18.05, 18.175, 18.177, 18.440, 18.443, 18.445, 18.446, and 18.465

See also: 2.830, 5.70, 5.72, 7.02, 8.044, 8.08, 10.816, 11.220, 11.221, 16.322, 22.38, HST.191, and MAS.622J

HEALTH CARE MANAGEMENT

15.121J Clinical Trials in Biomedical Enterprise
(Same subject as HST.975J)
Prereq: None
G (Fall)
2-0-4

See description under subject HST.975J.
H. Golub

15.122J Critical Reading and Technical Assessment of Biomedical Information
(Same subject as HST.977J)
Prereq: SB degree in Biological Science or permission of instructor
G (Spring; first half of term)
1-0-2 H-LEVEL Grad Credit

See description under subject HST.977J.
S. Lapidus, S. Sengupta

15.123J Dynamics of Biomedical Technologies
(Same subject as HST.979J)
Prereq: None
G (Fall, Spring)
2-0-1 [P/D/F]
Can be repeated for credit

See description under subject HST.979J.
R. Cohen, T. Dagi, C. Berke

15.124J Evaluating a Biomedical Business Concept
(Same subject as HST.973J)
Prereq: HST.971
G (Spring)
1-0-2 H-LEVEL Grad Credit

See description under subject HST.973J.
R. J. Cohen, T. Dagi, C. Berke, E. Cannon

15.126J The Legal Framework of Biomedical Enterprise
(Same subject as HST.932J)
Prereq: Permission of instructor
Acad Year 2009–2010: G (Fall)
Acad Year 2010–2011: Not offered
2-0-3

See description under subject HST.932J.
J. Akula

15.127J Designing and Sustaining Technology Innovation for Global Health Practice
(Same subject as HST.939J)
Prereq: None
G (Spring)
Units arranged

See description under subject HST.939J.
U. Demirci, J. Blander

15.128J Neurotechnology Ventures
(Same subject as 9.455J, 20.454J, MAS.883J)
Prereq: Permission of instructor
G (Fall)
2-0-7 H-LEVEL Grad Credit

See description under subject MAS.883J.
E. S. Boyden, R. Ellis-Behnke, J. Bonsen

15.136J Principles and Practice of Drug Development
(Same subject as 7.547J, 10.547J, ESD.691J, HST.920J)
Prereq: Permission of instructor
G (Fall)
3-0-6 H-LEVEL Grad Credit

Description and critical assessment of the major issues and stages of developing a pharmaceutical or biopharmaceutical. Drug discovery, preclinical development, clinical investigation, manufacturing and regulatory issues considered for small and large molecules. Economic and financial considerations of the drug development process. Multidisciplinary perspective from faculty in clinical; life; and management sciences; as well as industry guests.
T. J. Allen, C. L. Cooney, S. N. Finkelstein, R. H. Rubin, A. J. Sinskey

15.137J Case Studies and Strategies in Drug Discovery and Development
(Same subject as 7.549J, 20.486J, HST.916J)
Prereq: Permission of instructor
G (Spring)
2-0-4 H-LEVEL Grad Credit

See description under subject 20.486J.
S. R. Tannenbaum, A. J. Sinskey, E. Berndt

15.141J Economics of the Health Care Industries
(Same subject as HST.918J)
Prereq: Permission of instructor
G (Spring)
3-0-6 H-LEVEL Grad Credit

Focuses on economic issues in various health care and allied industries, such as the pharmaceutical, biotech, medical device, vaccine and diagnostic fields. Addresses differences between health care and other industries; regulatory issues involving establishing efficacy and cost-effectiveness of treatments; managing those who manage R&D; policies to incentivize R&D for diseases highly prevalent in poor countries; strategic issues in global pricing and marketing; use of e-commerce and information technology; and formation and management of various alliances. Visiting speakers from academia, government, and industry.
E. R. Berndt

GLOBAL ECONOMICS & MANAGEMENT

15.220 Global Strategy and Organization
Prereq: Permission of instructor
G (Spring)
2-0-4 H-LEVEL Grad Credit

Focuses on the international dimensions of strategy and organization, and provides a framework for formulating strategies in an increasingly complex world economy, and for making those strategies work effectively. Topics include the globalization of industries, the continuing role of country factors in competition, organization of multinational enterprises, building global networks, and the changing managerial tasks under conditions of globalization. 15.012 and 15.223 are highly recommended. Half-term subject.
D. Lessard, E. Obukhova

15.223 Global Markets, National Policies and the Competitive Advantages of Firms
Prereq: Permission of instructor
G (Fall, Spring, Summer)
3-0-3 H-LEVEL Grad Credit

Examines opportunities and risks firms face in today's global market. Provides conceptual tools for analyzing how governments and social institutions influence economic competition among firms embedded in different national settings. Public policies and institutions that shape competitive outcomes are examined through cases and analytical readings on different companies and industries operating in both developed and emerging markets. Undergraduates may register for this subject provided they are ready to participate with the intensity expected for a grad H-level subject. 15.012 is highly recommended. Half-term subject.
S. Johnson, E. Obukhova

15.225 Economy and Business in Modern China and India
Prereq: None
G (Spring)
3-0-3

As markets or production bases, China and India are becoming important and integral players in the global economy. Foreign direct investment (FDI), portfolio investments and outsourcing businesses have increased dramatically in these two economies. Despite the rising importance of these two economies on the world stage, our knowledge and analysis of these two countries in an integrated manner has remained poor. The two are often lumped together by business analysts as "emerging markets," despite the substantial differences in their political systems, reform policies and business organizations. Academics, in contrast, have tended to treat two countries separately, preferring to specialize in issues and questions specific to one or the other country. The purpose of this course is to analyze these two countries within a coherent analytical framework. Our learning model is inductive, and heavily based on class discussions and participation. The group projects should aim at integrating analysis, knowledge and understanding of these two countries. We will also experiment with other forms of group projects, such as creating and working on business plans and those projects that integrate research from field trips with more traditional research(such as library research). There is no prerequisite but 15.012 and 15.223 are highly recommended. Half term course.
Y. Huang

15.227–15.229 Special Seminars in International Management
Prereq: None
G (Fall, Spring)
Units arranged
Can be repeated for credit

Group study of current topics related to international business not otherwise included in curriculum.
Consult Y. Huang

15.249 Institutions, Society, and International Business
Prereq: None
Acad Year 2009–2010: Not offered
Acad Year 2010–2011: G (Spring)
Units arranged
Can be repeated for credit

Advanced seminar in the study of international management. Covers major theoretical work and approaches to empirical research in the fields of national business systems and globalization, linking them to the core frameworks of strategy and organization theory. Restricted to doctoral students.
E. Obukhova

HISTORY, ENVIRONMENT AND ETHICS

15.268 Choice Points: Readings on the Exercise of Power and Responsibility
Prereq: None
G (Spring)
3-0-6 [P/D/F]

Managerial power and responsibility. Examines conflicts between power and moral responsibility and the contexts for choice in dealing with a number of such problems. Readings are principally "classics" used to illustrate several enduring issues. Restricted to Sloan Fellows in Innovation and Global Leadership.
Consult S. Sacca

15.269 Literature, Ethics, and Authority
Prereq: None
G (Fall)
3-0-6

Explores how we use story to articulate ethical norms. The syllabus consists of short fiction, novels, plays, feature films and some nonfiction. Major topics include leadership and authority, professionalism, the universality of ethical standards, and social enterprise, as well as questions of gender, cultural *and individual* identity, the balance of family and work life, and the relation of science to ethics. Readings include work by Robert Bolt, Michael Frayn, Timothy Mo, Wole Soyinka, H.D.Thoreau, and others; films include *Crouching Tiger, Hidden Dragon, Hotel Rwanda, Motorcycle Diaries, Three Kings*, and others. Draws on various professions and national cultures, and is run as a series of moderated discussions, with students centrally engaged in the teaching process.
L. Hafrey

COMMUNICATION

15.270 Ethical Practice: Professionalism, Social Responsibility, and the Purpose of the Corporation
Prereq: None
G (Spring; partial term)
3-0-3

Introduction to ethics in business, with a focus on business management. Over thirteen sessions, students explore theoretical concepts in business ethics, and cases representing the challenges they will likely face as managers. Opportunity to work with guest faculty as well as business and other professional practitioners. Individual sessions take the form of moderated

discussion, with occasional short lectures from instructor.
L. Hafrey

15.277 Special Seminar in Communications
Prereq: None
G (Fall, Spring)
Units arranged
Can be repeated for credit

15.278 Special Seminar in Communications
Prereq: None
G (Fall, Spring)
Units arranged [P/D/F]
Can be repeated for credit

Group study of current topics related to communication not otherwise included in curriculum.
J. Yates

15.279 Management Communication for Undergraduates
Prereq: None
U (Fall, Spring)
3-0-9

Required seminar for Management Science majors to develop the writing, speaking, teamwork, and interpersonal communication skills necessary for managers. Students learn communication principles, strategies, and methods through discussions, exercises, examples, and cases. Assignments include writing memos and business letters, and giving oral presentations in labs outside of class. A major project is the production of a team report and presentation on a topic of interest to a managerial audience. Priority given to Course 15 students.
L. Breslow

15.280 Communication for Managers
Prereq: Permission of instructor
G (Fall)
3-0-6 H-LEVEL Grad Credit

Writing and speaking skills necessary for a career in management. Students polish communication strategies and methods through discussion, examples, and practice. Several written and oral assignments, most based on material from other subjects and from career development activities. Schedule and curriculum coordinated with Organizational Processes class. Mandatory weekly one hour recitation in small groups. Restricted to first-year Sloan graduate students.
L. Hafrey, N. Hartman, T. Heagney, C. Kelly, R. Pittore, V. Healy-Tangney, K. Blackburn

15.281 Advanced Managerial Communication
Prereq: 15.279, 15.280, or permission of instructor
G (Spring)
3-0-6 H-LEVEL Grad Credit

Builds on managerial communication skills developed in 15.279 or 15.280. Introduces interactive oral and interpersonal communication skills important to managers, including presenting to a hostile audience, running meetings, listening, and contributing to group decision-making. Includes team-run classes on chosen communication topics. Also includes an executive summary and a long oral presentation, both aimed at a business audience, generally in conjunction with a project for another subject.
N. Hartman

15.289 Doctoral Seminar: Communication Skills for Academics
Prereq: Permission of instructor
G (Spring)
3-0-3 H-LEVEL Grad Credit

Focuses on the communication skills needed for a career in academia. Topics include writing for academic journals, preparing and delivering conference papers and job talks, peer reviewing for journals and conferences, and teaching. Participants are expected to work on a written project and deliver an oral presentation based on their current research. Restricted to doctoral students who have completed their first year. Enrollment limited to 20; priority to Sloan students.
J. Yates, L. Breslow

ORGANIZATION STUDIES

15.301 Managerial Psychology Laboratory
Prereq: None
U (Fall, Spring)
3-3-9 Institute LAB

Surveys individual and social psychology and organization theory interpreted in the context of the managerial environment. Laboratory involves projects of an applied nature in behavioral science. Emphasizes use of behavioral science research methods to test hypotheses concerning decision-making, group behavior, and organizational behavior. Instruction and practice in communication includes report writing, team projects, and oral and visual presentation. 12 units may be applied to the General Institute Laboratory Requirement.
Fall: J. Carroll, T. Kochan
Spring: P. Osterman

15.305 Leadership and Management
Prereq: Permission of instructor
U (Fall)
3-0-6

Explores leadership from the military perspective taught by professors of military science from the Army, Navy and Air Force. Survey of basic principles for successfully managing and leading people, particularly in public service and the military. Develops skills in topics such as oral and written communication techniques, planning, team building, motivation, ethics, decision-making, and managing change. Relies heavily on interactive experiential classes with case studies, student presentations, role plays, and discussion. Also appropriate for non-management science majors.
D. Ancona, M. Keller

15.310 Managerial Psychology
Prereq: None
G (Fall, Spring)
2-1-6

Surveys social psychology and organization theory interpreted in the context of the managerial environment. Shares lectures with 15.301, with a separate recitation required. Equivalent of 15.311 intended primarily for non-Course 15 students, both graduate and undergraduate. Deals with a number of diverse subjects, including motivation and reward systems, social influence, groups and teams, leadership, power, organizational design and culture, and networks and communication patterns in the organization.
J. Carroll

