

## 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. MBAs only.

*Consult D. Gormley*

#### 15.003 Analytics Tools

Prereq: None

G (Fall, IAP, Spring, Summer)

2-0-1 units

Units assigned to Master of Business Analytics students upon completion of the Analytics Tools requirement. Restricted to Master of Business Analytics students.

*Consult D. Gormley*

#### 15.010 Economic Analysis for Business Decisions

Prereq: None

G (Fall)

4-0-5 units

Introduces principles of microeconomics as a framework for making more informed managerial decisions. Includes the analysis of competitive markets with supply and demand, sources of market power and strategic pricing. Provides an introduction to game theory to study how firms compete, anti-trust policy, and how to generate cooperation both within and between firms. Restricted to first-year Sloan MBA students.

*J. Doyle*

#### 15.011 Economic Analysis for Business Decisions

Subject meets with 15.0111

Prereq: None

G (Fall)

4-0-5 units

Introduces principles of microeconomics as a framework for making more informed managerial decisions. Includes the analysis of competitive markets with supply and demand, sources of market power and strategic pricing. Provides an introduction to game theory to study how firms compete, anti-trust policy, and how to generate cooperation both within and between firms. Expectations and evaluation criteria differ for students taking graduate version; consult syllabus or instructor for specific details. Intended for non-Sloan graduate students.

*J. Doyle*

#### 15.0111 Economic Analysis for Business Decisions

Subject meets with 15.011

Prereq: None

U (Fall)

4-0-5 units

Introduces principles of microeconomics as a framework for making more informed managerial decisions. Includes the analysis of competitive markets with supply and demand, sources of market power and strategic pricing. Provides an introduction to game theory to study how firms compete, anti-trust policy, and how to generate cooperation both within and between firms. Expectations and evaluation criteria differ for students taking graduate version; consult syllabus or instructor for specific details.

*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. Subject develops the basic tools of macro and international economics: monetary and fiscal policy, growth theory and exchange rates. 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. Evaluates different strategies of economic development, including an understanding of growth and development and the role of debt and foreign aid.

*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 two parts: study of the closed economy and how monetary and fiscal policy interacts with employment, GNP, inflation, and interest rates; and study of the open economy with discussion of recent financial and currency crises in developed and emerging markets. Restricted to Sloan Fellows.

*A. Cavallo*

**15.017 Planning, Policy, and Technology for Energy Access in Developing Countries (New)**

Prereq: None

Acad Year 2017-2018: Not offered

Acad Year 2018-2019: G (Spring)

3-0-9 units

Introduces students to the complex challenges of providing universal energy access in developing countries. Examines the technical, political, and social trade-offs inherent in designing energy solutions that can ensure universal access, particularly for very poor, sometimes remote communities. Discusses several aspects of energy poverty including electrification, heating, and cooking, and reviews the range of technologies being developed to meet these needs. Students make extensive use of optimization models to plan on- and off-grid energy systems, and discover how to use these models within the existing social, political, regulatory, and financial constraints.

*I. Perez-Arriaga, R. Stoner, Y. Borofsky*

**15.021[] Real Estate Economics**

Same subject as 11.433[]

Prereq: 14.01, 15.010, or 15.011

G (Fall)

4-0-8 units

See description under subject 11.433[].

*W. C. Wheaton*

**15.023[] Global Climate Change: Economics, Science, and Policy**

Same subject as 12.848[]

Subject meets with 12.348[], 15.026[]

Prereq: Calculus II (GIR); 5.60; 14.01 or 15.010; or permission of instructor

Acad Year 2017-2018: Not offered

Acad Year 2018-2019: 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 tools of micro economics. Primary focus on the analysis of markets, strategic interactions among firms and organizational structure within firms. Emphasizes integration of theory, data, and judgment in the analysis of a wide range of corporate decisions, both between and within firms. Restricted to MIT Sloan Fellows.

*R. Gibbons, T. Suri***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 and negotiations; reputation and seemingly irrational actions; bidding in auctions; and the design of auctions, contests and markets. 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. Expectations and evaluation criteria differ for students taking graduate version; consult syllabus or instructor for specific details.

*A. Bonatti, G. Cisternas***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 and negotiations; reputation and seemingly irrational actions; bidding in auctions; and the design of auctions, contests and markets. 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. Expectations and evaluation criteria differ for students taking graduate version; consult syllabus or instructor for specific details.

*A. Bonatti, G. Cisternas***15.026[[ Global Climate Change: Economics, Science, and Policy**

Same subject as 12.348[[

Subject meets with 12.848[[], 15.023[[

Prereq: Calculus II (GIR), 5.60, 14.01; or permission of instructor

Acad Year 2017-2018: Not offered

Acad Year 2018-2019: 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***15.027 Opportunities in Developing Economies**

Prereq: None

Acad Year 2017-2018: Not offered

Acad Year 2018-2019: G (Spring)

3-0-6 units

Investigates the role of the private sector in developing economies, highlighting how solving market failures can improve overall welfare. Covers constraints faced by firms in developing economies: contract enforcement, corruption, political risk, human rights, IP and infrastructure. Uses case studies to discuss successful firms and innovative solutions to these constraints, including public-private partnerships, the role of technology, the role of finance and impact investing.

*T. Suri*

**15.031[] Energy Decisions, Markets, and Policies**

Same subject as 11.161[], 14.43[], 17.397[], 21A.415[]

Prereq: 14.01, 15.0111, or permission of instructor

Acad Year 2017-2018: Not offered

Acad Year 2018-2019: 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[] Engineering, Economics and Regulation of the Electric Power Sector**

Same subject as 6.695[], IDS.505[]

Subject meets with IDS.064

Prereq: 14.01, 22.081[], IDS.060[], or permission of instructor

G (Spring)

3-0-9 units

See description under subject IDS.505[].

*C. Battle Lopez, J. Jenkins, I. Perez-Arriaga*

**15.034 Metrics for Managers**

Subject meets with 15.0341

Prereq: None

Acad Year 2017-2018: Not offered

Acad Year 2018-2019: G (Fall)

4-0-5 units

Enables students to evaluate the quality of evidence supported by data and to implement an empirical toolkit that provides credible answers to questions in finance, marketing, human resources, strategy, and general business planning. Uses econometrics as the underlying framework to develop deep understanding of regression modelling and its insights for data analytics using big and small data. Focuses primarily on empirical work conducted by students via in-class labs, problem sets, and projects. Expectations and evaluation criteria differ for students taking graduate version; consult syllabus or instructor for specific details.

*J. Doyle, R. Rigobon*

**15.0341 Metrics for Managers**

Subject meets with 15.034

Prereq: None

Acad Year 2017-2018: Not offered

Acad Year 2018-2019: U (Fall)

4-0-5 units

Enables students to evaluate the quality of evidence supported by data and to implement an empirical toolkit that provides credible answers to questions in finance, marketing, human resources, strategy, and general business planning. Uses econometrics as the underlying framework to develop deep understanding of regression modelling and its insights for data analytics using big and small data. Focuses primarily on empirical work conducted by students via in-class labs, problem sets, and projects. Expectations and evaluation criteria differ for students taking graduate version; consult syllabus or instructor for specific details.

*J. Doyle, R. Rigobon*

**15.037[] Energy Economics and Policy**

Same subject as 14.44[]

Prereq: 14.01 or 15.0111

U (Spring)

4-0-8 units. HASS-S

Credit cannot also be received for 14.444[], 15.038[]

See description under subject 14.44[] .Limited to 60.

*C. Knittel*

**15.038[] Energy Economics and Policy**

Same subject as 14.444[]

Prereq: 14.01 or 15.0111

G (Spring)

4-0-8 units

Credit cannot also be received for 14.44[], 15.037[]

See description under subject 14.444[] .Limited to 60.

*C. Knittel*

## Operations Research/Statistics

### 15.053 Optimization Methods in Business Analytics

Prereq: 1.00, 1.000, 6.00, 6.0001, or permission of instructor

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, nonlinear programming, and dynamic programming. Applications to logistics, manufacturing, statistics, machine learning, transportation, game theory, 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[] The Airline Industry

Same subject as 1.232[], 16.71[]

Prereq: None

G (Fall)

3-0-9 units

See description under subject 16.71[].

*P. P. Belobaba, A. I. Barnett, C. Barnhart, R. J. Hansman, T. A. Kochan*

### 15.060 Data, Models, and Decisions

Prereq: Permission of instructor

G (Fall, Summer)

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.

*R. Freund, G. Perakis, D. Gamarnik*

### 15.062[] Data Mining: Finding the Data and Models that Create Value

Same subject as IDS.145[]

Subject meets with 15.0621

Prereq: 15.060 or 15.075[]

G (Spring; first 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. Expectations and evaluation criteria differ for students taking graduate version; consult syllabus or instructor for specific details.

*R. E. Welsch*

### 15.0621 Data Mining: Finding the Data and Models that Create Value

Subject meets with 15.062[], IDS.145[]

Prereq: 15.075[]

U (Spring; first 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[] when offered concurrently. Expectations and evaluation criteria differ for students taking graduate version; consult syllabus or instructor for specific details.

*R. E. Welsch*

**15.066[]] System Optimization and Analysis for Operations**

Same subject as 2.851[]]

Prereq: Calculus II (GIR)

G (Summer)

4-0-8 units

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

*Staff*

**15.068 Statistical Consulting**

Prereq: 15.060

G (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[]] Advanced Stochastic Processes**

Same subject as 6.265[]]

Prereq: 6.431B, 15.085[]], 18.100A, 18.100B, or 18.100Q

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, queueing and inventory models.

*D. Gamarnik, G. Bresler*

**15.071 The Analytics Edge**

Prereq: 15.053 or 15.060

G (Fall, Spring)

4-0-8 units

Credit cannot also be received for 15.0711

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. Expectations and evaluation criteria differ for students taking graduate version; consult syllabus or instructor for specific details.

*D. Bertsimas*

**15.0711 The Analytics Edge**

Prereq: 15.053

U (Spring)

4-0-8 units

Credit cannot also be received for 15.071

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. Expectations and evaluation criteria differ for students taking graduate version; consult syllabus or instructor for specific details.

*D. Bertsimas*

**15.073[J] Applied Probability and Stochastic Models**

Same subject as 1.203[J], IDS.700[J]

Prereq: 6.041B

G (Fall)

3-0-9 units

Begins with a vigorous review of key probabilistic concepts and goes on to address developing, validating, and exploiting probabilistic models of a wide variety of real-life processes. Processes studied may vary from year to year but typically include urban systems, transportation and logistics, epidemiology, demand-responsive pricing of services, and daily life activities such as social networks and sports. Assumes some exposure to elementary probability.

*A. Barnett, R. Larson*

**15.0741 Predictive Data Analytics and Statistical Modeling**

Prereq: 6.041B

Acad Year 2017-2018: Not offered

Acad Year 2018-2019: U (Spring)

4-0-5 units

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.

*R. E. Welsch*

**15.075[J] Statistical Thinking and Data Analysis**

Same subject as IDS.013[J]

Prereq: 6.041B or 15.0791

U (Spring)

3-1-8 units. Institute LAB

Credit cannot also be received for 18.650[J], 18.6501, IDS.014[J]

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 IDS.147[J]

Prereq: 6.431B, 15.085[J], or 18.600; 18.06 or 18.700

Acad Year 2017-2018: Not offered

Acad Year 2018-2019: 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. Begins with topics such as the bootstrap, theory of estimation, testing, nonparametric statistics, analysis of variance, categorical data analysis, regression analysis, MCMC, EM, Gibbs sampling, and Bayesian methods. Goes on to focus 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)

Acad Year 2017-2018: Not offered

Acad Year 2018-2019: G (Fall)

4-0-8 units

Credit cannot also be received for 15.0791, 18.600

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. Meets with 15.0791 when offered concurrently. Expectations and evaluation criteria differ for students taking graduate version; consult syllabus or instructor for specific details.

*A. Barnett, R. Larson*

**15.0791 Introduction to Applied Probability**

Prereq: Calculus I (GIR)

U (Fall)

4-0-8 units. REST

Credit cannot also be received for 15.079, 18.600

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. Meets with 15.079 when offered concurrently. Expectations and evaluation criteria differ for students taking graduate version; consult syllabus or instructor for specific details.

*A. Barnett, R. Larson*

**15.081[] Introduction to Mathematical Programming**

Same subject as 6.251[]

Prereq: 18.06

G (Fall)

4-0-8 units

See description under subject 6.251[].

