

MANAGEMENT

Managerial Economics

15.000 Explorations in Management

Prereq: None

U (Fall)

2-0-1 units

Broad introduction to the various aspects of management including analytics, accounting and finance, operations, marketing, entrepreneurship and leadership, organizations, economics, systems dynamics, and negotiation and communication. Introduces the field of management through a variety of experiences as well as discussions led by faculty or industry experts. Also reviews the three undergraduate majors offered by Sloan as well as careers in management. Subject can count toward the 6-unit discovery-focused credit limit for first year students.

J. Orlin

15.002 Leadership Challenges for an Inclusive World

Prereq: None

G (Fall, Spring)

Units arranged [P/D/F]

Units assigned to MBA students upon completion. Restricted to Sloan MBA students.

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

15.004 Programming for Finance Professionals (New)

Prereq: None

G (Summer)

1-0-0 units

Two-day accelerated course with supplemental recitations designed to develop skills in applying basic methods from the programming language Python (with additional references from R) to financial problems. Topics include programming basics in Python, data manipulation, visualization and reporting and an overview of programming ethics. MFin students will apply and build upon these skills in 15.433 Financial Markets and 15.450/15.457 Analytics and Advanced Analytics of Finance. Students must pass one of two exams offered during the summer term to demonstrate their ability to solve financial problems using R and Python. Restricted to Sloan Master of Finance Program students.

Consult J. Alton

15.005 Sloan Intensive Period Elective Requirement

Prereq: 15.002

G (Spring; second half of term)

Units arranged [P/D/F]

Units assigned to MBA students upon completion of the Sloan Intensive Period (SIP) elective requirement. Restricted to Sloan MBA 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. Discusses the supply and demand paradigm with applications to digital marketplaces, innovation, sources of market power, and strategic pricing. Provides an introduction to game theory to study competition and cooperation both within and between firms. Restricted to first-year Sloan MBA students.

C. Knittel

15.011 Economic Analysis for Business Decisions

Subject meets with 15.0111
Prereq: None
Acad Year 2023-2024: Not offered
Acad Year 2024-2025: G (Fall)
4-0-5 units

Introduces principles of microeconomics as a framework for making more informed managerial decisions. Discusses the supply and demand paradigm with applications to digital marketplaces, innovation, sources of market power, and strategic pricing. Provides an introduction to game theory to study competition and 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; not open to Sloan MBA students.

C. Knittel

15.011 Economic Analysis for Business Decisions

Subject meets with 15.011
Prereq: None
Acad Year 2023-2024: Not offered
Acad Year 2024-2025: U (Fall)
4-0-5 units

Introduces principles of microeconomics as a framework for making more informed managerial decisions. Discusses the supply and demand paradigm with applications to digital marketplaces, innovation, sources of market power, and strategic pricing. Provides an introduction to game theory to study competition and 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 undergraduate students; not open to Sloan MBA students.

C. Knittel

15.012 Applied Macro- and International Economics

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

Explores the macroeconomic environment in which firms operate. Aims to provide a strong foundation in macroeconomic concepts and apply them to understand specific country experiences. Explores drivers of long-term growth, examining the cases of economic miracles and productivity slowdowns in developed economies, and then delves into the fundamental theory of trade, applying it to the discussions of global trade wars and trade agreements. Introduces the basic tools of short-run macroeconomic management, primarily monetary and fiscal policy, utilizing historical case studies and modern policy discussions as context. Concludes with an analysis of the political and social factors that shape the current macroeconomic dynamics, including the rise of social media and the Russian invasion of Ukraine.

