MANAGEMENT (COURSE 15)

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.
T. Walor

15.010 Economic Analysis for Business Decisions
Prereq: None
G (Fall)
4-0-5 units

Introduces principles of microeconomic analysis as a framework for making more informed managerial decisions. Includes the analysis of competitive markets with supply and demand, sources of market power, pricing, anti-trust policy, as well as an overview of game theory and its application to competitive strategy. Students use the tools presented to analyze business and public policies. Students taking graduate version complete additional assignments. Intended primarily for non-MBA students.
J. Doyle

15.011 Economic Analysis for Business Decisions
Subject meets with 15.011
Prereq: None
G (Fall)
4-0-5 units

Introduces principles of microeconomic analysis as a framework for making more informed managerial decisions. Includes the analysis of competitive markets with supply and demand, sources of market power, pricing, anti-trust policy, as well as an overview of game theory and its application to competitive strategy. Students use the tools presented to analyze business and public policies. Students taking graduate version complete additional assignments. Intended primarily for non-MBA students.
J. Doyle

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

Uses case studies to investigate the macroeconomic environment in which firms operate. First half of subject 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.
Staff

15.013 Industrial Economics for Strategic Decisions
Prereq: 15.010 or 15.011
G (Fall)
3-0-9 units

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; competition with network externalities; investments under uncertainty; R&D and patent licensing; and the growth and evolution of industries.
R. Pindyck

15.014 Applied Macro- and International Economics II
Prereq: 15.012 or 15.015
G (Spring; second half of term)
4-0-2 units

Establishes understanding of the development processes of societies and economies. Studies several dimensions of sustainability (environmental, social, political, institutional, economy, organizational, relational, and personal) and the balance among them. Explores the basics of governmental intervention, focusing on areas such as the judicial system, environment, social security, and health. Builds skills to determine what type of policy is most appropriate. Considers implications of new technologies on the financial sector: internationalization of currencies, mobile payment systems, and cryptocurrencies. Discusses the institutional framework to ensure choices are sustainable across all dimensions and applications.
R. Rigobon
**15.015 Macro and International Economics**
Prereq: Permission of instructor
G (Fall; first half of term)
2-0-4 units

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.
A. Cavallo

**15.021[J] Real Estate Economics**
Same subject as 11.433[J]
Prereq: 14.01, 15.010, or 15.011
G (Fall)
4-0-8 units

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

Same subject as 12.848[J], ESD.128[J]
Subject meets with 12.348[J], 15.026[J]
Prereq: Calculus II (GIR); 5.60; 14.01 or 15.010; or permission of instructor
G (Spring)
3-0-6 units

Introduces scientific, economic, and ecological issues underlying the threat of global climate change, and the institutions engaged in negotiating 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.
R. G. Prinn

**15.024 Applied Economics for Managers**
Prereq: Permission of instructor
G (Summer)
3-0-6 units
Credit cannot also be received for 15.722

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.
T. Stoker

**15.025 Game Theory for Strategic Advantage**
Subject meets with 15.0251
Prereq: 15.010, 15.011, 15.015, or 14.01
G (Spring)
3-0-6 units

Develops and applies principles of game theory relevant to managers’ strategic decisions. Topics include how to reason about strategies and opponents; strategic commitment, reputation, and “irrational” actions; brinkmanship and negotiation; auctions; and the design of markets and contests. Applications to a variety of business decisions that arise in different industries, both within and outside the firm. Meets with 15.0251 when offered concurrently. Students taking graduate version complete additional assignments.
A. Bonatti

**15.0251 Game Theory for Strategic Advantage**
Subject meets with 15.025
Prereq: 15.0111 or 14.01
U (Spring)
3-0-6 units

Develops and applies principles of game theory relevant to managers’ strategic decisions. Topics include how to reason about strategies and opponents; strategic commitment, reputation, and “irrational” actions; brinkmanship and negotiation; auctions; and the design of markets and contests. Applications to a variety of business decisions that arise in different industries, both within and outside the firm. Meets with 15.025 when offered concurrently. Students taking graduate version complete additional assignments.
A. Bonatti
Same subject as 12.348[J]
Subject meets with 12.848[J], 15.023[J], ESD.128[J]
Prereq: Calculus II (GIR); 5.60; 14.01 or 15.010; or permission of instructor
U (Spring)
3-0-6 units
Introduces scientific, economic, and ecological issues underlying the threat of global climate change, and the institutions engaged in negotiating 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. 12.340 recommended.
R. G. Prinn

Same subject as 11.161[J], 14.43[J], 17.397[J], 21A.415[J]
Prereq: 14.01, 15.0111, or permission of instructor
U (Fall)
4-0-8 units. HASS-S
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; and 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.
C. Warshaw

15.032[J] Engineering, Economics and Regulation of the Electric Power Sector
Same subject as 6.695[J], ESD.162[J]
Prereq: Permission of instructor
G (Spring)
3-0-9 units
See description under subject ESD.162[J].
I. Perez-Arriaga, C. Knittel

15.034 Metrics for Managers: Big Data and Better Answers
Subject meets with 15.0341
Prereq: None
G (Fall)
4-0-5 units
Studies regression modeling and other data analytics to calculate useful correlations and discover causal relationships. Students evaluate the quality of evidence supported by data and apply an empirical toolkit to answer questions in finance, marketing, human resources, strategy, and general business planning. Labs, problem sets, and projects focus on empirical work. Meets with 15.0341 when offered concurrently. Students taking graduate version complete additional assignments.
J. Doyle

15.0341 Metrics for Managers: Big Data and Better Answers
Subject meets with 15.034
Prereq: None
U (Fall)
4-0-5 units
Studies regression modeling and other data analytics to calculate useful correlations and discover causal relationships. Students evaluate the quality of evidence supported by data and apply an empirical toolkit to answer questions in finance, marketing, human resources, strategy, and general business planning. Labs, problem sets, and projects focus on empirical work. Meets with 15.034 when offered concurrently. Students taking graduate version complete additional assignments.
J. Doyle

15.037[J] Energy Economics and Policy
Same subject as 14.44[J]
Prereq: 14.01
U (Spring)
4-0-8 units. HASS-S
Credit cannot also be received for 14.444[J], 15.038[J]
See description under subject 14.44[J].
C. Knittel

Same subject as 14.444[J]
Prereq: 14.01
G (Spring)
4-0-8 units
Credit cannot also be received for 14.44[J], 15.037[J]
See description under subject 14.444[J].
C. Knittel
15.040 Seminar in Managerial Economics
Prereq: 15.010, 15.012
G (Spring)
Units arranged
Can be repeated for credit.
Group study of current topics related to managerial economics.
T. M. Stoker

Operations Research/Statistics

15.053 Optimization Methods in Business Analytics
Prereq: None
U (Spring)
4-0-8 units. REST
Introduces optimization methods with a focus on modeling, solution techniques, and analysis. Covers linear programming, network optimization, integer programming, and decision trees. Applications to logistics, manufacturing, data analysis, transportation, marketing, project management, and finance. Includes a project in which student teams select and solve an optimization problem (possibly a large-scale problem) of practical interest.
J. Orlin

15.054[J] The Airline Industry
Same subject as 1.232[J], 16.71[J], ESD.217[J]
Prereq: None
G (Fall)
3-0-9 units
See description under subject 16.71[J].
P. P. Belobaba, A. I. Barnett, C. Barnhart, R. J. Hansman, T. A. Kochan

15.058 Optimization Methods in Operations Research
Prereq: None
G (Spring)
4-0-8 units
Introduces students to optimization methods with a focus on modeling, solution techniques, and analysis. Methodologies covered include linear programming, network optimization, integer programming, and decision trees. Applications to logistics, manufacturing, data analysis, transportation, marketing, project management, and finance. Includes a project in which student teams select and solve an optimization problem (possibly a large-scale problem) of practical interest. Meets with 15.053 when offered concurrently.
J. Orlin

15.060 Data, Models, and Decisions
Prereq: Permission of instructor
G (Fall)
3-0-6 units
Credit cannot also be received for 15.730
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

15.062[J] Data Mining: Finding the Data and Models that Create Value
Same subject as ESD.754[J]
Subject meets with 15.0621
Prereq: 15.060 or 15.075[J]
G (Fall; second half of term)
2-0-4 units
Provides an introduction to data mining and machine learning, a class of methods that assist in recognizing patterns and making intelligent use of massive amounts of data collected via the internet, e-commerce, electronic banking, point-of-sale devices, bar-code readers, medical databases, search engines, and social networks. Includes topics in logistic regression, association rules, tree-structured classification and regression, cluster analysis, discriminant analysis, and neural network methods. Presents examples of successful applications in areas such as credit ratings, fraud detection, marketing, customer relationship management, and investments. Introduces data-mining software. Term project required. Meets with 15.0621 when offered concurrently. Students taking graduate version complete additional assignments.
R. E. Welsch
15.0621 Data Mining: Finding the Data and Models that Create Value
Subject meets with 15.062[J], ESD.754[J]
Prereq: 15.075[J]
U (Fall; second half of term)
2-0-4 units
Provides an introduction to data mining and machine learning, a class of methods that assist in recognizing patterns and making intelligent use of massive amounts of data collected via the internet, e-commerce, electronic banking, point-of-sale devices, bar-code readers, medical databases, search engines, and social networks. Includes topics in logistic regression, association rules, tree-structured classification and regression, cluster analysis, discriminant analysis, and neural network methods. Presents examples of successful applications in areas such as credit ratings, fraud detection, marketing, customer relationship management, and investments. Introduces data-mining software. Term project required. Meets with 15.062[J] when offered concurrently. Students taking graduate version complete additional assignments.
R. E. Welsch

15.064[J] Engineering Probability and Statistics
Same subject as ESD.751[J]
Prereq: Calculus II (GIR)
G (Summer)
4-0-8 units
Modeling and analysis of uncertainty and variation. Covers probability models and distributions, regression, and basic statistical procedures pertinent to manufacturing and operations. Introduces experimental and robust design, statistical process control, forecasting, and data-mining. Students use a data analysis package, such as JMP, Minitab, or MATLAB.
A. I. Barnett, R. E. Welsch

15.066[J] System Optimization and Analysis for Operations
Same subject as 2.851[J], ESD.750[J]
Prereq: Calculus II (GIR)
G (Summer)
4-0-8 units
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.
V. Farias

15.068 Statistical Consulting
Prereq: 15.060
G (Fall, Spring)
3-0-6 units
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

15.070[J] Advanced Stochastic Processes
Same subject as 6.265[J]
Prereq: 6.431, 15.085[J], 18.100A, 18.100B, or 18.100C
G (Spring)
3-0-9 units
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, queuing and inventory models.
D. Gamarnik, D. Shah

15.071 The Analytics Edge
Subject meets with 15.0711
Prereq: 15.053 or 15.060
G (Spring)
4-0-8 units
Presents real-world examples in which quantitative methods provide a significant competitive edge that has led to a first order impact on 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. Outlines the competitive landscape. Presents the key quantitative methods that created the edge (data-mining, dynamic optimization, simulation), and discusses their impact. Uses R programming language. Includes team projects. Meets with 15.0711 when offered concurrently. Students taking graduate version complete additional assignments.
D. Bertsimas
15.0711 The Analytics Edge
Subject meets with 15.071
Prereq: 15.053
U (Spring)
4.0-8 units

Presents real-world examples in which quantitative methods provide a significant competitive edge that has led to a first order impact on 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. Outlines the competitive landscape. Presents the key quantitative methods that created the edge (data-mining, dynamic optimization, simulation), and discusses their impact. Uses R programming language. Includes team projects. Meets with 15.071 when offered concurrently. Students taking graduate version complete additional assignments.

D. Bertsimas

15.073[J] Logistical and Transportation Planning Methods
Same subject as 1.203[J], 6.281[J], 16.76[J], ESD.216[J]
Prereq: 6.041
G (Spring)
3.0-9 units

See description under subject 1.203[J].

R. C. Larson, A. I. Barnett

15.074[J] Predictive Data Analytics and Statistical Modeling
Same subject as ESD.755[J]
Prereq: 6.041, 15.060, or permission of instructor
G (Spring)
4.0-5 units

Credit cannot also be received for 15.074[J]

Provides a brief review of statistics and regression drawn from advanced topics, such as bootstrap resampling, variable selection, data and regression diagnostics, visualization, and Bayesian and robust methods. Covers data-mining and machine learning, including classification, logistic regression, and clustering. Culminates with time series analysis and forecasting, design of experiments, analysis of variance, and process control. Uses statistical computing systems based on application add-ins and stand-alone packages. Case studies involve finance, management science, consulting, risk management, and engineering systems. Term project required. Meets with 15.074[J] when offered concurrently. Expectations and evaluation criteria differ for students taking graduate version; consult syllabus or instructor for specific details.

R. E. Welsch

15.0741 Predictive Data Analytics and Statistical Modeling
Prereq: 6.041
U (Spring)
4.0-5 units

Credit cannot also be received for 15.074[J], ESD.755[J]

Provides a brief review of statistics and regression drawn from advanced topics, such as bootstrap resampling, variable selection, data and regression diagnostics, visualization, and Bayesian and robust methods. Covers data-mining and machine learning, including classification, logistic regression, and clustering. Culminates with time series analysis and forecasting, design of experiments, analysis of variance, and process control. Uses statistical computing systems based on application add-ins and stand-alone packages. Case studies involve finance, management science, consulting, risk management, and engineering systems. Term project required. Meets with 15.074[J] when offered concurrently. Expectations and evaluation criteria differ for students taking graduate version; consult syllabus or instructor for specific details.

R. E. Welsch

15.075[J] Statistical Thinking and Data Analysis
Same subject as ESD.07[J]
Prereq: 6.041 or 15.079
U (Spring)
3.0-8 units. Institute LAB

Introduces a rigorous treatment of statistical data analysis while helping students develop a strong intuition for the strengths and limitations of various methods. Topics include statistical sampling and uncertainty, estimation, hypothesis testing, linear regression, classification, analysis of variation, and elements of data mining. Involves empirical use of hypothesis testing and other statistical methodologies in several domains, including the assessment of A-B experiments on the web and the identification of genes correlated with diseases.

R. Mazumder
15.077[J] Statistical Learning and Data Mining
Same subject as ESD.753[J]
Prereq: 6.431, 15.085[J], or 18.600; 18.06 or 18.700
G (Spring)
4-0-8 units

Advanced introduction to the theory and application of statistics, data-mining, and machine learning, concentrating on techniques used in management science, marketing, finance, consulting, engineering systems, and bioinformatics. First half builds the statistical foundation for the second half, with topics selected from sampling, including the bootstrap, theory of estimation, testing, nonparametric statistics, analysis of variance, categorical data analysis, regression analysis, MCMC, EM, Gibbs sampling, and Bayesian methods. Second half focuses on data mining, supervised learning, and multivariate analysis. Topics selected from logistic regression; principal components and dimension reduction; discrimination and classification analysis, including trees (CART), partial least squares, nearest neighbors, regularized methods, support vector machines, boosting and bagging, clustering, independent component analysis, and nonparametric regression. Uses statistics software packages, such as R and MATLAB for data analysis and data mining. Includes a term project.

R. E. Welsch

15.079 Introduction to Applied Probability
Prereq: Calculus I (GiR)
U (Fall)
4-0-8 units. REST

Presents probability from the perspective of applied mathematics, with strong emphasis on an intuitive overview of key theorems and continuing demonstrations of their usefulness. Covers the laws of probability and numerous important discrete and continuous random variables, both individually and in combination. Introduces simulation. Draws applications from economics, finance, engineering, marketing, public policy, operations management, and operations research.