*J. N. Tsitsiklis, D. Bertsimas*

**15.083 Integer Programming and Combinatorial Optimization**

Prereq: 15.081[] or permission of instructor

Acad Year 2017-2018: G (Spring)

Acad Year 2018-2019: Not offered

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[] Nonlinear Optimization**

Same subject as 6.252[]

Prereq: 18.06; 18.100A, 18.100B, or 18.100Q

G (Spring)

4-0-8 units

See description under subject 6.252[].

*R. M. Freund, P. Parrilo, G. Perakis*

**15.085[] Fundamentals of Probability**

Same subject as 6.436[]

Prereq: Calculus II (GIR)

G (Fall)

4-0-8 units

See description under subject 6.436[].

*J. N. Tsitsiklis, D. Gamarnik*

**15.086 Engineering Probability**

Prereq: Calculus I (GIR), permission of instructor

G (Summer; first half of term)

2-0-4 units

Introduction to Applied Probability. Makes real-life problems central to the pedagogy and aims for an intuitive understanding of Probability as well as mastery of key probabilistic concepts and methods. Preference to first-year Leaders for Global Operations students.

*A. Barnett*

**15.087 Engineering Statistics and Data Science**

Prereq: Calculus II (GIR), 15.086, 18.06, permission of instructor

G (Summer; second half of term)

2-0-4 units

Modeling and analysis of uncertainty and variation. Covers 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 R or MATLAB. Preference to first-year Leaders for Global Operations students.

*R. Welsch*

**15.089 Analytics Capstone**

Prereq: None

G (IAP, Spring, Summer)

Units arranged

Can be repeated for credit.

Practical application of business analytics problems within a real company. Teams of 1-2 students, matched with company projects, visit companies to define project and scope. In class, students refine and improve on projects and devise methods for solving problems for their select companies. Mentors are assigned to each team. The culmination of the program is summer, on-site, practical training. Restricted to Master of Business Analytics students.

*D. Bertsimas*



**15.093[] Optimization Methods**

Same subject as 6.255[], IDS.200[]

Subject meets with 6.215

Prereq: 18.06

G (Fall)

4-0-8 units

Introduces the principal algorithms for linear, network, discrete, robust, nonlinear, and dynamic optimization. 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. Expectations and evaluation criteria differ for students taking graduate version; consult syllabus or instructor for specific details.

*D. Bertsimas, P. Parrilo*

**15.094[] Robust Modeling, Optimization, and Computation**

Same subject as 1.142[]

Prereq: 18.06 or permission of instructor

Acad Year 2017-2018: Not offered

Acad Year 2018-2019: 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

Acad Year 2017-2018: Not offered

Acad Year 2018-2019: 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: 6.431B

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[]

G (Fall, Spring)

Units arranged

Can be repeated for credit.

Doctoral student seminar covering current topics related to operations research.

*D. Bertsimas, R. Freund, J. Orlin, G. Perakis*

## Health Care Management

### **15.124[] Evaluating a Biomedical Business Concept**

Same subject as HST.973[]

Prereq: None

G (Fall)

3-0-6 units

See description under subject HST.973[]. Enrollment limited.

*R. J. Cohen*

### **15.128[] Revolutionary Ventures: How to Invent and Deploy Transformative Technologies**

Same subject as 9.455[], 20.454[], MAS.883[]

Prereq: Permission of instructor

G (Fall)

2-0-7 units

See description under subject MAS.883[].

*E. Boyden, J. Bonsen, J. Jacobson*

### **15.132[] Medicine for Managers and Entrepreneurs Proseminar**

Same subject as HST.972[]

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[] Principles and Practice of Drug Development**

Same subject as 7.547[], 10.547[], HST.920[], IDS.620[]

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[] Case Studies and Strategies in Drug Discovery and Development**

Same subject as 7.549[], 20.486[], HST.916[]

Prereq: None

G (Spring)

2-0-4 units

See description under subject 20.486[].

*S. R. Tannenbaum, A. J. Sinskey, A. W. Wood*

### **15.141[] Economics of Health Care Industries**

Same subject as HST.918[]

Prereq: Permission of instructor

G (Spring; first half of term)

3-0-3 units

Considers health economics issues from a business perspective, including differences between health care and other industries, the role of health insurance, regulatory issues and incentives for innovation, data analytics to measure value, strategic issues in pricing and marketing, use of e-commerce and information technology, personalized/stratified medicines, and formation and management of various alliances. Explores US and global health institutions. Visiting speakers from academia, government, NGOs, and industry.

*J. Doyle*

## Global Economics Management

### **15.216 Central Banks, Monetary Policy and Global Financial Markets (New)**

Prereq: None

Acad Year 2017-2018: Not offered

Acad Year 2018-2019: G (Spring)

3-0-6 units

Explores the role of central banks and monetary policy in the global economy and the effects of their policies on countries, companies and global financial markets. Reviews the decision-making process and policy implementation, and provides conceptual tools for analyzing and predicting central bank decisions and assessing their likely impact. Covers monetary policy, bank regulation and crisis management, drawing on the experience of the Federal Reserve, the ECB and central banks in emerging market economies.

*A. Orphanides*

**15.218 Global Economic Challenges and Opportunities**

Prereq: None

G (Spring)

3-0-6 units

Analyzes the causes, effects and policy responses to recent major global economic issues. Analyzes financial crises, beginning with historical examples and building up to develop the tools to assess current vulnerabilities around the world. Focuses on current economic debates and challenges in a range of countries. Possible topics include globalization, low interest rates, unsustainable debt, banking deglobalization, aging populations, inequality and poverty, oil and commodity markets, monetary and fiscal policy mix, international institutions, and the global impact of developments in major economies. Some background or coursework in international economics recommended.

*K. Forbes***15.219[J] Global Energy: Politics, Markets, and Policy (New)**

Same subject as 11.267[J]

Prereq: None

G (Spring)

3-0-9 units

Credit cannot also be received for 11.167[J], 14.47[J], 15.2191[J], 17.399[J]

Focuses on the ways economics and politics influence the fate of energy technologies, business models, and policies around the world. Extends fundamental concepts in the social sciences to case studies and simulations that illustrate how corporate, government, and individual decisions shape energy and environmental outcomes. In a final project, students apply the concepts in order to assess the prospects for an energy innovation to scale and advance sustainability goals in a particular regional market. Recommended prerequisite: 14.01. Meets with 15.2191[J] when offered concurrently. Expectations and evaluation criteria differ for students taking graduate version; consult syllabus or instructor for specific details.

*V. Karplus***15.2191[J] Global Energy: Politics, Markets, and Policy (New)**

Same subject as 11.167[J], 14.47[J], 17.399[J]

Prereq: None

U (Spring)

3-0-9 units. HASS-S

Credit cannot also be received for 11.267[J], 15.219[J]

Focuses on the ways economics and politics influence the fate of energy technologies, business models, and policies around the world. Extends fundamental concepts in the social sciences to case studies and simulations that illustrate how corporate, government, and individual decisions shape energy and environmental outcomes. In a final project, students apply the concepts in order to assess the prospects for an energy innovation to scale and advance sustainability goals in a particular regional market. Recommended prerequisite: 14.01. Meets with 15.219[J] when offered concurrently. Expectations and evaluation criteria differ for students taking graduate version; consult syllabus or instructor for specific details. Preference to juniors, seniors, and Energy Minors.

*V. Karplus***15.220 New Models for Global Business**

Prereq: None

Acad Year 2017-2018: Not offered

Acad Year 2018-2019: 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

Acad Year 2017-2018: Not offered

Acad Year 2018-2019: 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. Restricted to Sloan Fellows in Innovation and Global Leadership.

*Staff*

### 15.223 Global Markets, National Policies and the Competitive Advantages of Firms

Prereq: None

G (Fall; 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. Restricted to Sloan Fellows in Innovation and Global Leadership.

*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

Acad Year 2017-2018: Not offered

Acad Year 2018-2019: G (Spring)

Units arranged

Can be repeated for credit.

Group study of current topics related to international business.

*Staff*

### 15.232 Effective Business Models in Frontier Markets

Prereq: None

G (Spring; first half of term)

3-0-3 units

Examines how new approaches to operations, revenue, marketing, finance, and strategy enable improved social outcomes in resource-limited settings across Africa, Latin America, and Asia. Draws on system dynamics, design thinking, and strategic analysis. Explores success and failure in attempts to innovate and scale in product and service 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 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

Acad Year 2017-2018: Not offered

Acad Year 2018-2019: 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. Preference to students who have taken 15.232. Admission by application and interview in the prior November and December. Graduate students only.

*A. Sastry*

**15.248 Israel Lab: Startup Nation's Entrepreneurship and Innovation Ecosystem**

Prereq: None

G (Fall, IAP; second half of term)

3-0-6 units

Practical study of Israel's innovation and entrepreneurial ecosystem. On-campus component provides context about the country and its social and geopolitical issues; also introduces entrepreneurship lessons and team dynamics. During IAP, student teams work at the Israeli host organizations on complex problems in critical areas, such as high-tech, life sciences, clean technology, and analytics, with an emphasis on early stage ventures and their growth. Limited to graduate students and Sloan undergraduates, application required of Sloan undergraduates.

*J. Cohen, C. Ortiz***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. Restricted to Sloan Fellows.

*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; second half of 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

Credit cannot also be received for 15.286

Equips students with the strategies, tactics, and tools to use quantitative information to inform and persuade others. Emphasizes effective communication skills as the foundation of successful careers. Develops the skills to communicate quantitative information in a business context to drive people and organizations toward better decisions. Focuses heavily on the cycle of practicing, reflecting, and revising. Students receive extensive, personalized feedback from teaching team and classmates.

*M. Kazakoff*

### 15.277 Seminar in Communications

Prereq: None

Acad Year 2017-2018: Not offered

Acad Year 2018-2019: G (Spring)

Units arranged

Can be repeated for credit.

Group study of current topics related to communication.

*J. Yates*

### 15.278 Seminar in Communications

Prereq: None

Acad Year 2017-2018: Not offered

Acad Year 2018-2019: 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, social media, 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.

*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. Restricted to first-year Sloan graduate students.

*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*

**15.283 Social Media Management: Persuasion in Networked Culture**

Prereq: None  
G (Spring)  
3-0-6 units

Explores how organizations and leaders can maximize the business value of social media platforms. Provides a framework and best practices for social media management, enhances understanding of strategic communication within the social media context, and improves social media communication skills. Assignments include case analysis, weekly blogging, and a final group project on social media strategy and implementation.

*B. Shields*

**15.284 Strategic Leadership Communication**

Prereq: None  
G (Fall; partial term)  
3-0-3 units

Introduces the essentials of how individuals and organizations develop and implement effective communication strategies, focusing on persuasion, audience analysis, communicator credibility, message construction, and delivery. Includes oral presentations and writing assignments with feedback to help students improve their communication effectiveness. Provides instruction to create communication strategies, develop and present clearly organized and powerful presentations, expand personal oral delivery and writing styles, and enhance presentations through effective visual aids. Restricted to Sloan Fellows.

*N. Hartman, L. Breslow*

**15.286 Communicating with Data (New)**

Prereq: None  
G (Spring; first half of term)  
3-0-3 units  
Credit cannot also be received for 15.276

Focuses on the strategic and tactical use of data to move others to take (the correct) action. Sharpens communication skills via practice and real-world examples. Students spend significant time writing, speaking and designing visuals for a professional audience. Intended for students who expect to communicate quantitative information with non-experts inside and outside of their organizations, as well as students seeking to improve communication skills in general. Recommended prerequisite: 15.280 or 15.284.

*M. Kazakoff*

**15.289 Doctoral Seminar: Communication Skills for Academics**

Prereq: Permission of instructor  
G (Spring)  
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, creating your professional presence on social media, 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. Limited to 20; priority to Sloan 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)  
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.

*J. Carroll, P. Osterman*

**15.304 Being Effective: Power and Influence**

Prereq: None  
G (Spring)  
3-0-6 units

Discusses how to map power and interest patterns in organizations, how to understand your own interests and objectives, and how to operate effectively in organizational environments. Provides frameworks as well as a range of practical tools to address these goals. Utilizes a wide range of material drawn from the business and public worlds.

*P. Osterman*

### 15.305 Leadership and Management

Prereq: Permission of instructor

U (Fall)

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.

*S. Ott*

### 15.307 Leadership and Ethics

Prereq: None

G (Fall)

2-0-0 units

Foundations, pillars, principles and mantras of outstanding leadership introduced through in-class discussions and case studies presented by senior industry leaders (LGO and non-LGO alumni). Alumni also share their personal leadership experiences with the class. Leaders for Global Operations students only.