A. Makarin

15.013 Economics for Strategic Decisions

Prereq: 15.010 or 15.011
Acad Year 2023-2024: Not offered
Acad Year 2024-2025: G (Fall)
3-0-6 units

Applies principles of 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; competition among platforms; 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

G (Spring; first 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 Macroeconomic Policy Reforms**

Prereq: Permission of instructor

G (Spring; first half of term)

2-0-4 units

Focuses on the current policy and economic issues in the US economy. Students propose economic and policy reforms around issues such as labor markets, inflation and central banking, financial regulation, education, health, housing, transportation, social security, democracy, immigration, diversity, and environmental policy. Topics change year to year. In each class, proposals are presented and voted upon by the group.

*R. Rigobon***15.018 Current Debates of Macroeconomics and Public Policy**

Prereq: None

G (Spring; first half of term)

2-0-4 units

Concentrates on debates about current policy challenges. Students debate and vote on policy actions on current issues in developed and developing nations. Subjects include industrial policy, macroeconomics, poverty, social safety net, labor practices, immigration and labor markets, international economics, human rights, civil rights, democracy, environmental policy, regulation, and crypto assets. Topics change from year to year.

*R. Rigobon***15.020 Economics of Energy, Innovation, and Sustainability**

Prereq: 14.01 or 15.011

Acad Year 2023-2024: Not offered

Acad Year 2024-2025: G (Fall)

3-0-9 units

Credit cannot also be received for 14.43[J], 15.0201[J]

Covers energy and environmental market organization and regulation. Explores economic challenges and solutions to transforming energy markets to be more efficient, accessible, affordable, and sustainable. Applies core economic concepts - consumer choice, firm profit maximization, and strategic behavior - to understand when energy and environmental markets work well and when they fail. They also conduct data-driven economic analysis on the trade-offs of real and proposed policy interventions. Topics include renewable generation sources for electricity, energy access in emerging markets, efficiency programs and fuel efficiency standards, transitioning transportation to alternative fuels, measuring damages and adaptation to climate change, and the effect of energy and environmental policy on innovation. Expectations and evaluation criteria differ for students taking graduate version; consult syllabus or instructor for specific details.

*J. Li***15.0201[J] Economics of Energy, Innovation, and Sustainability**

Same subject as 14.43[J]

Prereq: 14.01 or 15.011

Acad Year 2023-2024: Not offered

Acad Year 2024-2025: U (Fall)

3-0-9 units. HASS-S

Credit cannot also be received for 15.020

Covers energy and environmental market organization and regulation. Explores economic challenges and solutions to transforming energy markets to be more efficient, accessible, affordable, and sustainable. Applies core economic concepts - consumer choice, firm profit maximization, and strategic behavior - to understand when energy and environmental markets work well and when they fail. They also conduct data-driven economic analysis on the trade-offs of real and proposed policy interventions. Topics include renewable generation sources for electricity, energy access in emerging markets, efficiency programs and fuel efficiency standards, transitioning transportation to alternative fuels, measuring damages and adaptation to climate change, and the effect of energy and environmental policy on innovation. Expectations and evaluation criteria differ for students taking graduate version; consult syllabus or instructor for specific details.

J. Li

15.021[J] Real Estate Economics

Same subject as 11.433[J]

Prereq: 14.01, 15.010, or 15.011

G (Fall)

4-0-8 units

See description under subject 11.433[J].

A. Saiz

15.022[J] Real Estate Markets: Macroeconomics

Same subject as 11.429[J]

Prereq: 11.431[J] or permission of instructor

G (Spring; first half of term)

3-0-3 units

See description under subject 11.429[J]. Limited to 30.

W. Wheaton

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 game theory as applied to 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 Sloan Fellow MBAs.

T. Suri

15.025 Game Theory for Strategic Advantage

Subject meets with 15.0251

Prereq: 14.01, 15.010, 15.011, 15.024, or permission of instructor

Acad Year 2023-2024: Not offered

Acad Year 2024-2025: G (Spring)

3-0-6 units

Credit cannot also be received for 15.741

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

15.0251 Game Theory for Strategic Advantage

Subject meets with 15.025

Prereq: 14.01, 15.0111, or permission of instructor

Acad Year 2023-2024: Not offered

Acad Year 2024-2025: U (Spring)

3-0-6 units

Credit cannot also be received for 15.741

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

15.026[J] Global Climate Change: Economics, Science, and Policy

Same subject as 12.348[J]

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

U (Spring)

Not offered regularly; consult department

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..