15.311 Organizational Processes
Prereq: Permission of instructor
G (Fall)
2-3-4 H-LEVEL Grad Credit

Enhances students' ability to take effective action in complex organizational settings by providing the analytic tools needed to analyze, manage, and lead the organizations of the future. Emphasizes the importance of the organizational context in influencing which individual styles and skills are effective. Employs a wide variety of learning tools, from experiential learning to the more conventional discussion of written cases. Centers on three complementary perspectives on organizations: the strategic design, political, and cultural "lenses" on organizations. Major team project to analyze an actual organizational change, with oral and written reports. Restricted to first-year Sloan master's students.
R. Reagans, K. Kellogg, D. Loyd

15.316 Building and Leading Effective Teams
Prereq: None
G (Summer)
2-1-0 [P/D/F]

An intensive one-week introduction to leadership, teams, and learning communities. Introduction of concepts and use of a variety of experiential exercises to develop individual and team skills and develop supportive relationships within the Fellows class. Restricted to first year LGO Fellows.
Consult J. S. Carroll

15.317 Organizational Leadership and Change
Prereq: None
G (Fall, IAP, Spring, Summer)
Units arranged
Can be repeated for credit

Course spans the entire two-year Leaders for Global Operations (LGO) program, focusing on practical experience that blends theory and practice. Students reflect on prior leadership experiences and then apply lessons learned to further develop their leadership capabilities. Requires active participation in all leadership classes and/or activities as well as short deliverables throughout the program.
T. A. Kochan, J. Klein

15.318 Leadership and Change in Organizations
Prereq: 15.311, 15.315, 15.322, or permission of instructor
Acad Year 2009–2010: G (Spring; first half of term)
Acad Year 2010–2011: Not offered
2-0-4 H-LEVEL Grad Credit
Can be repeated for credit

Focuses on leadership and creating change and provides grounding in leadership theories and frameworks. Action-oriented, interactive sessions introduce the basic tools to lead change within organizations, regardless of one's positional power. Students explore alternative approaches to leadership, compare and contrast various leadership styles, and look at a range of leadership tasks/processes.
D. Ancona

15.320 Strategic Organizational Design
Prereq: None
G (Spring)
3-0-6

Focuses on designing effective organizations, with emphasis on innovative organizational forms that can provide strategic advantage. Topics include creating new organizational possibilities with IT, democratic decision-making, prediction markets, internal and external resource markets, collective intelligence, and organizational invention techniques. Team projects include inventing new possibilities for real organizations.
T. Malone

15.322 Leading Organizations
Prereq: None
G (Fall, Summer)
4-0-5 [P/D/F]

Analyzes through lectures, discussions, and class exercises, the human processes underlying organizational behavior. Restricted to MIT Sloan Fellows in Innovation and Global Leadership.
J. Van Maanen

15.325 Seminar in Leadership I
Prereq: None
G (Fall)
2-0-1 [P/D/F]

Provides students opportunities to meet senior executives of private and public institutions, and discuss key management issues from the perspective of top management. Students prepare detailed briefings identifying and analyzing important management issues facing these organizations. Seminar includes a one week field trip to a domestic location. Restricted to MIT Sloan Fellows in Innovation and Global Leadership.
Consult S. Sacca

15.326 Seminar in Leadership II
Prereq: 15.325
G (Spring)
2-0-1 [P/D/F] H-LEVEL Grad Credit

Continuation of subject 15.325 on the identification and analysis of important management issues. Students prepare briefings and meet with senior government and international leaders during field trips in selected international areas. Restricted to MIT Sloan Fellows in Innovation and Global Leadership.
S. Sacca

15.328 Special Seminar in Organization Studies
Prereq: Permission of instructor
G (Fall, Spring)
Units arranged H-LEVEL Grad Credit
Can be repeated for credit

15.329 Special Seminar in Organization Studies
Prereq: Permission of instructor
G (Fall, Spring)
Units arranged H-LEVEL Grad Credit
Can be repeated for credit

Group study of current topics related to organization studies not otherwise included in curriculum.
Consult D. Ancona

15.341 Individuals, Groups, and Organizations
Prereq: Permission of instructor
G (Fall, Spring)
3-0-9 H-LEVEL Grad Credit

Develops basic concepts for understanding individual, group, and organizational behavior through critical analysis of important works in the field. Areas covered: individual affect and cognition; group process and performance; and organizational culture and adaptation. Emphasizes use of behavioral science concepts for stimulating new and useful organizational behavior research. Primarily for doctoral candidates in the Sloan School of Management.
J. Carroll

15.342 Organizations and Environments
Prereq: Permission of instructor
G (Fall)
3-0-9 H-LEVEL Grad Credit

Provides an introduction to research in "organizations and environments," an interdisciplinary domain of inquiry drawing primarily from sociology, and secondarily from economics, psychology, and political science. Seeks to understand organizational processes and outcomes in the surrounding economic, cultural, and institutional context in which they are situated. Also provides an introduction to the main groups that together form the Behavioral Policy Sciences (BPS) area of MIT/Sloan, including economic sociology, organization studies, work and employment, strategic management, global management, and technology, innovation, and entrepreneurship. Consists of four modules taught by faculty from each of the four BPS groups, as well as integrative sessions taught by the main instructor. Preference to first-year doctoral students in BPS.
E. Zuckerman

15.343 Managing Transformations in Work Organizations and Society (New)
Prereq: None
G (Spring)
3-0-6

Examines changing relations among work, organizations, and society and their implications for management and sustainability. Focuses on the skills managers need to build and lead sustainable organizations and to adapt to increasing workforce diversity; modular, dispersed and team-based work systems; and customer-employee interactions in a service-based economy. Discusses the role of the corporation in society, its responsibilities to multiple stakeholders, and interactions with community groups, labor market institutions, and national and global governmental bodies. Students conduct an

action-based research project in an organization of their choice.
T. Kochan

15.345 Doctoral Proseminar in Behavioral and Policy Sciences
Prereq: Permission of instructor
G (Fall)
2-0-4 [P/D/F] H-LEVEL Grad Credit
Can be repeated for credit

A professional seminar for doctoral students to report on their research, work on their thesis proposals, and practice their job talks. Also addresses general professional issues such as publishing, searching for jobs, the academic career, etc.
L. Bailyn

15.347 Doctoral Seminar in Research Methods I
(Subject meets with 21A.861)
Prereq: Permission of instructor
G (Fall)
3-0-9 H-LEVEL Grad Credit

Introduces the process of social research, emphasizing the conceptualization of research choices to ensure validity, relevance, and discovery. Includes research design and techniques of data collection as well as issues in the understanding, analysis, and interpretation of data.
S. Silbey, A. McCants

15.348 Doctoral Seminar in Research Methods II
Prereq: 15.347 or permission of instructor
G (Spring)
3-0-6 H-LEVEL Grad Credit

Builds on 15.347 to examine contemporary social research methods in depth. Focuses on making students familiar with the most important quantitative methods (e.g., logit/probit models, count models, event history models) or qualitative methods (e.g., ethnography, interviewing, participant observation).
E. J. Castilla

15.349J Qualitative Research Methods
(Same subject as 21A.760J, STS.401J)
Prereq: None
G (Spring)
3-6-3

See description under subject 21A.760J.
S. Silbey, E. C. James

TECHNOLOGY, INNOVATION AND ENTREPRENEURSHIP

15.350 Managing Technological Innovation and Entrepreneurship
Prereq: Permission of instructor
G (Fall)
3-0-9 H-LEVEL Grad Credit

Focuses on the challenges inherent in attempting to take advantage of both incremental innovation and more radical or breakthrough changes in products, processes and services. Highlights the importance of innovation to both new ventures and to large established firms and explores the organizational, economic and strategic problems that must be tackled to ensure innovation is a long term source of competitive advantage. Discussions and class presentations cover non- technical as well as technology-based innovation. Restricted to MIT Sloan Fellows in Innovation and Global Leadership.
M. A. Cusumano, E. B. Roberts

15.351 Managing Innovation and Entrepreneurship
Prereq: None
G (Spring)
3-0-6

The basics every manager needs to organize successful technology-driven innovation in both entrepreneurial and established firms. Examines innovation-based strategies as a source of competitive advantage and then examines how to build organizations that excel at identifying, building and commercializing technological innovations. Major topics include how the innovation process works; creating an organizational environment that rewards innovation and entrepreneurship; designing appropriate innovation processes (e.g. stage-gate, portfolio management); organizing to take advantage of internal and external sources of innovation; and structuring entrepreneurial and established organizations for effective innovation. Examines how entrepreneurs can shape their firms so that they continuously build and commercialize valuable innovations. Many of the examples also focus on how established firms can become more entrepreneurial in their approach to innovation.
F. Murray

15.352 Innovation in the Internet Age: Emerging Trends
Prereq: None
G (Spring)
3-0-3

Important emerging trends in innovation are identified and their implications for innovation management explored. Major topics include the trend to open information (open source) rather than protected intellectual property; distribution of innovation over many independent but collaborating actors; and toolkits that empower users to innovate for themselves. Half-term subject.
E. A. von Hippel

15.353 Research Themes in Management of Technology
Prereq: Permission of instructor
G (Spring)
3-0-6 H-LEVEL Grad Credit

Successful origination, development, implementation, and diffusion of product and process innovations in industry. Effective organization and management of the technological change process (marketing, R&D, engineering, and manufacturing) in new ventures, multidivisional and multinational enterprises. Current research topics of MIT faculty. Thesis research models and methods.
J. M. Utterback

15.354 Innovation and Entrepreneurship: How to Do It
Prereq: None
U (Spring)
3-0-6

Examines how to be a successful innovator in a big company and how to be an entrepreneur. Covers both internet-age and traditional businesses. Research findings are combined with practical advice from experienced innovators to help launch students on a successful innovation trajectory. Lecture-based course. Periodic, short projects enable students to explore topics of special interest to them independently or in small groups.
J. M. Utterback

15.355 Managing New Ventures
Prereq: Permission of instructor
G (Fall; second half of term)
3-0-3 H-LEVEL Grad Credit

Presents the main themes of managing innovation ventures in firms of varying size and establishment. First half develops an understanding of the issues involved in establishing and building new firms, including their potential benefits and limitations. Examines the different developmental patterns adopted by start-ups, many which involve linkages between new and established firms. Second half focuses on the problems established firms face in maintaining their competitiveness and growth. Discusses ways to make them behave more like smaller, nimbler organizations. Also covers ways to

expand the innovation process beyond traditional firm boundaries, including collaborations between large and young emerging companies. Restricted to Sloan Fellows Program in Innovation and Global Leadership
E. B. Roberts

15.356 How to Develop Breakthrough Products and Services
Prereq: None
G (Spring)
3-0-3

Firms must develop major innovations to prosper but they don't know how. Recent research into the innovation process has made it possible to develop breakthroughs systematically. Explore several practical idea generation development methods. Presentations of real cases by invited experts conveys the art required to implement each. Half-term subject.
E. A. von Hippel

15.358 The Business of Software and Digital Platforms
Prereq: None
G (Spring)
3-0-6

Seminar-style course aimed at anyone interested in the business and technology sides of software and digital platforms, from enterprise and consumer software to mobile services and video games. Designed for students who want to found their own companies or work as project and product managers, industry analysts, or venture capitalists. Considers key strategic and technical concepts, with particular emphasis on product vs. services distinctions. Reviews how software became a business at IBM, Microsoft, and SAP; newer companies such as Google, and Salesforce.com; and start-ups. Students may analyze ongoing platform battlegrounds such as enterprise software, smart phones, Web 2.0, digital media, video game consoles, and internet-based advertising and media. Examines what is special about marketing, sales, product development, and entrepreneurship in the case of software and digital markets. Student teams help teach weekly sessions and analyze emerging companies and sectors in team projects. Practitioners help teach the class and offer some guest lectures.
M. A. Cusumano

15.360 Introduction to Technological Entrepreneurship
Prereq: Permission of instructor
G (Fall)
2-0-1 H-LEVEL Grad Credit

Overview of the field of entrepreneurial theory and practice for development and growth of technology-based new enterprises. Introduction to the MIT ecosystem of entrepreneurship. Weekly lectures and dinner discussion sessions by academic and practitioner faculty engaged in the MIT Entrepreneurship Program, supplemented by leaders of MIT entrepreneurship-related activities, e.g. Technology Licensing Office, Deshpande Center, Venture Mentoring Service, as well as successful entrepreneurs and venture capitalists. Student presentations and discussions of new business ideas. Restricted to students in Sloan MBA Entrepreneurship and Innovation track.
E. Roberts