*V. Erdekian*

### 15.309 Leadership Lessons Learned from the Military (New)

Prereq: None

G (IAP)

2-0-1 units

Prepared and taught by veterans in various Sloan programs, under the supervision of MIT Sloan faculty. Focuses on the nature of military leadership and its relevance to the civilian professional and organizational experience.

*D. Ancona, L. Hafrey*

### 15.310 Managerial Psychology

Prereq: None

G (Fall)

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. Preference to non-Course 15 students.

*J. Carroll, 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. Restricted to first-year Sloan master's students.

*E. Kelly, E. Apfelbaum, C. Turco*

### 15.312 Organizational Processes for Business Analytics

Prereq: None

U (Fall)

3-0-9 units

Develops appreciation for organizational dynamics and competence in navigating social networks, working in a team, demystifying rewards and incentives, leveraging the crowd, understanding change initiatives, and making sound decisions. Provides instruction and practice in written and oral communication through presentations, and interpersonal and group exercises.

*R. Reagans, L. Breslow*

### 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. Restricted to first-year Leaders for Global Operations students.

*Consult J. S. Carroll*



**15.317 Leadership and Organizational Change**

Prereq: None

G (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 (Fall)

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, 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 (Fall; first half of term)

3-0-3 units

Credit cannot also be received for 15.716

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

*J. Van Maanen***15.323 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. Restricted to Leaders for Global Operations program students.

*L. Hafrey***15.324 Practical leadership**

Prereq: None

G (Spring; second half of term)

3-0-3 units

Strengthens leadership capacities through reflection, practice and feedback. 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; second half of term)

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 field trip to a domestic location. Restricted to MIT Sloan Fellows.

*Consult Staff*

### 15.326 Seminar in Leadership II

Prereq: 15.325

G (Spring)

2-0-1 units

Continuation of 15.325, providing 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. Includes two field trips to domestic locations. Restricted to MIT Sloan Fellows.

*Staff*

### 15.328 Seminar in Organizational Studies

Prereq: None

G (Summer)

Units arranged

Can be repeated for credit.

Group study of current topics related to organizational studies.

*Consult D. G. Ancona*

### 15.329 Seminar in Organizational Studies

Prereq: None

Acad Year 2017-2018: Not offered

Acad Year 2018-2019: 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 (Spring)

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

*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

Acad Year 2017-2018: Not offered

Acad Year 2018-2019: 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

Acad Year 2017-2018: Not offered

Acad Year 2018-2019: 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. Restricted to MIT Sloan Fellows in Innovation and Global Leadership.

*Staff***15.351 Introduction to Making (New)**

Prereq: None

G (Fall, Spring)

3-0-3 units

Introduces key elements of the maker trend. Provides basic skills and knowledge for a set of core maker technologies that form a base for creating prototypes. Fosters an understanding of how to use context to make the abstract concrete. Includes a large experiential component that builds skills in the various elements of making. Draws connections between making capability and the entrepreneurial process for maximum impact.

*M. Culpepper, E. Chen, N. Meyer***15.356 Product and Service Development in the Internet Age**

Prereq: None

Acad Year 2017-2018: Not offered

Acad Year 2018-2019: G (Spring; first half of term)

3-0-3 units

Focuses on the ways in which government policy and traditional "in-house" innovation processes are challenged by competing business-to-business and business-to-consumer products developed by consumers and industrial users. Explains both the theory behind novel innovation development methods, and how they can be profitably used in practice. Covers lead user searches, crowdsourcing, innovation toolkits, 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. Primarily for PhD students.

*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*

**15.359[J] Innovation Engineering: Moving Ideas to Impact**

Same subject as 6.901[J]

Prereq: None

U (Fall)

3-3-6 units

Designed for students to gain the perspective of a Chief Technology Officer of a start-up, large corporation, or a not-for-profit. Details the innovation process, from an idea's inception through impact in the economy, regardless of organizational setting. Explores how solutions are developed to become ready for broader market deployment. Includes testing and development of the problem-solution fit, probing of solutions for robustness, and testing of both technical and operational scaling of proposed solutions. Examines the human aspects of innovation, specifically issues of team building and readiness. Considers the broader system for innovation, including the role of key stakeholders in shaping its success in order to arrive at an impactful solution. Addresses intellectual property, the effect of regulations and social and cultural differences across varied global markets, and the personal skillset necessary to align and manage these issues.

*V. Bulovic, F. Murray*

**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. No listeners; restricted to students in Sloan Entrepreneurship and Innovation (EI) MBA track.

*D. Levin, T. Cotter*

**15.361 Executing Strategy for Results (New)**

Prereq: None

G (Fall; first half of term)

3-0-6 units

Credit cannot also be received for 15.711

Provides students an alternative to the mechanistic view of strategy execution that reframes an organization as a complex network of teams continuously adjusting to market conditions and to other teams. Introduces the Flexible Execution Model, consisting of seven elements; strategy for execution, shared context, goals 2.0, resource re-allocation, distributed leaders, top leaders, and execution culture that together shape how well an organization executes its strategy. Discusses a set of practical tools, based on research and field-tested, that help leaders achieve their organizations' strategic priorities. Explores novel ways to use data including surveys, Glassdoor reviews, and other sources to measure strategy execution and identify what is and is not working. Preference given to Master of Business Administration students.

*D. Sull***15.363[J] Strategic Decision Making in the Life Sciences**

Same subject as HST.971[J]

Prereq: None

G (Fall, 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 (Spring)

3-0-6 units

Credit cannot also be received for 15.3641

Aimed at students seeking a research-based but action-oriented understanding of innovation ecosystems, such as Silicon Valley, Kendall Square/Massachusetts, and other sites across the globe. 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. Meets with 15.364 when offered concurrently. Expectations and evaluation criteria differ for students taking graduate version; consult syllabus or instructor for specific details.

*P. Budden, F. Murray***15.3641 Regional Entrepreneurship Acceleration Lab (REAL)**

Prereq: None

U (Spring)

3-0-6 units

Credit cannot also be received for 15.364

Aimed at students seeking a research-based but action-oriented understanding of innovation ecosystems, such as Silicon Valley, Kendall Square/Massachusetts, and other sites across the globe. 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. Meets with 15.364 when offered concurrently. Expectations and evaluation criteria differ for students taking graduate version; consult syllabus or instructor for specific details.

*P. Budden, F. Murray*

### **15.366 Energy Ventures**

Prereq: 15.910; 15.390 or 15.371[]; 10.391[] or 10.579[]

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[] Healthcare Ventures**

Same subject as HST.978[]

Prereq: 15.910; 15.390 or 10.391[] or 10.579[]

G (Spring)

3-0-9 units

See description under subject HST.978[]. Enrollment by application only

*M. Gray, Z. Chu*

### **15.368 Disciplined Entrepreneurship Lab (New)**

Prereq: None

G (IAP)

1-0-2 units

Project-based course offering the opportunity to experience startup life in a low stakes environment while contributing strategic value to early-stage ventures. Students secure a startup project of their choice or work with a startup pre-selected by the action learning team. Startups represent a range of industries and, while concentrated in the Boston area, may also come from other parts of the US. Students cannot drop course once project commences.

*W. Aulet*

### **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.

*E. Chen, B. Aulet*

### **15.371[] Innovation Teams**

Same subject as 10.807[]

Prereq: 15.911 or permission of instructor

G (Fall, Spring)

4-4-4 units

Introduces skills and capabilities for systematic technical and functional exploration, opportunity discovery, market understanding, value economics, innovation scale-up, intellectual property, elements of technology commercialization at scale, and communicating/working for impact inside and outside home disciplines. Students work in multidisciplinary teams formed around MIT research breakthroughs, with extensive in-class coaching from faculty and guidance from lab members and select mentors. Demonstrates a structured approach to innovating in which everything is a variable and the product, technology, and opportunities for new ventures can be seen as an act of synthesis. Teams gather evidence that permits a fact-based iteration across multiple application domains, markets, functionalities, technologies, and products, leading to a recommendation that maps a space of opportunity and includes actionable next steps to evolve the market and technology. Applications, resumes, and a brief statement of interest are required prior to registration.

*F. Murray, L. Perez-Breva*

### **15.372 Experimental Innovation Lab**

Prereq: None

Acad Year 2017-2018: Not offered

Acad Year 2018-2019: G (Fall)

3-3-3 units

Develops the skills needed to run randomized experiments (from design through analysis) in business settings in order to help firms innovate and shape their strategy. Provides foundational knowledge related to the basic structure of a good experiment, analysis methods, randomization, and reasons why even well-planned experiments may fail. Working in small teams, students design, run, and present the results of randomized trials with partner companies. Application required.

*D. Sull, N. Thompson*

**15.373[J] Venture Engineering**

Same subject as 2.912[J], 3.085[J]

Prereq: None

U (Spring)

3-0-9 units

Provides a framework for the development, implementation, and growth of innovative ventures in dynamic environments. Deepens understanding of the core technical, customer, and strategic choices and challenges facing start-up innovators. Emphasizes the interdependent choices entrepreneurs must make under conditions of high uncertainty. Intended for students who seek to leverage their engineering and science background through innovation-driven entrepreneurship.

*S. Stern, E. Fitzgerald*

**15.374 Innovation-Driven Advantage (New)**

Prereq: None

G (Fall; second half of term)

4-0-5 units

Challenges students to understand what it means for an organization to manage innovation. Subject has four parts: the sources of innovation (from the research lab, to local innovation ecosystems, to open innovation); motivating technical or and/creative professionals (incentives, structure, and culture); organizing the innovation process (from the study of product development processes to R&D portfolios to building an experimental capacity). The final segment emphasizes the connection between the management of innovation and competitive strategy. Restricted to MIT Sloan Fellows.

*P. Azoulay*

**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. Bensen, A. Pentland, C. Breazeal*

**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. Bensen*

**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

Intensive, project-based subject intended for startup teams already working on building a new, high-impact venture. Applies advanced entrepreneurial techniques to build and iterate a venture in a time-compressed manner. Includes weekly coaching sessions with instructors and peers, as well as highly interactive and customized sessions that provide practical, in-depth coverage on key topics in entrepreneurship. Topics include venture creation, primary market research, product development, market adoption, team and culture, and scaling processes with constrained resources. Expectations and evaluation criteria differ for students taking graduate version; consult syllabus or instructor for specific details. Application required; consult instructor. No listeners.

*B. Aulet, N. Meyer, T. Cotter*

**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

Intensive, project-based subject intended for startup teams already working on building a new, high-impact venture. Applies advanced entrepreneurial techniques to build and iterate a venture in a time-compressed manner. Includes weekly coaching sessions with instructors and peers, as well as highly interactive and customized sessions that provide practical, in-depth coverage on key topics in entrepreneurship. Topics include venture creation, primary market research, product development, market adoption, team and culture, and scaling processes with constrained resources. Expectations and evaluation criteria differ for students taking graduate version; consult syllabus or instructor for specific details. Application required; consult instructor. No listeners.

*B. Aulet, N. Meyer, T. Cotter*

**15.385 Sustainability-Oriented Innovation and Entrepreneurship**

Prereq: None

G (Fall)

3-0-6 units

Provides a structured approach to innovation to create business value while solving social and environmental problems. Covers physical domains, e.g., waste, water, food, energy, and mobility, as well as social and human capital domains, such as health and education. Students complete a final project that aims to advance either the field, an existing startup, or students' own ideas for new products, processes and/or business models.

*J. Jay*

**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. No listeners.

*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)

3-1-8 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. Restricted to graduate students.

*S. Johnson, M. Jester*

**15.390 New Enterprises**

Subject meets with 15.3901

Prereq: None

G (Fall, Spring)

2-2-8 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, T. Cotter*

**15.3901 New Enterprises**

Subject meets with 15.390

Prereq: None

U (Fall, Spring)

2-2-8 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, T. Cotter*

**15.392 Scaling Entrepreneurial Ventures**

Prereq: 15.371[] or 15.390

G (Spring; first half of term)

3-0-3 units

Surveys the personal, institutional and operational challenges involved in scaling an entrepreneurial venture. Discusses both effective and ineffective solutions. Addresses topics such as leadership, culture, operations, governance, and human resources. Includes case studies, site visits, movies, simulations and guest speakers. Application required.