Staff

15.027 Opportunities in Developing Economies

Prereq: None

G (Spring; first half of term)

Not offered regularly; consult department

3-0-3 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

15.029[J] United States Energy Policy: Lessons Learned for the Future

Same subject as 5.811[]
 Subject meets with 5.811[], 15.0291[]
 Prereq: None
 G (Fall; second half of term)
 2-0-4 units

See description under subject 5.811[].

J. Deutch

15.0291[J] United States Energy Policy: Lessons Learned for the Future

Same subject as 5.811[]
 Subject meets with 5.811[], 15.029[]
 Prereq: None
 U (Fall; second half of term)
 2-0-4 units

See description under subject 5.811[].

J. Deutch

15.032[J] Engineering, Economics and Regulation of the Electric Power Sector

Same subject as IDS.505[]
 Prereq: None
 G (Spring)
 3-0-9 units

See description under subject IDS.505[]. Permission of instructor required for undergraduates wishing to take the class.

C. Batlle-Lopez, T. Schittekatte

15.034 Econometrics for Managers: Correlation & Causality in a Big Data World

Subject meets with 15.0341
 Prereq: None
 G (Spring)
 4-0-5 units

Introduces econometrics as a framework to go beyond correlations and get to causality, which is crucial for investment decisions in finance, marketing, human resources, public policy, and general business strategy. Through labs and projects, students get experience in many relevant applications. Students gain a deeper understanding of modeling using multivariate regression, instrumental-variable regression, and machine learning tools including regression trees, random forest, LASSO, and neural networks. No prior knowledge is necessary. Expectations and evaluation criteria differ for students taking graduate version; consult syllabus or instructor for specific details.

J. Doyle

15.0341 Econometrics for Managers: Correlation and Causality in a Big Data World

Subject meets with 15.034
 Prereq: None
 U (Spring)
 4-0-5 units

Introduces econometrics as a framework to go beyond correlations and get to causality, which is crucial for investment decisions in finance, marketing, human resources, public policy, and general business strategy. Through labs and projects, students get experience in many relevant applications. Students gain a deeper understanding of modeling using multivariate regression, instrumental-variable regression, and machine learning tools including regression trees, random forest, LASSO, and neural networks. No prior knowledge is necessary. Expectations and evaluation criteria differ for students taking graduate version; consult syllabus or instructor for specific details.

J. Doyle

15.036[J] Dimensions of Geoengineering

Same subject as 1.850[], 5.000[], 10.600[], 11.388[], 12.884[], 16.645[]
 Prereq: None
 G (Fall; first half of term)
 Not offered regularly; consult department
 2-0-4 units

See description under subject 5.000[]. Limited to 100.

J. Deutch, M. Zuber

15.037[J] Energy Economics and Policy

Same subject as 14.444[]
 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 14.444[]. Limited to 60.

C. Knittel

15.038[J] 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 14.444[], 15.037[]

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

C. Knittel

15.039[J] Organizational Economics

Same subject as 14.26[J]
 Subject meets with 14.260
 Prereq: 14.01
 U (Spring)
 4-0-8 units. HASS-S

See description under subject 14.26[J]. Limited to 60.
C. Angelucci

Operations Research/Statistics

15.053 Optimization Methods in Business Analytics

Prereq: 1.00, 1.000, 6.100A, 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 heuristics. 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[J] The Airline Industry

Same subject as 1.232[J], 16.71[J]
 Prereq: None
 G (Fall)
 3-0-9 units

See description under subject 16.71[J].
P. P. Belobaba, H. Balakrishnan, A. I. Barnett, 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 basic topics in data analytics, including introductory probability, decision analysis, basic statistics, regression, simulation, linear and discrete optimization, and introductory machine learning. Spreadsheet exercises, cases, and examples drawn from marketing, finance, operations management, and other management functions. Restricted to first-year Sloan master's students.