A. Barnett, R. Larson

15.081[J] Introduction to Mathematical Programming
Same subject as 6.251[J]
Prereq: 18.06
G (Fall)
4-0-8 units

See description under subject 6.251[J].

J. N. Tsitsiklis, D. Bertsimas

15.082[J] Network Optimization
Same subject as ESD.78[J]
Prereq: 15.081[J] or permission of instructor
G (Fall)
3-0-9 units

Doctoral-level subject on network models and algorithms. Emphasizes design and analysis of efficient algorithms for network flow models. Topics may vary from year to year.

J. Orlin

15.083[J] Integer Programming and Combinatorial Optimization
Same subject as 6.859[J]
Prereq: 15.081[J] or permission of instructor
Acad Year 2016-2017: Not offered
Acad Year 2017-2018: G (Spring)
4-0-8 units

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

15.084[J] Nonlinear Optimization
Same subject as 6.252[J]
Prereq: 18.06; 18.100A, 18.100B, or 18.100C
G (Spring)
4-0-8 units

See description under subject 6.252[J].

R. M. Freund, D. P. Bertsekas, G. Perakis

15.085[J] Fundamentals of Probability
Same subject as 6.436[J]
Prereq: Calculus II (GiR)
G (Fall)
4-0-8 units

See description under subject 6.436[J].

J. N. Tsitsiklis, D. Gamarnik
15.093[J] Optimization Methods
Same subject as 6.255[J]
Prereq: 18.06
G (Fall)
4.0-8 units
Introduces the principal algorithms for linear, network, discrete, robust, nonlinear, dynamic optimization and optimal control. Emphasizes 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*

15.094[J] Robust Modeling, Optimization, and Computation
Same subject as 1.142[J]
Prereq: 18.06 or permission of instructor
G (Spring)
4.0-8 units
Introduces modern robust optimization, including theory, applications, and computation. Presents formulations and their connection to probability, information and risk theory for conic optimization (linear, second-order, and semidefinite cones) and integer optimization. Application domains include analysis and optimization of stochastic networks, optimal mechanism design, network information theory, transportation, pattern classification, structural and engineering design, and financial engineering. Students formulate and solve a problem aligned with their interests in a final project.
*D. Bertsimas*

15.096 Prediction: Machine Learning and Statistics
Prereq: None
G (Spring)
3.0-9 units
Gives a practical background and theoretical foundation to machine learning algorithms and Bayesian analysis. Includes an overview of the top ten algorithms in data mining. Covers frameworks for knowledge discovery, a unified view of support vector machines, AdaBoost and regression based on regularized risk minimization; generalization bounds from statistical learning theory based on covering numbers, VC dimension, and the margin theory; as well as basic Bayesian analysis and notes on the history of machine learning and statistics.
*C. Rudin*

15.097 Seminar in Statistics and Data Analysis
Prereq: Permission of instructor
G (Spring)
Units arranged
Group study of current topics related to statistics and data analysis.
*C. Rudin*

15.098 Seminar in Applied Probability and Stochastic Processes
Prereq: 6.431
G (Fall)
2.0-4 units
Can be repeated for credit.
Doctoral student seminar covering current topics in applied probability and stochastic processes.
*D. Gamarnik, D. Shah*

15.099 Seminar in Operations Research
Prereq: 15.081[J]
G (Fall, Spring)
Units arranged
Can be repeated for credit.
Doctoral student seminar covering current topics related to operations research.
*D. Bertsimas, R. Freund, T. L. Magnanti, J. Orlin, G. Perakis, A. S. Schulz*

Health Care Management

15.122[J] Critical Reading and Technical Assessment of Biomedical Information
Same subject as HST.977[J]
Prereq: SB degree in Biological Science or permission of instructor
G (Spring; first half of term)
1.0-2 units
See description under subject HST.977[J].
*S. Lapidus, J. Karp*

15.124[J] Evaluating a Biomedical Business Concept
Same subject as HST.973[J]
Prereq: None
G (Fall)
3.0-6 units
See description under subject HST.973[J].
*R. J. Cohen*
15.128[J] Revolutionary Ventures: How to Invent and Deploy Transformative Technologies
Same subject as 9.455[J], 20.454[J], MAS.883[J]
Prereq: Permission of instructor
G (Fall)
2·0·7 units
See description under subject MAS.883[J].
J. Bonsen, E. S. Boyden, J. Jacobson

15.132[J] Medicine for Managers and Entrepreneurs Proseminar
Same subject as HST.972[J]
Prereq: None
G (Spring)
3·0·6 units
Provides students with basic business-oriented clinical and technological knowledge related to health, healthcare and medicine through engagements with clinical and industry experts. Each session focuses on a specific field of medicine. Speakers include a basic science and/or clinical expert and a CEO or other senior executive involved in cutting-edge innovation in each area.
R. J. Cohen

15.136[J] Principles and Practice of Drug Development
Same subject as 7.547[J], 10.547[J], ESD.691[J], HST.920[J]
Prereq: Permission of instructor
G (Fall)
3·0·6 units
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, A. J. Sinskey, G. K. Raju

15.137[J] Case Studies and Strategies in Drug Discovery and Development
Same subject as 7.549[J], 20.486[J], HST.916[J]
Prereq: None
G (Spring)
2·0·4 units
See description under subject 20.486[J].
S. R. Tannenbaum, A. J. Sinskey, A. W. Wood

15.141[J] Economics of the Health Care Industries
Same subject as HST.918[J]
Prereq: Permission of instructor
G (Spring)
3·0·6 units
Focuses on economic issues in various health care and allied industries, such as the pharmaceutical, biotechnology, medical device, vaccine and diagnostic sectors. Addresses differences between health care and other industries; regulatory issues, in the US and globally, that involve establishment of the efficacy and cost-effectiveness of treatments; managing those who manage research and development; policies to incentivize research and development for neglected tropical diseases; strategic issues in global pricing and marketing; use of e-commerce and information technology; personalized/stratified medicines and diagnostic biomarkers; and formation and management of various alliances. Visiting speakers from academia, government, NGOs, and industry. Assignments include 4 to 6 essays.
E. R. Berndt, J. J. Doyle

Global Economics Management

15.218 Global Economic Challenges and Opportunities
Prereq: None
G (Spring)
3·0·6 units
Analyzes the causes, effects and policy responses to major global economic issues. Focuses on financial crises, beginning with historical examples in emerging markets and building up to recent crises. Also focuses on current economic debates and challenges facing countries around the world. Possible topics include unsustainable debt, European union, aging populations, global warming, inequality and poverty, oil and commodity markets, international institutions, and the implications of rapid growth in the BRICs (Brazil, Russia, India, and China) and “frontier” economies. Some background in international economics recommended.
A. Orphanides
**15.220 New Models for Global Business**  
Prereq: None  
G (Fall; second half of term)  
3-0-3 units  

Explores international dimensions of strategic management, and equips students to design strategies and structures that work effectively in an increasingly complex world economy. Focuses on a range of industries, from technology-based firms with global roots to emerging market multinationals. Topics include managing and leveraging big data, social and peer-to-peer networks, technology, and talent across national borders to develop capabilities and enhance competitive advantage. Includes a final group project in which students apply class concepts to evaluate strategic options for a startup or established global company of their choice. No final exam.  
V. Karplus

**15.221 Global Strategy and Organization**  
Prereq: None  
G (Spring; first half of term)  
3-0-3 units  

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.  
Staff

**15.223 Global Markets, National Policies and the Competitive Advantages of Firms**  
Prereq: None  
G (Fall, Spring; second half of term)  
3-0-3 units  

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.  
S. Johnson

**15.225 Economy and Business in Modern China and India: China Lab and India Lab**  
Prereq: None  
G (Spring)  
3-0-9 units  

Provides an integrated approach to analyze the economies of China and India through action learning. The classroom portion covers macro issues of China and India, project-related issues and personal and learning reflections. The onsite portion involves working with a host company in China or in India. Students work in teams to tackle a real world business problem with an entrepreneurial Chinese or Indian company and produce a final deliverable for the host company. Students are required to take a mid semester trip during SIP and Spring Break to China or India to work onsite with the host company. Past lab projects have included creating a business plan for fundraising, developing a new market strategy, and crafting financial models; the projects have included both for-profit and NGO projects. Limited to graduate students who participate in China Lab or India Lab.  
J. Grant, Y. Huang, M. Jester

**15.227 - 15.229 Seminar in International Management**  
Prereq: None  
G (Spring)  
Units arranged  
Can be repeated for credit.  

Group study of current topics related to international business.  
Staff

**15.232 Business Model Innovation: Global Health in Frontier Markets**  
Prereq: None  
G (Fall; first half of term)  
3-0-3 units  

Examines how new approaches to operations, revenue, marketing, finance, and strategy enable improved health care in resource-limited settings across Africa, Latin America, and Asia. Draws on system dynamics, design thinking, and strategic analysis. Explores success and failure in innovative healthcare delivery. Analysis of novel business models draws on case studies, videos, industry reports, research, and guest speakers. Students present their assessments of innovative base-of-the-pyramid health enterprises that aim to do more with less. Students who have not taken at least three management or business classes must apply to the instructor for permission to enroll before the first day of class.  
A. Sastry
15.233 Global Health Lab
Prereq: None
G (Spring)
3-0-9 units
Pairs faculty-mentored student teams with enterprises on the front lines of health care delivery in sub-Saharan Africa and South Asia. Custom-designed projects in strategy, business model innovation, operations, marketing, and technology designed to tackle specific barriers identified by each partnering organization. Interactive cases, practical exercises, and conversations with experts, all designed to support project work before, during, and after an intensive two-week onsite collaboration with entrepreneurs, leaders, staff, and stakeholders. Assignments include a portfolio of host deliverables, a foundational toolkit designed to support each project, and a distillation of learning from the field. Enrolled students must be available to work on site in Africa or South Asia for the entire weeks of SIP and Spring Break. Admission by application and interview in the prior November and December. Preference to students who have taken 15.232.

A. Sastry

15.249 Institutions, Society, and International Business
Prereq: None
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.

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 units
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.

Consult S. Sacca

15.269 Leadership Stories: Literature, Ethics, and Authority
Prereq: None
G (Fall)
3-0-6 units
Explores how we use story to articulate ethical norms. The syllabus consists of short fiction, novels, plays, feature films and some non-fiction. Major topics include leadership and authority, professionalism, the nature of ethical standards, social enterprise, and questions of gender, cultural and individual identity, and work/life balance. Materials vary from year to year, but past readings have included work by Robert Bolt, Michael Frayn, Timothy Mo, Wole Soyinka, H.D. Thoreau, and others; films have included Crouching Tiger, Hidden Dragon, Hotel Rwanda, The Descendants, 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: Leading Through Professionalism, Social Responsibility, and System Design
Prereq: None
G (Spring; partial term)
3-0-3 units
Introduction to ethics in business, with a focus on business management. 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

15.276 Communicating with Data
Prereq: None
U (Spring)
3-0-9 units
Focuses on how to communicate data clearly and effectively in a variety of situations. Develops skills to deliver data-oriented communications in both oral and written formats. Students participate in self-assessments and peer feedback. Final project involves a team presentation on a complex topic. Instruction in written and oral communication provided throughout course.

M. Kazakoff, B. Shields
15.277 Seminar in Communications
Prereq: None
G (Spring)
Units arranged
Can be repeated for credit.

15.278 Seminar in Communications
Prereq: None
G (Spring)
Units arranged [P/D/F]
Can be repeated for credit.
Group study of current topics related to communication.
J. Yates

15.279 Management Communication for Undergraduates
Prereq: None
U (Fall, Spring)
3-0-9 units
Develops writing, speaking, teamwork, interpersonal, and cross-cultural communication skills necessary for management professionals. Assignments include creating persuasive memos, writing in response to cases, and giving presentations. Major project involves the production of a team report and presentation on a topic of interest to a professional audience. Instruction in written and oral communication provided.
L. Breslow

15.280 Communication for Leaders
Prereq: Permission of instructor
G (Fall)
3-1-5 units
Credit cannot also be received for 15.710
Students develop and polish communication strategies and methods through discussion, examples, and practice. Emphasizes writing and speaking skills necessary for effective leaders. Includes several oral and written assignments which are integrated with other subjects, and with career development activities, when possible. Schedule and curriculum coordinated with Organizational Processes. Mandatory one hour recitation in small groups.
N. Hartman, R. Pittore, V. Healy-Tangney, K. Blackburn, M. Kazakoff, J. Yates, B. Shields

15.281 Advanced Leadership Communication
Prereq: 15.279, 15.280, or permission of instructor
G (Spring)
3-0-6 units
Introduces interactive oral and interpersonal communication skills critical to leaders, including strategies for presenting to a hostile audience, running effective and productive meetings, active listening, and contributing to group decision-making. Includes team-run classes on chosen communication topics, and an individual analysis of leadership qualities and characteristics. Students deliver an oral presentation and an executive summary, both aimed at a business audience.
N. Hartman, K. Blackburn, B. Shields, J. Yates, V. Healy-Tangney

15.282 EnActing Leadership: Shakespeare and Performance
Prereq: None
G (Spring)
3-0-6 units
Uses Shakespeare to challenge students’ views of leadership and provide them with a deeper understanding of their performance as a leader. While performing shortened versions of Shakespeare’s plays, students consider the serious questions they raise about the nature of leadership, power, and ambition, and explore their own leadership presence. Uses acting to strengthen speaking ability and personal presence.
C. Kelly

15.289 Doctoral Seminar: Communication Skills for Academics
Prereq: Permission of instructor
G (Spring; first half of term)
3-0-3 units
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.
J. Yates, L. Breslow
**Work and Organizational Studies**

**15.301 Managerial Psychology Laboratory**  
Prereq: None  
U (Fall, Spring)  
3-3-9 units. 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. Shares lectures with 15.310.  
*Fall: J. Carroll*  
*Spring: P. Osterman*

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

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.  
*Information: K. Dillard, D. Ancona*

**15.307 Leadership and Ethics**  
Prereq: None  
G (Fall)  
2-0-0 units

Foundations, pillars and principles of outstanding leadership introduced through discussions and case studies presented by senior industry leaders (LGO and non LGO alumni). Alumni will also share their personal leadership experiences.  
*V. Erdekian*

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

Surveys social psychology and organization theory as interpreted in the context of the managerial environment. Covers a number of diverse topics, including motivation and reward systems, social influence, groups and teams, leadership, power, organizational design and culture, and networks and communication patterns. Similar in content to 15.311; shares lectures with 15.301.  
*Fall: J. Carroll*  
*Spring: P. Osterman*

**15.311 Organizational Processes**  
Prereq: Permission of instructor  
G (Fall)  
2-3-4 units

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.  
*R. Fernandez, K. Kellogg, D. Apfelbaum*

**15.316 Building and Leading Effective Teams**  
Prereq: None  
G (Summer)  
2-1-0 units

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.  
*Consult J. S. Carroll*
15.317 Leadership and Organizational 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, with a focus on leadership that blends theory and practice. During their first summer in the program, students reflect on exemplary leaders' stories in cases, the arts, journalism, philosophy, and social science, and evaluate their own previous leadership experience. During the succeeding four semesters, they apply the lessons they have learned in class to their off-campus internship and other activities at Sloan, and intensively review that experience as they reach the end of the program. Classes take the form of moderated discussion, with the expectation that students will participate fully in each session; students also submit short, written deliverables throughout the program.

L. Hafrey

15.318 Discovering Your Leadership Signature  
Prereq: 15.311, 15.322, or permission of instructor  
G (Spring; first half of term)  
3-0-6 units  
Can be repeated for credit. Credit cannot also be received for 15.739

Provides the tools to better understand one's unique way of leading change, i.e. leadership signature. Involves intensive self-assessment and interactive exercises aimed to help students identify their key strengths and weaknesses and hone their leadership skills. Focuses on the individual leadership credo and techniques for building confidence and credibility. Students explore alternative approaches to leadership, compare and contrast various leadership styles, and look at a range of leadership capabilities.