*B. Aulet, D. Levin, B. Halligan*



**15.393 The Nuts and Bolts of New Ventures (New)**

Prereq: None

G (IAP)

1-0-2 units

Designed to foster an understanding of how to start a new venture (for-profit and social/development). Details the process from an idea's inception to the development of a successful new venture to deliver products and services enabled by the idea. Explores customer identification, the business/economic models, financial projections, legal and operational issues, and financing alternatives and sources. All sessions taught by persons who have actually launched or have been involved in successful ventures.

*J. Hadzima***15.394 Dilemmas in Founding New Ventures**

Prereq: None

G (Spring)

3-0-6 units

Credit cannot also be received for 15.3941

Explores key organizational decisions that have far-reaching consequences for founders and their ventures. Through a series of cases, readings, and simulations, students examine five founders' 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. Meets with 15.3941 when offered concurrently. Expectations and evaluation criteria differ for students taking graduate version; consult syllabus or instructor for specific details.

*M. Marx***15.3941 Dilemmas in Founding New Ventures**

Prereq: None

Acad Year 2017-2018: Not offered

Acad Year 2018-2019: U (Spring)

3-0-6 units

Credit cannot also be received for 15.394

Explores key organizational decisions that have far-reaching consequences for founders and their ventures. Through a series of cases, readings, and simulations, students examine five founders' 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. Meets with 15.394 when offered concurrently. Expectations and evaluation criteria differ for students taking graduate version; consult syllabus or instructor for specific details.

*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 globally, including Europe, Latin America, and Asia. Covers linkages between the business environment, the institutional framework, and new venture creation. Special focus on blockchain technology. 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 based primarily on case studies.

*S. Johnson***15.396 Seminar in Entrepreneurship**

Prereq: None

Acad Year 2017-2018: Not offered

Acad Year 2018-2019: G (Spring)

Units arranged

Group study of current topics related to entrepreneurship.

*W. Aulet***15.397 Seminar in Entrepreneurship**

Prereq: None

G (Fall)

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 and the need, as leader, to successfully navigate crossroads (often created by new technologies). Provides a unique opportunity for students to interact with some of the world's leading CEOs who are invited to participate in each class. The CEOs offer advice and answer questions related to topics such as the responsibilities of the CEO, corporate strategy, career learnings, and advice.

*P. Kurzina*

**15.399 Entrepreneurship Lab**

Prereq: None  
 G (Fall, Spring)  
 2-9-1 units

Credit cannot also be received for 15.3991

Project-based subject, 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, clean technology, and life sciences. Meets with 15.3991 when offered concurrently. Expectations and evaluation criteria differ for students taking graduate version; consult syllabus or instructor for specific details. In addition to the regular MIT registration process, students should register at the subject website one month before start of term to facilitate formation of student teams and matching of teams with startup companies.

*C. Catalini, J. Dougherty*

**15.3991 Entrepreneurship Lab (New)**

Prereq: None  
 U (Fall, Spring)  
 2-9-1 units

Credit cannot also be received for 15.399

Project-based subject, 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, clean technology, and life sciences. Meets with 15.399 when offered concurrently. Expectations and evaluation criteria differ for students taking graduate version; consult syllabus or instructor for specific details. In addition to the regular MIT registration process, students should register at the subject website one month before start of term 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

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 15.417 when offered concurrently. Expectations and evaluation criteria differ for students taking graduate version; consult syllabus or instructor for specific details.

*Consult K. Nixon*

**15.402 Corporate Finance**

Prereq: 15.401  
 G (Fall, Spring)  
 3-0-6 units

Credit cannot also be received for 15.418

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. Meets with 15.418 when offered concurrently.

*P. Asquith, A. Malenko, D. Thesmar*

**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. Restricted to first-year Finance track MBA students.

*J. Parsons*

**15.414 Financial Management**

Prereq: 15.511

G (Summer)

3-0-6 units

Credit cannot also be received for 15.724

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. Provides a broad overview of both theory and practice. Restricted to MIT Sloan Fellows.

*Staff***15.415 Finance Theory**

Prereq: None

G (Summer)

6-0-9 units

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

*L. Kogan, J. Wang***15.417 Laboratory in Investments**

Prereq: None

U (Spring)

4-2-9 units. Institute LAB

Covers 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. Laboratory introduces students to methods of modern quantitative finance and to practices of the investment management industry. Projects include implementation and testing of investment strategies and asset pricing models using real-world market data. Instruction and practice in oral and written communication provided.

*P. Mende, G. Rao***15.418 Laboratory in Corporate Finance**

Prereq: 15.417

U (Fall, Spring)

4-2-9 units. Institute LAB

Credit cannot also be received for 15.402

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*

**15.425 Corporate Finance (New)**

Prereq: 15.415

G (Fall)

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. Restricted to students in the Master of Finance Program.

*P. Asquith***15.426[[]] Real Estate Finance and Investment**

Same subject as 11.431[[]]

Prereq: Permission of instructor

G (Fall)

4-0-8 units

See description under subject 11.431[[]].

*D. Geltner***15.427[[]] Real Estate Capital Markets**

Same subject as 11.432[[]]

Prereq: 11.431[[]]; 15.402 or 15.414

G (Spring; first half of term)

2-0-4 units

See description under subject 11.432[[]].

*D. Geltner*

**15.428[] Tools for Analysis: Design for Real Estate and Infrastructure Development**

Same subject as 11.434[], IDS.720[]

Prereq: None

G (Spring; second half of term)

2-0-4 units

See description under subject 11.434[].

*D. Geltner, R. de Neufville*

**15.429[] Securitization of Mortgages and Other Assets**

Same subject as 11.353[]

Prereq: 15.426[], 15.401, or permission of instructor

Acad Year 2017-2018: Not offered

Acad Year 2018-2019: 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 (Fall)

3-0-6 units

Credit cannot also be received for 15.4311, 15.719

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.

*M. Rhodes-Kropf, V. Nair*

**15.4311 Entrepreneurial Finance and Venture Capital**

Prereq: 15.418

U (Spring)

3-0-6 units

Credit cannot also be received for 15.431, 15.719

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. Expectations and evaluation criteria differ for students taking graduate version; consult syllabus or instructor for specific details.

*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. Preference to Course 15 students.

*J. Pan*

**15.434 Advanced Corporate Finance**

Prereq: 15.402, 15.414, or 15.415

G (Fall)

3-0-6 units

Credit cannot also be received for 15.4341

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. Expectations and evaluation criteria differ for students taking graduate version; consult syllabus or instructor for specific details. Meets with 15.4341 when offered concurrently.

*E. Matveyev***15.4341 Advanced Corporate Finance**

Prereq: 15.418

U (Fall)

3-0-6 units

Credit cannot also be received for 15.434

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. Expectations and evaluation criteria differ for students taking graduate version; consult syllabus or instructor for specific details. Meets with 15.434 when offered concurrently.

*E. Matveyev***15.436 Cases in Corporate Finance: Bridging Theory and Practice (New)**

Prereq: 15.402

G (Fall, Spring)

3-0-6 units

Provides a bridge between theory and practice, taking the perspectives of investment bankers and corporate executives responsible for financial strategy. Case-based, covering a wide range of topics, including corporate valuation tools; IPOs, convertible securities and other types of financings; cash policy and leveraged recapitalizations; spinoffs, special purpose vehicles and corporate restructurings; risky debt and bankruptcy; and various other topics in applied corporate finance. Recommended prereq.

15.434.

*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.

*S. Kogan***15.4371 Options and Futures Markets**

Prereq: 15.417

U (Fall)

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 15.437 when offered concurrently. Expectations and evaluation criteria differ for students taking graduate version; consult syllabus or instructor for specific details.

*S. Kogan***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.

*Staff*

### 15.439 Investment Management

Prereq: 15.401, 15.414, or 15.415

G (Spring)

3-0-6 units

Covers the business of investment management from the perspective of running a successful investment management firm, with an emphasis on studying financial markets, principally equity markets. Covers the three elements required for an investment company to be successful: an effective investment strategy, efficient implementation of the strategy, and handling non-investment activities such as compliance. Emphasizes the first two elements and touches on quantitative investment strategies. Includes a mix of textbook readings, journal articles, and case studies, as well as outside speakers from the finance industry.

*M. Rothman*

### 15.444 International Corporate Finance

Prereq: 15.402, 15.414, or 15.415

Acad Year 2017-2018: Not offered

Acad Year 2018-2019: 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, Acquisitions and Private Equity

Prereq: 15.515 or 15.516; Coreq: 15.402, 15.414, or 15.415

G (Spring)

3-0-6 units

Credit cannot also be received for 15.4451

Using case examples, covers classic stock and cash mergers; minority squeeze-outs; tax inversions; company sale process and auction design; hostile takeover law and strategy; the structuring, financing and valuation of leveraged buyouts; the structure, history and returns of private equity buyout funds; publicly traded private equity firms; blank-check companies; and a variety of other topics on M&A and leveraged buyouts. Provides an opportunity for group work, both in and out of class, including a full-term student project involving the mock sale of a company. Meets with 15.4451 when offered concurrently. Consult the syllabus for expectations and evaluation criteria.

*N. Gregory*

### 15.4451 Mergers, Acquisitions, and Private Equity

Prereq: 15.501; Coreq: 15.402, 15.414, or 15.415

U (Spring)

3-0-6 units

Credit cannot also be received for 15.445

Discusses a wide range of topics in corporate mergers and buyout transactions. Covers the mergers and acquisitions market, including classic merger agreements, tax inversions, sale auctions, and hostile takeover law and strategy. Also touches on activist investing and shareholder contests for corporate control. Studies how private equity firms operate and how leveraged buyouts are structured, financed, and valued. Provides opportunity for group work, both in and out of class. Meets with 15.445 when offered concurrently. Expectations and evaluation criteria for graduate students will differ from those of undergraduates; consult syllabus or instructor for specific details.

*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 global financial crises.

*J. Parker*

**15.448-15.449 Seminar in Finance**

Prereq: None

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

Introduces a set of modern analytical tools to solve practical problems in finance. Aims to build operational models, take them to the data, and use them to aid financial decision making. Topics include statistical inference and forecasting, event study analysis, structural approach to extract information from financial data, machine learning methods, and static and dynamic optimization in finance. Example applications include the development of quantitative trading strategies, credit scoring models, portfolio optimization under constraints, and private equity valuation.

*H. Chen***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. Not open to students from other institutions.

*J. Parker, 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. Not open to students from other institutions.

*J. Parsons***15.453 Finance Research Practicum (New)**

Prereq: 15.401, 15.414, or 15.415

G (IAP, Spring; first half of term)

3-0-6 units

Students work with leading industry practitioners on topical and important business problems, bridging the gap between theory and practice. Provides a full-time immersive learning experience during IAP, followed by a classroom segment in the first half of the spring term. Students work in small teams on finance research questions posed by external sponsors, then deliver a nuanced analysis to the sponsor and report findings to their peers in the classroom. Sponsors represent a range of financial institutions, including investment management, hedge funds, private equity, venture capital, risk, and consulting. Examples of project topics include equity and fixed income research, trading, risk analysis, venture capital valuation, private equity due diligence, and industry analysis. Application required; restricted to MIT students.

*G. Rao***15.454 Fundamentals of Financial Mathematics (New)**

Prereq: None

G (Summer)

3-0-3 units

Covers fundamental mathematics essential for the study of modern finance: probability, stochastic processes, linear algebra, statistics, optimization, and basic programming in R. Restricted to students in the Master of Finance Program.

*Staff*

**15.455 Advanced Financial Mathematics (New)**

Prereq: None  
G (Summer)  
3-0-3 units

Covers advanced mathematical topics essential for financial engineering and quantitative finance: linear algebra, optimization, probability, stochastic processes, statistics, and basic programming in R. Covers topics at a more advanced level and at a faster pace than 15.453. Restricted to students in the Master of Finance Program.  
*P. Mende*

**15.456 Financial Engineering (15.460)**

Prereq: 15.401 or 15.414 or 15.415  
G (Fall)  
4-0-5 units

Provides an introduction to financial engineering. Covers analytical and computational techniques, including dynamic optimization, stochastic calculus, and Monte Carlo simulation; and topics including dynamic asset pricing theories, market equilibrium and portfolio choice with frictions and constraints, risk management. Assumes solid undergraduate-level background in calculus, probability, statistics, and programming and includes a substantial coding component. Materials and review sessions use R. Students are encouraged but not required to use R for assignments and projects.

*L. Kogan, J. Wang*

**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. Preference to MBA and MFin students.  
*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. Preference to MBA and MFin students.

*R. Merton*

**15.470[[]] Introduction to Financial Economics (15.416)**

Same subject as 14.416[[]]  
Prereq: None  
G (Fall)  
4-0-8 units

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.