15.362 Entrepreneurship Study Tour of Silicon Valley
Prereq: 15.360
G (IAP)
1-0-0 [P/D/F] H-LEVEL Grad Credit

Intensive one week group tour of Silicon Valley, focusing on understanding an entrepreneurial ecosystem. Visits to prominent venture capitalists and large numbers of primarily early-stage high-technology new ventures. Restricted to students in Sloan MBA Entrepreneurship and Innovation track.
K. Morse, E. Roberts

15.363J Strategic Decision Making in the Biomedical Business
(Same subject as HST.971J)
Prereq: None
G (Spring)
3-0-6

Key strategic decisions faced by managers, investors and scientists at each stage in the value chain of the life science industry. Aims to develop students' ability to understand and effectively assess these strategic challenges. Focus on the biotech sector, with additional examples from the pharmaceutical and medical device sectors. Case studies, analytical models and detailed quantitative analysis. Intended for students interested in building a life science company or working in the sector as a manager, consultant, analyst or investor. Provides analytical background to the industry for biological and biomedical scientists, engineers and physicians with an interest in understanding the commercial dynamics of the life sciences or the commercial potential of their research.
F. Murray

15.365J Disruptive Technologies: Predator or Prey?
(Same subject as ESD.58J)
Prereq: None
G (Spring)
3-0-6

Focuses on the management of product and process innovation and on economic, management, and technological influences on innovation. Both sustaining and disruptive innovations in products and manufacturing processes covered in lectures and cases presented by the leaders of change in different industries. Emphasis on emerging and disruptive technologies as seen from the points of view of entering firms (predators) and incumbent firms (prey) are covered in a class exercise, and project (preferably done in small groups).
J. M. Utterback

15.366 Energy Ventures (New)
Prereq: 15.390 or 15.371; 10.391J or 10.579; or permission of instructor
G (Fall)
3-0-9 H-LEVEL Grad Credit

Project-based subject focusing on energy sector companies. Explores how innovation and entrepreneurial concepts apply (or do not apply) to the significant opportunities in this quarter. Working in teams, students create new ventures specifically for the energy sector. Lectures guide teams through key elements of their projects. Concurrent enrollment in 15.933 recommended.
W. Aulet, D. Lessard

15.369 Corporate Entrepreneurship: Strategies for Technology-Based New Business Development
Prereq: 15.351, *Coreq: 15.350*
G (Fall)
2-0-4 H-LEVEL Grad Credit

Strategic and organizational issues in the development of new technologies and new business areas for existing firms. Issues examined from the perspectives of both large corporations and emerging technology-based enterprises. Linkages between internal and external sources of technology in major new business development. Examination of internal entrepreneurial ventures, alliances (especially between large and new companies), joint ventures, acquisitions, corporate venture capital investments, and licensing as alternative business development approaches. Covers aspects of corporate business development other than mergers and

acquisition (M&A) activities. Outside speakers supplement faculty lectures. Student teams prepare term reports on a competitive analysis of some aspect of corporate business development. Half-term subject.
E. B. Roberts

15.371J Innovation Teams
(Same subject as 10.807J)
Prereq: Permission of instructor
G (Fall, Spring)
4-4-4

Students work in teams to develop commercialization strategies for innovative research projects generated in MIT laboratories. Projects cover critical aspects of commercialization, from selecting the target application and market for the technology to developing an intellectual property strategy and performing a competitive analysis. Instruction provided in communication and teamwork skills, as well as analysis of the challenges and benefits of technology transfer. Includes lectures, guest speakers, and extensive team coaching. Designed primarily for students in engineering, science, and management. Applications, resumes, and a brief statement of interest are required prior to registration.
F. Murray, L. Perez-Breva

15.375J Development Ventures (New)
(Same subject as MAS.665J)
Prereq: Permission of instructor
G (Fall)
3-0-9 H-LEVEL Grad Credit

See description under subject MAS.665J.
A. Pentland, J. Bonsen

15.376J Media Lab Enterprises: Digital Innovations (New)
(Same subject as MAS.664J)
Prereq: None
G (Spring)
3-0-6
Can be repeated for credit

See description under subject MAS.664J.
A. Pentland, J. Bonsen, F. Moss

15.380 Special Studies in Entrepreneurship
Prereq: Graduate student standing
G (Fall, IAP, Spring, Summer)
Units arranged

Advanced work or special investigation of an entrepreneurial topic not specifically covered elsewhere and not qualifying as a thesis. Readings, conferences, laboratory and fieldwork, and reports.
Consult Entrepreneurship Center Faculty

15.381 The Human Side of Technology
Prereq: Permission of instructor
G (IAP)
2-1-6

Examines the human side of managing technical professionals and teams throughout innovative processes, including micro and macro issues. Topics include motivational commitment and performance; dealing with complacency; understanding the relationships among innovation, change, motivation, and uncertainty; managing creative individual contributors; effective recognition and reward systems; leading decision making processes; staffing critical roles and cross-functional relationships; information/knowledge transfer; organizational diagnosis for change. Restricted to SDM students; others with permission of instructor.
Staff

15.385 Social Innovation and Entrepreneurship (New)
Prereq: None
G (Fall; first half of term)
3-0-3

Students work in teams to develop a feasibility plan for a social venture (either a for profit or nonprofit). Feasibility studies will integrate the marketing, financial, operational and organizational activities required to realize an opportunity. Examines the theory and practice of social innovation (e.g., business, environment, education, and human services) and entrepreneurship in the private, public and nonprofit sectors. Discussion topics include social impact modeling, social capital markets, and social impact assessment. Students gain practical knowledge on how to identify potential social venture opportunities; develop skills and competencies for creating, developing and implementing ideas; and examine ways to measure the success and value of social entrepreneurial activity.
A. Wolk

15.386 Managing in Adversity (New)
Prereq: None
G (Fall, Spring; second half of term)
3-0-3

Provides the skills required for a CEO to deal with complex problems under highly adverse conditions. Cases and guest CEO speakers present real-life, high adversity situations that students then deal with through role play. Emphasis on how to quickly define the issues at stake and take critical and precipitous actions to address them. No Listeners.
H. Anderson, P. Kurzina

15.387 Technology Sales and Sales Management
Prereq: None
G (Fall, Spring)
3-0-3

Practical and tactical ins and outs of how to sell technical products to a sophisticated marketplace. How to build and manage a sales force; building compensation systems for a sales force, assigning territories, resolving disputes, and dealing with channel conflicts. Focus on selling to customers, whether through a direct salesforce, a channel salesforce, or building an OEM relationship. Half term course.
H. Anderson, P. Bell, K. Morse

15.388 Designing and Leading the Innovative Organization
Prereq: None
Acad Year 2009–2010: Not offered
Acad Year 2010–2011: G (Spring)
2-0-4

Covers the building, running and growing of an organization. Subject has four central themes: how to think analytically about designing organizational systems; how leaders, especially founders, play a critical role in shaping an organization's culture; what really needs to be done to build a successful organization for the long-term; and what can one do to improve the likelihood of personal success. Principles of organizational architecture, group behavior and performance, interpersonal influence, leadership and motivation. Through a series of cases, lectures, readings and exercises, students develop competencies in organizational design, human resources management, leadership and organizational behavior. Restricted to MIT Sloan Fellows in Innovation and Global Leadership.
Staff

15.389 Global Entrepreneurship Lab: Emerging Markets
Prereq: None
G (Fall, IAP, Spring)
6-0-6

Enables teams of students to work with the top management of global start-ups and gain experience in starting and running a new enterprise outside the United States. Focuses on start-ups operating in various emerging markets. Lectures expose students to the issues and policies that affect the climate for innovation and start-up success around the world. Begins in Fall term and continues for three weeks during IAP, when students spend time at project sites. Concludes with poster session on GLAB day at beginning of the Spring term. Students must complete all

three components to receive credit. Restricted to graduate students.
Staff

15.390 New Enterprises
Prereq: None
G (Fall, Spring)
2-1-6

Covers the process of identifying and quantifying market opportunities, then conceptualizing, planning, and starting a new, technology-based enterprise. Topics include opportunity assessment, the value proposition, the entrepreneur, legal issues, entrepreneurial ethics, the business plan, the founding team, seeking customers and raising funds. Students develop detailed business plans for a start-up. Intended for students who want to start their own business, further develop an existing business, be a member of a management team in a new enterprise, or better understand the entrepreneur and the entrepreneurial process.
N. Afeyan, H. Anderson, K. Zolot

15.391 Early Stage Capital
Prereq: Permission of instructor
G (Fall)
3-0-3 H-LEVEL Grad Credit

Focuses on the strategy as well as the tactics involved in negotiating and building effective, long-term relationships with investors, particularly venture capitalists, in an extremely difficult funding environment. Other topics include an introduction to understanding venture capital as a business; an introduction to search funds; the legal framework of the investment process and its related jargon; market practice and standards for term sheet negotiation; and strategies in identifying the optimal form of early stage capital. Coursework is team-centered: in two rounds of simulations, student teams assume the roles of founders of a start-up and first meet with practicing lawyers to gain advice and practical experience working with professional advisers. Teams then negotiate final terms of investment for their company with leading local VCs. Simulations are outside of class, off-campus at lawyers' and VCs' offices.
S. Loessberg

15.394 Designing and Leading the Entrepreneurial Organization
Prereq: Permission of instructor
G (Spring)
3-0-6 H-LEVEL Grad Credit

This subject is about building, running, and growing an organization. Subject has four central themes: (1) How to think analytically about designing organizational systems, (2) How leaders, especially founders, play a critical role in shaping an organization s culture, (3) What really needs to be done to build a successful organization for the long-term; and (4) What one can do to improve the likelihood of personal success. Not a survey of entrepreneurship or leadership; subject addresses the principles of organizational architecture, group behavior and performance, interpersonal influence, leadership and motivation in entrepreneurial settings. Through a series of cases, lectures, readings and exercises students develop competencies in organizational design, human resources management, leadership and organizational behavior in the context of a new, small firm.
Staff

15.396 Special Seminar in Entrepreneurship
Prereq: Permission of instructor
G (Fall, IAP, Spring)
Units arranged

Group study of current topics related to entrepreneurship not otherwise included in the curriculum.
K. Morse

15.397 Special Seminar in Entrepreneurship
Prereq: Permission of instructor
G (Fall, IAP, Spring)
Units arranged H-LEVEL Grad Credit
Can be repeated for credit

Individual or group study of current topics related to high tech entrepreneurship not otherwise included in the curriculum.
K. Morse

15.398 Corporations at the Crossroads: The CEO Perspective
Prereq: None
G (Spring)
2-0-4

Focus is on the role of the CEO. Students learn from some of the world's leading CEOs who are invited to speak in the class. Topics include the job of the CEO, corporate strategy, and career learnings and advice. Particular emphasis on how the CEO is reacting to the crossroads where he currently finds his company. Sessions are highly interactive, with questions from the students. Before each class, a small group of students has dinner with the guest CEO, a truly unique experience for the students.
H. Anderson, P. Kurzina

15.399 Entrepreneurship Lab
Prereq: None
G (Fall, Spring)
2-9-1

Teams of science, engineering, and management students participate actively one day a week on-site with the top management of high tech start-ups in order to gain experience in starting and running a new venture. Student projects focus on one urgent aspect of the start-up, such as selection of target market, design of market-entry strategy, choice of sales approach to initial customers, etc. In addition to the regular MIT registration process, students should register at the course website one month before class to facilitate formation of student teams and matching of teams with potential host companies. Restricted to graduate students.
Consult R. Bohn, K. Morse, J. Preston

See also 15.136J.