D. Gamarnik

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

Same subject as IDS.145[J]
 Subject meets with 15.0621
 Prereq: 15.060, 15.075[J], or permission of instructor
 Acad Year 2023-2024: Not offered
 Acad Year 2024-2025: G (Spring; second half of term)
 2-0-4 units

Introduction to data mining, data science, and machine learning for recognizing patterns, developing models and predictive analytics, and making intelligent use of massive amounts of data collected via the internet, e-commerce, electronic banking, medical databases, etc. Topics include logistic regression, association rules, tree-structured classification and regression, cluster analysis, discriminant analysis, and neural network methods. Presents examples of successful applications in credit ratings, fraud detection, marketing, customer relationship management, investments, and synthetic clinical trials. Introduces data-mining software (R and Python). Grading based on homework, cases, and a term project. Expectations and evaluation criteria differ for students taking the undergraduate version; consult syllabus or instructor for specific details.

R. E. Welsch

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

Subject meets with 15.062[J], IDS.145[J]
 Prereq: 15.075[J] or permission of instructor
 Acad Year 2023-2024: Not offered
 Acad Year 2024-2025: U (Spring; second half of term)
 2-0-4 units

Introduction to data mining, data science, and machine learning for recognizing patterns, developing models and predictive analytics, and making intelligent use of massive amounts of data collected via the internet, e-commerce, electronic banking, medical databases, etc. Topics include logistic regression, association rules, tree-structured classification and regression, cluster analysis, discriminant analysis, and neural network methods. Presents examples of successful applications in credit ratings, fraud detection, marketing, customer relationship management, investments, and synthetic clinical trials. Introduces data-mining software (R and Python). Grading based on homework, cases, and a term project. Expectations and evaluation criteria differ for students taking the graduate version; consult syllabus or instructor for specific details.

R. E. Welsch

15.066[J] System Optimization and Analysis for Operations

Same subject as 2.851[J]

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

15.069 Applied Probability and Statistics

Prereq: Calculus I (GIR)

U (Fall)

4-0-8 units. REST

Presents probability from the perspective of applied mathematics, with strong emphasis on an intuitive overview of key theorems and continuing demonstrations of their usefulness. Covers the laws of probability and numerous important discrete and continuous random variables, both individually and in combination. Introduces simulation. Offers an introduction to statistics that emphasizes its probabilistic foundations and the fact that statistical reasoning is applied common sense. Covers hypothesis testing, statistical sampling, and various forms of regression analysis. Draws applications from economics, finance, engineering, marketing, public policy, operations management, and operations research.

A. Barnett

15.070[J] Discrete Probability and Stochastic Processes

Same subject as 6.7720[J], 18.619[J]

Prereq: 6.3702, 6.7700[J], 18.100A, 18.100B, or 18.100Q

G (Spring)

3-0-9 units

Provides an introduction to tools used for probabilistic reasoning in the context of discrete systems and processes. Tools such as the probabilistic method, first and second moment method, martingales, concentration and correlation inequalities, theory of random graphs, weak convergence, random walks and Brownian motion, branching processes, Markov chains, Markov random fields, correlation decay method, isoperimetry, coupling, influences and other basic tools of modern research in probability will be presented. Algorithmic aspects and connections to statistics and machine learning will be emphasized.