*L. Kogan, J. Wang*

**15.471[[]] Advanced Corporate Finance (15.441)**

Same subject as 14.441[[]]  
Prereq: None  
Acad Year 2017-2018: Not offered  
Acad Year 2018-2019: 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*



**15.472[] Advanced Topics in Financial Economics I (15.442)**

Same subject as 14.442[]

Prereq: None

G (Fall)

3-0-9 units

Focuses on evaluation and estimation of theories of asset prices and financial markets and their macro- and micro-economic foundations. Discusses theory and econometric methods, and provides a critical review of empirical studies. Broadly covers cross-sectional and time-series models in asset pricing, consumption-based models, household finance, housing, and banking, while emphasizing empirical methodology. Students complete term paper and presentation. Primarily for doctoral students in finance, economics, and accounting.

*D. Greenwald, J. Parker, A. Verdelhan*

**15.473[] Advanced Topics in Financial Economics II (15.440)**

Same subject as 14.440[]

Prereq: None

G (Spring)

3-0-9 units

Covers advanced topics in the theory of financial markets. 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; equilibrium with asymmetric information, transaction costs, borrowing constraints, agency problems, and financial intermediaries; dynamic models of corporate finance. Primarily for doctoral students in finance, economics, and accounting.

*H. Chen, L. Kogan*

**15.474 Current Topics in Finance (New)**

Prereq: None

G (Spring)

3-0-9 units

Covers a series of advanced topics in finance. Topics selected at the discretion of the instructors. Primarily for doctoral students in accounting, economics, and finance.

*D. Thesmar*

**15.480[] Science and Business of Biotechnology (New)**

Same subject as 7.546[], 20.586[]

Prereq: Permission of instructor; *Coreq: 15.401*

G (Spring)

3-0-6 units

Covers the new types of drugs and other therapeutics in current practice and under development, the financing and business structures of early-stage biotechnology companies, and the evaluation of their risk/reward profiles. Includes a series of live case studies with industry leaders of both established and emerging biotechnology companies as guest speakers, focusing on the underlying science and engineering as well as core financing and business issues. Students must possess a basic background in cellular and molecular biology.

*A. Lo, H. Lodish*

**15.481[] Financial Market Dynamics and Human Behavior**

Same subject as 6.935[]

Prereq: 15.401, 15.414, or 15.415

Acad Year 2017-2018: Not offered

Acad Year 2018-2019: 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*

**15.482 Healthcare Finance**

Prereq: 15.401, 15.414, 15.415, or permission of instructor

Acad Year 2017-2018: Not offered

Acad Year 2018-2019: G (Spring)

3-0-6 units

Covers the role of finance in the healthcare industry, with particular emphasis on the application of novel financing methods to facilitate drug discovery, clinical development, and greater patient access to high-cost therapies. Topics include basic financial analysis for the life-sciences professional, the historical financial risks and returns of the biotech and pharmaceutical industries, the mechanics of biotech startup financing, capital budgeting for pharmaceutical companies, and applications of financial engineering in drug royalty investment companies, biomedical megafunds, drug approval swaps, and life sciences investment banking.

*A. Lo*

**15.483 Consumer Finance: Markets, Product Design, and FinTech**

Prereq: 15.401, 15.414, or 15.415

G (Spring; second half of term)

3-0-3 units

Covers rational and behavioral aspects of consumer financial decision making; current household financial products and competitive landscape in credit, investment, and advising markets; consumer financial product innovations and regulatory issues; securitization and the design and pricing of financial products derived from consumer debt, such as mortgages, credit card receivables, and student loans.

*J. Parker*

**15.487 Algorithmic Trading and Quantitative Investment Strategies**

Prereq: 15.401, 15.414, or 15.415

Acad Year 2017-2018: Not offered

Acad Year 2018-2019: G (Spring)

4-0-5 units

Credit cannot also be received for 15.4871

Covers advanced financial analytics and their practical applications to algorithmic trading and quantitative investment strategies.

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, implementation, and performance attribution. Emphasizes financial applications, but also covers mathematical and statistical techniques, along with their computational implementation in software and the use of real-world market data. Meets with 15.4871 when offered concurrently. Expectations and evaluation criteria for graduate students differ from those of undergraduates; consult syllabus or instructor for specific details.

*P. Mende*

**15.4871 Algorithmic Trading and Quantitative Investment Strategies**

Prereq: 15.401, 15.414, or 15.415

Acad Year 2017-2018: Not offered

Acad Year 2018-2019: U (Spring)

4-0-5 units

Credit cannot also be received for 15.487

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 15.487 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*

**15.491 Practice of Finance: Advanced Corporate Risk Management**

Prereq: 15.402, 15.414, or 15.415

Acad Year 2017-2018: Not offered

Acad Year 2018-2019: 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 students to financial market data and to data architecture and design, with applications to asset pricing, quantitative investment strategies, algorithmic trading, portfolio management, and risk management. Studies how data relationships are structured and how to use modern tools and technologies to manipulate, manage, and analyze large-scale financial data sets. Uses real-world data, applications, and cases to illustrate principles and provide practical experience.

*P. Mende***15.497 FinTech Ventures (New)**

Prereq: None

G (Fall)

3-0-6 units

Illustrates the nuts and bolts of developing, investing in or acquiring a FinTech startup. Designed for entrepreneurs working on capturing opportunities in the FinTech space. Bring your idea and/or team or find both at class and advance it towards the final Demo day in front of a group of investors. Each class will welcome a new speaker (entrepreneur, legal expert, or venture capitalists) who will address relevant topics in the industry and also provide advice for the projects. Students will present how their project is progressing and get advice and feedback. Students with an array of backgrounds (legal, financial, computer science, operations, etc) or just an interest in joining a fintech startup should apply (individually or as a team). JD students from Harvard Law School and technical students from MIT are encouraged to apply. Enrollment by application only.

*Consult R. Kissinger***15.498 Practice of Finance: Project Finance (New)**

Prereq: 15.401, 15.414, or 15.415

G (Fall; second half of term)

2-0-4 units

Project financings are highly structured tools that enable major infrastructure investments, from renewable energy projects to highways to oil field developments. Teams of students design cash flow payouts to achieve the objectives of different parties to a deal. Students will address the needs of creditors and guarantors, while achieving the equity investors' targeted return. Introduces students to the legal, tax and institutional details involved.

*J. Parsons***15.499 Practice of Finance: Social Impact Investing (New)**

Prereq: 15.401, 15.414, or 15.415

G (Spring; second half of term)

2-0-4 units

Provides an introduction to social impact investing - an investment approach intentionally seeking to create both financial return and positive social impact that is actively measured. Aims to provide a solid analytical framework for evaluating the spectrum of social impact investments; have students gain experience in structuring different types of investments; and critically compare and contrast these investments with traditional mainstream investments, with a view to understanding structural constraints.

*G. Rao***Accounting****15.501 Corporate Financial Accounting**

Prereq: None

U (Fall, Spring)

3-0-9 units

Credit cannot also be received for 15.516

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. Permission of Sloan Educational Services required for all cross-registrants.

*Staff***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). Restricted to Sloan Fellows in Innovation and Global Leadership.

*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. Restricted to System Design and Management students.

*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**

Prereq: Permission of instructor

G (Fall, Spring, Summer)

3-0-9 units

Credit cannot also be received for 15.501

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

*Staff*

### **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 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. 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 Cost Analysis and Accounting for the Manager, Entrepreneur, and Investor**

Prereq: 15.511, 15.515, or 15.516

G (Spring)

3-0-6 units

Develops skills for effective cost analysis. Topics include profitability analysis, cost allocations, standard costing, transfer pricing, and performance measurement and evaluation.

*S. Keating*

**15.522 Security Design and Corporate Financing**

Prereq: 15.401; 15.402 or 15.414; 15.433 or 15.434

Acad Year 2017-2018: Not offered

Acad Year 2018-2019: 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, secularization, and transformation. Explores new securities and institutional factors, particularly tax and accounting factors that affect their design.

*P. Asquith*

**15.535 Business Analysis Using Financial Statements**

Prereq: 15.501, 15.511, 15.515, or 15.516; 15.401, 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, Spring)

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

Acad Year 2017-2018: Not offered

Acad Year 2018-2019: 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

Acad Year 2017-2018: Not offered

Acad Year 2018-2019: 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*

**15.565[J] Digital Evolution: Managing Web 3.0**

Same subject as IDS.345[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. Addresses topics such as big data, cloud computing, and cybersecurity. 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 business implications. Studies effects of digitization and technology on business strategy and organizational structure. Examines pricing, bundling, and versioning of digital goods, including music, video, software, and communication services. Considers the economic and managerial implications of data-driven decision-making, search, platform competition, targeted advertising, personalization, privacy, network externalities, and artificial intelligence. Readings on fundamental economic principles provide context for industry speakers and case discussions.

*E. Brynjolfsson*

**15.569 Leadership Lab: Leading Sustainable Systems**

Prereq: Permission of instructor

Acad Year 2017-2018: Not offered

Acad Year 2018-2019: 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. Orlikowski*

**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

Acad Year 2017-2018: Not offered

Acad Year 2018-2019: 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 create new value propositions and new organizational designs. Includes case studies about large enterprises using IT to transform how they do business; guest executives from those enterprises respond to student discussions. Student teams present to company executives the results of their debates on the options available for applying technology in ways that cut costs, enhance products, and engage customers.

*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 Information Technology**

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 digital technologies. Examines information economics, labor economics, industrial organization and price theory, growth theory, intangible asset valuation, incomplete contracts theory, and design of empirical studies. Extensive reading and discussion of research literature explores the application of these theories to business issues with relevant guest speakers. Students will complete a final research paper and presentation. Primarily for doctoral students.

*E. Brynjolfsson***15.576 Research Seminar in Information Technology and Organizations: Social Perspectives**

Prereq: Permission of instructor

Acad Year 2017-2018: Not offered

Acad Year 2018-2019: 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

Acad Year 2017-2018: Not offered

Acad Year 2018-2019: 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. Preference to doctoral students.

*E. Brynjolfsson***Law****15.615 Essential Law for Business**

Prereq: None

G (Fall, Spring)

3-0-6 units

Provides a broad-gauged introduction to business law, including how law shapes business opportunities and risks. Imparts skills necessary for dealing effectively with law-sensitive aspects of company restructurings and mergers and acquisitions; contracts, complex deals, and financial instruments and facilities; innovation in business models, products, and services; and encounters with regulators. Also discusses individual and organizational accountability to private parties and public authorities, and key legal issues in career transitions.

*J. Akula***15.616 Basic Business Law, Tilted Towards Key Emerging Issues**

Prereq: None

Acad Year 2017-2018: Not offered

Acad Year 2018-2019: 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

Acad Year 2017-2018: Not offered

Acad Year 2018-2019: 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

Acad Year 2017-2018: Not offered

Acad Year 2018-2019: U (Spring)

3-0-6 units

Credit cannot also be received for 15.617

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 15.617 when offered concurrently. Expectations and evaluation criteria differ for students taking graduate version; consult syllabus or instructor for specific details.

*J. Akula*

**15.618 Entrepreneurship, Innovation, Startups and the Law**

Prereq: None

G (Fall, Spring)

2-0-4 units

Credit cannot also be received for 15.6181

The legal framework of entrepreneurship and innovation. Key law-sensitive junctures in launching and growing a startup: assembling a team, organizing a business entity, ownership and compensation, early financing, managing contracts and employees, business distress and winding down, and selling a company. Cutting-edge technologies and intellectual property rights. Designed for those who may start or work in such ventures; or are engaged in research with potential for commercial or social impact; or are otherwise attempting to advance an innovation from idea to impact. Meets with 15.6181 when offered concurrently. Expectations and evaluation criteria differ for students taking graduate version.

*J. Akula*

**15.6181 Entrepreneurship, Innovation, Startups and the Law**

Prereq: None

U (Spring)

2-0-4 units

Credit cannot also be received for 15.618

The legal framework of entrepreneurship and innovation. Key law-sensitive junctures in launching and growing a startup: assembling a team, organizing a business entity, ownership and compensation, early financing, managing contracts and employees, business distress and winding down, and selling a company. Cutting-edge technologies and intellectual property rights. Designed for those who may start or work in such ventures; or are engaged in research with potential for commercial or social impact; or are otherwise attempting to advance an innovation from idea to impact. Meets with 15.6181 when offered concurrently. Expectations and evaluation criteria differ for students taking graduate version.