FINANCE

15.401 Finance Theory I
Prereq: None
G (Fall, Spring)
4-0-5

Core theory of modern financial economics and financial management, concentrating on capital markets and investments. Required prerequisite for most finance electives and for the Financial Management and Financial Engineering tracks. Topics: functions of capital markets and financial intermediaries; fixed income investments; diversification and portfolio selection; valuation theory and equilibrium pricing of risky assets; the theory of efficient markets; and an introduction to derivatives.
J. Wang, H. Chen, S. Joslin

15.402 Finance Theory II
Prereq: 15.401
G (Fall, Spring)
3-0-6 H-LEVEL Grad Credit

Continuation of 15.401, concentrating on corporate financial management. Topics include capital budgeting, investment decisions and valuation; working capital management, security issues; dividend policy; optimal capital structure; and real options analysis.
P. Asquith, N. Bergman, C. Frydman

15.403 Introduction to the Practice of Finance (New)
Prereq: None
G (Fall)
2-0-1 [P/D/F]

Proseminar exposes students to some of the basic institutions and practices of the financial industry. Includes panel discussions with representatives from leading financial institutions, MIT alumni currently engaged in the financial services sector, and leading industry vendors. Preference to first-year Finance track MBA students.
Staff

15.414 Financial Management
Prereq: 15.511
G (Summer)
3-0-6 H-LEVEL Grad Credit

Introduction to corporate finance and capital markets. Topics include project and company valuation, real options, measuring risk and return, stock pricing and the performance of trading strategies, corporate financing policy, the cost of capital, and risk management. Subject provides a broad overview of both theory and practice. Restricted to MIT Sloan Fellows in Innovation and Global Leadership.
A. Lo

15.415 Finance Theory (New)
Prereq: 14.01 or 15.011; 15.501 or 15.515
G (Summer)
6-0-9 H-LEVEL Grad Credit

Core theory of capital markets and corporate finance. Topics include functions and operations of capital markets, analysis of consumption-investment decisions of investors, valuation theory, financial securities, risk analysis, portfolio theory, pricing models of risky assets, theory of efficient markets, as well as investment, financing and risk management decisions of firms. Provides a theoretical foundation of finance and its applications. Restricted to students in the Master of Finance Program.
Staff

15.416J Introduction to Financial Economics
(Same subject as 14.416J)
Prereq: 14.121, 14.122
G (Fall)
4-0-8 H-LEVEL Grad Credit

Foundations of modern financial economics; individuals' consumption and portfolio decisions under uncertainty; valuation of financial securities. Topics include expected utility theory; stochastic dominance; mutual fund separation; portfolio frontiers; capital asset pricing model; arbitrage pricing theory; Arrow-Debreu economies; consumption and portfolio decisions; spanning; options; market imperfections; no-trade theorems; rational expectations; financial signaling. Primarily for doctoral students in accounting, economics, and finance.
S. A. Ross

15.419 Practice of Finance: Private Equity and Hedge Funds (New)
Prereq: None
G (Spring; second half of term)
2-0-1 [P/D/F]

Introduction to the field of alternative investments—principally private equity and hedge funds—within the context of the larger investment domain. Covers the structure and operation of alternative funds, valuation, and topics such as deal sourcing, exits, value added, and alpha strategies. Discusses the evolution of the field as well as what the future may bring. Summarizes subfields such as venture capital, leveraged buyouts, distressed investing, and the spectrum of hedge funds. Addresses investor perspectives, portfolio construction and risk management with alternatives. Encourages active student participation, and includes a project and reading list.
P. Cooper

15.420 Practice of Finance: International Financial Management (New)
Prereq: None
G (Fall, Spring)
2-0-4

Uses case studies and current events discussion to review the applications of international finance that impact social issues. Topics include multinational enterprises, international trade, international activities of domestic firms, foreign competition, and foreign exchange risks.
C. Kane

15.423 Practice of Finance: Advanced Corporate Risk Management (New)
Prereq: None
G (Spring)
3-0-6

Focuses on how corporations make use of the insights and tools of risk management. Taught from the perspective of potential end-users of derivatives (not the dealer), such as manufacturing corporations, utilities, and software firms. Topics include how companies manage risk, instruments for hedging, liability management and organization, and governance and control.
J. Parsons

15.426J Real Estate Finance and Investment
(Same subject as 11.431J)
Prereq: Permission of instructor
G (Fall)
4-0-8 H-LEVEL Grad Credit

See description under subject 11.431J.
Staff

15.427J Real Estate Capital Markets
(Same subject as 11.432J)
Prereq: 11.431J; 15.401, 15.402, or 15.414
G (Spring; first half of term)
2-0-4 H-LEVEL Grad Credit

See description under subject 11.432J.
D. Geltner

15.428J Tools for Analysis: Design for Real Estate and Infrastructure Development
(Same subject as 11.434J, ESD.712J)
Prereq: None
G (Spring; second half of term)
2-0-4

See description under subject 11.434J.
D. Geltner, R. de Neufville

15.431 Entrepreneurial Finance
Prereq: 15.402 or 15.414
G (Spring)
3-0-6 H-LEVEL Grad Credit

Examines the elements of entrepreneurial finance, focusing on technology-based start-up ventures, and the early stages of company development. Addresses key questions which challenge all entrepreneurs: how much money can and should be raised; when should it be raised and from whom; what is a reasonable valuation of the company; and how funding, employment contracts and exit decisions should be structured. Aims to prepare students for these decisions, both as entrepreneurs and venture capitalists. In-depth analysis of the structure of the private equity industry.
A. Schoar

15.433 Investments
Prereq: 15.401 or 15.414
G (Fall, Spring)
3-0-6 H-LEVEL Grad Credit

Financial theory and empirical evidence for making investment decisions. Topics include: portfolio theory; equilibrium models of security prices (including the capital asset pricing model and the arbitrage pricing theory); the empirical behavior of security prices; market efficiency; performance evaluation; and behavioral finance.

Enrollment priority is given to Course 15 students.
J. Pan

15.434 Advanced Corporate Finance
Prereq: 15.402, 15.411, or 15.414
G (Fall, Spring)
3-0-6 H-LEVEL Grad Credit

Advanced topics in corporate finance including complex valuations, static and dynamic capital structure, risk management, and real options. Considers the asymmetric information and incentive problems, security design, restructuring, bankruptcy, and corporate control and governance issues.
Faculty

15.437 Options and Futures Markets
Prereq: 15.401 or 15.414
G (Fall, Spring)
3-0-6 H-LEVEL Grad Credit

Examines the economic role of options and futures markets. Topics: determinants of forward and futures prices, hedging and synthetic asset creation with futures, uses of options in investment strategies, relation between puts and calls, option valuation using binomial trees and Monte Carlo simulation, implied binomial trees, advanced hedging techniques, exotic options, applications to corporate securities and other financial instruments.
Consult J. C. Cox

15.440J Advanced Financial Economics I
(Same subject as 14.440J)
Prereq: 15.416J
G (Spring)
3-0-9 H-LEVEL Grad Credit

Covers advanced topics in the theory of financial markets with a focus on continuous time models. Topics include multiperiod securities markets and martingales; pricing of contingent securities such as options; optimal consumption and portfolio problems of an individual; dynamic equilibrium theory and the intertemporal capital asset pricing model; term structure of interest rates; and equilibrium with asymmetric information, transaction costs, and borrowing constraints. Primarily for doctoral students in accounting, economics, and finance.
L. Kogan

15.441J Advanced Financial Economics II
(Same subject as 14.441J)
Prereq: 14.121, 14.122, or 15.416J
G (Spring)
3-0-9 H-LEVEL Grad Credit

Surveys selected topics in current advanced research in corporate finance. Theoretical and empirical analyses of corporate financing and investment decisions. Some background in information economics and game theory is useful. Primarily for doctoral students in accounting, economics, and finance.
S. Myers, A. Schoar

15.442J Advanced Financial Economics III
(Same subject as 14.442J)
Prereq: 14.382, 15.416J, or permission of instructor
G (Fall, Spring)
3-0-9 H-LEVEL Grad Credit

Recent empirical methods in finance, including: the estimation and testing of market efficiency; the random walk hypothesis; the CAPM/APT; various term structure models; option pricing theories; and market microstructures; performance evaluation; bond rating and default analysis; event study methodology; continuous-time econometrics; and general time series methods. An empirical term project is required. Some econometric background and rudimentary computer programming skills are assumed. Primarily for doctoral students in finance, accounting, and economics.
J. Pan

15.448–15.449 Special Seminar in Finance
Prereq: 15.402 or 15.414
G (Fall, Spring)
Units arranged H-LEVEL Grad Credit
Can be repeated for credit

Group study of current topics related to finance not otherwise included in curriculum.
J. C. Cox

15.450 Analytics of Finance (New)
Prereq: 15.401
G (Spring)
3-0-6 H-LEVEL Grad Credit

Covers the key quantitative methods of financial engineering and computational finance: static and dynamic optimization; Monte Carlo simulation; stochastic (Itô) calculus; financial econometrics; and statistical inference for financial applications. Each of these techniques will be covered in depth—along with their computer implementation—however, emphasis is on financial-engineering applications, not on methodology. Develops quantitative methods within the context of specific problems in financial engineering that fall into one of the following areas: derivatives, portfolio management, risk management, or proprietary trading.
L. Kogan

15.451 Proseminar in Financial Engineering
Prereq: 15.401 or 15.414; 15.437
G (Fall)
2-0-4 H-LEVEL Grad Credit
Can be repeated for credit

Provides students a unique opportunity to tackle original research problems in financial engineering that have been posed by leading experts from the financial community. Students are assigned to teams and each team is assigned one such problem. The team's solution is then presented at a seminar which is attended by representatives of the sponsoring organization and open to the entire MIT community.
M. Kritzman

15.452 Proseminar in Financial Management
Prereq: 15.402 or 15.414
G (Fall)
2-0-4 H-LEVEL Grad Credit
Can be repeated for credit

The proseminar has two principal goals: to bridge the gap between finance theory and finance practice; and to introduce students to the broader financial community. Students participate in a series of proseminars with industry guest speakers. Each guest, in collaboration with finance faculty, provides a problem and materials to a team of students. Each team then prepares a report and presents their analysis to the guest speaker and other students for evaluation and feedback.
C. Holderness

ACCOUNTING

15.501 Corporate Financial Accounting
(Subject meets with 15.516)
Prereq: None
U (Fall, Spring)
3-0-9

Preparation and analysis of financial statements. Focuses on measuring and reporting of corporate performance for investment decisions, stock valuation, bankers' loan risk assessment, and evaluations of employee performance, for example. Emphasizes the necessarily interdisciplinary understanding of business. Concepts from finance and economics (e.g., cash flow discounting, risk, valuation, and criteria for choosing among alternative investments)

place accounting in the context of the business enterprise.
R. Watts, S. Keating

15.511 Financial Accounting
Prereq: Permission of instructor
G (Summer)
3-0-6 H-LEVEL Grad Credit

Introduces concepts of corporate financial accounting and reporting of information widely used in making investment decisions, corporate and managerial performance assessment, and valuation of firms. Students perform economics-based analysis of accounting information from the viewpoint of the user (especially senior managers) rather than the preparer (the accountant). Restricted to Sloan Fellows in Innovation and Global Leadership.
S. P. Kothari

15.514 Financial and Managerial Accounting
Prereq: None
G (Summer)
3-0-9

An intensive introduction to the preparation and interpretation of financial information for investors (external users) and managers (internal users) and to the use of financial instruments to support system and project creation. Adopts a decision maker perspective on accounting and finance. Restricted to System Design and Management students.
S. Keating

15.515 Financial Accounting
Prereq: Permission of instructor
G (Fall)
4-0-5 H-LEVEL Grad Credit

An intensive introduction to the preparation and interpretation of financial information. Adopts a decision-maker perspective of accounting by emphasizing the relation between accounting data and the underlying economic events generating them. Class sessions are a mixture of lecture and case discussion. Assignments include textbook problems, analysis of financial statements, and cases. Restricted to first-year Sloan master's students.
J. Weber

15.516 Corporate Financial Accounting
(Subject meets with 15.501)
Prereq: Permission of instructor
G (Fall, Spring)
3-0-9 H-LEVEL Grad Credit (except for Course 15 students)

See description under subject 15.501. If subject is oversubscribed, priority is given to Course 15 students.
R. Watts

15.518 Taxes and Business Strategy
Prereq: 15.501, 15.511, 15.515, or 15.516
G (Fall, Spring)
3-0-6 H-LEVEL Grad Credit

Provides a conceptual framework for thinking about taxes. Applications covered include mergers and acquisitions, tax arbitrage strategies, business entity choice, executive compensation, multi-national tax planning, and others. Aimed at investment bankers and consultants who need to understand how taxes affect the structure of deals; managers and analysts who need to understand how firms strategically respond to taxes; and entrepreneurs who want to structure their finances in a tax-advantaged manner.
S. P. Kothari

15.521 Management Accounting and Control
Prereq: 15.501, 15.511, 15.515, or 15.516
G (Spring)
3-0-6 H-LEVEL Grad Credit

Examines management accounting and related analytical methodologies for decision making and control in organizations. Product costing, budgetary control systems, and performance evaluation systems for planning, coordinating, and monitoring the performance of a business. Defines principles of measurement and develops framework for assessing behavioral dimensions of control systems; impact of different managerial styles on motivation and performance in an organization.
S. Keating

15.522 Security Design and Corporate Financing
Prereq: 15.401; 15.402 or 15.414; 15.433 or 15.434
G (Spring)
3-0-6 H-LEVEL Grad Credit