G. Bresler, D. Gamarnik, E. Mossel, Y. Polyanskiy

15.071 The Analytics Edge

Prereq: 15.060

G (Fall, Spring)

4-0-8 units

Credit cannot also be received for 15.0711, 15.072

Develops models and tools of data analytics that are used to transform businesses and industries, using examples and case studies in e-commerce, healthcare, social media, high technology, criminal justice, the internet, and beyond. Covers analytics methods such as linear regression, logistic regression, classification trees, random forests, neural networks, text analytics, social network analysis, time series modeling, clustering, and optimization. Uses mostly R programming language and some work in Jupyter notebooks. Includes team project. Meets with 15.0711 when offered concurrently. Expectations and evaluation criteria differ for students taking graduate version; consult syllabus or instructor for specific details.

R. Freund

15.0711 The Analytics Edge

Prereq: 15.053 and 15.069

U (Spring)

4-0-8 units

Credit cannot also be received for 15.071, 15.072

Develops models and tools of data analytics that are used to transform businesses and industries, using examples and case studies in e-commerce, healthcare, social media, high technology, criminal justice, the internet, and beyond. Covers analytics methods such as linear regression, logistic regression, classification trees, random forests, neural networks, text analytics, social network analysis, time series modeling, clustering, and optimization. Uses mostly R programming language and some work in Jupyter notebooks. Includes team project. Meets with 15.071 when offered concurrently. Expectations and evaluation criteria differ for students taking graduate version; consult syllabus or instructor for specific details.

*R. Freund***15.072 Advanced Analytics Edge**

Prereq: Permission of instructor

G (Fall)

4-0-8 units

Credit cannot also be received for 15.071, 15.0711

More advanced version of 15.071 introduces core methods of business analytics, their algorithmic implementations and their applications to various domains of management and public policy. Spans descriptive analytics (e.g., clustering, dimensionality reduction), predictive analytics (e.g., linear/logistic regression, classification and regression trees, random forests, boosting deep learning) and prescriptive analytics (e.g., optimization). Presents analytics algorithms, and their implementations in data science. Includes case studies in e-commerce, transportation, energy, healthcare, social media, sports, the internet, and beyond. Uses the R and Julia programming languages. Includes team projects. Preference to Sloan Master of Business Analytics students.

*B. Van Parys***15.073[J] Applied Probability and Stochastic Models**

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

Prereq: 6.3700 or 18.600

G (Fall)

Not offered regularly; consult department

3-0-9 units

A vigorous use of probabilistic models to approximate real-life situations in Finance, Operations Management, Economics, and Operations Research. Emphasis on how to develop a suitable probabilistic model in a given setting and, merging probability with statistics, and on how to validate a proposed model against empirical evidence. Extensive treatment of Monte Carlo simulation for modeling random processes when analytic solutions are unattainable.

*A. Barnett***15.075[J] Statistical Thinking and Data Analysis**

Same subject as IDS.013[J]

Prereq: 6.3700 or 15.069

U (Spring)

3-1-8 units. Institute LAB

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

*M. Fazel Zarandi***15.076 Analytics for a Better World**

Prereq: Calculus I (GIR)

U (Spring)

4-0-8 units. Institute LAB

Introduces predictive and prescriptive analytics methods to solve problems that contribute to the welfare of society. Emphasis on using machine learning and optimization methods in innovative ways using real world data. Methods used include: linear and discrete optimization, linear and logistic regression, optimal classification and regression trees, deep learning, random forests, and boosted trees. Projects utilize Julia, Jump, and Tensor Flow. Assessment based on projects, including a capstone project. Restricted to undergraduates.

D. Bertsimas

15.077[J] Statistical Machine Learning and Data Science

Same subject as IDS.147[J]

Prereq: Permission of instructor

Acad Year 2023-2024: Not offered

Acad Year 2024-2025: G (Spring)

4-0-8 units

Advanced introduction to theory and application of statistics, data-mining and machine learning using techniques from management science, marketing, finance, consulting, and bioinformatics. Covers bootstrap theory of estimation, testing, nonparametric statistics, analysis of variance, experimental design, categorical data analysis, regression analysis, MCMC, and Bayesian methods. Focuses on data mining, supervised learning, and multivariate analysis. Topics chosen from logistic regression, principal components and dimension reduction; discrimination and classification analysis, 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 R, Python, and MATLAB. Grading based on homework, cases, and a term project.