*J. Akula*

**15.620 Patent Law Fundamentals (New)**

Prereq: None

G (IAP)

1-0-2 units

Intensive introduction to the basic provisions of US patent law, emphasizing the requirements for patentability and the process of applying for a patent. Topics include requirements of utility, novelty, and non-obviousness; eligible subject matter; applying for a patent, including patent searches and the language of patent claims; infringement, defenses, and remedies; comparison of patents with other forms of intellectual property (copyrights, trade secrets, and trademarks). Reading materials include key sections of the US patent statute (Title 35, US Code) and related judicial decisions.

*J. Meldman*

**15.647-15.649 Seminar in Law**

Prereq: None

G (Fall)

Units arranged

Can be repeated for credit.

Group study of current topics related to law.

*J. L. Akula*

**15.655[J] Law, Technology, and Public Policy**

Same subject as IDS.435[J]

Prereq: None

G (Spring)

3-0-9 units

See description under subject IDS.435[J]. Permission of instructor required for freshmen and sophomores.

*N. Ashford, C. Caldart*



**15.657[J] Technology, Globalization, and Sustainable Development**

Same subject as 1.813[J], 11.466[J], IDS.437[J]

Prereq: Permission of instructor

G (Fall)

3-0-9 units

See description under subject IDS.437[J].

*N. Ashford*

**Industrial Relations and Human Resource Management****15.660 Strategic Human Resource Management**

Prereq: 15.311

Acad Year 2017-2018: Not offered

Acad Year 2018-2019: 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*

**15.661 Building Successful Careers and Organizations (New)**

Prereq: None

G (Spring; first half of term)

3-0-3 units

Designed to help students learn more about their strengths, and how they can utilize these strengths to manage their career. Draws on the latest research and practices, experiential exercises, and cases studies, and includes guest speakers. Covers the most important aspects of talent (and career) management.

*E. Castilla*

**15.662[J] Managing Sustainable Businesses for People and Profits**

Same subject as 11.383[J]

Prereq: None

G (Spring)

3-3-3 units

Examines opportunities and challenges involved in building and growing businesses that achieve high financial performance and provide good jobs and careers to employees. Students engage participants in the MITx online course title *Shaping the Future of Work* to learn about the expectations and employment experiences of workers across the world. Through readings, cases, simulations and class visits from industry leaders, explores the underlying principles and business practices that help to secure that alignment between business health and societal well-being.

*T. Kochan, B. Dyer*

**15.663[J] Environmental Law, Policy, and Economics: Pollution Prevention and Control (New)**

Same subject as 1.811[J], 11.630[J], IDS.540[J]

Subject meets with 1.801[J], 11.021[J], 17.393[J], IDS.060[J]

Prereq: None

G (Fall)

3-0-9 units

See description under subject IDS.540[J].

*N. Ashford, C. Caldart*

**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  
 Acad Year 2017-2018: Not offered  
 Acad Year 2018-2019: 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  
 Acad Year 2017-2018: Not offered  
 Acad Year 2018-2019: 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. Preference to Management minors and other undergraduates not majoring in Management Science.

*T. Kochan, P. Osterman*

**15.669 Strategies for People Analytics (New)**

Prereq: 15.311 or permission of instructor  
 G (Spring; second half of term)  
 3-0-3 units

Focuses on the strategies used to successfully design and implement people analytics in one's organization. Draws on the latest company practices, research projects, and case studies - all with the goal of helping students deepen their understanding of how people analytics can be applied in the real world. Covers the most important aspects of human resource management and people analytics. Demonstrates how to apply those basic tools and principles when hiring, evaluating and rewarding performance, managing careers, and implementing organizational change.

*E. Castilla*

**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. Limited to 80 via lottery; consult class website for information and deadlines.

*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. Limited to 80 via lottery; consult class website for information and deadlines.

*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. Limited to 80 via lottery; consult class website for information and deadlines.

*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. Limited to 80 via lottery; consult class website for information and deadlines.

*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*

**15.680 Machine Learning: Algorithms, Applications, and Computation (New)**

Prereq: None

G (Fall; first half of term)

2-0-4 units

Develops key algorithms for machine learning with emphasis on data, applications, and computation. Includes regression, classification, support vector machines, unsupervised learning, algorithms for missing data, principal component analysis, sparse recovery, factor analysis, robustness, deep learning, and reinforcement learning. Restricted to Master of Business Analytics and LGO students.

*D. Bertsimas*

**15.681 From Analytics to Action (New)**

Prereq: None

G (Fall; second half of term)

3-0-3 units

Develops appreciation for organizational dynamics and competence in navigating social networks, working in a team, demystifying rewards and incentives, leveraging the crowd, understanding change initiatives, and making sound decisions. Restricted to Master of Business Analytics students.

*R. Fernandez, T. Kochan, R. Reagans*

**15.691 Research Seminar in Work, Employment and Industrial Relations**

Prereq: Permission of instructor

G (Fall)

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)

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. Restricted to Executive MBA students.

*Consult J. Hising DiFabio*

**15.701 Innovation-Driven Entrepreneurial Advantage**

Prereq: None. *Coreq: 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. Restricted to Executive MBA students.

*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. Restricted to Executive MBA students.

*Consult J. Hising DiFabio*

**15.703 Leading with Impact**

Prereq: Permission of instructor

G (Spring)

Units arranged

Can be repeated for credit.

Student teams work with the leadership of local not-for-profits to solve a pressing problem faced by that organization. The problems will vary with the organization in question, as will the skills and capabilities students draw on to appropriately address them. Culminates with group reflection on what it means to be a principled innovative leader who improves the world.

*Consult J. Hising DiFabio***15.705 Organizations Lab**

Prereq: Permission of instructor

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. Restricted to Executive MBA students.

*Consult J. Hising DiFabio***15.707 Global Strategy**

Prereq: Permission of instructor

G (Fall, 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. Restricted to Executive MBA students.

*Consult J. Hising DiFabio***15.708 Global Organizations Lab**

Prereq: Permission of instructor

G (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. Restricted to Executive MBA students.

*Consult J. Hising DiFabio***15.709 Key Decisions for Corporate Boards (New)**

Prereq: None

G (IAP)

1-0-2 units

Designed to help students understand the fundamental rules and practices of corporate boards in three key areas: the audit committee, the compensation committee, and corporate takeovers. Includes discussion related to case studies, with short lectures at the start and end of each session to highlight the differences and similarities in practices by boards in the US and abroad. Restricted to MIT Executive MBA and Sloan Fellows students.

*Consult J. Hising DiFabio***15.711 Executing Strategy for Results (New)**

Prereq: None

G (IAP)

1-0-2 units

Credit cannot also be received for 15.361

Condensed version of 15.361 that introduces a comprehensive framework to understand how leaders can execute strategy more effectively. Presents case studies of companies that excel at execution, and a series of practical tools that can be applied immediately to boost performance. Intended for owner-operators and managers in complex organizations (more than 200 employees, multiple functions or units), particularly those competing in volatile markets. Restricted to Executive MBA and Sloan Fellows students.

*Consult J. Hising DiFabio*

### 15.712 Negotiation and Influence

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. Restricted to Executive MBA students.  
*Consult J. Hising DiFabio*

### 15.713 Principles of Fundamental Analysis (New)

Prereq: None

G (IAP)

1-0-2 units

Defines the role of general managers in the capital markets system and highlights their interactions with such players as equity research analysts, investment bankers, and consultants as they seek to create value by increasing the company's intrinsic value. Covers basic and more advanced topics in finance and financial reporting from a high-level, practical standpoint. Restricted to MIT Executive MBA and Sloan Fellows students.  
*Consult J. Hising DiFabio*

### 15.714 Competitive Strategy

Prereq: Permission of instructor

G (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. Restricted to Executive MBA students.  
*Consult J. Hising DiFabio*

### 15.715 Entrepreneurial Strategy (New)

Prereq: None

G (IAP)

1-0-2 units

Credit cannot also be received for 15.911

Provides an integrated strategy framework for innovation-based entrepreneurs. Students examine the core strategic choices facing start-up innovators, and discuss a synthetic framework for the development, implementation and scaling of entrepreneurial strategy in dynamic environments over time. Identifies the types of choices that entrepreneurs must make to take advantage of a novel opportunity, and studies the logic of particular strategic commitments and positions that allow entrepreneurs to establish competitive advantage. Restricted to MIT Executive MBA and Sloan Fellows students.  
*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 strategies to meet the key challenges leaders face today (and tomorrow). Acquaints students with some of the psychological and sociological dynamics that regularly operate in organizational settings - the less visible but quite powerful "forces" that shape the way employees and managers respond (or don't respond) to a changing world. Restricted to Executive MBA students.  
*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. Restricted to Executive MBA students.  
*Consult J. Hising DiFabio*

**15.719 Entrepreneurial Finance (New)**

Prereq: None

G (IAP)

1-0-2 units

Credit cannot also be received for 15.431, 15.4311

Addresses key questions that are central to the funding and growth of high-tech start-up firms, such as how to value entrepreneurial firms using different valuation methods, and how to negotiate investor term sheets and convertible notes. Discusses the trade-off between different exit options for start-up firms. Aims to prepare students for these decisions from the perspective of entrepreneurs and venture capitalists. Restricted to MIT Executive MBA and Sloan Fellows students.

*Consult J. Hising DiFabio***15.720 Financial Accounting**

Prereq: Permission of instructor

G (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). Restricted to Executive MBA students.

*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. Restricted to Executive MBA students.

*Consult J. Hising DiFabio***15.723 Advanced Applied Macroeconomics and International Institutions**

Prereq: 15.702 or permission of instructor

G (IAP, 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. Restricted to Executive MBA students.

*Consult 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. Restricted to Executive MBA students.

*Consult J. Hising DiFabio***15.725 Marketing Strategy for General Managers**

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. Restricted to Executive MBA and Sloan Fellows students.

*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. Restricted to Executive MBA students.

*Consult J. Hising DiFabio*

### 15.727 The Analytics Edge

Prereq: 15.730 or permission of instructor

Acad Year 2017-2018: Not offered

Acad Year 2018-2019: 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. Restricted to Executive MBA students.

*Consult J. Hising DiFabio*

### 15.728 Deals, Finance, and the Law

Prereq: None

G (IAP)

1-0-2 units

Addresses the challenges managers face in connection with two overlapping responsibilities: negotiating and managing complex deals, and arranging financing. Examines mergers and acquisitions and early-stage investments in young companies; commercial finance, financial instruments, and structured products; and how these relationships and structures play out in the context of financial distress. Emphasizes the opportunities and risks the different parties involved confront. Focuses primarily on the US, but also considers how key legal issues are analyzed in a transnational context. Restricted to Executive MBA and Sloan Fellows students.

*Consult J. Hising DiFabio*

### 15.730 Data, Models, and Decisions

Prereq: Permission of instructor

G (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. Restricted to Executive MBA students.

*Consult J. Hising DiFabio*

### 15.731 Risk Management

Prereq: 15.730, 15.734; or permission of the instructor

G (IAP)

1-0-2 units

Provides several core analytical and management concepts, helping students identify, model, think about, analyze, and manage risk. Topics vary; examples include risk measures, the drivers-event-outcomes framework, low-probability high-impact risk events, hedging risk with financial options, real options, risk management in the supply chain, project risk management, modern portfolio management, systemic risk. Restricted to Executive MBA and Sloan Fellows students.

*Consult J. Hising DiFabio*

### 15.732 Marketing Management

Prereq: Permission of instructor

G (Fall)

3-0-6 units

Credit cannot also be received for 15.810, 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. Restricted to Executive MBA students.

*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. Restricted to Executive MBA students.

*Consult J. Hising DiFabio***15.735 Product Design**

Prereq: None

G (IAP)

1-0-2 units

Presents the modern methods of product development using a systematic innovation approach. Topics include opportunity identification, design thinking, product strategy, identifying customer needs, creativity, concept development, product architecture, industrial design, and green design practice. Restricted to Executive MBA and Sloan Fellows students.

*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. Restricted to Executive MBA students.

*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

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. Restricted to Executive MBA students.

*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. Restricted to Executive MBA and Sloan Fellows students.

*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. Restricted to Executive MBA and Sloan Fellows students.

*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. Restricted to Executive MBA and Sloan Fellows students.