Examines how corporations choose securities and markets to finance themselves. These are decisions which the firm must make after it has determined its financial policies including capital structure and dividend policy. Subject discusses recent trends in corporate financing including globalization, secularization, and transformation. Explores new securities and institutional factors, particularly tax and accounting factors that affect their design.
P. Asquith

15.535 Business Analysis Using Financial Statements
Prereq: 15.501, 15.511, 15.515, or 15.516; 15.411, 15.414 or 15.401
G (Fall, Spring)
3-0-6 H-LEVEL Grad Credit

Presents a framework for business analysis and provides students with tools for financial statement analysis, including strategic, accounting, financial, and prospective analysis. Concepts are then applied to a number of decision making contexts, such as credit analysis, company performance assessment, merger analysis, financial policy decisions, and securities analysis.
J. Ng, E. Sletten

15.539 Doctoral Seminar in Accounting
Prereq: 15.515
G (Fall, Spring)
Units arranged H-LEVEL Grad Credit
Can be repeated for credit

Designed primarily for doctoral students in accounting and related fields. The reading list consists of accounting research papers. Objective is to introduce research topics, methodologies, and developments in accounting, and train students to do independent research.
J. Weber

15.545 Mergers and Acquisitions: The Market for Corporate Control
Prereq: 15.401, 15.411, or 15.414; 15.402; 15.511, 15.515, or 15.516
G (Fall, Spring)
2-0-4 H-LEVEL Grad Credit

Probably the most dramatic events in a corporation's history involve the decision to acquire another firm or the decision to oppose being acquired. This is also one of the areas of management most thoroughly documented in the financial press and the academic literature. Subject explores three aspects of the merger and acquisition process: the strategic decision to acquire, the valuation decision of how much to pay, and the financing decision on how to fund the acquisition. Class sessions alternate between discussions of academic readings and applied cases.
Staff

INFORMATION TECHNOLOGIES

15.561 Information Technology Essentials
Prereq: None
G (Spring)
3-0-6

Examines technology concepts and trends underlying current and future uses of information technology (IT) in business. Emphasis on networks and distributed computing, including the web. Other topics include hardware and operating systems, software development tools and processes, relational databases, security and cryptography, enterprise applications, and electronic commerce. Exposure to web, database, and graphical user interface (GUI) tools. Primarily for Sloan master's students with limited IT background.
T. W. Malone

15.564 IT Essentials II: Advanced Technologies for Digital Business in the Knowledge Economy
Prereq: None
G (Spring)
3-0-6

Technologies and concepts for next generation knowledge management and web e-business, including semantic web and web services. Business applications for use in the next two to seven years, including: e-commerce, marketing, finance, trust/security, health/biomedical, mobile. Strategic impacts and entrepreneurial opportunities. Core skills for identifying and evaluating technologies and their business potential, and for managing innovative IT-dependent projects. Overall emphasis on business process automation and e-services.
S. Madnick

15.565J Evolution Towards Web 3.0 and the Emergence of Management 3.0
(Same subject as ESD.565J)
Prereq: Permission of instructor
G (Spring)
3-0-6 H-LEVEL Grad Credit
Credit cannot also be received for 15.578

Examines the evolution from Web 2.0, with its emphasis on interactivity through online collaboration and sharing among users (primarily through social networking sites, wikis and communication tools), to Web 3.0, which focuses on high proactivity, transforming the Web into a database, and the leveraging of artificial intelligence technologies, such as the Semantic Web. Introduces Management 3.0 and the range of new Web technologies, applications, and business opportunities and challenges that it supports. Includes case studies, industry and academic speakers, discussion of basic principles, and a team project.
S. Madnick

15.567 The Economics of Information: Strategy, Structure and Pricing
Prereq: Permission of instructor
G (Fall)
3-0-6 H-LEVEL Grad Credit

Analysis of the underlying economics of information with management implications. Topics include industry structure, incentives, and business organization. Pricing, bundling and versioning of digital goods including music, video, software and communication services. Managerial uses of intellectual property, innovation incentives, search, targeted advertising, personalization, privacy, network externalities, open source and alliances. Discussion of principles, cases, industry speakers and a team project.
E. Brynjolfsson

15.568 Management of Information Systems
Prereq: 1.00 or 6.001
U (Spring)
3-0-6

Covers how the business value of individuals, as well as of organizational investments and innovation, is maximized in IT. Topics include IT-specific project-management, outsourcing, business-process design, alignment with organizational goals, operational efficiencies, change management, business transformation, agility, and associated strategy. Complements knowledge of programming or technology with organizational and people aspects. Emphasizes effective pragmatic decision-making. Presents and uses analytical frameworks, concepts, guidelines, cases, field research, and extensive discussion. Restricted to undergraduates.
S. Madnick

15.569 Leadership Lab: Leading Sustainable Systems
Prereq: Permission of instructor
G (Fall, IAP)
6-0-6 H-LEVEL Grad Credit

One of the key leadership challenges in contemporary organizations is creating systems of management that are commensurate with the scope and complexity of issues faced by business. Examines mental models and practices that keep people and organizations stuck in unproductive system dynamics. Explores alternative ways to view and organize systems that pay attention to cross-boundary interdependencies, while enabling the alignment of core business concerns with key social and environmental issues. Reflective practicum weaves theory, assignments, guest speakers, living cases, and an immersive project experience.
W. Orlikowski, P. Senge

15.571 Business Strategy and the Role of IT
Prereq: None
G (Spring)
3-0-6

Provides concepts and frameworks for understanding the potential impact of information technology (IT) on business strategy and performance. Examines how some firms make IT a strategic asset while other firms struggle to realize value from IT investments. Focuses on the implications of increased digitization for defining business strategies and operating models. Explores the roles of both general managers and IT executives in using IT to achieve operational excellence and business agility. Topics include business operating models, IT investment and prioritization, business strategy and IT alignment, the design and governance of digitized processes, and the role of the IT unit. Draws heavily on research and case studies from MIT Sloan Center for Information Systems Research. Restricted to graduate students.
J. W. Ross

15.575 Research Seminar in Information Technology and Organizations: Economic Perspectives
Prereq: Permission of instructor
G (Spring)
3-0-9 H-LEVEL Grad Credit

Builds upon relevant economic theories and methodologies to analyze the changes in organization and markets enabled by IT, especially the internet. Typical perspectives examined include industrial organization and competitive behavior, price theory, information economics, intangible asset valuation, consumer behavior, search and choice, auctions and mechanism design, transactions cost economics and incomplete contracts theory, and design of empirical studies. Extensive reading and discussion of research literature aimed at exploring the application of these theories to business issues and challenges raised by the internet and related technologies. Primarily for doctoral students. Offered every third year.
E. Brynjolfsson

15.576 Research Seminar in Information Technology and Organizations: Social Perspectives
Prereq: Permission of instructor
Acad Year 2009–2010: Not offered
Acad Year 2010–2011: G (Fall)
3-0-9 H-LEVEL Grad Credit

Examines the assumptions, concepts, theories, and methodologies that inform research into the social aspects of information technology. Extensive reading and discussion of research literature aimed at exploring micro, group, and macro level social phenomena surrounding the development, implementation, use and implications of information technology in organizations. Primarily for doctoral students.
W. J. Orlikowski

15.578 Global Information Systems: Strategic, Technical, and Organizational Perspectives
Prereq: Permission of instructor
G (Spring)
3-0-6 H-LEVEL Grad Credit
Credit cannot also be received for 15.565

Explores critical issues of communications and connectivity of global and internet-based information systems from strategic, technical, and organizational perspectives. Strategic connectivity: globalization and integration of information, competitive forces, interlinked value chains. Physical connectivity: protocols and technologies of local-area and wide-area, and internet communications networks. Logical connectivity: distributed databases, data extraction from websites, semantic web, semantic reconciliation among heterogeneous sources. Organizational connectivity: loosely coupled organizations, development of standards, motivating strategic alliances.
S. E. Madnick

15.579–15.580 Special Seminar in Information Technology
Prereq: Permission of instructor
G (Fall, Spring)
Units arranged H-LEVEL Grad Credit
Can be repeated for credit

Group study of current topics related to information technology not otherwise included in curriculum.
S. E. Madnick, T. W. Malone, W. Orlikowski

15.599 Workshop in Information Technology
Prereq: Permission of instructor
G (Fall, Spring)
Units arranged
Can be repeated for credit

Presentations by faculty, doctoral students, and guest speakers of ongoing research relating to current issues in IT, as well as discussions of key research papers in the field. Specific topics determined by the interest of participants and by new and important directions in Information Technology. Background readings and active participation by students expected. Primarily for doctoral students.
E. Brynjolfsson, W. Orlikowski

LAW

15.615 Basic Business Law for the Entrepreneur and Manager
Prereq: None
G (Fall, Spring)
3-0-6

One of three alternative courses (15.615, 15.616, and 15.617) each designed to provide managers with the solid foundation in business law needed to exercise judgment and leadership when confronting a broad range of complex law-sensitive issues. Organizing a new company, venture capital, contracts, liability, employment, intellectual property, taking a company public, antitrust, managerial and corporate crime, going international, selling a business, bankruptcy and reorganization, and business disputes. Focus on US law but comparisons to other systems.
J. Akula

15.616 Basic Business Law, Tilted Towards Innovation and Strategy
Prereq: None
G (Fall)
3-0-6

One of three alternative courses (15.615, 15.616, and 15.617) each designed to provide managers with the solid foundation in business law needed to exercise judgment and leadership when confronting a broad range of complex law-sensitive issues. Includes most topics covered in 15.615, some at a quicker pace. Extra attention to the legal frameworks of transnational business, cutting-edge technologies and products, and restructuring and repositioning major corporations. May appeal to students interested in strategic management and consulting.
J. Akula

15.617 Basic Business Law, Tilted Towards Finance
Prereq: None
G (Spring)
3-0-6

One of three alternative courses (15.615, 15.616, and 15.617) each designed to provide managers with the solid foundation in business law needed to exercise judgment and leadership when confronting a broad range of complex law-sensitive issues. Includes most topics covered in 15.615, some at a quicker pace. Extra attention to mergers and acquisitions, capital markets and private equity, the regulation of financial service providers, and legal risks associated with innovative financial products and services. May appeal to students interested in finance.
J. Akula

15.628 Patents, Copyrights, and the Law of Intellectual Property
Prereq: Permission of instructor
Acad Year 2009–2010: Not offered
Acad Year 2010–2011: G (Spring)
2-0-4 [P/D/F] H-LEVEL Grad Credit

Introductory examination of the US law of intellectual property, with emphasis on patents and copyrights, and a brief look at trademarks and trade secrets. Comparisons made with regard to what can and cannot be protected, what rights the owner does and does not obtain, and how these rights come into being. Issues relating particularly to new information technologies highlighted. Assignments include case and statutory readings, written preparatory exercises, and student case presentations. Regular attendance required. No listeners.
J. A. Meldman

15.647–15.649 Special Seminar in Law
Prereq: None
G (Fall, Spring)
Units arranged H-LEVEL Grad Credit
Can be repeated for credit

Group study of current topics related to law not otherwise included in curriculum.
J. L. Akula

15.655J Law, Technology, and Public Policy
(Same subject as ESD.132J)
Prereq: Permission of instructor
G (Spring)
3-0-9 H-LEVEL Grad Credit

See description under subject ESD.132J.
N. A. Ashford, C. C. Caldart

15.657J Sustainability, Trade, and the Environment
(Same subject as 1.813J, 11.466J, ESD.137J)
Prereq: Permission of instructor
G (Fall)
3-0-9 H-LEVEL Grad Credit

See description under subject ESD.137J.
N. A. Ashford

15.658J Real Estate Development III: Legal Issues in the Development Process
(Same subject as 11.340J)
Prereq: Permission of instructor
G (Spring; second half of term)
3-0-3 H-LEVEL Grad Credit

See description under subject 11.340J.
L. Fisher, J. Pennington

INDUSTRIAL RELATIONS AND HUMAN RESOURCE MANAGEMENT

15.660 Strategic Human Resource Management
Prereq: 15.311
G (Spring)
3-0-6 H-LEVEL Grad Credit

Design and execution of human resource management strategies. Two central themes: How to think systematically and strategically about aspects of managing the organization's human assets, and what really needs to be done to implement these policies and to achieve competitive advantage. Adopts the perspective of a general manager and addresses human resource topics (including reward systems, performance management, high-performance human resource systems, training and development, recruitment, retention, equal employment opportunity laws, work-force diversity, and union-management relationships) from a strategic perspective.
E. Castilla

15.664 Careers, Leadership, and Negotiations in the New Economy
Prereq: None
Acad Year 2009–2010: Not offered
Acad Year 2010–2011: U (Fall)
4-0-8