D. Ancona

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

Focuses on effective organizational design in both traditional and innovative organizations, with special emphasis on innovative organizational forms that can provide strategic advantage. Topics include when to use functional, divisional, or matrix organizations; how IT creates new organizational possibilities; examples of innovative organizational possibilities, such as democratic decision-making, crowd-based organizations, internal resource markets, and other forms of collective intelligence. Team projects include inventing new possibilities for real organizations.

T. Malone

15.321 Improvisational Leadership: In-the-Moment Leadership Skills  
Prereq: None  
G (Fall, Spring; second half of term)  
3-0-3 units

Designed to provide a practical understanding of the skills of improvisation and their application to leadership. Examines the essential elements of successful leadership, including creativity, emotional intelligence, adaptability, and the capacity to develop effective influence strategies and build strong teams. Cultivates students' ability to respond to the unexpected with confidence and agility. Each class offers a highly experiential learning laboratory where students practice a wide variety of improvised business scenarios, interactive exercises, and simulations.

D. Giardella

15.322 Leading Organizations  
Prereq: None  
G (Summer)  
4-0-5 units  
Credit cannot also be received for 15.716

Analyzes through lectures, discussions, and class exercises, the human processes underlying organizational behavior.

J. Van Maanen

15.323 Leading from the Middle  
Prereq: None  
G (Spring; second half of term)  
2-0-1 units

Students and Leaders for Global Operations (LGO) alumni develop and present case studies that focus on the challenges and opportunities of leading from positions in the middle of an organization.

L. Hafrey

15.324 Practical leadership  
Prereq: None  
G (Spring; second half of term)  
3-0-3 units

Strengthens leadership capacities through feedback, reflection, and practice. Students use readings, role plays, experiential exercises, self-reflection, and reviews of their own videos, as well as focused coaching and feedback, to optimize their own leadership capabilities. Focuses on individual leadership growth. Culminates with submission of a written summary of students' reflections and experiences around leadership from throughout the term.

P. Bentley
15.325 Seminar in Leadership I  
Prereq: None  
G (Fall)  
2-0-1 units  
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.  
Consult S. Sacca

15.326 Seminar in Leadership II  
Prereq: 15.325  
G (Spring)  
2-0-1 units  
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.  
S. Sacca

15.328 Seminar in Organizational Studies  
Prereq: None  
G (Spring, Summer)  
Units arranged  
Can be repeated for credit.

15.329 Seminar in Organizational Studies  
Prereq: None  
G (Spring)  
Units arranged  
Can be repeated for credit.

Group study of current topics related to organizational studies.  
Consult D. G. Ancona

15.339 Distributed Leadership Workshop  
Prereq: None  
G (IAP)  
2-0-4 units  
Focuses on the key leadership capabilities needed in today's increasingly decentralized organizations: sense-making, relating, visioning, and inventing. Through conceptual discussions, small group exercises, and self-reflection, helps students understand leadership capabilities, evaluate their leadership strengths and weaknesses, articulate their values and aspirations, and practice developing leadership skills in interaction with class members.  
D. Ancona, T. Malone, W. Orlikowski

15.341 Individuals, Groups, and Organizations  
Prereq: Permission of instructor  
G (Fall)  
3-0-9 units  
Covers classic and contemporary theories and research related to individuals, groups, and organizations. Designed primarily for doctoral students in the Sloan School of Management who wish to familiarize themselves with research by psychologists, sociologists, and management scholars in the area commonly known as micro organizational behavior. Topics may include motivation, decision making, negotiation, power, influence, group dynamics, and leadership.  
J. Curhan

15.342 Organizations and Environments  
Prereq: Permission of instructor  
G (Fall)  
3-0-9 units  
Provides an introduction to research in “organizations and environments,” an interdisciplinary domain of inquiry drawing primarily 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.  
R. Reagans

15.345 Doctoral Proseminar in Behavioral and Policy Sciences  
Prereq: Permission of instructor  
G (Spring)  
2-0-4 units  
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.  
J. Carroll
15.347 Doctoral Seminar in Research Methods I
Prereq: Permission of instructor
G (Spring)
3-0-9 units
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.

M. Amengual

15.348 Doctoral Seminar in Research Methods II
Prereq: 15.347 or permission of instructor
G (Fall)
3-0-6 units
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, models for ordinal and nominal outcomes, count models, event history models).

E. J. Castilla

Technology, Innovation and Entrepreneurship

15.350 Managing Technological Innovation and Entrepreneurship
Prereq: None
G (Spring)
3-0-6 units
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.

Staff

15.355 Building Entrepreneurial Advantage
Prereq: Permission of instructor
G (Summer)
3-0-3 units
Analyzes in depth the challenges in identifying, funding and managing innovation-based entrepreneurial ventures in firms of varying size, from standalone start-ups to large corporations. Examines different developmental patterns adopted by start-ups, many of which involve linkages between new and established firms. Explores the ways that entrepreneurial ecosystems - such as those around MIT and Kendal Square - help to expand innovation and entrepreneurial capacity beyond traditional firm boundaries. Includes an intensive project in which students define and present the strategic advantage of a new innovation-based start-up to its founders and an established firm partner.

F. Murray

15.356 Product and Service Development in the Internet Age
Prereq: None
G (Fall; first half of term)
3-0-3 units
Traditional “in-house” innovation processes must be changed to benefit from emerging open-source innovation practices. Users are now increasingly developing their own b-to-b and b-to-c products. Course explains proven open innovation development methods such as crowdsourcing, innovation toolkits, tournaments and more. Includes visits from industry experts who present cases that illustrate the art required to implement each method.

E. A. von Hippel

15.357 Economics of Ideas, Innovation and Entrepreneurship
Prereq: None
G (Fall)
3-0-6 units
Advanced subject in the economics of technological change. Covers the micro-foundations of the knowledge production function (including the role of creativity and the impact of Science), the impact of institutions and strategic interaction on the commercialization of new technology, and the diffusion and welfare impact of ideas and technology. Includes a mixture and explicit comparisons of both theoretical and empirical research. Students should have adequate preparation in microeconomic theory and econometrics.

P. Azoulay, S. Stern
15.358 Software and Internet Entrepreneurship
Prereq: 15.900 or 15.902
G (Spring)
3-0-6 units
Considers key strategic concepts, especially the distinction between being a product versus a services company, as well as a product versus a platform strategy. Reviews how software became a business (from early developments in services to the emergence of standardized products), and the transition to software as a service, and cloud computing. Studies critical techniques for managing sales and marketing, as well as product development and project management for software products. Examines how the business differs for various platforms - including new and traditional enterprise software, social media, internet video, and mobile competitors - as well as for entrepreneurs competing in these markets. Student teams help teach some weekly sessions and analyze emerging companies and sectors in team projects.
M. A. Cusumano, I. Sayeed

15.360 Introduction to Technological Entrepreneurship
Prereq: Permission of instructor
G (Fall)
2-0-1 units
Provides an overview of entrepreneurial theory and practice for founding, developing and growing new enterprises, primarily but not exclusively focused on companies with a technological base. Weekly lectures and dinner discussion sessions by academic and practitioner faculty engaged in the MIT Entrepreneurship Program, supplemented by leaders of related MIT entrepreneurship activities, e.g., Trust Center for MIT Entrepreneurship, Technology Licensing Office, Deshpande Center, and Venture Mentoring Service, as well as successful entrepreneurs and venture capitalists. Includes student Open Mic presentations and discussion of new business ideas. Enrollment in ES.580, Silicon Valley Study Tour, for the following spring term required.
E. Roberts

15.363[J] Strategic Decision Making in the Life Sciences
Same subject as HST.971[J]
Prereq: None
G (Spring)
3-0-6 units
Surveys 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. Focuses on the biotech sector, with additional examples from the pharmaceutical and medical device sectors. Includes 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.
J. Fleming, A. Zarur

15.364 Regional Entrepreneurship Acceleration Lab (REAL)
Prereq: None
G (Fall)
3-0-3 units
Aimed at students seeking a research-based but action-oriented understanding of innovation ecosystems, such as Silicon Valley, Kendall Square/Massachusetts, Israel, London, and Singapore. Provides a framework for analyzing these critical innovation economies. Outlines the design and delivery of policies and programs (e.g., accelerators, prizes, tax policy, immigration policy) intended to accelerate innovation-driven entrepreneurship. Takes a stakeholder perspective to examine the role of entrepreneurs, risk capital providers, large corporations, governments and universities in innovation-driven entrepreneurship.
P. Budden, F. Murray

15.366 Energy Ventures
Prereq: 15.910; 15.390 or 15.371[J]; 10.391[J] or 10.579[J]
G (Fall)
3-0-9 units
Project-based approach to innovation and venture creation in the energy sector. Explores how innovation and entrepreneurial concepts apply (or do not apply) to the significant opportunities in the industry. 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, T. Hynes, F. O'Sullivan
15.367[J] Healthcare Ventures
Same subject as HST.978[J]
Prereq: 15.910; 15.390 or 10.391[J] or 10.579[J]
G (Fall)
3-0-9 units
See description under subject HST.978[J].
M. Gray, Z. Chu

15.369 Seminar in Corporate Entrepreneurship
Prereq: 15.310 or 15.311
G (Fall; partial term)
3-0-3 units
Addresses the practical challenges of making an established company entrepreneurial and examines various roles related to corporate entrepreneurship. Outside speakers complement faculty lectures. Topics may vary from term to term.
A. Kacperczyk, C. Kiefer

15.371[J] Innovation Teams
Same subject as 10.807[J]
Prereq: 15.911 or permission of instructor
G (Fall, Spring)
4-4-4 units
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.
F. Murray, L. Perez-Breva, N. Afeyan

15.375[J] Development Ventures
Same subject as EC.731[J], MAS.665[J]
Prereq: Permission of instructor
G (Fall)
3-0-9 units
See description under subject MAS.665[J].
J. Bonsen, A. Pentland

15.376[J] Media Ventures
Same subject as MAS.664[J]
Prereq: None
G (Spring)
3-0-6 units
Can be repeated for credit.
See description under subject MAS.664[J].
A. Pentland, J. Bonsen

15.377[J] Linked Data Ventures
Same subject as 6.932[J]
Prereq: 6.005, 6.033, or permission of instructor
G (Spring)
3-0-9 units
See description under subject 6.932[J].
T. Berners-Lee, L. Kagal, K. Rae, R. Sturdevant

15.378 Building an Entrepreneurial Venture: Advanced Tools and Techniques
Subject meets with 15.3781
Prereq: Permission of instructor
G (Fall, Spring)
3-1-8 units
Project-based class in which students use entrepreneurial techniques to build innovation-driven ventures in a time-compressed but robust setting. Applies fundamental concepts in greater depth and introduces tools and techniques. Students apply these concepts to specific venture-development projects. Designed to help students who want to prototype their potential new venture. Includes designing, developing, and testing the underlying product/service for the new venture. Students taking graduate version complete additional assignments.
B. Aulet, J. Baum, E. Chen
15.3781 Building an Entrepreneurial Venture: Advanced Tools and Techniques
Subject meets with 15.378
Prereq: 15.3901 or permission of instructor
U (Fall, Spring)
3-1-8 units

Project-based class in which students use entrepreneurial techniques to build innovation-driven ventures in a time-compressed but robust setting. Applies the fundamental concepts provided in other foundational entrepreneurship courses in greater depth and presents additional tools and techniques. Students apply these concepts to specific venture-development projects. Designed to help students who want to prototype their potential new venture. Includes designing, developing, and testing the underlying product/service for the new venture. Students applying graduate version complete additional assignments.
B. Aulet, J. Baum, E. Chen

15.385 Social Innovation and Entrepreneurship
Prereq: 15.911
G (Spring)
3-0-6 units

Students work individually or in teams to develop a business plan for an enterprise (for- or nonprofit) to solve a social problem. They also have the opportunity to develop their skills by working on an existing social venture. Examines the theory and practice of social entrepreneurship and innovation within various social issues and topics, including social impact markets, performance measurement, and theory of change. Students gain practical knowledge on how to identify potential social venture opportunities; develop skills and competencies for creating, developing and implementing ideas; and measure the success and value of a young enterprise.
Staff

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

Develops 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. Focuses on how to quickly define issues, determine and evaluate options, and take critical and precipitous actions to address the situation.
P. Kurzina

15.387 Entrepreneurial Sales
Prereq: None
G (Fall, Spring)
3-0-9 units

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.
L. Shipley

15.389 Global Entrepreneurship Lab
Prereq: None
G (Fall, IAP)
2-0-10 units

Practical study of the climate for innovation and determinants of entrepreneurial success. Teams of students work with top management in one company to gain experience in running and building a new enterprise. Focuses primarily on start-ups operating in emerging markets.
S. Johnson, M. Jester

15.390 New Enterprises
Subject meets with 15.3901
Prereq: None
G (Fall, Spring)
2-1-6 units

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. Meets with 15.3901 when offered concurrently.
W. Aulet, C. Catalini
15.3901 New Enterprises
Subject meets with 15.390
Prereq: None
U (Fall, Spring)
2-1-6 units
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. Meets with 15.390 when offered concurrently. Students taking graduate version complete additional assignments.

W. Aulet, C. Catalini

15.392 Entrepreneurial Product Development and Marketing
Prereq: 15.371(J) or 15.390
G (Spring; first half of term)
3-0-3 units
Students develop and help market an innovation-driven product that may form the basis of an entrepreneurial start-up, but also could be part of a larger entity. Students use tools and techniques to effectively and efficiently drive product development (hardware or software) in a fast-paced environment, including how to iterate their way to product/market fit, how to generate interest in their start-up through the internet, and how to select the right business model for their market.

B. Halligan, P. English

15.394 Dilemmas in Founding New Ventures
Prereq: None
G (Spring)
3-0-6 units
Explores key organizational decisions that have far-reaching consequences for founders and their ventures. Though a series of cases, readings, and simulations, students examine five founder’s dilemmas: whether and when to found; whom to include in the founding team; how to allocate equity among co-founders; whether to involve external investors; and when and how to exit. Aims to equip students with tools and frameworks to help them understand the implications of early decisions, and to build enduring resources that enable the venture to execute even if the original plan changes substantially.

M. Marx

15.395 Entrepreneurship Without Borders
Prereq: None
G (Fall; first half of term)
3-0-3 units
Examines opportunities and problems for entrepreneurs outside the US, including in Europe, Latin America, and Asia. Covers the linkages between the business environment, the institutional framework, and new venture creation. Students apply analytics of finance for start-ups in emerging markets. In addition to discussing a range of global entrepreneurial situations, student groups pick one particular cluster on which to focus and to understand what further development would entail. Classroom interactions are based primarily on case studies.

S. Johnson, V. Karplus

15.396 Seminar in Entrepreneurship
Prereq: None
G (Spring)
Units arranged
Group study of current topics related to entrepreneurship.

W. Aulet

15.397 Seminar in Entrepreneurship
Prereq: None
G (Fall, IAP, Spring)
Units arranged
Can be repeated for credit.
Group study of current topics related to high-tech entrepreneurship.

Staff

15.398 Corporations at the Crossroads: The CEO Perspective
Prereq: None
G (Spring)
2-0-4 units
Focuses on the role of the CEO. Provides a unique opportunity for students to interact with some of the world’s leading CEOs who are invited to participate in each class. Topics include the job of the CEO, corporate strategy, career learnings and advice. Emphasizes in particular how the CEO is reacting to critical crossroads.