*Consult J. Hising DiFabio*

### **Operations Management**

#### **15.761 Introduction to Operations Management**

Prereq: 15.060, 6.041B, or permission of instructor

G (Fall, Spring, Summer)

4-0-5 units

Credit cannot also be received for 15.734, 15.7611

Imparts concepts, techniques, and tools to design, analyze, and improve core operational capabilities and apply them to a broad range of domains and industries. Emphasizes the effect of uncertainty in decision-making, as well as the interplay among high-level financial objectives, operational capabilities, and people and organizational issues. Covers topics in capacity analysis, process design, process and business innovation, inventory management, risk pooling, supply chain coordination, sustainable operations, quality management, operational risk management, pricing and revenue management. Underscores how these topics are integrated with different functions of the firm. Case studies and simulation games provide experience in applying central concepts and techniques to solve real-world business challenges. Meets with 15.7611 when offered concurrently. Expectations and evaluation criteria differ for students taking graduate version; consult syllabus or instructor for specific details. Summer section is primarily for Leaders for Global Operations students.

*R. Levi, T. Zaman, K. Zheng*

#### **15.7611 Introduction to Operations Management**

Prereq: 6.041B, 15.0791, or permission of instructor

U (Spring)

4-0-5 units

Credit cannot also be received for 15.734, 15.761

Imparts concepts, techniques, and tools to design, analyze, and improve core operational capabilities and apply them to a broad range of domains and industries. Emphasizes the effect of uncertainty in decision-making, as well as the interplay among high-level financial objectives, operational capabilities, and people and organizational issues. Covers topics in capacity analysis, process design, process and business innovation, inventory management, risk pooling, supply chain coordination, sustainable operations, quality management, operational risk management, pricing and revenue management. Underscores how these topics are integrated with different functions of the firm. Case studies and simulation games provide experience in applying central concepts and techniques to solve real-world business challenges. Meets with 15.7611 when offered concurrently. Expectations and evaluation criteria differ for students taking graduate version; consult syllabus or instructor for specific details.

*T. Zaman, K. Zheng*

#### **15.762[J] Supply Chain Planning**

Same subject as 1.273[J], IDS.735[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.

*D. Simchi-Levi*

**15.763[J] Manufacturing System and Supply Chain Design**

Same subject as 1.274[J], IDS.736[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.

*D. Simchi-Levi*

**15.764[J] The Theory of Operations Management**

Same subject as 1.271[J], IDS.250[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 both classic and state-of-the-art results in various 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, principal-agent models and contract design, behavioral and experimental economics, algorithms and approximations, data-driven and learning models, and mechanism design. Also provides practical experience in how to apply the theoretical models to solve OM problems in business settings. Specific topics vary from year to year.

*D. Simchi-Levi, N. Trichakis, K. Zheng*

**15.765[J] Global Supply Chain Management**

Same subject as 1.265[J], 2.965[J], SCM.265[J]

Prereq: 1.260[J], 1.261[J], 15.761, 15.778, or permission of instructor

G (Spring)

2-0-4 units

Focuses on the planning, processes, and activities of supply chain management for companies involved in international commerce. Students examine the end-to-end processes and operational challenges in managing global supply chains, such as the basics of global trade, international transportation, duty, taxes, trade finance and hedging, currency issues, outsourcing, cultural differences, risks and security, and green supply chains issues. Highly interactive format features student-led discussions, staged debates, and a mock trial. Includes assignments on case studies and sourcing analysis, as well as projects and a final exam.

*B. Arntzen*

**15.767 Healthcare Lab: Introduction to Healthcare Delivery in the United States**

Prereq: 15.060, 15.761; or permission of instructor

G (Fall)

4-0-5 units

Credit cannot also be received for 15.777

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. Meets with 15.777 when offered concurrently.

*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], IDS.730[J], SCM.260[J]

Prereq: Permission of instructor

G (Fall)

3-0-9 units

See description under subject SCM.260[J].

*Y. Sheffi, C. Caplice*

**15.771[J] Case Studies in Logistics and Supply Chain Management**

Same subject as 1.261[J], SCM.261[J]

Prereq: Permission of instructor

G (Spring)

3-0-6 units

See description under subject SCM.261[J].

*J. Byrnes*

**15.772[J] D-Lab: Supply Chains**

Same subject as EC.733[J]

Prereq: None

U (Fall)

3-3-6 units

Introduces concepts of supply chain design and planning with a focus on supply chains for products destined to improve quality of life in developing countries. Topics include demand estimation, process analysis and improvement, facility location and capacity planning, inventory management, and supply chain coordination. Also covers issues specific to emerging markets, such as sustainable supply chains, choice of distribution channels, and how to account for the value-adding role of a supply chain. Students conduct D-Lab-based projects on supply chain design or improvement.

*S. C. Graves*

**15.773 Lion and GOAL teams for Leaders for Global Operations (LGO)**

Prereq: Permission of instructor

G (Spring)

1-0-5 units

Provides an opportunity to work on challenging operations problems across industries in the United States and abroad. Teams of three to six students conduct term-long projects via remote interactions with companies, and travel to work on-site at the client company during the Sloan Innovation Period. Teams also include members from Shanghai Jiao Tong University's CLGO program who collaborate remotely, and in-person during the on-site visit. Primarily for Leaders for Global Operations.

*T. Roemer, T. Equi*

**15.774 The Analytics of Operations Management (New)**

Prereq: None. *Coreq: 15.060* or permission of instructor

G (Fall)

3-0-9 units

Introduces core concepts and methods in data-driven modeling that inform and optimize decisions under uncertainty. Teaches modeling and computational skills (R and Julia). Covers topics such as time series forecasting, choice modeling, queuing theory, network models, dynamic programming, mixed-integer programming, stochastic optimization, matching algorithms, multi-armed bandits. Draws on real-world applications from retail, healthcare, logistics, supply chain, social and online networks, sports analytics, social applications, and online learning.

*G. Perakis, V. Farias, R. Levi*

**15.775 Analytics Proseminar (New)**

Prereq: None

G (Spring; first half of term)

2-0-1 units

Provides opportunities to meet senior executives serving in top analytics and data science functions within a variety of organizations across industries. Discusses key business analytics issues from the perspective of top management. Students prepare detailed briefings identifying and exploring important analytics issues facing these organizations. May include a field trip to a domestic location.

*G. Perakis, M. Li***15.777 Healthcare Lab: Introduction to Healthcare Delivery in the United States**

Prereq: 15.060, 15.761

G (Fall, IAP)

4-0-11 units

Credit cannot also be received for 15.767

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. Meets with 15.767 when offered concurrently.

*R. Levi, A. Quaadgras***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. Restricted to MIT Sloan Fellows in Innovation and Global Leadership.

*Consult C. Fine***15.779 Technology, Design and Entrepreneurship: Operating in Emerging Communities**

Subject meets with 15.781

Prereq: Permission of instructor

G (Spring)

3-0-3 units

Designed for students working on solutions for resource-constrained communities. Examines downstream issues surrounding the adoption, distribution, and scaling (via business, non-profit, or public policy channels) of new solutions in an international development context. Focuses on implementing solutions as well as understanding the impact of interventions proposed. Restricted to Tata Fellows.

*C. Fine, R. Stoner, C. Vaishnav***15.780 Stochastic Models in Business Analytics**

Prereq: 6.041B, 15.0791, 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, K. Zheng*

**15.781 Technology, Design and Entrepreneurship: Operating in Emerging Communities**

Subject meets with 15.779  
 Prereq: Permission of instructor  
 G (Spring; second half of term)  
 2-0-1 units

Designed for students working on solutions for resource-constrained communities. Examines downstream issues surrounding the adoption, distribution, and scaling (via business, non-profit, or public policy channels) of new solutions in an international development context. Focuses on implementing solutions as well as understanding the impact of interventions proposed. Restricted to Tata Fellows.

*C. Fine, R. Stoner, C. Vaishnav*

**15.783[ ] Product Design and Development**

Same subject as 2.739[ ]  
 Prereq: 2.009, 15.761, 15.778, 15.810, or permission of instructor  
 G (Spring)  
 3-3-6 units

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. Engineering students accepted via lottery based on WebSIS pre-registration.

*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 use their training and experience to help improve operations in engagements with small- to medium-sized Boston-area organizations. Class time focuses on project management, problem-solving tools, 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*

**15.785 Digital Product Management**

Prereq: None  
 G (Fall; second half of term)  
 2-0-4 units

Introduction to product management with an emphasis on its role within technology-driven enterprises. Topics include opportunity discovery, product-technology roadmapping, product development processes, go-to-market strategies, product launch, lifecycle management, and the central role of the product manager in each activity. Exercises and assignments utilize common digital tools, such as storyboarding, wireframe mock-ups, and A/B testing. Intended for students seeking a role in a product management team or to contribute to product management in a new enterprise.

*Consult Staff*

**15.792[ ] Global Operations Leadership Seminar**

Same subject as 2.890[ ], 10.792[ ], 16.985[ ]  
 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. Preference to LGO students.

*T. Roemer*

**15.794 Research Project in Operations**

Prereq: Permission of instructor  
 G (Fall, IAP, Spring, Summer)  
 Units arranged  
 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 Behavioral Decision Theories and Applications**

Prereq: Permission of instructor  
 Acad Year 2017-2018: Not offered  
 Acad Year 2018-2019: G (Fall)  
 3-0-9 units

Introduces fundamental behavioral theories of human decision making and demonstrates how they impact the design of management strategies and policies. Topics include prospect theory, reference-dependence preferences, loss aversion, ambiguity aversion, regret, inter-temporal preferences, social preferences, cognitive hierarchy, bounded rationality, and adaptive learning. Studies these concepts in a wide range of applications, including pricing, supply chain management, social welfare, marketing, contract design, sustainability, and e-commerce. Discusses experimental methodologies to identify and measure various preferences and phenomena, as well as mathematical models to capture them in decision making. Content updated from year to year to include state-of-the-art research.

*K. Zheng*

**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 Introduction to Marketing and Strategy**

Prereq: None  
 G (Summer)  
 3-0-6 units

Introduces the core strategic framework used to evaluate the attractiveness of different markets. Reviews the methods that firms can use to optimize their profits in the markets that they choose to target. Restricted to MIT Sloan Fellows.

*D. Simester*

**15.810 Marketing Management**

Prereq: None  
 G (Spring)  
 3-0-6 units  
 Credit cannot also be received for 15.732, 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, 15.810

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. Primarily for undergraduate and non-MBA graduate students.

*J. Zhang*

**15.818 Pricing**

Prereq: None  
 G (Fall; first half of term)  
 3-0-3 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

Acad Year 2017-2018: Not offered

Acad Year 2018-2019: 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: None

G (Spring)

3-0-6 units

Practical introduction to the process of product management. Provides opportunities for experiential learning through projects with companies and organizations. Exposes students to state-of-the-art frameworks and tools that bring to market elegant and efficient solutions to strong customer needs. Covers the major phases of product management: opportunity identification (customer insights, interviews and surveys, ideation and brainstorming), design (product strategy and conjoint analysis), testing (concept testing, prototyping and A/B testing), and launch (choice of media and channel).

*T. Ke*

### 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. Restricted to MBA students in EM Track.

*S. Chatterjee*

### 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 and value quantification 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; however, does not address selling per se. Discusses ethical issues and various B2B contexts, such as products and services, for- 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

Acad Year 2017-2018: Not offered

Acad Year 2018-2019: 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 use marketing tools to exploit and develop competitive advantages and how to choose the most efficient business model. Examples include two-sided markets, digital marketing, social media marketing, and the marketing of experiences.

*B. Wernerfelt***15.835 Entrepreneurial Marketing**

Prereq: None

Acad Year 2017-2018: Not offered

Acad Year 2018-2019: G (Spring; second half of term)

3-0-3 units

Explores a basic marketing framework in depth as it applies to start-ups. Students then apply this framework to a project.

*B. Wernerfelt***15.838 Research Seminar in Marketing**

Prereq: None

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 B. Wernerfelt***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)

Units arranged

Can be repeated for credit.

Group study of current topics related to marketing.

*Staff***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 others. 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.

*J. D. Serman, H. Rahmandad, N. Repenning, J. Serman*

### 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

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. Serman, H. Rahmandad, D. Keith*

### 15.874[[]] People and the Planet: Environmental Governance and Science (New)

Same subject as 12.387[[]], IDS.063[[]]

Prereq: None

U (Fall)

3-0-6 units

See description under subject 12.387[[]].