Discusses how work, careers, and organizations are changing and the leadership skills required of professionals in contemporary organizations and society. Topics include the changing nature of work and careers, the role of knowledge in organizations and the economy, work-family integration, negotiations and conflict management, teamwork, leadership, and the management of diversity. Classes involve simulations, cases and negotiation exercises. Students develop a personal leadership and career development plan and work in teams to conduct an action-research project on campus related to one of the subject's topics.
P. Osterman, T. Kochan

15.665 Power and Negotiation
Prereq: Permission of instructor
G (Fall, Spring)
3-0-6 H-LEVEL Grad Credit

Provides understanding of the theory and processes of negotiation as practiced in a variety of settings. Designed for relevance to the broad spectrum of bargaining problems faced by the manager and professional. Allows students an opportunity to develop negotiation skills experientially and to understand negotiation in useful analytical frameworks. Emphasizes simulations, exercises, role playing, and cases. Undergraduates may register for this subject provided they are ready to participate with the intensity expected for a grad H-level subject
J. Curhan, L. Bacarro

15.667 Negotiation and Conflict Management
Prereq: Permission of instructor
G (Fall)
3-0-6 H-LEVEL Grad Credit

Presents negotiation theory—strategies and styles—within an employment context. Special emphasis on sources of power in negotiation. Covers conflict management as a first party and as a third party (third-party skills include helping others deal directly with their conflicts, mediation, investigation, arbitration, and helping the system itself to change as a result of a dispute). Special cases include abrasiveness, dangerousness, racism, sexism, whistleblowing, and ethics. Simulations of difficult situations such as cross-cultural mentoring and an emergency. One double class. Requires a commitment to attend all classes. Undergraduates may register for this subject provided they are ready to participate with the intensity expected for a grad H-level subject.
M. P. Rowe, T. Kochan

15.668 People and Organizations
Prereq: None
U (Fall)
3-0-6

Examines the historical evolution and current human and organizational contexts in which scientists, engineers and other professionals work. Outlines today's major challenges facing the management profession. Uses interactive exercises, simulations and problems to develop critical skills in negotiations, teamwork, and leadership. Introduces concepts and tools to analyze work and leadership experiences in optional undergraduate fieldwork projects. Preference to Management minors and other undergraduates not majoring in Management Science.
T. Kochan, J. Carroll, P. Osterman

15.670 Leadership and Change
Prereq: 15.668, permission of instructor
U (Fall; first half of term)
2-0-4

Applies concepts introduced in 15.668. Explores leadership and organizational change learned as a result of fieldwork experience. Alternative styles of leadership analyzed. Development of personal leadership plans. Approved fieldwork experience required for admission.
Staff

15.676 Work, Employment, and Industrial Relations Theory
Prereq: Permission of instructor
G (Spring)
2-0-7 H-LEVEL Grad Credit
Can be repeated for credit

Historical evolution and assessment of different theories and disciplinary perspectives used in research on work, employment, and industrial relations. Introduces doctoral students to the field and explores where their research interests fit within the broader field. First part compares the normative assumptions, theories, and methodologies used by economists, historians, sociologists, psychologists, political scientists, and legal scholars from the latter 19th century to the present. Final portion explores strategies for advancing research on topics of current interest to participants.
T. Kochan, D. Burton, R. M. Locke, P. Osterman

15.677J Urban Labor Markets and Employment Policy
(Same subject as 11.427J)
Prereq: Permission of instructor
G (Spring)
3-0-9 H-LEVEL Grad Credit

Discusses the broader trends in the labor market, how urban labor markets function, public and private training policy, other labor market programs, the link between labor market policy and economic development, and the organization of work within firms.
P. Osterman

15.678J Political Economy I: Theories of the State and the Economy
(Same subject as 14.781J, 17.100J)
Prereq: Permission of instructor
G (Fall)
3-0-9 H-LEVEL Grad Credit

See description under subject 17.100J.
M. Piore, S. Berger

15.691 Research Seminar in Work, Employment and Industrial Relations
Prereq: Permission of instructor
G (Fall, Spring)
Units arranged H-LEVEL Grad Credit
Can be repeated for credit

Discusses important areas for research in work, employment and industrial relations; frameworks for research, research techniques, and methodological problems. Centered mainly on staff research and the thesis research of advanced graduate students and invited guests.
Consult T. A. Kochan

15.698 Special Seminar in Industrial Relations and Human Resource Management
Prereq: Permission of instructor
G (Fall, Spring)
Units arranged H-LEVEL Grad Credit
Can be repeated for credit

Group study of current topics related to industrial relations and human resource management not otherwise included in curriculum.
Consult P. Osterman

OPERATIONS MANAGEMENT

15.760 Introduction to Operations Management
Prereq: 15.060 or 6.041
Acad Year 2009–2010: Not offered
Acad Year 2010–2011: G (Spring)
2-0-4 H-LEVEL Grad Credit

Introduction to problems and analysis related to the design, planning, control and improvement of manufacturing and service operations. Includes process analysis, project analysis, materials management, production planning and scheduling, quality management, supply chain design and coordination, reengineering, design for manufacturing, capacity and facilities planning, and operations strategy.
J. Gallien, R. Levi

15.761 Introduction to Operations Management
Prereq: 15.060, 6.041, or permission of instructor
G (Spring, Summer)
4-0-5 H-LEVEL Grad Credit

In-depth introduction to the fundamental concepts and techniques related to the design, planning, control, and improvement of manufacturing and service operations. Covers a broad range of applications and industries such as high-tech, financial services, insurance, automotive, health care, and retail. Special emphasis on the effects of uncertainty in operational decision making and to the interplay between high-level financial objectives and low-level operational guidelines. Topics include process description, flow diagrams, capacity analysis, capacity ROI, cycle time analysis, inventory management, delayed postponement, production control, risk pooling, quality management, process design and revenue management. Summer section is primarily for LGO students.
D. Rosenfield, J. Gallien, R. Levi, V. F. Farias

15.762J Supply Chain Planning
(Same subject as 1.273J, ESD.267J)
Prereq: 1.260J, 15.760, or 15.761
G (Spring; first half of term)
2-0-4 H-LEVEL Grad Credit

Focuses on effective supply chain strategies for companies that operate globally, with emphasis on how to plan and integrate supply chain components into a coordinated system. Students are exposed to concepts and models important in supply chain planning with emphasis on key tradeoffs and phenomena. Introduces and utilizes key tactics such as risk pooling and inventory placement, integrated planning and collaboration, and information sharing. Lectures, computer exercises, and case discussions introduce various models and methods for supply chain analysis and optimization. Recommended for Operations Management concentrators.
S. C. Graves, D. Simchi-Levi

15.763J Manufacturing System and Supply Chain Design
(Same subject as 1.274J, ESD.268J)
Prereq: 1.260, 15.760, or 15.761
G (Spring; second half of term)
2-0-4 H-LEVEL Grad Credit

Focuses on decision making for system design, as it arises in manufacturing systems and supply chains. Students exposed to frameworks and models for structuring the key issues and tradeoffs. Presents and discusses new opportunities, issues and concepts introduced by the internet and e-commerce. Introduces various models, methods and software tools for logistics network design, capacity planning and flexibility, make-buy, and integration with product development. Industry applications and cases illustrate concepts and challenges. Recommended for Operations Management concentrators.
S. C. Graves, D. Simchi-Levi

15.764 The Theory of Operations Management
Prereq: 15.081J or 6.251J, 6.436J; or permission of instructor
G (Spring)
3-0-9 H-LEVEL Grad Credit
Can be repeated for credit

Focus on theoretical work for studying operations planning and control problems. Topics vary from year to year, and include supply chain design and coordination, logistic and distribution systems, make-to-order systems, call centers and service operations, procurement, pricing, revenue management, the sales/production interface, inventory theory, flexible manufacturing systems.
V. Farias

15.765J International Supply Chain Management
(Same subject as 1.265J, 2.965J, ESD.265J)
Prereq: 1.260J, 1.261J, 1.262J, 15.760, or permission of instructor
Acad Year 2009–2010: Not offered
Acad Year 2010–2011: G (Spring; first half of term)
2-0-4 H-LEVEL Grad Credit

See description under subject 2.965J.
Staff

15.768 Management of Services: Concepts, Design, and Delivery
Prereq: 15.760, 15.761, or permission of instructor
G (Fall)
3-0-6 H-LEVEL Grad Credit
Credit cannot also be received for 15.778

Explores the use of operations tools and perspectives in the service sector, including both for-profit and not-for-profit organizations. Builds on conceptual frameworks and cases from a wide range of service operations, selected from health care, hospitality, internet services, supply chain, transportation, retailing, food service, entertainment, financial services, humanitarian services, government services, and others.
C. Fine

15.769 Operations Strategy
Prereq: 15.760, 15.761, or permission of instructor
G (Fall, Spring)
3-0-6 H-LEVEL Grad Credit

Provides unifying framework for analyzing strategic issues in manufacturing and service operations. Analyzes relationships between manufacturing and service companies and their suppliers, customers, and competitors. Also covers decisions in technology, facilities, vertical integration, human resources and other strategic areas. Explores means of competition such as cost, quality, and innovativeness. Provides an approach to make operations decisions in the era of outsourcing and globalization.
Fall: C. H. Fine
Spring: D. B. Rosenfield

15.770J Logistics Systems
(Same subject as 1.260J, ESD.260J)
Prereq: Permission of instructor
G (Fall)
3-0-9 H-LEVEL Grad Credit

Introduction to supply chain management from both analytical and practical perspectives. Stressing a unified approach, the course allows the student to develop a framework for making intelligent decisions within the supply chain. Key logistics functions are covered to include demand planning, procurement, inventory theory and control, transportation planning and execution, reverse logistics, and flexible contracting. Concepts explored include postponement, portfolio management, dual sourcing, and others. Emphasis is placed on being able to recognize and manage risk, analyze various tradeoffs, and model logistics systems.
Y. Sheffi, C. Caplice

15.771J Case Studies in Logistics and Supply Chain Management
(Same subject as 1.261J, ESD.261J)
Prereq: Permission of instructor
G (Spring)
3-0-6 H-LEVEL Grad Credit

A combination of lectures and cases covering the strategic, management, and operating issues in contemporary logistics and integrated supply chain management. Includes: logistics strategy; supply chain restructuring and change management; and distribution, customer service, and inventory policy.
J. Byrnes

15.778 Management of Supply Networks for Products and Services
Prereq: None
G (Summer)
3-0-6
Credit cannot also be received for 15.768

Integrated approach to the analysis, design and management of supply networks for products and services. Based on the study and discussion of concepts, examples, and case studies from a wide range of industries, the emphasis is on developing the following two critical themes: (1) a basic structure or foundation for analyzing, designing and operating supply chains (SCs) that relies on both fundamental concepts such as the management of SC inventory, planning of SC operations and logistics; as well as a discussion therein of the value of (timely) information, and of the need for collaboration and coordination between the SC players, (2) conceptual frameworks that focus on the emergence of a wide range of enabling services in SCs which in turn are proving to be the critical success factors for the survival and growth of this class of systems; as part of these frameworks we will also discuss ideas and models for managing service operations. Guest speakers will present personal experiences on various aspects of the service industry and supply chains. Restricted to MIT Sloan Fellows in Innovation and Global Leadership.
Consult G. Bitran

15.783J Product Design and Development
(Same subject as 2.739J, ESD.32J)
Prereq: 2.009, 15.760, 15.761, or permission of instructor
G (Spring)
3-0-9 H-LEVEL Grad Credit

Covers modern tools and methods for product design and development. The cornerstone is a project in which teams of management, engineering, and industrial design students conceive, design, and prototype a physical product. Class sessions employ cases and hands-on exercises to reinforce the key ideas. Topics include product planning, identifying customer needs, concept generation, product architecture, industrial design, concept design, robust design, and green design practice.
S. Eppinger, W. P. Seering

15.792J Proseminar in Manufacturing
(Same subject as 2.890J, 3.80J, 10.792J, 16.985J)
Prereq: None
G (Fall, Spring)
Units arranged [P/D/F]
Can be repeated for credit

Provides an integrative forum for operations and manufacturing students. Projects focus on leadership, service, and improvement. Covers a set of integrative operations and manufacturing topics or issues such as leadership, implementation of lean operations, or other improvements. Presents examples of both operations excellence and challenges. Includes presentations by guest speakers such as senior-level managers of manufacturing companies. Students play a large role in managing the course. Preference to LGO students.
D. B. Rosenfield