P. Kurzina
**15.399 Entrepreneurship Lab**  
Prereq: None  
G (Fall, Spring)  
2-9-1 units  

Project-based course, in which teams of students from MIT and Harvard work with startups on problems of strategic importance to the venture. Popular sectors include software, hardware, robotics, cleantech, life sciences. 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 startup companies.  
*C. Catalini, J. Dougherty*

**Finance**

**15.401 Managerial Finance**  
Prereq: None  
G (Fall, Spring)  
4-0-5 units  
Credit cannot also be received for 15.411, 15.417  

Covers the fundamentals of modern financial analysis that are essential to any manager, entrepreneur, investor, or other business professional. Topics include valuation, risk analysis, personal and corporate investment decisions, and an introduction to security analysis and asset management. A prerequisite for all other finance electives offered by the Finance Group. Meets with 14.511 when offered concurrently. Students taking graduate version complete additional assignments.  
*Consult K. Nixon*

**15.402 Corporate Finance**  
Subject meets with 15.418  
Prereq: 15.401  
G (Fall, Spring)  
3-0-6 units  

Introduction to 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. Students taking graduate version complete additional assignments.  
*P. Asquith, A. Malenko*

**15.403 Introduction to the Practice of Finance**  
Prereq: None  
G (Fall)  
2-0-1 units  

Seminar 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.  
*J. Parsons*

**15.411 Managerial Finance**  
Prereq: None  
U (Fall)  
4-0-5 units  
Credit cannot also be received for 15.401, 15.417  

Core theory of modern financial economics and financial management, concentrating on capital markets and investments. Topics include functions of capital markets and financial intermediaries, asset valuation, fixed income securities, common stocks, capital budgeting, diversification and portfolio selection, equilibrium pricing of risky assets, the theory of efficient markets, and an introduction to derivatives. Meets with 15.401 when offered concurrently. Expectations and evaluation criteria for graduate students will differ from those of undergraduates; consult syllabus or instructor for specific details.  
*Consult K. Nixon*

**15.414 Financial Management**  
Prereq: 15.511  
G (Summer)  
3-0-6 units  
Credit cannot also be received for 15.724  

Provides a rigorous introduction to the fundamentals of modern financial analysis and applications to business challenges in capital budgeting, project evaluation, corporate investment and financing decisions, and basic security analysis and investment management. Focuses on five key sections: an introduction to the financial system, the unifying principles of modern finance, and fundamental present-value relations; valuation models for both stocks and bonds and capital budgeting; methods for incorporating uncertainty into valuation models; valuation of derivative securities; and applications to corporate financial decisions.  
*L. Fang*
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Prereq</th>
<th>Time</th>
<th>Units</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.415</td>
<td>Finance Theory</td>
<td>None</td>
<td>G (Summer)</td>
<td>6-0-9</td>
<td>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. L. Kogan, J. Wang</td>
</tr>
<tr>
<td>15.416[J]</td>
<td>Introduction to Financial Economics</td>
<td>14.121, 14.122</td>
<td>G (Fall)</td>
<td>4-0-8</td>
<td>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; consumption beta models; spanning; options; market imperfections; no-trade theorems; rational expectations; financial signaling. Primarily for doctoral students in accounting, economics, and finance. H. Chen, L. Kogan</td>
</tr>
<tr>
<td>15.417</td>
<td>Laboratory in Investments</td>
<td>None</td>
<td>U (Spring)</td>
<td>4-2-9</td>
<td>Students work in teams to construct a portfolio of assets (equities, bonds, or some combination). Presents elements of portfolio construction, risk assessment, and metrics to gauge the effectiveness of trading strategies. Emphasizes the use of research databases to test hypotheses regarding the predictability of asset returns, as well as the impact of market microstructure and behavioral effects. Instruction and practice in oral and written communication provided. G. Rao</td>
</tr>
<tr>
<td>15.418</td>
<td>Laboratory in Corporate Finance</td>
<td>15.417</td>
<td>U (Fall, Spring)</td>
<td>4-2-9</td>
<td>Covers capital budgeting, investment decisions and valuation; working capital management, security issues; dividend policy; optimal capital structure; and real options analysis. Laboratory involves projects of an applied nature in which students either conduct an event study and analyze its impact on firm capital market value, or conduct a merger model between two firms of the student's choosing. Emphasizes use of research databases to test hypotheses. Instruction and practice in communication includes report writing, team projects, and oral and visual presentation. Expectations and evaluation criteria differ for students taking graduate version; consult syllabus or instructor for specific details. S. Myers</td>
</tr>
<tr>
<td>15.426[J]</td>
<td>Real Estate Finance and Investment</td>
<td>Permission of instructor</td>
<td>G (Fall)</td>
<td>4-0-8</td>
<td>Same subject as 11.431[J]. D. Geltner</td>
</tr>
<tr>
<td>15.427[J]</td>
<td>Real Estate Capital Markets</td>
<td>11.431[J], 15.402 or 15.414</td>
<td>G (Spring; first half of term)</td>
<td>2-0-4</td>
<td>Same subject as 11.432[J]. D. Geltner</td>
</tr>
<tr>
<td>15.428[J]</td>
<td>Tools for Analysis: Design for Real Estate and Infrastructure Development</td>
<td>None</td>
<td>G (Spring; second half of term)</td>
<td>2-0-4</td>
<td>Same subject as 11.434[J]. ESD.712[J]. D. Geltner, R. de Neufville</td>
</tr>
</tbody>
</table>
15.429[J] Securitization of Mortgages and Other Assets
Same subject as 11.353[J]
Prereq: 15.426[J], 15.401, or permission of instructor
G (Spring)
3-0-6 units
Investigates the economics and finance of securitization, a practice that allows illiquid assets to be transformed into more liquid securities. Considers the basic mechanics of structuring deals for various asset-backed securities. Investigates the pricing of pooled assets, using Monte Carlo and other option pricing techniques, as well as various trading strategies used in these markets.
W. Torous

15.431 Entrepreneurial Finance and Venture Capital
Prereq: 15.402, 15.414, or 15.415
G (Spring)
3-0-6 units
Credit cannot also be received for 15.431
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 a 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. Meets with 15.4311 when offered concurrently. Expectations and evaluation criteria for graduate students will differ from those of undergraduates; consult syllabus or instructor for specific details.
Staff

15.4311 Entrepreneurial Finance and Venture Capital
Prereq: 15.418
U (Spring)
3-0-6 units
Credit cannot also be received for 15.431
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 a 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. Meets with 15.431 when offered concurrently. Expectations and evaluation criteria for graduate students will differ from those of undergraduates; consult syllabus or instructor for specific details.
A. Schoar

15.433 Financial Markets
Subject meets with 15.4331
Prereq: 15.401, 15.414, or 15.415
G (Fall)
3-0-6 units
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. Meets with 15.4331 when offered concurrently. Students taking graduate version complete additional assignments.
J. Pan

15.4331 Financial Markets
Subject meets with 15.433
Prereq: 15.411
U (Fall)
3-0-6 units
Covers 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; empirical behavior of security prices; market efficiency; performance evaluation; and behavioral finance. Meets with 15.433 when offered concurrently. Students taking graduate version complete additional assignments.
J. Pan

15.434 Advanced Corporate Finance
Subject meets with 15.4341
Prereq: 15.402, 15.414, or 15.415
G (Fall, Spring)
3-0-6 units
Covers advanced topics in corporate finance, including complex valuations, static and dynamic capital structure, risk management, and real options. Also considers security design, restructuring, bankruptcy, corporate control and governance, and international finance issues. Students taking the graduate version complete additional assignments.
N. Gregory
15.4341 Advanced Corporate Finance
Subject meets with 15.434
Prereq: 15.418
U (Fall, Spring)
3-0-6 units
Covers advanced topics in corporate finance, including complex valuations, static and dynamic capital structure, risk management, and real options. Also considers security design, restructuring, bankruptcy, corporate control and governance, and international finance issues. Students taking graduate version complete additional assignments.
N. Gregory

15.437 Options and Futures Markets
Prereq: 15.401, 15.414, or 15.415
G (Fall)
3-0-6 units
Credit cannot also be received for 15.4371
Examines the economic role of options and futures markets. Topics include 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, and applications to corporate securities and other financial instruments. Meets with 15.4371 when offered concurrently. Expectations and evaluation criteria differ for students taking graduate version; consult syllabus or instructor for specific details.
J. C. Cox

15.4371 Options and Futures Markets
Prereq: 15.417
U (Spring)
3-0-6 units
Credit cannot also be received for 15.437
Examines the economic role of options and futures markets. Topics include 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, and applications to corporate securities and other financial instruments. Meets with 15.4371 when offered concurrently. Expectations and evaluation criteria differ for students taking graduate version; consult syllabus or instructor for specific details.
J. C. Cox

15.438 Fixed Income Securities and Derivatives
Prereq: 15.401, 15.414, or 15.415
G (Spring)
3-0-6 units
Designed for students seeking to develop a sophisticated understanding of fixed income valuation and hedging methods, and to gain familiarity with the major markets and instruments. Emphasizes tools for quantifying, hedging, and speculating on risk. Topics include duration; convexity; modern approaches to modeling the yield curve; interest rate forwards, futures, swaps and options; credit risk and credit derivatives; mortgages; and securitization. 15.437 strongly recommended.
D. Lucas

15.439 Investment Management
Prereq: 15.401, 15.414, or 15.415
G (Spring)
3-0-6 units
Studies financial markets, principally equity markets, from an investment decision-making perspective. Develops a set of conceptual frameworks and tools, and applies them to particular investments and investment strategies chosen from a broad array of companies, securities, and institutional contexts. Focuses strongly on case studies; students are expected to prepare each case before class and participate extensively in discussions.
R. Cohen

Same subject as 14.440[J]
Prereq: 15.416[J]
G (Fall)
5-0-7 units
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.
H. Chen, L. Kogan
**15.441[J] Advanced Financial Economics II**  
Same subject as 14.441[J]  
Prereq: 14.121, 14.122, or 15.416[J]  
G (Spring)  
3-0-9 units  
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.  
*Staff*

Same subject as 14.442[J]  
Prereq: 14.382, 15.416[J], or permission of instructor  
G (Spring)  
3-0-9 units  
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.  
*Staff*

**15.444 International Corporate Finance**  
Prereq: 15.402, 15.414, or 15.415  
G (Spring)  
3-0-6 units  
Addresses issues relating to valuation, risk management, financing and contractual design for firms operating in international markets, providing exposure to emerging markets. Students analyze how risk and cash flows should be evaluated in environments with varying levels of risk, such as currency fluctuation, sovereign default, weak property rights, etc. Discusses how certain types of risk can be eliminated or managed through the appropriate design of financial contracts, and how institutional differences across countries shape the structure and efficacy of private equity contracts. Other topics include firm policy and international tax regimes, microfinance, and valuing social return. Concludes with a discussion on the impact of global financial crises on firm financial policy.  
*Staff*

**15.445 Mergers and Acquisitions: The Market for Corporate Control**  
Prereq: 15.515 or 15.516; 15.414, 15.415, or Coreq: 15.402  
G (Spring; partial term)  
2-0-4 units  
Examines a corporation's decision to acquire another firm or the decision to oppose being acquired. 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. Sessions alternate between discussions of academic readings and applied cases.  
*N. Gregory*

**15.447 International Capital Markets**  
Prereq: 15.401, 15.414, or 15.415  
G (Spring)  
3-0-6 units  
Covers globalization of capital markets and implications for financial management of domestic businesses, multinationals, and portfolios. Topics include currency markets, measuring and managing exchange rate exposure, exchange rate determination and forecasting, international financial instruments and institutions, international trading strategies and valuation, and global financial crises.  
*J. Parker*

**15.448-15.449 Seminar in Finance**  
Prereq: 15.402 or 15.414  
G (Fall)  
Units arranged  
Can be repeated for credit.  
Group study of current topics related to finance.  
*J. C. Cox*

**15.450 Analytics of Finance**  
Prereq: 15.401, 15.414, or 15.415  
G (Spring)  
5-0-7 units  
Provides a rigorous foundation for the main analytical techniques and quantitative methods necessary to succeed in the financial services industry. Topics include discrete and continuous asset pricing models, financial econometrics, machine learning methods, and dynamic optimization. Examples of applications include portfolio management, risk management, derivative pricing, and algorithmic trading.  
*P. Mende*
**15.451 Proseminar in Capital Markets/Investment Management**  
Prereq: 15.401, 15.414, or 15.415  
G (Fall)  
2-0-4 units  
Provides a unique opportunity to tackle original research problems in capital market analysis and investment management that have been posed by leading experts from the financial community. Students are assigned to teams, and each team is assigned one such problem. Teams present their solutions at a seminar which is attended by representatives of the sponsoring organization and open to the entire MIT community.  
**H. Chen, M. Kritzman**

**15.452 Proseminar in Corporate Finance/Investment Banking**  
Prereq: 15.402, 15.414, or 15.415  
G (Fall)  
3-0-3 units  
Bridges the gap between finance theory and finance practice, and introduces 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.  
**J. Parsons**

**15.460 Applied Quantitative Finance**  
Prereq: 15.401, 15.414, or 15.415  
G (Spring)  
4-0-5 units  
Credit cannot also be received for 15.4601  
Covers practical aspects of analytics in finance from the perspective of a quantitative investment manager. Develops understanding of stochastic processes, option pricing, investment strategies, backtest simulation, data and computational architecture, portfolio construction, trading implementation, and risk management within the context of specific quantitative trading strategies. Follows natural sequence of research, development, testing, and implementation. Emphasizes financial applications, but also covers mathematical and statistical techniques in some depth, along with their computational implementation in software and the use of real-world market data. Meets with 15.460 when offered concurrently. Expectations and evaluation criteria for graduate students will differ from those of undergraduates; consult syllabus or instructor for specific details.  
**P. Mende**

**15.4601 Applied Quantitative Finance**  
Prereq: 15.417  
U (Spring)  
4-0-5 units  
Credit cannot also be received for 15.460  
Covers practical aspects of analytics in finance from the perspective of a quantitative investment manager. Develops understanding of stochastic processes, option pricing, investment strategies, backtest simulation, data and computational architecture, portfolio construction, trading implementation, and risk management within the context of specific quantitative trading strategies. Follows natural sequence of research, development, testing, and implementation. Emphasizes financial applications, but also covers mathematical and statistical techniques in some depth, along with their computational implementation in software and the use of real-world market data. Meets with 15.460 when offered concurrently. Expectations and evaluation criteria for graduate students will differ from those of undergraduates; consult syllabus or instructor for specific details.  
**P. Mende**

**15.466 Functional and Strategic Finance**  
Prereq: 15.433 or 15.437  
G (Spring)  
3-0-6 units  
Organized around applying finance science and financial engineering in the design and management of global financial institutions, markets, and the financial system - the approach used to understand the dynamics of institutional change and the design of financial products and services. Examines the needs of government as user, producer and overseer of the financial system, including the issues surrounding measuring and managing risks in financial crises. Develops the necessary tools of derivative pricing and risk measurement, portfolio analysis and risk accounting, and performance measurement to analyze and implement concepts and new product ideas. Applies these tools to analyze aspects of the financial crisis of 2007-2009.  
**R. Merton**
15.467 Asset Management, Lifecycle Investing, and Retirement Finance
Prereq: 15.433
G (Spring)
3-0-6 units
Organized around applying finance science and financial engineering in three related financial-service activities: asset management, lifecycle investing, and retirement finance. Develops the necessary tools of derivative pricing and risk measurement, portfolio analysis and risk accounting, and performance measurement to analyze and implement concepts and new product ideas. Students should be familiar with basic portfolio-selection theory, CAPM, options, futures, swaps and other derivative securities.
R. Merton

15.481[J] Financial Market Dynamics and Human Behavior
Same subject as 6.935[J]
Prereq: 15.401, 15.414, or 15.415
G (Spring)
4-0-5 units
Develops a new perspective on the dynamics of financial markets and the roles that human behavior and the business environment play in determining the evolution of behavior and institutions. Draws on a variety of disciplines to develop a more complete understanding of human behavior in the specific context of markets and other economic institutions. Incorporates practical applications from financial markets, the hedge fund industry, private equity, government regulation, and political economy. Students use ideas from this new perspective to formulate several new hypotheses regarding recent challenges to traditional economic thinking.
A. Lo

15.490 Practice of Finance: Private Equity and Hedge Funds
Prereq: 15.402, 15.414, or 15.415
G (Spring; second half of term)
2-0-1 units
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

15.491 Practice of Finance: Advanced Corporate Risk Management
Prereq: 15.402, 15.414, or 15.415
G (Spring; second half of term)
2-0-4 units
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. 15.437 recommended.
J. Parsons

15.493 Practice of Finance: Perspectives on Investment Management
Prereq: 15.402, 15.414, or 15.415
G (Fall, Spring; second half of term)
3-0-3 units
Provides an overview of the investment management industry and an introduction to business fundamentals and valuation. Students read company analyst reports, write papers analyzing various companies, and complete an in-depth company analysis as a final paper. Includes presentations by outside speakers in the investment management industry. Class attendance is mandatory.
J. Shames

15.496 Practice of Finance: Data Technologies for Quantitative Finance
Prereq: 15.401, 15.414, or 15.415
G (Fall)
4-0-5 units
Introduces financial market data architecture and design, with applications to asset pricing, quantitative investment strategies, portfolio management, risk management, and high-frequency trading. Studies how data relationships are structured and how to use modern tools and technologies to manipulate, manage, and analyze financial data sets. Uses real-world data, applications, and cases to illustrate principles and provide practical experience.
P. Mende
Accounting

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

Preparation and analysis of financial statements. Focuses on why financial statements take the form they do, and how they can be used in evaluating corporate performance and solvency and in valuation of corporate securities. Introduces concepts from finance and economics (e.g., cash flow discounting and valuation) and explains their relation to, and use in, accounting. Students taking the graduate version complete additional assignments.