R. E. Welsch

15.081[J] Introduction to Mathematical Programming

Same subject as 6.7210[J]

Prereq: 18.06

G (Fall)

4-0-8 units

See description under subject 6.7210[J].

J. N. Tsitsiklis, D. Bertsimas

15.083 Integer Optimization

Prereq: 6.7210[J] or 15.093[J]

Acad Year 2023-2024: Not offered

Acad Year 2024-2025: G (Spring)

4-0-8 units

In-depth treatment of mixed-integer optimization. Topics include modeling techniques, combinatorial optimization, ideal formulations, cutting plane methods, branching algorithms, row generation algorithms, column generation algorithms, heuristic algorithms, and mixed-integer non-linear optimization. Instruction provided in modeling complex problems arising in practice; understanding the theory of integer optimization; knowing the core technologies employed within modern solvers; and developing algorithms to solve large-scale problems for which off-the-shelf solvers may not be sufficient. Examples drawn from a broad range of industries, such as transportation, energy, telecommunications, finance, product design, sports, and social networks. Includes a term project.

A. Jacquillat

15.084[J] Nonlinear Optimization

Same subject as 6.7220[J]

Prereq: 18.06 and (18.100A, 18.100B, or 18.100Q)

G (Spring)

4-0-8 units

See description under subject 6.7220[J].

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

15.085[J] Fundamentals of Probability

Same subject as 6.7700[J]

Prereq: Calculus II (GIR)

G (Fall)

4-0-8 units

See description under subject 6.7700[J].

T. Broderick, D. Gamarnik, Y. Polyanskiy, J. N. Tsitsiklis

15.086 Engineering Probability

Prereq: Calculus I (GIR) and permission of instructor

G (Summer; first half of term)

1-0-2 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, and permission of instructor

G (Summer)

4-0-8 units

Develops ideas for making principled decisions and recommendations based on data, providing an introduction to statistical inference and statistical learning. Covers data displays and summary statistics for quantitative and qualitative data, the law of large numbers for means and empirical distributions, the normal distribution and the central limit theorem, confidence intervals, statistical hypothesis tests for the population mean and differences between population means, simple and multiple regression with quantitative data, model selection, the bias-variance tradeoff, logistic regression for binary outcomes, CART, random forests, gradient boosting, and deep learning. The statistical programming language R is used for in-class demonstrations and for out-of-class assignments. Preference to first-year Leaders for Global Operations students. No required textbook.

R. Mazumder

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.

*M. Li, J. Levine***15.090 Common Experience in Operations Research**

Prereq: None

G (Summer)

Units arranged [P/D/F]

Provides students with experience working in teams on a data-driven ML project. After a week of classes that cover a range of tools (Keras, Google Collab, etc.) and deep learning technologies, students compete in teams in a jointly chosen Kaggle competition. Short homework assignments help students get acquainted with the required technologies, and regular presentations foster interactions within the ORC cohort. Restricted to Operations Research Center doctoral students.

*A. Jacquilat, D. Freund***15.093[] Optimization Methods**

Same subject as 6.7200[], IDS.200[]

Subject meets with 6.7201

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

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***15.095 Machine Learning Under a Modern Optimization Lens**

Prereq: 6.7210[], 15.093[], or permission of instructor

G (Fall)

3-1-8 units

Develops algorithms for central problems in machine learning from a modern optimization perspective. Topics include sparse, convex, robust and median regression; an algorithmic framework for regression; optimal classification and regression trees, and their relationship with neural networks; how to transform predictive algorithms to prescriptive algorithms; optimal prescriptive trees; and robust classification. Also covers design of experiments, missing data imputations, mixture of Gaussian models, exact bootstrap, and sparse matrix estimation, including principal component analysis, factor analysis, inverse co-variance matrix estimation, and matrix completion.