15.794 Research Project in Manufacturing
Prereq: Permission of instructor
G (Fall, Spring, Summer)
Units arranged [P/D/F] H-LEVEL Grad Credit
Can be repeated for credit

A special projects subject designed for Leaders for Global Operations (LGO) students in conjunction with on-site projects at LGO partner companies. Student teams work on faculty-supervised thesis research projects that deal with a specific aspect of manufacturing. Students required to summarize their work in the context of understanding organization, leadership, teamwork, and task management in conjunction with 15.317.
D. B. Rosenfield

15.795 Seminar in Operations Management
Prereq: 15.760 or 15.761
G (Spring)
3-0-6 H-LEVEL Grad Credit
Can be repeated for credit

Topics vary from year to year. Typical examples from past years: manufacturing strategy, technology supply chains.
C. H. Fine

15.799 Workshop in Operations Management
Prereq: None
G (Fall, Spring)
Units arranged
Can be repeated for credit

Presentations by faculty, doctoral students, and guest speakers of ongoing research relating to current issues in operations management, including reports of research projects (proposed or in progress) and informal discussions of

recent literature dealing with subjects of special interest to participants. Primarily for doctoral students.
Staff

MARKETING

15.809 Marketing Management
Prereq: None
G (Summer)
3-0-6

Marketing is a rigorous, disciplined science that applies a reasoned framework to the selection of target markets and the optimization of marketing decisions. The subject has two parts: a tactical portion and a strategic portion. The strategic portion focuses on identifying target markets. The tactical portion reviews how firms optimize profits in their chosen markets. Tactical topics include pricing, promotion, channel and product issues. Restricted to MIT Sloan Fellows in Innovation and Global Leadership.
D. Simester

15.810 Marketing Management
Prereq: None
G (Fall, Spring)
3-0-6

Analyzes marketing problems through the lens of an analytical framework. Subject has both tactical and strategic portions. Tactical portion reviews methods firms use to optimize profits in markets they choose to target. Topics include pricing, promotion, distribution and product issues as well as how to gather customer input and differentiate yourself from competitors. Strategic portion focuses on identifying marketing competencies and using these competencies to identify target markets and set marketing strategy. Explores theory and practice using lectures, cases, discussions, and readings.
J. R. Hauser, M. Braun

15.812 Marketing Management
Prereq: None
U (Spring)
3-0-6

Provides a comprehensive introduction to contemporary marketing concepts and techniques, such as customer analysis, market segmentation, targeting, positioning, branding, product design, pricing, promotion, and distribution. Taught using lectures, case studies, and class demonstrations. Not open to Sloan graduate students.
J. Zhang

15.818 Pricing
Prereq: None
G (Spring)
3-0-6

Framework for understanding pricing strategies and tactics. Topics covered include price customization, pricing complementary products, anticipating competitive price responses, pricing in platform markets, pricing in business to business markets, and pricing of new products. Lectures and cases.
C. Tucker

15.821 Listening to the Customer
Prereq: None
G (Fall)
3-0-3

Introduction to soft consumer research methods, useful for getting quick customer input into decisions on product design and development, strategic positioning, advertising, and branding. Covers interview techniques, observational methods, voice of the customer, focus groups, and analyses suitable for qualitative data. Introduces new information-gathering methods in development at MIT.
D. Prelec

15.822 Strategic Market Measurement
Prereq: None
G (Fall)
3-0-3

Project subject teaches students how to create, carry out, interpret, and analyze a market research questionnaire. Emphasis on discovering market structure and segmentation, but students can pursue other project applications. Includes a user-oriented treatment of multivariate analysis (factor analysis, multidimensional scaling, conjoint and cluster analysis).
D. Prelec

15.828 Design and Marketing New Products
Prereq: 15.809, 15.810 or 15.812
G (Spring; first half of term)
3-1-5 H-LEVEL Grad Credit

Practical introduction to the process of designing and marketing new products. Covers the major phases of product development: opportunity identification (customer input, generating ideas, market definition), product design and positioning, pre-market testing and forecasting, launch marketing, and managing the life cycle. Presents proven techniques, but emphasizes state of the art methods like "listening in," virtual customer, information acceleration, and trust-based marketing. Group project allows students to apply lessons to the design and marketing of a real product—the hydrogen fuel auto.
G. L. Urban

15.833 Business-to-Business Marketing
Prereq: 15.809, 15.810, or 15.812
G (Fall; second half of term)
3-0-3 H-LEVEL Grad Credit

Applies marketing concepts, analyses and tools used in business-to-business (B2B) marketing which accounts for more than half of the economic activity in the US. Develops an understanding of customer value management as a strategy for delivering superior value to targeted business segments while maintaining equitable returns. Using an analytical framework, students assess components of customer value and translate them into actionable marketing strategies and programs. Focuses on brand building, web and technology facilitation of the supply chain, and customer relationship management. Underscores sales force management within the context of go-to-market strategy. Discusses ethical issues and various B2B contexts such as products and services, for-profits and non-profits, domestic and global markets. Emphasis on applications in technology and healthcare domains. Includes case studies, applied exercises, and readings.
S. Chatterjee

15.834 Marketing Strategy
Prereq: None
G (Spring)
3-0-6

Introduces tools from strategy and economics to look systematically at marketing strategy. Topics include how to maximize value for the customer-firm-supplier triad and how to develop new sources of competitive advantage. Taught mostly with cases. Half-term subject.
B. Wernerfelt

15.836 New Product and Venture Development Proseminar
Prereq: None
Acad Year 2009–2010: G (Fall)
Acad Year 2010–2011: Not offered
3-0-3 [P/D/F]

Provides an overview and feel for what is involved in new product development within a larger organization, as well as in start-up firms. The key question is: How does an idea or an invention become a successful innovation in the marketplace? Seminar features a series of speakers who focus on specific aspects of this process, from topics such as "the fuzzy front end" that seed teams face, championing an idea through an organization, keeping an entrepreneurial

spirit alive, growing pains, designing the business plan, meeting communications challenges, and using creative marketing techniques.
D. Prelec

15.838 Research Seminar in Marketing
Prereq: 15.810
G (Fall, Spring)
3-0-6 H-LEVEL Grad Credit
Can be repeated for credit

Seminar on current marketing literature and current research interests of faculty and students. Topics such as marketing models, consumer behavior, competitive strategy, marketing experimentation, and game theory. Restricted to doctoral students.
Consult D. Prelec

15.839 Workshop in Marketing
Prereq: Permission of instructor
G (Fall, Spring)
Units arranged [P/D/F]
Can be repeated for credit

Presentations by faculty, doctoral students, and guest speakers of ongoing research relating to current issues in marketing. Topics: reports of research projects (proposed or in progress) and informal discussions of recent literature dealing with subjects of special interest to participants. Restricted to doctoral students.
Staff

15.840–15.843 Special Seminar in Marketing
Prereq: 15.809, 15.810, or 15.812
G (Fall, Spring)
Units arranged H-LEVEL Grad Credit
Can be repeated for credit

Group study of current topics related to marketing not otherwise included in curriculum.
Staff

15.846 Branding
Prereq: 15.809, 15.810 or 15.812
G (Spring; second half of term)
3-0-6 H-LEVEL Grad Credit

Covers elemental decisions about message design given different managerial objectives. Investigates the role of advertising in one particularly important objective, brand-building. Discussion of current marketing research focuses on the importance of consumer perception in advertising/branding efficacy and integrated marketing communications as an emerging goal in advertising efforts. Topics include smoky signals, sticky brands, and the medium/content interaction. Explores theory and practice through lectures, discussions, and readings.
R. Richardson

15.847 Consumer Behavior
Prereq: 15.809, 15.810 or 15.812
Acad Year 2009–2010: G (Spring)
Acad Year 2010–2011: Not offered
3-0-6 H-LEVEL Grad Credit

Presents research from cognitive and social psychology, decision theory, and behavioral economics to help us understand why consumers buy (or not) and the processes they use to evaluate products and choose between them. Topics include "framing," heuristics and biases of judgment and choice, attitudes and attitude change, information processing, influence, the role of the group, and social marketing. Emphasizes how experimental results (what we conclude about consumers from studies) and real-world outcomes (what consumers actually do) are surprisingly sensitive to subtle procedural or contextual details.
J. Ackerman

15.848 Marketing Models
Prereq: 15.810, 15.060
G (Spring)
3-0-3

Quantitative models and methods in marketing such as choice models, positioning analyses, market response, inter-firm competition. Coverage includes the marketing phenomena under consideration, underlying modeling assumptions and their realism, the main implications of the model, and the insights gained. Undergraduates should have completed 15.812 and 6.041. Half term subject.
Consult J. Little

SYSTEM DYNAMICS

15.871 Introduction to System Dynamics
Prereq: Permission of instructor
G (Fall, Spring)
3-0-3 H-LEVEL Grad Credit

Introduction to systems thinking and system dynamics modeling applied to strategy, organizational change, and policy design. Students use simulation models, management flight simulators, and case studies to develop conceptual and modeling skills for the design and management of high-performance organizations in a dynamic world. Case studies of successful applications of system dynamics in growth strategy, management of technology, operations, supply chains, product development, and others. Principles for effective use of modeling in the real world.
J. D. Sterman, N. P. Repenning

15.872 System Dynamics II
Prereq: 15.871
G (Fall, Spring; second half of term)
3-0-3 H-LEVEL Grad Credit

Continuation of 15.871, emphasizing tools and methods needed to apply systems thinking and simulation modeling successfully in complex real-world settings. Uses simulation models, management flight simulators, and case studies to deepen the conceptual and modeling skills introduced in 15.871. Through models and case studies of successful applications students learn how to use qualitative and quantitative data to formulate and test models, and how to work effectively with senior executives to implement change successfully. Prerequisite for further work in the field.
J. D. Sterman, N. P. Repenning

15.875 Applications of System Dynamics
Prereq: 15.874
G (Spring)
3-0-6 H-LEVEL Grad Credit
Can be repeated for credit

Explores how organizations can use system dynamics to achieve important goals. Student teams work with client managers to tackle the clients' most pressing issues. Students discuss experiences with their clients, and learn modeling and consulting skills they need to be effective. Focus on gaining practical insight from the system dynamics process. Projects are sponsored by diverse organizations from a range of industries and sizes from start-ups to the Fortune 500.
Consult J. Sterman

15.879 Research Seminar in System Dynamics
Prereq: 15.874 and permission of instructor
Acad Year 2009–2010: G (Fall)
Acad Year 2010–2011: Not offered
3-0-9 H-LEVEL Grad Credit
Can be repeated for credit

Doctoral level seminar in system dynamics modeling, with a focus on social, economic and technical systems. Covers classic works in dynamic modeling from various disciplines and current research problems and papers. Participants critique the theories and models, often including replication, testing, and improvement of various models, and lead class discussion. Topics vary from year to year.
Consult J. D. Sterman, N. P. Repenning

STRATEGIC MANAGEMENT

15.900 Strategic Management
Prereq: None
G (Spring)
3-0-6

Explores a wide range of strategic problems, focusing particularly on the sources of competitive advantage and the interaction between industry structure and organizational capabilities. Introduces a wide variety of modern strategy frameworks and methodologies. Builds upon and integrates material from core topics such as economics, organizational processes, and marketing.
E. Zuckerman

15.902 Strategic Management
Prereq: Permission of instructor
G (Fall)
3-0-6 H-LEVEL Grad Credit

Focuses on some of the important current issues in strategic management. Concentrate on modern analytical approaches and enduring successful strategic practices. Designed with a technological and global outlook since this orientation in many ways highlights the significant emerging trends in strategic management. Provides students with a pragmatic approach that guides the formulation and implementation of corporate, business, and functional strategies. Half-term subject. Restricted to MIT Sloan Fellows in Innovation and Global Leadership.
A. Hax

15.903 Corporate Strategy and Extended Enterprises
Prereq: 15.900, 15.010, 15.311
G (Spring; first half of term)
3-0-3 H-LEVEL Grad Credit

Focuses on how managers build and manage complex organizations to achieve strategic goals. Develops theoretical frameworks that build on 15.010, 15.311, and 15.900. Applies these frameworks to corporate strategy (i.e., the design and management of the multi-business firm) and extended enterprises (i.e., the design and management of multi-firm structures such as supply chains, alliances, joint ventures, and networks).
R. Gibbons

15.904 Advanced Strategic Management
Prereq: 15.900 or 15.902
Acad Year 2009–2010: G (Spring)
Acad Year 2010–2011: Not offered
3-0-6 H-LEVEL Grad Credit