N. Shroff

15.511 Financial Accounting
Prereq: Permission of instructor
G (Summer)
3-0-6 units
Credit cannot also be received for 15.720

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).

J. Weber

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

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.

S. Keating

15.515 Financial Accounting
Prereq: Permission of instructor
G (Fall)
4-0-5 units

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. Core, R. Verdi

15.516 Corporate Financial Accounting
Subject meets with 15.501
Prereq: Permission of instructor
G (Fall, Spring, Summer)
3-0-9 units

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

N. Shroff

15.518 Taxes and Business Strategy
Prereq: 15.501, 15.511, 15.515, or 15.516
G (Spring)
3-0-6 units
Credit cannot also be received for 15.5181

Provides conceptual framework for thinking about taxation. Topics include taxation of various investments and types of compensation; retirement planning; considerations of choosing an organizational form when starting a business; various methods of mergering, acquiring, and divesting business entities; international tax planning rules and strategies; and high wealth planning and estate tax. Applies current debates on various tax policy options to class discussions. Intended for 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 businesses and finances in a tax-advantaged manner. Meets with 15.5181 when offered concurrently. Expectations and evaluation criteria for graduate students will differ from those of undergraduates; consult syllabus or instructor for specific details.

M. Hanlon
15.5181 Taxes and Business Strategy
Prereq: 15.501
U (Spring)
3-0-6 units
Credit cannot also be received for 15.518

Provides conceptual framework for thinking about taxation. Topics include taxation of various investments and types of compensation; retirement planning; considerations of choosing an organizational form when starting a business; various methods of merging, acquiring, and divesting business entities; international tax planning rules and strategies; and high wealth planning and estate tax. Applies current debates on various tax policy options to class discussions. Meets with 15.518 when offered concurrently. Expectations and evaluation criteria for graduate students will differ from those of undergraduates; consult syllabus or instructor for specific details.

M. Hanlon

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

Introduces participants to the language and methodologies of internal accounting practices. Topics include cost allocations, absorption costing, standard costing, transfer pricing, and performance measurement and evaluation. Major focus is on identifying which information is useful and which is useless and potentially misleading.

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 units

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, securitization, 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; 15.401, 15.411, 15.414, or 15.415
G (Fall, Spring)
3-0-6 units

Primary learning objective is the strategic, financial, and accounting analysis of a company’s profitability and riskiness by means of financial statement data. A second, and related, learning objective is the valuation of a company using financial statement data. Concepts are applied to a number of decision making contexts, including securities analysis, credit analysis, merger analysis, and company performance assessment.

C. Noe

15.539 Doctoral Seminar in Accounting
Prereq: 15.515
G (Fall)
Units arranged
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

Information Technologies

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

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 units

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

Same subject as ESD.565[J]
Prereq: Permission of instructor
G (Fall)
3-0-6 units

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; first half of term)
3-0-3 units

Analysis of the underlying economics of information with management implications. Studies effects of digitization and technology on industry, organizational structure, and business strategy. Examines pricing, bundling, and versioning of digital goods, including music, video, software, and communication services. Considers the managerial implications of social networks, search, targeted advertising, personalization, privacy, network externalities, open source, and alliances. Discusses key principles. Includes case studies, industry speakers, and a team project.
E. Brynjolfsson

15.569 Leadership Lab: Leading Sustainable Systems
Prereq: Permission of instructor
G (Fall, IAP)
6-0-9 units

Addresses key sustainability challenges faced by business and society. Explores alternative ways to view organizations that draw attention to cross-boundary interdependencies and help leaders at all levels develop their capacity to collaborate for systemic change. Develops skills to help students surface and reflect on mental models and practices that keep organizations stuck in unproductive system dynamics. Weaves together theory, experiential practices, guest speakers, and action learning projects that enable teams of students to work with organizations on systemic change initiatives.
P. Senge, W. Orlilikowski

15.570 Digital Marketing and Social Media Analytics
Prereq: None
G (Fall; second half of term)
3-0-3 units

Provides a detailed, applied perspective on the theory and practice of digital marketing and social media analytics in the age of big data. Covers concepts such as the difference between earned and paid media, predictive modeling for ad targeting and customer relationship management, measuring and managing product virality, viral product design, native advertising, and engaging the multichannel experience. Stresses the theory and practice of randomized experimentation, AB testing and the importance of causal inference for marketing strategy. Combines lectures, case studies, and guest speakers with relevant industry experience that speak directly to the topics at hand.
S. Aral

15.571 Enterprise Transformations in the Digital Economy
Prereq: None
G (Spring)
3-0-6 units

Designed to help students understand how the digital economy forces companies to rethink their business strategies--and architect their processes, products, and information. Explores how firms use technology to simplify unnecessary complexity while capitalizing on the value-adding complexity inherent to more global, more integrated, more connected enterprises. Includes case studies about large enterprises using IT to transform how they do business, with guest executives from those enterprises responding to student discussions. Student teams work on consulting projects for major corporations.
J. W. Ross
15.572 Analytics Lab: Action Learning Seminar on Analytics, Machine Learning, and the Digital Economy
Prereq: Permission of instructor
G (Fall)
2-0-7 units
Student teams design and deliver a project based on the use of analytics, machine learning, large data sets, or other digital innovations to create or transform a business or other organization. Teams may be paired up with an organization or propose their own ideas and sites for the project. Culminates with presentation of results to an audience that includes IT experts, entrepreneurs, and executives.
S. Aral, E. Brynjolfsson

15.575 Economics of Information and Technology in Markets and Organizations
Prereq: Permission of instructor
G (Fall)
3-0-9 units
Builds upon relevant economic theories and methodologies to analyze the changes in organizations 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.
E. Brynjolfsson

15.576 Research Seminar in Information Technology and Organizations: Social Perspectives
Prereq: Permission of instructor
G (Fall)
3-0-9 units
Examines the assumptions, concepts, theories, and methodologies that inform research into the social aspects of technology. Extensive reading and discussion of research literature aimed at exploring the multiple social phenomena surrounding the development, implementation, use and implications of information technology in organizations. Primarily for doctoral students.
W. J. Orlikowski

15.579-15.580 Seminar in Information Technology
Prereq: None
G (Fall, Spring)
Units arranged
Can be repeated for credit.
Group study of current topics related to information technology.
S. E. Madnick, T. W. Malone, W. Orlikowski

15.599 Workshop in Digitization
Prereq: Permission of instructor
G (Fall)
2-0-4 units
Can be repeated for credit.
Presentations by faculty, doctoral students, and guest speakers of ongoing research relating to current issues in digitization, technology and the changing economics of work, 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 digitization, information technology and information economics. Background readings, regular assignments and active participation by students expected.
E. Brynjolfsson

Law

15.615 Basic Business Law for the Entrepreneur and Manager
Prereq: None
G (Fall, Spring)
3-0-6 units
Broad-gauged look at key law-related risks and opportunities in new ventures and growing and mature companies. Contracts; liability; business disputes and litigation; employment and changing jobs; intellectual property and cutting-edge technologies; organizing and financing a new venture; commercial finance and financial distress; M&A; marketing; regulatory compliance and business crime; and transnational commerce. Provides the skills managers need when organizations or their careers are at crucial law-sensitive junctures.
J. Akula
15.616 Basic Business Law, Tilted Towards Key Emerging Issues
Prereq: None
G (Fall)
3-0-6 units

Broad-gauged introduction to business law designed to prepare managers to exercise judgment and leadership when confronting key law-sensitive issues of importance to their organizations and their own careers. Topics include contracts, liability, employment, changing jobs, intellectual property, business disputes, bankruptcy and reorganization, acquisitions, regulatory compliance, and corporate crime. The distinctive feature of 15.616 is an additional focus on newly-emerging, law-sensitive issues of key significance to business. Those topics vary from year to year; some recent examples include doing business in the BRIC nations, and the legal framework of social media.
J. Akula

15.617 Deals, Finance, and the Law
Prereq: None
G (Spring)
3-0-6 units
Credit cannot also be received for 15.6171

Addresses law-sensitive issues arising in the overlapping contexts of complex deals and financial services and products. Covers financial services regulation, employment and job changes, and civil and criminal accountability. Develops managerial skills for handling law-sensitive situations at individual and organizational levels. Meets with 15.6171 when offered concurrently. Expectations and evaluation criteria differ for students taking graduate version; consult syllabus or instructor for specific details.
J. Akula

15.6171 Deals, Finance, and the Law
Prereq: None
U (Spring)
3-0-3 units
Credit cannot also be received for 15.617

Addresses law-sensitive issues facing startups and young high-growth companies. Topics include assembling a team; selecting and organizing a business entity; agreements among founders and early employees; equity as compensation; financing by founders, friends and family, and venture capital; intellectual property; managing financial distress and bankruptcy; risk-management tools; and selling a business. Provides skills to navigate crucial law-sensitive junctures in managers’ organizations or careers. Meets with 15.6191 when offered concurrently. Students taking graduate version complete additional assignments.
J. Akula

15.618 Law and Cutting-Edge Technologies
Prereq: None
G (Spring)
3-0-6 units

Addresses the law-sensitive aspects of innovation-driven entrepreneurship and the development and management of cutting-edge technologies. Topics include assembling a team, organizing a business entity, equity compensation, new-venture financing, business distress, and selling a hi-tech company. Examines intellectual property rights and their relationship to business strategy. Provides skills to navigate crucial law-sensitive junctures in managers’ organizations or careers.
J. Akula

15.619 Launching a Startup: Legal Tools and Frameworks
Prereq: None
G (Fall)
3-0-3 units
Credit cannot also be received for 15.6191

Addresses law-sensitive issues facing startups and young high-growth companies. Topics include assembling a team; selecting and organizing a business entity; agreements among founders and early employees; equity as compensation; financing by founders, friends and family, and venture capital; intellectual property; managing financial distress and bankruptcy; risk-management tools; and selling a business. Provides skills to navigate crucial law-sensitive junctures in managers’ organizations or careers. Meets with 15.6191 when offered concurrently. Students taking graduate version complete additional assignments.
J. Akula

15.6191 Launching a Startup: Legal Tools and Frameworks
Prereq: None
U (Fall)
3-0-3 units
Credit cannot also be received for 15.619

Addresses law-sensitive issues facing startups and young high-growth companies. Topics include assembling a team; selecting and organizing a business entity; agreements among founders and early employees; equity as compensation; financing by founders, friends and family, and venture capital; intellectual property; managing financial distress and bankruptcy; risk-management tools; and selling a business. Provides skills to navigate crucial law-sensitive junctures in managers’ organizations or careers. Meets with 15.6191 when offered concurrently. Students taking graduate version complete additional assignments.
J. Akula
15.647-15.649 Seminar in Law
Prereq: None
G (Fall, Spring)
Units arranged
Can be repeated for credit.

Group study of current topics related to law.
J. L. Akula

15.657[J] Technology, Globalization, and Sustainable Development
Same subject as 1.813[J], 11.466[J], ESD.137[J]
Prereq: Permission of instructor
G (Fall)
3-0-9 units
See description under subject ESD.137[J].
N. Ashford

Industrial Relations and Human Resource Management

15.660 Strategic Human Resource Management
Prereq: 15.311
G (Spring)
3-0-6 units

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. J. Castilla

15.662[J] Managing Sustainable Businesses for People and Profits
Same subject as 11.383[J], ESD.278[J]
Prereq: None
G (Spring)
3-6-3 units
Examines opportunities and challenges involved in building and growing businesses that achieve high financial performance and returns to society. An anchor course for the social dimensions of sustainability and serves as an elective Sloan Sustainability Certificate program. Through readings, cases, simulations and class visits from industry leaders, students explore the underlying principles and business practices that help to secure that alignment between business health and societal wellbeing. Students participate in a team project with a firm that is addressing a sustainability challenge.
T. Kochan

15.665 Power and Negotiation
Prereq: Permission of instructor
G (Fall, Spring)
3-0-6 units
Credit cannot also be received for 15.672, 15.6721, 15.673, 15.6731, 15.712

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.
J. Curhan

15.667 Negotiation and Conflict Management
Prereq: Permission of instructor
G (Spring)
3-0-6 units

Applies negotiation theory strategies and styles to problems managers and professionals commonly encounter in the workplace. Emphasizes sources of power in negotiation, self-assessment of personal negotiating strengths/weaknesses, and practice in negotiations via role-plays and simulations of common workplace conflicts. Covers conflict management as a direct party and as a manager helping others resolve their conflicts through mediation, investigation, arbitration, and helping the system itself to change as a result of a dispute. Special cases include bullying, harassment, dealing with difficult people, cross-cultural negotiations, and collective actions.
T. Kochan
15.668 People and Organizations
Prereq: None
U (Spring)
3-0-6 units

Examines the historical evolution and current human and organizational contexts in which scientists, engineers and other professionals work. Outlines major challenges facing the management profession. Uses interactive exercises, simulations and problems to develop critical skills in negotiations, teamwork, and leadership. Focuses on practical application of these skills in a professional context. Introduces concepts and tools to analyze work and leadership experiences in internships, school activities, and fieldwork.

T. Kochan, P. Osterman

15.671 U-Lab: Transforming Self, Business and Society
Prereq: None
G (Fall; first half of term)
3-0-3 units

Experiential opportunity to practice new leadership skills, such as deep listening, being present (mindfulness), and generative dialogue. In weekly coaching circles, each student has one full session to present their current leadership edge and receive feedback from peer coaches. Includes an additional action learning project.