*N. Selin, S. Solomon, J. Serman*

### 15.8741 System Dynamics for Business Policy

Prereq: None

Acad Year 2017-2018: Not offered

Acad Year 2018-2019: 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. Serman, H. Rahmandad, D. Keith*

### 15.875 Applications of System Dynamics

Prereq: 15.872

Acad Year 2017-2018: Not offered

Acad Year 2018-2019: 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. Serman*

### 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.

*Consult 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. Meets with 15.9001 when offered concurrently. Expectations and evaluation criteria differ for students taking graduate version; consult syllabus or instructor for specific details.

*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. Meets with 15.900 when offered concurrently. Expectations and evaluation criteria differ for students taking graduate version; consult syllabus or instructor for specific details.

*D. Sull, N. Thompson, A. Kacperczyk*

**15.902 Advanced Strategic Management**

Prereq: Permission of instructor

Acad Year 2017-2018: Not offered

Acad Year 2018-2019: G (Spring; first half of term)

3-0-3 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 subjects, especially those from strategic marketing, organizational processes, innovation-driven advantage, and economics. Emphasis is placed on the role of strategic commitments, social networks, strategic coherence, and adapting to environmental and technological change. Restricted to MIT Sloan Fellows.

*E. Zuckerman*

**15.903 Managing the Modern Organization: Organizational Economics and Corporate Strategy**

Prereq: 15.010 or 15.311

G (Fall, 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

Acad Year 2017-2018: Not offered

Acad Year 2018-2019: 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 developing new-to-the-world products in a technology-intensive business. Clarifies the interactions among competition, patterns of technological and market change, and the development of internal firm capabilities. Topics include "crossing the chasm" with new technologies, appropriating the returns from innovation, platform strategy, and the role of intellectual property and government regulations. 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

Credit cannot also be received for 15.715

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

Acad Year 2017-2018: Not offered

Acad Year 2018-2019: 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.

*M. Amengual, 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. Restricted to graduate students.

*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.

*M. Amengual, J. Jay, J. Sterman***15.928 The Sociology of Strategy**

Prereq: 15.342

Acad Year 2017-2018: G (Spring)

Acad Year 2018-2019: Not offered

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. Restricted to doctoral students.

*E. Zuckerman***15.929 Identity and Action**

Prereq: 15.342

Acad Year 2017-2018: Not offered

Acad Year 2018-2019: 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. Restricted to doctoral students.

*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***15.941[] Leadership in Real Estate**

Same subject as 11.430[]

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. Limited to 15.

*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.

Opportunity for group study by graduate students on current topics related to management not otherwise included in curriculum.

*Consult Sloan Educational Services*

**15.S02 Special Seminar in Management**

Prereq: Permission of instructor

G (Fall, IAP, Spring)

Units arranged

Can be repeated for credit.

Opportunity for group study by graduate students on current topics related to management not otherwise included in curriculum.

*Staff*

**15.S03 Special Seminar in Management**

Prereq: Permission of instructor

G (IAP, Summer)

Units arranged

Can be repeated for credit.

Opportunity for group study by graduate students on current topics related to management not otherwise included in curriculum.

*Staff*

**15.S04 Special Seminar in Management**

Prereq: Permission of instructor

G (Fall, IAP, Summer)

Units arranged

Can be repeated for credit.

Opportunity for group study by graduate students on current topics related to management not otherwise included in curriculum.

*Staff*

**15.S05 Special Seminar in Management**

Prereq: Permission of instructor

G (IAP, Spring, Summer; second half of term)

Units arranged

Can be repeated for credit.

Opportunity for group study by graduate students on current topics related to management not otherwise included in curriculum.

*Staff*

**15.S06 Special Seminar in Management**

Prereq: Permission of instructor

G (Fall, IAP, Summer; first half of term)

Units arranged

Can be repeated for credit.

Opportunity for group study by graduate students on current topics related to management not otherwise included in curriculum.

*Staff*

**15.S07 Special Seminar in Management**

Prereq: Permission of instructor

G (Fall, IAP, Spring, Summer; second half of term)

Units arranged

Can be repeated for credit.

Opportunity for group study by graduate students on current topics related to management not otherwise included in curriculum.

*Staff*

**15.S08 Special Seminar in Management**

Prereq: Permission of instructor

G (IAP, Summer; second half of term)

Units arranged

Can be repeated for credit.

Opportunity for group study by graduate students on current topics related to management not otherwise included in curriculum.

*Staff*

**15.S09 Special Seminar in Management**

Prereq: Permission of instructor

G (Fall, Spring)

Units arranged

Can be repeated for credit.

Opportunity for group study by graduate students on current topics related to management not otherwise included in curriculum.

*Consult Department Headquarters*

**15.S10 Special Seminar in Management**

Prereq: Permission of instructor

G (Fall, IAP, Summer)

Units arranged

Can be repeated for credit.

Group study of current topics related to management not otherwise included in curriculum. Consult Department headquarters.

*E. Zuckerman Sivan*

**15.S11 Special Seminar in Management**

Prereq: Permission of instructor

G (Fall, IAP, Summer)

Units arranged

Can be repeated for credit.

Opportunity for group study by graduate students on current topics related to management not otherwise included in curriculum.

*Consult Sloan Educational Services*

**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.

Opportunity for group study by graduate students on current topics related to management not otherwise included in curriculum.

*Consult Department Headquarters*

**15.S13 Special Seminar in Management**

Prereq: Permission of instructor

G (Fall, IAP, Spring)

Units arranged

Can be repeated for credit.

Opportunity for group study by graduate students on current topics related to management not otherwise included in curriculum.

*Consult Sloan Educational Services*

**15.S14 Special Seminar in Management**

Prereq: Permission of instructor

G (IAP, Spring, Summer)

Units arranged

Can be repeated for credit.

Opportunity for group study by graduate students on current topics related to management not otherwise included in curriculum.

*Consult Department Headquarters*

**15.S15 Special Seminar in Management**

Prereq: Permission of instructor

G (Fall, IAP, Spring, Summer)

Units arranged

Can be repeated for credit.

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

*Consult Sloan Educational Services*

**15.S16 Special Seminar in Management**

Prereq: Permission of instructor

G (Fall, IAP)

Units arranged

Can be repeated for credit.

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

*Consult Sloan Educational Services*

**15.S17 Special Seminar in Management**

Prereq: Permission of instructor

G (Fall, Spring, Summer)

Units arranged

Can be repeated for credit.

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

*Consult: Sloan Educational Services*

**15.S18 Special Seminar in Management**

Prereq: Permission of instructor

G (Fall)

Units arranged

Can be repeated for credit.

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

*Consult: Sloan Educational Services*

**15.S19 Special Seminar in Management**

Prereq: Permission of instructor

G (Fall, IAP, Spring, Summer)

Units arranged

Can be repeated for credit.

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

*Consult Sloan Educational Services*

**15.S20-15.S26 Special Seminar in Management**

Prereq: Permission of instructor

G (IAP)

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 Special Distance Learning Seminar in Management**

Prereq: None

G (Spring)

Units arranged

Can be repeated for credit.

Group study through distance learning on current topics related to management.

*Consult Sloan Educational Services*

**15.S31 Special Distance Learning Seminar in Management**

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

Group study through distance learning on current topics related to management.

*Consult Sloan Educational Services*

**15.S32 Special Distance Learning Seminar in Management**

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

Group study through distance learning on current topics related to management.

*Consult Sloan Educational Services*

**15.S33 Special Distance Learning Seminar in Management**

Prereq: None  
G (Spring, Summer)  
Units arranged  
Can be repeated for credit.

Group study through distance learning on current topics related to management.

*Consult Sloan Educational Services*

**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 Special Seminar in Management**

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

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

*Staff*

**15.S41 Special Seminar in Management**

Prereq: None  
U (IAP)  
Units arranged [P/D/F]  
Can be repeated for credit.

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

*Staff*

**15.S42 Special Seminar in Management**

Prereq: None  
Acad Year 2017-2018: Not offered  
Acad Year 2018-2019: U (Fall)  
Units arranged  
Can be repeated for credit.

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

*Staff*

**15.S43 Special Seminar in Management**

Prereq: None  
U (Fall, Spring; first half of term)  
Units arranged  
Can be repeated for credit.

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

*Staff*

**15.S44 Special Seminar in Management**

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

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

*Staff*

**15.S45 Special Seminar in Management**

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

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

*Staff*



**15.S46 Special Seminar in Management**

Prereq: None

U (Fall, Spring)

Units arranged

Can be repeated for credit.

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

*Staff***15.S47 Special Seminar in Management**

Prereq: None

U (Fall, IAP, Spring)

Units arranged

Can be repeated for credit.

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

*Consult Undergraduate Program Headquarters***15.S50 Special Seminar in Management**

Prereq: Permission of Instructor

G (Fall, IAP)

Units arranged [P/D/F]

Can be repeated for credit.

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

*Consult Sloan Educational Services***15.S51 Special Seminar in Management**

Prereq: Permission of instructor

G (Spring)

Units arranged [P/D/F]

Can be repeated for credit.

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

*Consult Sloan Educational Services***15.S52 Special Seminar in Management**

Prereq: Permission of instructor

G (IAP)

Units arranged [P/D/F]

Can be repeated for credit.

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

*Consult Sloan Educational Services***15.S53 Special Seminar in Management**

Prereq: Permission of instructor

G (Fall, IAP)

Units arranged [P/D/F]

Can be repeated for credit.

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

*Consult Sloan Educational Services***15.S54 Special Seminar in Management**

Prereq: Permission of instructor

G (Fall, IAP)

Units arranged [P/D/F]

Can be repeated for credit.

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

*Consult Sloan Educational Services***15.S55 Special Seminar in Management**

Prereq: Permission of instructor

G (Fall, IAP)

Units arranged [P/D/F]

Can be repeated for credit.

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

*Consult Sloan Educational Services***15.S56 Special Seminar in Management**

Prereq: Permission of instructor

G (IAP)

Units arranged [P/D/F]

Can be repeated for credit.

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

*Consult Sloan Educational Services***15.S57 Special Seminar in Management**

Prereq: permission of instructor

G (IAP)

Units arranged [P/D/F]

Can be repeated for credit.

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

*Consult Sloan Educational Services*

**15.S58 Special Seminar in Management**

Prereq: permission of instructor

G (IAP)

Units arranged [P/D/F]

Can be repeated for credit.

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

*Consult Sloan Educational Services*

**15.S59 Special Seminar in Management**

Prereq: Permission of instructor

Acad Year 2017-2018: Not offered

Acad Year 2018-2019: G (IAP)

Units arranged [P/D/F]

Can be repeated for credit.

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

*Consult Sloan Educational Services*

**15.S60 Special Seminar in Management**

Prereq: Permission of instructor

G (IAP)

Units arranged [P/D/F]

Can be repeated for credit.

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

*Consult Sloan Educational Services*

**15.S61 Special Seminar in Management**

Prereq: Permission of instructor

G (Fall, IAP, Spring, Summer)

Units arranged [P/D/F]

Can be repeated for credit.

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

*Consult Sloan Educational Services*

**15.S62 Special Seminar in Management**

Prereq: Permission of instructor

G (IAP)

Units arranged [P/D/F]

Can be repeated for credit.

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

*Consult Sloan Educational Services*

**15.S63 Special Seminar in Management**

Prereq: Permission of instructor

G (Fall, IAP, Spring, Summer)

Units arranged [P/D/F]

Can be repeated for credit.

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

*Consult Sloan Educational Services*

**15.S64 Special Seminar in Management**

Prereq: Permission of instructor

G (Fall; second half of term)

Units arranged [P/D/F]

Can be repeated for credit.

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

*Consult Sloan Educational Services*

**15.S65 Special Seminar in Management**

Prereq: Permission of instructor

G (Fall, IAP, Spring, Summer)

Units arranged [P/D/F]

Can be repeated for credit.

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

*Consult Sloan Educational Services*

**15.S66 Special Seminar in Management**

Prereq: Permission of instructor

G (Fall, 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*

**15.S67 Special Seminar in Management**

Prereq: Permission of instructor

G (Fall, 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*

**15.S68 Special Seminar in Management**

Prereq: Permission of instructor

G (Fall; second half of term)

Units arranged

Can be repeated for credit.

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

*Consult Sloan Educational Services*

**15.S69 Special Seminar in Management**

Prereq: Permission of instructor

G (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*

**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.

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.

*Staff*

**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.

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*

**15.952 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.

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*

**15.961 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. Restricted to PhD students.

*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 Internship**

Prereq: None

G (Fall, IAP, Spring, Summer)

Units arranged [P/D/F]

Can be repeated for credit.

Students participate in an off-campus 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 offer letter from host employer/organization prior to enrolling. Restricted to MIT Sloan students who wish to intern 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*