Builds on the core strategic management courses 15.900 and 15.902 to explore the roots of sustained competitive advantage. Using a mix of case studies, models and readings, explores the interaction between "structural" and "organizational" sources of long-lasting excellence, focusing on those sources of performance that are particularly difficult for competitors to imitate. Student groups focus on a single high-performing firm as a means to sharpen and apply the tools, methods, and concepts introduced in the course. Emphasis throughout on the implications of the material for the choices that managers must make in formulating strategy and running a business.
Staff

15.905 Technology Strategy for SDM
Prereq: None
G (Spring)
3-0-9

Provides a series of strategic frameworks for managing high-technology businesses. Emphasis on the development and application of conceptual models which clarify the interactions between competition, patterns of technological and market change, and the structure and development of internal firm capabilities. SDM students only, except with instructor permission.
M. Davies

15.912 Technology Strategy
Prereq: 15.900 or permission of instructor
G (Fall)
3-0-6 H-LEVEL Grad Credit

Outlines tools for formulating and evaluating technology strategy, including the interactions between competition, patterns of technological and market change, and the structure and development of organizational capabilities. Topics include making money from innovation, competition between technologies and the selection of standards, managing joint ventures and collaborative innovation, organization of R&D and technology platforms, and theories of diffusion and adoption. Readings and case studies on firms such as Apple, Google, Toyota Prius, Novartis, and Linux illustrate central concepts.
J. P. Davis

15.913 Strategies for Sustainable Business (New)
Prereq: None
G (Spring; first half of term)
3-0-3

Develops a pragmatic, action-oriented approach to organizational sustainability. Discusses how sustainability is changing existing business models and market structures, how to develop sustainable management practices, and how firms can implement those practices successfully. In-class simulations, cases, role-playing, and guest speakers explore emerging strategies for sustainable businesses and organizations.
R. Locke, S. Slaughter, J. Sterman

15.914 Competitive Dynamics and Strategy—Winning in Technology Markets
Prereq: 15.871 or 15.874; 15.365, 15.350, 15.351, 15.900, 15.902 or 15.912
G (Spring)
2-0-7 H-LEVEL Grad Credit

Focuses on competitive strategy in technology-driven markets. Explores the signature dynamics common to almost all such markets: innovation, technology substitution, product lifecycles, commoditization, disruption, transformation of mature businesses, and technology ecosystems. Over the term students acquire a portfolio of models of the signature dynamics. They use the models in projects with participating companies to analyze technology markets, formulate competitive strategies, and illuminate the challenges of execution. Issues addressed are critical for both established incumbents and new market entrants. It is a "master class" in applied corporate strategy. Restricted to graduate students.
H. B. Weil

15.915 Laboratory for Sustainable Business
Prereq: 15.913
G (Spring; second half of term)
3-0-3 H-LEVEL Grad Credit

Focuses on what companies can do to address the challenges we face as a society and as a species. Explores how commercial firms—and the organizations that seek to work with them—respond to problems including climate change, environmental degradation, and social dislocation. Provides instruction for crafting practical and effective policies committed to both the reality of "the bottom line" and the need to sustain the natural and human systems on which we all rely. Students work in teams with a company/organization on a real-world sustainability project throughout the term.
R. Locke, S. Slaughter, J. Sterman

15.933 Strategic Opportunities in Energy
Prereq: 15.900 or permission of instructor
G (Fall; first half of term)
2-0-4 H-LEVEL Grad Credit

Provides frameworks for understanding the structure and dynamics of the energy sector and the strategic opportunities available within it. Opportunities (in sources, uses, and interfaces) resulting from emerging technologies, market dynamics, and changing policies are analyzed using these frameworks, and are addressed from the perspectives of established energy companies, technology developers, equipment and service suppliers, financial players, and entrepreneurs.
D. Lessard, H. Weil

15.941J Leadership in the Real Estate Industry
(Same subject as 11.430J)
Prereq: None
G (Fall)
3-0-6

Provides and uses theories, concepts and tools to craft, articulate and refine a leadership point of view. Through reflection, self-assessment, discussion and feedback, develops an understanding of the readiness to lead, leadership style, emotional intelligence, and presentation of self. Students converse with leaders in the real estate industry and gain knowledge from their stories and insights. Aims to provide students with a deeper understanding of leadership; a better understanding of themselves and their authentic leadership style; and a plan for the ongoing development of their leadership capabilities.
G. Schuck

15.943 Explaining Heterogeneity in Firm Performance
Prereq: Permission of instructor; or *Coreq: 14.121, 14.122, 14.271, or 14.382*
Acad Year 2009–2010: Not offered
Acad Year 2010–2011: G (Spring)
3-0-3 H-LEVEL Grad Credit

Focuses attention on the sources of heterogeneity in firm performance. Most research in economics, particularly in industrial organization theory, assumes that firms are homogeneous in terms of knowledge, production structure, and factor price environment. Research in the tradition of strategic management, in contrast, focuses attention on heterogeneity across firms as the primary driver of the nature of competition and of the sources of firm performance. Introduces doctoral students in strategic management and economics to the evidence for persistent heterogeneity. Restricted to doctoral students.
P. Azoulay

15.944 The Economic and Strategic Analysis of Technology Intensive Industries
Prereq: Permission of instructor; or *Coreq: 14.121, 14.122, 14.271, or 14.382*
Acad Year 2009–2010: Not offered
Acad Year 2010–2011: G (Spring)
3-0-3 H-LEVEL Grad Credit

This doctoral course explores the extensive literature in the economics of innovation and technological change. Restricted to doctoral students.
P. Azoulay, R. Henderson, E. Berndt

15.949 Special Seminar in Strategy
Prereq: Permission of instructor
G (Fall, Spring)
Units arranged H-LEVEL Grad Credit
Can be repeated for credit

Opportunity for group study by graduate students on current topics related to strategy not otherwise included in curriculum.
Consult E. Zuckerman

SPECIAL STUDIES

15.UR Undergraduate Research in Management
Prereq: None
U (Fall, IAP, Spring, Summer)
Units arranged [P/D/F]
Can be repeated for credit

15.URG Undergraduate Studies in Management
Prereq: None
U (Fall, IAP, Spring, Summer)
Units arranged
Can be repeated for credit

Participation in the work of a research group which includes such activities as independent study of the literature, direct involvement in the group's research (commensurate with the student's skills and preparation), or project work under an individual faculty member possibly extending over more than one term. Admission by arrangement with individual faculty member. Requires written project report.
J. S. Carroll

15.950 Special Studies in Management
Prereq: None
U (Fall, IAP, Spring, Summer)
Units arranged [P/D/F]
Can be repeated for credit

15.951 Special Studies in Management
Prereq: None
U (Fall, IAP, Spring, Summer)
Units arranged
Can be repeated for credit

Special tutorial arrangement with a faculty member for guided reading, research, laboratory, or teaching experience.
J. A. Meldman

15.952–15.959 Special Seminars in Management
Prereq: None
U (Fall, IAP, Spring)
Units arranged
Can be repeated for credit

Group study of current topics related to management not otherwise included in curriculum. 15.952 is taught P/D/F.
Consult Undergraduate Program Headquarters

15.960 Special Studies in Management
Prereq: Permission of instructor
G (Fall, IAP, Spring, Summer)
Units arranged [P/D/F] H-LEVEL Grad Credit
Can be repeated for credit

15.961 Special Studies in Management
Prereq: Permission of instructor
G (Fall, IAP, Spring, Summer)
Units arranged H-LEVEL Grad Credit
Can be repeated for credit

For students who desire to do advanced work or to carry out some special investigation of a management problem not specifically covered elsewhere and not qualifying as a thesis. Readings, conferences, laboratory and fieldwork, and reports. Restricted to graduate students.
Consult Sloan Educational Services

15.962–15.971 Special Seminars in Management
Prereq: Permission of instructor
G (Fall, IAP, Spring, Summer)
Units arranged H-LEVEL Grad Credit
Can be repeated for credit

15.972–15.976 Special Seminars in Management
Prereq: Permission of instructor
G (Fall, IAP, Spring, Summer)
Units arranged [P/D/F] H-LEVEL Grad Credit
Can be repeated for credit

15.977–15.979 Special Seminar in Management
Prereq: Permission of instructor
G (Fall, IAP, Spring)
Units arranged [P/D/F] H-LEVEL Grad Credit
Can be repeated for credit

Group study of current topics related to management not otherwise included in curriculum.
Consult Sloan Educational Services

15.980–15.985 Special Distance Learning Seminars in Management
Prereq: None
G (Fall, IAP, Spring, Summer)
Units arranged
Can be repeated for credit

15.986–15.989 Special Distance Learning Seminars in Management
Prereq: None
G (Fall, IAP, Spring, Summer)
Units arranged [P/D/F]
Can be repeated for credit

Group study through distance learning on current topics related to management.
Consult Sloan Educational Services

15.990–15.993 Special Seminars in Management
Prereq: Permission of instructor
G (Fall, IAP, Spring, Summer)
Units arranged H-LEVEL Grad Credit
Can be repeated for credit

15.994–15.997 Special Seminars in Management
Prereq: Permission of instructor
G (Fall, IAP, Spring, Summer)
Units arranged [P/D/F]
Can be repeated for credit

Group study of current topics related to management not otherwise included in curriculum.
Consult Sloan Educational Services

15.999 Curricular Practical Training (CPT)
Prereq: None
G (Fall, IAP, Spring)
Units arranged [P/D/F]
Can be repeated for credit

Students participate in off-campus work or internship experience and apply topics of management and/or culture to their experience. Requirements include mandatory attendance at one workshop and a paper. Students must have a formal employment offer prior to enrolling. Restricted to MIT Sloan students who have been in legal F1 status for nine consecutive months and who wish to work in the United States in an area related to their field of study.
Consult Sloan Educational Services

15.ThG Graduate Thesis
Prereq: None
G (Fall, IAP, Spring, Summer)
Units arranged H-LEVEL Grad Credit
Can be repeated for credit

Research and writing of thesis; to be arranged by the student with supervising committee.
Consult Sloan Educational Services

Bachelor of Science in Management Science/Course 15

General Institute Requirements (GIRs)	Subjects
Science Requirement	6
Humanities, Arts, and Social Sciences Requirement [two subjects can be satisfied by 14.01 and 14.02 in the Departmental Program]	8
Restricted Electives in Science and Technology (REST) Requirement [can be satisfied by 6.041 and 18.06 in the Departmental Program]	2
Laboratory Requirement [can be satisfied by 15.301 in the Departmental Program]	1
Total GIR Subjects Required for SB Degree	**17**

Communication Requirement
The program includes a Communication Requirement of 4 subjects:
2 subjects designated as Communication Intensive in Humanities, Arts, and Social Sciences (CI-H); and
2 subjects designated as Communication Intensive in the Major (CI-M).

PLUS Departmental Program — **Units**

Subject names below are followed by credit units, and by prerequisites, if any (corequisites in italics).

Required Subjects — **123**

1.00 Introduction to Computers and Engineering Problem Solving, 12, REST; Calculus I (GIR)
6.041 Probabilistic Systems Analysis, 12, REST; Calculus II (GIR)
14.01 Principles of Microeconomics, 12, HASS
14.02 Principles of Macroeconomics, 12, HASS
15.053 Optimization Methods in Management Science, 12
15.075 Statistical Thinking and Data Analysis, 12; 6.041*
15.279 Management Communication for Undergraduates, 12, CI-M
15.301 Managerial Psychology Laboratory, 15, LAB, CI-M
15.501 Corporate Financial Accounting, 12
18.06 Linear Algebra, 12, REST; Calculus II (GIR)

Restricted Electives — **36–45**

One of the following four subjects:
15.354 Innovation and Entrepreneurship: How to Do It, 9
15.401 Finance Theory I, 9
15.812 Marketing Management, 9
15.761 Introduction to Operations Management, 9; 6.041*

Concentration Subjects:
Three additional subjects as specified in one of the following concentrations: Finance, Information Technologies, Marketing Science, Operations Research

Departmental Program Units That Also Satisfy the GIRs	**(60)**
Unrestricted Electives	**69–81**
Total Units Beyond the GIRs Required for SB Degree	**180**

No subject can be counted *both* as part of the 17-subject GIRs *and* as part of the 180 units required beyond the GIRs. *Every* subject in the student's departmental program will count toward one or the other, *but not both*.

Notes

* Alternate prerequisites are listed in the subject description.

For an explanation of credit units, or hours, please refer to the online help of the MIT Subject Listing & Schedule, *http://student.mit.edu/catalog/index.cgi*.