O. Scharmer

15.672 Negotiation Analysis
Subject meets with 15.6721, 15.673, 15.6731
Prereq: Permission of instructor
G (IAP)
1-0-2 units
Credit cannot also be received for 15.665, 15.712

Presents analytical frameworks and strategies to handle a variety of negotiation situations. Includes simulations, games, videos, lectures, discussion, and multiple opportunities to practice and hone negotiation, communication, and influence skills with extensive personalized feedback. Intended for students with a broad spectrum of backgrounds and experience levels. Six-unit version includes additional class time and outside work. Expectations and evaluation criteria differ for students taking graduate version.

J. Curhan

15.6721 Negotiation Analysis
Subject meets with 15.672, 15.673, 15.6731
Prereq: Permission of instructor
U (IAP)
1-0-2 units
Credit cannot also be received for 15.665, 15.712

Presents analytical frameworks and strategies to handle a variety of negotiation situations. Includes simulations, games, videos, lectures, discussion, and multiple opportunities to practice and hone negotiation, communication, and influence skills with extensive personalized feedback. Intended for students with a broad spectrum of backgrounds and experience levels. Six-unit version includes additional class time and outside work. Expectations and evaluation criteria differ for students taking graduate version.

J. Curhan

15.673 Negotiation Analysis
Subject meets with 15.672, 15.6721, 15.6731
Prereq: Permission of instructor
G (IAP)
2-0-4 units
Credit cannot also be received for 15.665, 15.712

Presents analytical frameworks and strategies to handle a variety of negotiation situations. Includes simulations, games, videos, lectures, discussion, and multiple opportunities to practice and hone negotiation, communication, and influence skills with extensive personalized feedback. Intended for students with a broad spectrum of backgrounds and experience levels. Six-unit version includes additional class time and outside work. Expectations and evaluation criteria differ for students taking graduate version.

J. Curhan

15.6731 Negotiation Analysis
Subject meets with 15.672, 15.6721, 15.673
Prereq: Permission of instructor
U (IAP)
2-0-4 units
Credit cannot also be received for 15.665, 15.712

Presents analytical frameworks and strategies to handle a variety of negotiation situations. Includes simulations, games, videos, lectures, discussion, and multiple opportunities to practice and hone negotiation, communication, and influence skills with extensive personalized feedback. Intended for students with a broad spectrum of backgrounds and experience levels. Six-unit version includes additional class time and outside work. Expectations and evaluation criteria differ for students taking graduate version.

J. Curhan
**15.676 Work, Employment, and Industrial Relations Theory**  
Prereq: Permission of instructor  
G (Spring)  
2-0-7 units  

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 nineteenth century to the present. Final portion explores strategies for advancing research on topics of current interest to participants.  
*T. Kochan, P. Osterman, E. Castilla, O. Sharone, M. Amengual*

**15.677[J] Urban Labor Markets and Employment Policy**  
Same subject as 11.427[J]  
Prereq: Permission of instructor  
G (Spring)  
3-0-9 units  

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*

**15.678[J] Political Economy I: Theories of the State and the Economy**  
Same subject as 14.781[J], 17.100[J]  
Prereq: Permission of instructor  
G (Spring)  
3-0-9 units  

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

**15.691 Research Seminar in Work, Employment and Industrial Relations**  
Prereq: Permission of instructor  
G (Fall, Spring)  
Units arranged  
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 Seminar in Industrial Relations and Human Resource Management**  
Prereq: None  
G (Fall, Spring)  
Units arranged  
Can be repeated for credit.  

Group study of current topics related to industrial relations and human resource management.  
*Consult P. Osterman*

**Executive MBA Subjects**

**15.700 Leadership and Integrative Management**  
Prereq: Permission of instructor  
G (Fall)  
3-0-6 units  

Investigates the different perspectives a general manager must take, how to integrate those perspectives, and the role of leadership in setting and realizing goals. Students work intensively in teams and with multiple faculty, using a deep dive into the challenges faced by a major global firm operating in complex global markets.  
*Consult J. Hising DiFabio*

**15.701 Innovation-Driven Entrepreneurial Advantage**  
Prereq: 15.714 or permission of instructor  
G (Spring, Summer)  
6-0-6 units  

Exposes students to the content, context, and contacts that enable entrepreneurs to design and launch successful stand-alone ventures, ventures inside established corporations, and ventures in partnership with established corporations based on new innovations. Students examine the critical entrepreneurial and innovation challenges facing entrepreneurs inside new and established firms, and develop frameworks that allow them to identify, evaluate, iterate, and integrate their ideas effectively. Case-based discussions complemented by visits to key actors in MIT labs, as well as live case studies with successful entrepreneurs. Specially designed team projects provide practical experience in entrepreneurial strategy, innovation management, and the workings of the MIT entrepreneurial ecosystem.  
*Consult J. Hising DiFabio*
15.702 Leading in a Global Context: Macroeconomics and Global Markets
Prereq: Permission of instructor
G (Fall)
6-0-6 units
Can be repeated for credit.

Intensive module on the global economy, combining the key perspectives of macroeconomics and global economic strategy. Focuses on the policy and economic environment of firms, as well as on the development of a more international market in products, services, and capital, and how this affects trade and industries. Presents insights into national economic strategies for development, and into the evolving rules and institutions governing the international economic order. Develops an actionable appreciation for managers of the international dimensions of economic policy and strategy in an increasingly complex world economy.
Consult J. Hising DiFabio

15.703 Leading with Impact
Prereq: Permission of instructor
G (Spring)
Units arranged
Can be repeated for credit.

Strengthens students' skills in recognizing, developing, and taking advantage of opportunities created by organizational complexity. Focuses on key topics in corporate strategy, organizational design, organizational economics, and strategic human resource management, as well as themes such as integrative management, global leadership, and innovation and entrepreneurship strategy. Emphasizes teaching through integrative, multi-perspective cases, and reflection to prepare students for the next steps in their careers as general managers. Includes two projects where students create a plan for implementing a change initiative within their organization, and develop a career plan.
Consult J. Hising DiFabio

15.705 Organizations Lab
Prereq: Permission of instructor or Coreq: 15.716
G (Fall, Summer)
3-0-9 units

Preparation for an organizational change project. Emphasis on applying tools of organizational, operational, and systems analysis in order to effect change. Includes a focus on the challenges and opportunities presented by issues of leadership and organizational behavior. Each student leads a change project in his or her own organization, focusing on fixing a broken or ineffective process. Examples of possible initiatives include a strategic reorientation, organizational restructuring, introduction of a new technology, a worker participation program, etc.
Consult J. Hising DiFabio

15.707 Global Strategy
Prereq: Permission of instructor; Coreq: 15.708
G (IAP, Spring)
3-0-3 units

Provides students with the evidence, concepts and models for understanding company performance in a global world and the issues facing executives in the early 21st century. Prepares students to manage effectively in today's interconnected world by understanding this changing environment, principles of global strategy, and the relation between global strategy and organization. Focuses on the specificities of strategy and organization of the multinational company.
Consult J. Hising DiFabio

15.708 Global Organizations Lab
Prereq: Permission of instructor; Coreq: 15.707
G (Fall, IAP, Spring)
6-0-9 units

Helps students discover and develop new and effective ways of managing and working together across national borders; also helps accelerate development of the context awareness and integrative management skills needed to lead in a globalized world. Involves intensive team engagement with a firm where students integrate their understanding of the relevant global and national economic and institutional contexts, industry dynamics, the firm's strategic position and capabilities, and its management organization and processes to provide the management sponsor with insight and effective recommendations. Includes a week-long site visit for research.
Consult J. Lehrich
15.712 Power and Negotiation
Prereq: Permission of instructor
G (Spring)
3-0-3 units
Credit cannot also be received for 15.665, 15.672, 15.6721, 15.673, 15.6731
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.
Consult J. Lehrich

15.714 Competitive Strategy
Prereq: Permission of instructor
G (IAP, Spring, Summer)
3-0-6 units
Credit cannot also be received for 15.902
Introduces a variety of modern strategy frameworks and methodologies to develop the skills needed to be a successful manager. Cases and readings explore a range of strategic problems, focusing particularly on the sources of competitive advantage and the interaction between industry structure and organizational capabilities. Emphasizes the perspective of the general manager in ensuring the firm's success. Encourages awareness of both the external (market) and internal (organizational) forces that shape firm performance.
Consult J. Hising DiFabio

15.716 Leading Organizations
Prereq: None
G (Summer)
3-0-6 units
Credit cannot also be received for 15.322
Promotes awareness of and ways to meet the challenges managers face today (and tomorrow). Acquaints students with some of the psychological and sociological dynamics that regularly operate in organizational settings - the less visible “forces” that influence employee and managerial behavior - and how these dynamics shape the way managers respond to a changing world.
Consult J. Hising DiFabio

15.717 Organizational Processes
Prereq: Permission of instructor
G (Fall)
3-0-6 units
Designed to enhance 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.
R. Fernandez, R. Reagans

15.720 Financial Accounting
Prereq: Permission of instructor
G (IAP, Spring)
3-0-6 units
Credit cannot also be received for 15.511
Examines the basic concepts of corporate financial accounting and reporting, and the role of accounting information in investment decisions, corporate and managerial performance assessment, and the valuation of firms. Develops skills for performing an economics-based analysis of accounting information from the viewpoint of the users of accounting information (especially senior managers), rather than the preparer (the accountant).
Consult J. Hising DiFabio

15.722 Applied Economics for Managers
Prereq: Permission of instructor
G (Fall)
3-0-6 units
Credit cannot also be received for 15.024
Develops facility with concepts, language, and analytical tools of economics. Primary focus is on microeconomics. Emphasizes integration of theory, data, and judgment in the analysis of corporate decisions and public policy, and in the assessment of changing US and international business environments.
Consult J. Hising DiFabio
15.723 Advanced Applied Macroeconomics and International Institutions
Prereq: 15.702 or permission of instructor
G (Spring)
3-0-3 units
Topics draw on current macroeconomic issues and events, such as modern monetary and fiscal policy; financial crisis, contagion, and currency crisis; real exchange rates, purchasing power parity, and long run sustainability; sustainable development; targeting and the new monetary policy regime; and Europe and the Euro: optimal currency areas.
J. Hising DiFabio

15.724 Financial Management
Prereq: Permission of instructor
G (Fall)
3-0-6 units
Credit cannot also be received for 15.414
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.
N. Gregory, S. Myers

15.725 Marketing Strategy
Prereq: None
G (IAP)
1-0-2 units
Helps students consider the entire marketing mix in light of the strategy of the firm. Reviews customer-based sources of competitive advantage and discusses how to identify, measure, and leverage them. Introduces a method for comparing alternative selling formats (e.g., brick and mortar vs. electronic), aiming to find the most efficient ways to sell different products to different customers. Discusses the myriad ways in which the firm can grow its sources of competitive advantage. Provides practical experience in using tools to identify, evaluate, and develop marketing strategies; design efficient products and selling formats; and plan the use and development of the firm’s portfolio of resources.
Consult J. Hising DiFabio

15.726 Pricing
Prereq: None
G (IAP)
1-0-2 units
Credit cannot also be received for 15.818
Focuses on practical pricing tactics. Presents a framework for the steps firms should take when thinking about pricing a new product or improving the pricing performance of an old product. Tools covered include monadic pricing surveys, empirical price elasticity calculations, and conjoint.
Consult J. Hising DiFabio

15.727 The Analytics Edge
Prereq: 15.730 or permission of instructor
G (Spring)
3-0-3 units
Introduces modern analytics methods (data mining and optimization), starting with real-world problems where analytics have made a material difference. Modern data mining methods include clustering, classification, logistic regression, CART, random forest methods, and association rules. Modern optimization methods include robust, adaptive and dynamic optimization. Applications include health care, hospital operations, finance, energy, security, internet, and demand modeling. Uses R programming language for data mining and ROME for robust optimization.
Consult J. Hising DiFabio

15.728 Law and Strategy for the Senior Executive
Prereq: None
G (IAP)
1-0-2 units
Designed to provide the judgment skills needed to plan, manage, and lead when confronting key law-sensitive issues in one’s organization and career. Reviews how the law structures both the risks and opportunities relating to issues such as regulatory compliance, major liability exposure, and intellectual property rights. Special attention to how these play out in the context of new technologies.
Consult J. Hising DiFabio
15.730 Data, Models, and Decisions
Prereq: Permission of instructor
G (IAP, Spring)
3-0-6 units
Credit cannot also be received for 15.060
Introduces students to fundamental tools in using data to make informed management decisions. Emphasizes the executive perspective: how to leverage best-practice, quantitative methods to manage and drive the business. Exercises and cases complemented by perspectives and applications in finance, operations management, healthcare, the Internet, and other functions and industries.
Consult J. Hising DiFabio

15.732 Marketing Management
Prereq: Permission of instructor
G (Fall)
3-0-6 units
Credit cannot also be received for 15.809, 15.812
Studies the application of a reasoned framework to the selection of target markets and the optimization of marketing decisions. Subject is divided into two parts: a tactical portion that reviews how firms optimize profits in their chosen markets, and a strategic portion that focuses on identifying target markets. Tactical topics include pricing, promotion, channel and product issues.
Consult J. Hising DiFabio

15.734 Introduction to Operations Management
Prereq: Permission of instructor
G (Summer)
3-0-6 units
Credit cannot also be received for 15.761, 15.7611
Provides concepts, techniques and tools to design, analyze and improve core strategic operational capabilities. Covers a broad range of application domains and industries, such as high-tech, financial services, insurance, automotive, health care, retail, fashion, and manufacturing. Emphasizes the effects of uncertainty in business decision making and the interplay between strategic and financial objectives and operational capabilities. Students play simulation games that demonstrate some of the central concepts.
Consult J. Hising DiFabio

15.736 Introduction to System Dynamics
Prereq: Permission of instructor
G (Summer)
3-0-6 units
Credit cannot also be received for 15.871
Introduces system dynamics modeling for the analysis of business policy and strategy. Provides the skills to visualize an organization in terms of the structures and policies that create dynamics and regulate performance. Uses causal mapping, simulation models, case studies, and management flight simulators to help develop principles of policy design for successful management of complex strategies. Considers the use of systems thinking to promote effective organizational learning.
Consult J. Lehrich

15.737 Advanced System Dynamics
Prereq: 15.736 or permission of instructor
G (IAP)
3-0-0 units
Credit cannot also be received for 15.872, 15.874
Workshops focus on two models: the dynamics of service quality within a firm; and industry dynamics (particularly investment cycles and bubbles), including the energy and housing markets. Emphasis on formulation, analysis, use, and decision-making. Develops modeling skills.
Consult J. Hising DiFabio

15.738 Topics in Corporate Finance
Prereq: 15.724
G (IAP)
1-0-2 units
Case studies and lectures introduce financial tools needed to make value-enhancing business decisions. Topics drawn from issues such as advanced valuation analysis, capital structure decisions, debt restructuring, bankruptcy, incentive problems, real options, and valuation of international projects.
Consult J. Hising DiFabio
15.739 Discovering Your Leadership Signature
Prereq: None
G (IAP)
1-0-2 units
Credit cannot also be received for 15.318
Helps students understand their unique way of leading, i.e., leadership signature. Provides tools for students to determine what kind of leader they are and how to tell their leadership story. Examines leadership identity, drawing on theory from leadership literature, family systems, developmental psychology, personality psychology, and organizational change. Also builds on the four capabilities (4-CAP) model. Includes case studies, reflection, video analysis, and storytelling.
Consult J. Hising DiFabio

15.740 Strategic Communication for Executives
Prereq: None
G (IAP)
1-0-2 units
Develops communication skills crucial to successful management. Focuses on identifying a range of communication styles, and recognizing how to use them; dealing successfully with challenging or hostile audiences; understanding cross-cultural and global communication issues and differences; and leading and communicating in a crisis situation.
Consult J. Hising DiFabio

Operations Management

15.761 Introduction to Operations Management
Subject meets with 15.7611
Prereq: 15.060, 6.041, or permission of instructor
G (Fall, Spring, Summer)
4-0-5 units
Credit cannot also be received for 15.734
Provides students with concepts, techniques and tools to design, analyze, and improve core operational capabilities, and apply them to a broad range of application domains and industries. Emphasizes the effect of uncertainty in decision-making, as well as the interplay between high-level financial objectives and operational capabilities. Covers topics in production control, risk pooling, quality management, process design, and revenue management. Underscores how these topics are integrated with the different functions of the firm (finance, marketing, R&D, etc.). Includes case studies, guest lectures, and simulation games. Meets with 15.761 when offered concurrently. Students taking graduate version complete additional assignments.
T. Zaman, K. Zheng

15.7611 Introduction to Operations Management
Subject meets with 15.761
Prereq: 6.041 or permission of instructor
U (Spring)
4-0-5 units
Credit cannot also be received for 15.734
Provides students with concepts, techniques and tools to design, analyze, and improve core operational capabilities, and apply them to a broad range of application domains and industries. Emphasizes the effect of uncertainty in decision-making, as well as the interplay between high-level financial objectives and operational capabilities. Covers topics in inventory management, risk pooling, supply chain control, quality management, process design, and revenue management. Underscores how these topics are integrated with the different functions of the firm (finance, marketing, R&D, etc.). Includes case studies, guest lectures, and simulation games. Meets with 15.761 when offered concurrently. Students taking graduate version complete additional assignments.
R. Levi, K. Zheng

15.762[J] Supply Chain Planning
Same subject as 1.273[J], ESD.267[J]
Prereq: 1.260[J] or 15.761
G (Spring)
2-0-4 units
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. First half-term subject.
Staff
15.763[J] Manufacturing System and Supply Chain Design
Same subject as 1.274[J], ESD.268[J]
Prereq: 1.260[J], 15.761, or 15.778
G (Spring)
2-0-4 units
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 trade-offs. 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. Second half-term subject.
S. C. Graves, D. Simchi-Levi

Same subject as 1.271[J], ESD.274[J]
Prereq: 15.081[J] or 6.251[J], 6.436[J]; or permission of instructor
G (Spring)
3-0-9 units
Can be repeated for credit.
Provides mathematical foundations underlying the theory of operations management. Covers application domains, including inventory management, supply chain management and logistics, behavioral operations, healthcare management, service industries, pricing and revenue management, and auctions. Studies a wide range of mathematical and analytical techniques, such as dynamic programming, stochastic orders, behavioral and experimental economics, algorithms and approximations, data-driven and learning models, and mechanism design. Also provides hands-on experience in how to apply the theoretical models to solve OM problems in concrete business settings. Specific topics vary from year to year.

15.765[J] Global Supply Chain Management
Same subject as 1.265[J], 2.965[J], ESD.265[J]
Prereq: 1.260[J], 1.261[J], 15.761, 15.778, or permission of instructor
G (Spring)
2-0-4 units
See description under subject 2.965[J].
B. Arntzen

15.767 Healthcare Lab: Introduction to Healthcare Delivery in the United States
Subject meets with 15.777
Prereq: 15.060, 15.761; or permission of instructor
G (Fall)
4-0-5 units
Focuses on the current business challenges and opportunities to deliver high quality and reasonably priced health services. Provides students the opportunity to interact with speakers and many senior executives from the health industry. Topics include healthcare reform, systematic scheduling, retail clinics, telehealth, entrepreneurship, community health, etc. Discussions include practical examples from the ongoing healthcare-related work of Sloan faculty and projects with local hospitals. Provides a broad perspective on various career paths, such as consulting, entrepreneurship, hospital management, and IT innovation. Student teams work directly with a health organization on an applied project, which includes onsite work during SIP week. Students who choose our international projects or projects out of the Boston area will do their onsite project (register for 15.777) during IAP with permission of the instructor and organization; consult instructors for information.
R. Levi, J. Wilkinson

15.768 Management of Services: Concepts, Design, and Delivery
Prereq: 15.761, 15.778, or permission of instructor
G (Spring)
3-0-6 units
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, Z. Ton

15.769 Operations Strategy
Prereq: 15.761, 15.778, or permission of instructor
G (Fall, Spring)
3-0-6 units
Provides unifying framework for analyzing strategic issues in manufacturing and service operations. Covers decisions in technology, facilities, vertical integration, human resources and other strategic areas. Explores means of competition, such as cost, quality, speed, innovativeness, and how operations companies address growth. Presents students with an approach to make operations decisions in the era of outsourcing and globalization.
T. Roemer, D. B. Rosenfield, Z. Ton
15.770[J] Logistics Systems
Same subject as 1.260[J], ESD.260[J]
Prereq: Permission of instructor
G (Fall)
3-0-9 units

Provides an introduction to supply chain management from both analytical and practical perspectives. Taking a unified approach, students develop a framework for making intelligent decisions within the supply chain. Covers key logistics functions, such as demand planning, procurement, inventory theory and control, transportation planning and execution, reverse logistics, and flexible contracting. Explores concepts such as postponement, portfolio management, and dual sourcing. Emphasizes skills necessary to recognize and manage risk, analyze various tradeoffs, and model logistics systems.
Y. Sheffi, C. Caplice

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

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

15.772[J] D-Lab: Supply Chains
Same subject as EC.733[J]
Prereq: None
U (Fall)
2-2-5 units

Introduces concepts of supply chain design and operations with a focus on supply chains for products destined to improve quality of life in developing countries. Topics include demand estimation, facility location and operations planning, inventory management, and supply chain coordination and performance. Also covers issues specific to emerging markets, such as sustainable supply chains, how to couple product design with supply chain design and operation, and how to account for the value-adding role of a supply chain. Students conduct projects on supply chain design or improvement.
S. C. Graves

15.777 Healthcare Lab: Introduction to Healthcare Delivery in the United States
Subject meets with 15.767
Prereq: 15.060, 15.761
G (Fall, IAP)
4-0-11 units

Focuses on the current business challenges and opportunities to deliver high quality and reasonably priced health services. Provides students the opportunity to interact with speakers and many senior executives from the health industry. Topics include healthcare reform, systematic scheduling, retail clinics, telehealth, entrepreneurship, community health, etc. Discussions include practical examples from the ongoing healthcare-related work of Sloan faculty and projects with local hospitals. Provides a broad perspective on various career paths, such as consulting, entrepreneurship, hospital management, and IT innovation. Student teams work directly with a health organization on an applied project, which includes onsite work during SIP week. Students who choose our international projects or projects out of the Boston area will do their onsite project (register for 15.777) during IAP with permission of the instructor and organization; consult instructors for information.
R. Levi, J. Wilkinson

15.778 Introduction to Operations Management
Prereq: None
G (Summer)
3-0-6 units

Integrated approach to the analysis, design and management of supply networks for products and services. Provides a framework for analysis, design and operation of supply chains (SCs) that relies on fundamental concepts, such as the management of inventory, and operations and logistics planning. Discusses the value of (timely) information and of the need for collaboration and coordination between SC players. Also presents conceptual frameworks that focus on the emergence of a wide range of enabling services that are critical to the survival and growth of this class of system. Includes study and discussion of concepts, examples, and case studies from a wide range of industries. Guest speakers present personal experiences on various aspects of the service industry and supply chains.
Consult C. Fine
15.780 Stochastic Models in Business Analytics
Prereq: 6.041, 15.079, or permission of instructor
U (Fall)
3-0-9 units
Introduces core concepts in data-driven stochastic modeling that inform and optimize business decisions under uncertainty. Covers stochastic models and frameworks, such as queuing theory, time series forecasting, network models, dynamic programming, and stochastic optimization. Draws on real-world applications, with several examples from retail, healthcare, logistics, supply chain, social and online networks, and sports analytics.
R. Levi, T. Zaman

15.783[J] Product Design and Development
Same subject as 2.739[J], ESD.32[J]
Prereq: 2.009, 15.761, 15.778, 15.810, or permission of instructor
G (Spring)
3-3-6 units
Credit cannot also be received for ESD.40
Covers modern tools and methods for product design and development. Includes a cornerstone project in which teams conceive, design and prototype a physical product and/or service. Covers design thinking, product planning, identifying customer needs, concept generation, product architecture, industrial design, concept design, green design methods, and product management. Sloan students register via Sloan course bidding.
S. Eppinger, M. C. Yang

15.784 Operations Laboratory
Prereq: None. Coreq: 15.761
G (Spring)
2-3-4 units
Provides an interactive learning experience in implementing operations improvement. Teams of 3-5 students act as consultants on operations engagements in small- to medium-sized Boston-area organizations. Class time focuses on project management, implementation issues for and examples from company settings (particularly small ones), and team report-outs and discussions. Organizations include small manufacturing companies as well as service organizations, such as hospitals and non-profits, providing a wide range of real operational problems in various environments.
D. Rosenfield, Z. Ton

15.789[J] Global Operations Leadership Seminar
Same subject as 2.890[J], 10.792[J], 16.985[J]
Prereq: None
G (Fall, Spring)
Units arranged [P/D/F]
Can be repeated for credit.
Integrative forum in which worldwide leaders in business, finance, government, sports, and education share their experiences and insights with students aspiring to run global operations. Students play a large role in managing the seminar.
T. Roemer

15.794 Research Project in Operations
Prereq: Permission of instructor
G (Fall, Spring, Summer)
Units arranged [P/D/F]
Can be repeated for credit.
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 operations. Students required to summarize their work in the context of understanding organization, leadership, teamwork, and task management in conjunction with 15.317.
T. Roemer

15.795 Seminar in Operations Management
Prereq: 15.761
G (Fall)
3-0-6 units
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 units
Credit cannot also be received for 15.732, 15.810, 15.812

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.

*D. Simester*

**15.810 Marketing Management**
Prereq: None
G (Fall, Spring)
3-0-6 units
Credit cannot also be received for 15.732, 15.809, 15.812

Develops skills in marketing analysis and planning, and introduces key marketing ideas and phenomena, such as how to deliver benefits to customers and marketing analytics. Presents a framework for marketing analysis and enhances problem solving and decision-making abilities in these areas. Material relevant to understanding, managing, and integrating marketing concepts in managerial situations, from entrepreneurial ventures to large multinational firms, and to consulting.

*Consult J. R. Hauser, B. Wernerfelt*

**15.812 Marketing Management**
Prereq: None
U (Spring)
3-0-6 units
Credit cannot also be received for 15.732, 15.809, 15.810

Develops skills in marketing analysis and planning, and introduces key ideas and phenomena, such as how to deliver benefits to customers. Presents a framework for analysis and enhances problem solving and decision-making abilities in these areas. Material relevant to understanding, managing, and integrating marketing concepts in managerial situations, from entrepreneurial ventures to large multinational firms and to consulting.

*J. Zhang*

**15.818 Pricing**
Prereq: None
G (Fall)
3-0-6 units
Credit cannot also be received for 15.726

Framework for understanding pricing strategies and analytics, with emphasis on entrepreneurial pricing. Topics include economic value analysis, elasticities, customization, complementary products, pricing in platform markets, and anticipating competitive responses.

*C. Tucker*

**15.821 Listening to the Customer**
Prereq: None
G (Spring; first half of term)
3-0-3 units

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 (Spring; second half of term)
3-0-3 units

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 Product Management**
Prereq: 15.810
G (Spring)
3-1-5 units

Practical introduction to the process of product management. Covers the major phases of product management: opportunity identification (customer input, generating ideas, market definition), product design and positioning, pre-market testing and forecasting, launch marketing, and life-cycle management.

*Staff*
**15.830 Enterprise Management Lab**
Prereq: None. Coreq: 15.810, 15.761, or 15.900
G (Fall, IAP)
3-0-3 units
Lays the foundation for the Enterprise Management (EM Lab) Track by developing students’ ability to apply integrated management perspectives and practices in their roles within large organizations. Lectures, faculty mentors and cross-functional teams equip students with tools and knowledge to implement this track vision through classroom and project-based activities. Small teams of students deliver quality deliverables working on live integrative projects focused on marketing, operations, and/or Strategy sourced from large organizations, both for-profit and not-for-profit. Management guest speakers from Marketing, Operations and Strategy discuss their interrelated activities. The overall goal is to promote an integrated mindset towards viewing and addressing business issues. Students must register for both the fall term and IAP.
S. Chatterjee

**15.835 Entrepreneurial Marketing**
Prereq: None
G (Spring; second half of term)
3-0-3 units
Provides foundational knowledge necessary to start and run a business. Discusses basic marketing theory as it applies to entrepreneurial firms. Includes guest speakers and final project.
B. Wernerfelt

**15.838 Research Seminar in Marketing**
Prereq: 15.810
G (Fall, Spring)
3-0-6 units
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 Seminar in Marketing**
Prereq: 15.810
G (Fall, Spring)
Units arranged
Can be repeated for credit.
Group study of current topics related to marketing.
Staff

**15.833 Business-to-Business Marketing**
Prereq: None
G (Fall; second half of term)
3-0-3 units
Applies marketing concepts, analyses and tools used in business-to-business (B2B) marketing. Develops an understanding of customer value management as a strategy for delivering superior value to targeted business segments while maintaining equitable returns. Focuses on B2B pricing, 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, and domestic and global markets. Emphasizes applications in technology and healthcare domains. Includes value-based pricing project, case studies, applied exercises, and readings.
S. Chatterjee

**15.834 Marketing Strategy**
Prereq: None
G (Spring; first half of term)
3-0-3 units
Uses case studies to introduce economic tools to look systematically at marketing strategy. Topics include how to identify and leverage customer-based competitive advantages and how to use them to develop new ones.
B. Wernerfelt
15.846 Branding  
Prereq: 15.810  
G (Spring; second half of term)  
3-0-3 units  
Provides a foundation for building, managing, and defending brands at various stages in the brand life cycle. Introduces the fundamentals of brand architecture and management relevant for B2C and B2B Marketing. Examples from a variety of industries cover topics that include brand co-creation, diffusion, imitation, and authenticity. Explores theory and practice using cases and academic research. Also looks at the development of leadership branding.  
*R. Gosline*

15.847 Consumer Behavior  
Prereq: 15.810  
G (Spring)  
3-0-6 units  
Examines models of consumer behavior and methods for its analysis and prediction. Focuses on theories developed in marketing, psychology, and other behavioral sciences, and their role in understanding consumer preferences and decision making. Reviews theories in the context of a variety of industry applications. Students apply theories to their own market research projects.  
*Staff*

System Dynamics  

15.871 Introduction to System Dynamics  
Prereq: Permission of instructor  
G (Fall, Spring; first half of term)  
3-0-3 units  
Credit cannot also be received for 15.736  
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 other areas. Principles for effective use of modeling in the real world. Meets with 15.8741 first half of term when offered concurrently. Expectations and evaluation criteria differ for students taking half-term graduate version; consult syllabus or instructor for specific details.  
*D. Keith, H. Rahmandad, N. Repenning, J. Sterman*

15.872 System Dynamics II  
Prereq: 15.871  
G (Fall, Spring; second half of term)  
3-0-3 units  
Credit cannot also be received for 15.737, 15.874  
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. Meets with 15.8741 second half of term when offered concurrently. Expectations and evaluation criteria differ for students taking half-term graduate version; consult syllabus or instructor for specific details.  
*J. D. Sterman, H. Rahmandad, D. Keith*

15.8741 System Dynamics for Business Policy  
Prereq: None  
U (Fall, Spring)  
3-0-9 units  
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 cover successful applications of system dynamics in growth strategy, management of technology, operations, supply chains, product development, and other areas. When offered concurrently, meets with 15.871 first half of term and with 15.872 second half of term. Expectations and evaluation criteria differ for students taking the half-term graduate subjects; consult syllabus or instructor for specific details.  
*J. Sterman*

15.875 Applications of System Dynamics  
Prereq: 15.872  
G (Spring)  
3-0-6 units  
Can be repeated for credit.  
Explores how system dynamics can help organizations achieve important goals. Student teams pair with clients to tackle a pressing issue framed by the client and its partners. In interactive classroom sessions, and via client engagement, students learn modeling and consulting skills they need to be effective. Focuses on gaining practical insight from system dynamics and its application across a wide range of organizations and challenges.  
*Consult J. D. Sterman*
**15.877 Professional Seminar in Sustainability**  
Prereq: None  
G (Fall)  
2-0-1 units  

Focuses on the challenges in bringing about fundamental changes to achieve sustainability in areas of human activity, such as products and services, buildings and communities, and organizations and institutions. Considers how individuals and networks develop and function as agents of change and examines the question of what it means to be an effective agent of change through a series of dialogs with a variety of professionals in business and industry. Students analyze and evaluate the implications of ongoing work in the field, with a focus on how to address systemic change in their own careers.  

_J. Jay_  

**15.878 Capstone Seminar in Sustainability**  
Prereq: 15.913  
G (Spring; second half of term)  
3-0-3 units  

Provides an opportunity for students to synthesize their coursework and experiences in sustainability. Involves deep intellectual exploration of fundamental debates in sustainability through classic and current readings that are essential for working in the field. Students link ideas to practice through an analysis of the industry they plan to enter after graduation.  

_M. Amengual_  

**15.879 Research Seminar in System Dynamics**  
Prereq: 15.872 and permission of instructor  
G (Spring)  
3-0-9 units  
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.  

Consulta D. Keith, J. Sterman

**Strategic Management**

**15.900 Competitive Strategy**  
Prereq: None  
G (Fall, Spring)  
3-0-6 units  
Credit cannot also be received for 15.9001  

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 and organizational processes. Students taking graduate version complete additional assignments. Meets with 15.9001 when offered concurrently.  

_D. Sull, N. Thompson, A. Kacperczyk_  

**15.9001 Competitive Strategy**  
Prereq: None  
U (Spring)  
3-0-6 units  
Credit cannot also be received for 15.900  

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 and organizational processes. Students taking graduate version complete additional assignments. Meets with 15.900 when offered concurrently.  

_D. Sull, N. Thompson, A. Kacperczyk_  

**15.902 Competitive Strategy**  
Prereq: Permission of instructor  
G (Fall; second half of term)  
2-0-4 units  
Credit cannot also be received for 15.714  

Focuses on developing skills and applying frameworks for the conduct of competitive and corporate strategy. Develops tools from earlier core courses, especially those from Strategic Marketing and Organizational Processes, and Economics. Emphasis is placed on the role of strategic commitments, social networks, strategic coherence, and adapting to environmental and technological change.  

_E. Zuckerman_
**15.903 Managing the Modern Organization: Organizational Economics and Corporate Strategy**  
Prereq: 15.010 or 15.311  
G (Spring; first half of term)  
3-0-3 units  

Focuses on how managers build and manage complex organizations to achieve strategic goals. Develops theoretical frameworks that build on 15.010 and 15.311. 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 permission of instructor  
G (Fall, Spring; second half of term)  
3-0-3 units  

Builds on 15.900 and 15.902 to explore key concepts that have shaped the field of strategic management and strategy consulting over the past several decades. Uses lectures, readings, case studies, and videos to review the evolution of strategy teaching, research, and practice; the role of randomness in strategic outcomes; the difference between strategic thinking versus planning; and enduring principles related to competitive advantage. Key themes include the role of platform strategies and services, as well as capabilities, pull mechanisms, economies of scope, and flexibility, with examples from a variety of industries. Develops an understanding of what has made some firms successful in the past as well as what managers can do to compete in an uncertain future.  
* M. Cusumano

**15.905 Technology Strategy**  
Prereq: None  
G (Spring)  
3-0-9 units  

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.  
* J. Utterback

**15.910 Innovation Strategy**  
Prereq: None  
G (Spring; first half of term)  
3-0-3 units  

Establishes a solid foundation for students interested in formulating and executing a strategy for a technology-intensive business. Clarifies the interactions among competition, patterns of technological and market change, and the development of internal firm capabilities. Topics include appropriating the returns from innovation, the role of intellectual property, cooperative and open innovation, organization of R&D activities inside the firm, and multi-sided platform strategy. Key conceptual frameworks are linked to applications in a variety of industry and case settings.  
* B. Roin

**15.911 Entrepreneurial Strategy**  
Prereq: None  
G (Spring; second half of term)  
4-0-2 units  

Provides a deep understanding of the core strategic choices facing start-up innovators, as well as a synthetic framework for the development and implementation of entrepreneurial strategy in dynamic environments. Identifies the key choices entrepreneurs make to take advantage of opportunity and the logic of particular strategic commitments that allow entrepreneurs to establish competitive advantage.  
* S. Stern

**15.912 Strategic Management of Innovation and Entrepreneurship**  
Prereq: 15.910, 15.911, or permission of instructor  
G (Spring; second half of term)  
3-0-3 units  

Provides a series of strategic frameworks for managing high-technology businesses with a particular focus on innovation and entrepreneurship, especially as it builds upon patterns of technological and market change, prior research on product development and new ventures, and the structure and development of organizational capabilities. Includes case analyses and simulations, as well as independent readings drawn from research in technological innovation, entrepreneurial management, and organizational theory.  
* Staff
15.913 Strategies for Sustainable Business
Prereq: None
G (Spring; first half of term)
3-0-3 units
Develops a pragmatic, action-oriented approach to sustainability: the alignment between healthy businesses, healthy environments, healthy societies, and an economy that meets human needs. In-class simulations and role-playing provide a robust foundation for understanding sustainability challenges. Cases analyze innovative strategies for sustainable businesses and organizations. Class discussions explore how sustainability is changing existing business models and market structures, how to develop sustainable management practices, and how firms can implement those practices successfully.
J. Jay, J. Sterman

15.914 Competitive Dynamics and Strategy: Winning in Technology Markets
Prereq: 15.872; 15.369, 15.567, 15.900, or 15.902
G (Spring)
2-0-7 units
Focuses on competitive strategy in technology-driven markets. Students acquire a portfolio of models of the signature dynamics in these markets and use the models in projects with participating companies to analyze technology markets, formulate competitive strategies, and illuminate the challenges of execution. Addresses issues critical for both established incumbents and new market entrants.
H. B. Weil

15.915 Laboratory for Sustainable Business
Prereq: 15.913
G (Spring)
4-0-2 units
Provides students with the opportunity to apply the concepts, theories, and tools of sustainability by working with a host organization on a real management project during the semester. Classroom lectures and simulations complement project work to give greater depth in techniques for managing sustainability. Topics include start-up dynamics, certification programs, evaluating the environmental impact of products and services, and leveraging consumers to advance sustainability.
J. Jay, J. Sterman

15.928 The Sociology of Strategy
Prereq: 15.342
Acad Year 2016-2017: Not offered
Acad Year 2017-2018: G (Spring)
3-0-9 units
Doctoral seminar in theory building for social scientists interested in economic sociology, organization theory, strategic management, and related fields. Builds skills for developing social scientific theory. Focuses on assessing and developing the relevance of sociological research for key questions in strategy research: what explains the relative performance of firms and the variety of their strategies for achieving performance. Students also develop skills in evaluating academic research in this area.
E. Zuckerman

15.929 Identity and Action
Prereq: 15.342
G (Spring)
3-0-9 units
Doctoral seminar in theory building for social scientists. Primary goal is to build skills for developing social scientific theory. Secondary goals are to review and integrate a broad array of ideas concerning the foundations of identity and its relation to action, and to suggest how such issues relate to a broader set of questions in the social sciences. Students learn that any account of action is based on ascribing desires, beliefs, and opportunities to specific actors, but such actors cannot be easily explained except as a result of action by prior actors. The focus of this course is around developing this paradox and providing a foundation for resolving it.
E. Zuckerman

15.933 Strategic Opportunities in Energy
Prereq: 15.900 or permission of instructor
G (Fall; first half of term)
4-0-2 units
Introduces the energy system in terms of sources and uses, market characteristics, and key metrics. Provides frameworks for understanding the structure and dynamics of the sector and the drivers of the energy future. Opportunities resulting from demand growth, supply challenges, environmental constraints, security of supply, technology breakthroughs, and regulation are analyzed from the perspectives of both established players and entrepreneurs. Student teams engage in projects that evaluate a segment of the energy landscape and develop a strategic prospectus for a new business opportunity.
H. B. Weil, A. J. M. Meggs
**15.941[J] Leadership in Real Estate**  
Same subject as 11.430[J]  
Prereq: None  
G (Fall; first half of term)  
3-0-3 units  

Designed to help students deepen their understanding of leadership and increase self-awareness. They examine authentic leadership styles and create goals and a learning plan to develop their capabilities. They also participate in activities to strengthen their "leadership presence" - the ability to authentically connect with people’s hearts and minds. Students converse with leaders to learn from their insights, experiences, and advice.

*G. Schuck*

**15.949 Seminar in Strategy**  
Prereq: None  
G (Fall)  
Units arranged  
Can be repeated for credit.

Opportunity for group study by graduate students on current topics related to strategy.  
*Consult E. Zuckerman*

**Special Subjects**

**15.S01 Special Seminar in Management**  
Prereq: Permission of instructor  
G (Fall, Spring, Summer)  
Units arranged  
Can be repeated for credit.

**15.S02 Special Seminar in Management**  
Prereq: Permission of instructor  
G (Fall, IAP)  
Units arranged  
Can be repeated for credit.

**15.S03 Special Seminar in Management**  
Prereq: Permission of instructor  
G (IAP, Summer)  
Units arranged  
Can be repeated for credit.

**15.S04 Special Seminar in Management**  
Prereq: Permission of instructor  
G (Spring, Summer)  
Units arranged  
Can be repeated for credit.

**15.S05 Special Seminar in Management**  
Prereq: Permission of instructor  
G (IAP, Spring, Summer)  
Units arranged  
Can be repeated for credit.

**15.S06 Special Seminar in Management**  
Prereq: Permission of instructor  
G (Fall, Spring, Summer; second half of term)  
Units arranged  
Can be repeated for credit.

**15.S07 Special Seminar in Management**  
Prereq: Permission of instructor  
G (IAP, Spring, Summer)  
Units arranged  
Can be repeated for credit.

**15.S08 Special Seminar in Management**  
Prereq: Permission of instructor  
G (Fall, IAP, Spring, Summer; first half of term)  
Units arranged  
Can be repeated for credit.

*Staff*

**15.S09 Special Seminar in Management**  
Prereq: Permission of instructor  
G (Fall, Spring; second half of term)  
Units arranged  
Can be repeated for credit.

**15.S10-15.S12 Special Seminar in Management**  
Prereq: Permission of instructor  
G (Fall, IAP, Spring, Summer; second half of term)  
Units arranged  
Can be repeated for credit.

**15.S13, 15.S14 Special Seminar in Management**  
Prereq: Permission of instructor  
G (Fall, Spring, Summer; first half of term)  
Units arranged  
Can be repeated for credit.

**15.S15, 15.S16 Special Seminar in Management**  
Prereq: Permission of instructor  
G (Fall; second half of term)  
Units arranged  
Can be repeated for credit.
15.S17 Special Seminar in Management  
Prereq: Permission of instructor  
G (Fall, Summer)  
Units arranged  
Can be repeated for credit.

15.S18, 15.S19 Special Seminar in Management  
Prereq: Permission of instructor  
G (Fall, IAP, Spring, Summer)  
Units arranged  
Can be repeated for credit.

Prereq: Permission of instructor  
G (IAP, Spring)  
Units arranged  
Can be repeated for credit.  
Group study of current topics related to management not otherwise included in curriculum. Coursework may continue into the following term.  
Consult Sloan Educational Services

15.S30-15.S33 Special Distance Learning Seminar in Management  
Prereq: None  
G (Spring, Summer)  
Units arranged  
Can be repeated for credit.

15.S35-15.S38 Special Distance Learning Seminar 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.S40, 15.S41 Special Seminar in Management  
Prereq: None  
U (IAP)  
Units arranged [P/D/F]  
Can be repeated for credit.

Prereq: None  
U (Fall, IAP, Spring)  
Units arranged  
Can be repeated for credit.

15.S50-15.S54 Special Seminar in Management  
Prereq: Permission of instructor  
G (Fall, IAP)  
Units arranged [P/D/F]  
Can be repeated for credit.

Prereq: Permission of instructor  
G (IAP)  
Units arranged [P/D/F]  
Can be repeated for credit.

15.S60-15.S65 Special Seminar in Management  
Prereq: Permission of instructor  
G (Fall, IAP, Spring, Summer)  
Units arranged [P/D/F]  
Can be repeated for credit.

Prereq: Permission of instructor  
G (Spring)  
Units arranged  
Can be repeated for credit.

15.S70-15.S75 Special Seminar in Management  
Prereq: Permission of instructor  
G (Fall, IAP, Spring)  
Units arranged  
Can be repeated for credit.  
Group study of current topics related to management not otherwise included in curriculum.  
Consult Sloan Educational Services

Thesis, Research, and Practice

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

Advanced work, special investigation or application of a management topic, on an individual basis, under faculty supervision. May include readings, conferences, laboratory and fieldwork, and reports. Projects require prior approval, as well as a written proposal and a final report.
M. Hanlon

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

15.952 Curricular Practical Training
Prereq: None
U (Fall, IAP, Spring)
0-1-0 units
Can be repeated for credit.

For Course 15 undergraduate students participating in management curriculum-related off-campus work experiences. Students must have an employment offer from a company or organization and must find a Sloan faculty supervisor before enrolling. Consult Sloan Undergraduate Education Office
M. Hanlon

15.960 Independent Study in Management
Prereq: Permission of instructor
G (Fall, IAP, Spring, Summer)
Units arranged [P/D/F]
Can be repeated for credit.

15.961 Independent Study in Management
Prereq: Permission of instructor
G (Fall, IAP, Spring, Summer)
Units arranged
Can be repeated for credit.

Advanced work, special investigation or application of a management topic, on an individual basis, under faculty supervision. May include readings, conferences, laboratory and fieldwork, and reports. Projects require prior approval, as well as a written proposal and a final report.
Consult Sloan Educational Services

15.962 Pre-Thesis Research
Prereq: Permission of instructor
G (Fall, IAP, Spring, Summer)
Units arranged
Can be repeated for credit.

Pre-thesis research conducted under faculty supervision; advance approval of project proposal required.
Consult H. Ross

15.998 Independent Group Study in Action Learning
Prereq: None
G (Fall, IAP, Spring, Summer)
Units arranged
Team-based opportunities for application management tools, under faculty supervision, on dynamic projects that provide a wide array of operational challenges facing organizations around the world. May include travel to on-site locales. Projects require prior approval, as well as a written proposal and a final report.
Consult T. Walor

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 written deliverable. 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. Additional restrictions may apply.
Consult Sloan Educational Services
15.THG Graduate Thesis
Prereq: Permission of instructor
G (Fall, IAP, Spring, Summer)
Units arranged
Can be repeated for credit.

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

Consult Sloan Educational Services