*D. Bertsimas***15.097 Seminar in Statistics and Data Analysis**

Prereq: Permission of instructor

Acad Year 2023-2024: Not offered

Acad Year 2024-2025: G (Fall)

Units arranged

Group study of current topics related to statistics and data analysis.

Staff

15.098 Seminar in Applied Probability and Stochastic Processes

Prereq: 6.3702

G (Fall)

Not offered regularly; consult department

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: 6.7210[J]

G (Spring)

Not offered regularly; consult department

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

15.110 Operations Research Experience Internship

Prereq: None

G (Summer)

Units arranged [P/D/F]

Required subject in which students engage in an off-campus internship where they build operations research models and work with data that addresses a real-world problem. Internship experience must be at least ten weeks in length and students must have a formal offer letter from their employer or organization. Requirements include a report summarizing how OR models and methods were used by the student participating in the internship and a letter from the internship supervisor. Report must be submitted to the ORC academic administrator upon completion of the internship. Restricted to ORC students. Additional restrictions may apply.

Consult L. Rose

Health Care Management**15.128[J] Revolutionary Ventures: How to Invent and Deploy Transformative Technologies**

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

Prereq: Permission of instructor

G (Fall)

2-0-7 units

See description under subject MAS.883[J].

E. Boyden, J. Bensen, J. Jacobson

15.136[J] Principles and Practice of Drug Development

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

Prereq: Permission of instructor

G (Fall)

3-0-6 units

Description and critical assessment of the major issues and stages of developing a pharmaceutical or biopharmaceutical. Drug discovery, preclinical development, clinical investigation, manufacturing and regulatory issues considered for small and large molecules. Economic and financial considerations of the drug development process. Multidisciplinary perspective from faculty in clinical; life; and management sciences; as well as industry guests.

S. Finkelstein, A. J. Sinsky, R. Rubin

15.137[J] Case Studies and Strategies in Drug Discovery and Development

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

Prereq: None

G (Spring)

Not offered regularly; consult department

2-0-4 units

See description under subject 20.486[J].

A. W. Wood

15.141[J] Economics of Health Care Industries

Same subject as HST.918[J]

Prereq: None

G (Spring; first half of term)

3-0-3 units

Credit cannot also be received for 15.1411

Uses economics as a framework to consider healthcare issues, including differences between health care and other industries, the role of health insurance, regulatory issues and incentives for innovation, data analytics to measure value, personalized/stratified medicines, strategic issues in pricing and marketing, use of e-commerce and information technology, and formation and management of various alliances. Provides a better understanding of the US healthcare landscape, and considers incentives for global health investments. Visiting speakers from industry and academia provide multiple expert viewpoints on these topics. Expectations and evaluation criteria differ for students taking the graduate version; consult syllabus or instructor for specific details.

J. Doyle

15.1411 Economics of Health Care Industries

Prereq: None

U (Spring; first half of term)

3-0-3 units

Credit cannot also be received for 15.141[()], HST.918[()]

Uses economics as a framework to consider healthcare issues, including differences between health care and other industries, the role of health insurance, regulatory issues and incentives for innovation, data analytics to measure value, personalized/stratified medicines, strategic issues in pricing and marketing, use of e-commerce and information technology, and formation and management of various alliances. Provides a better understanding of the US healthcare landscape, and considers incentives for global health investments. Visiting speakers from industry and academia provide multiple expert viewpoints on these topics. Expectations and evaluation criteria differ for students taking the undergraduate version; consult syllabus or instructor for specific details.

J. Doyle

Global Economics & Management

15.216 Central Banks, Monetary Policy and Global Financial Markets

Prereq: None

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 other central banks in advanced and emerging market economies.

A. Orphanides

15.218 Global Economic Challenges and Opportunities

Prereq: None

G (Spring)

3-0-6 units

In-depth analysis of the major risks and opportunities in the global economy. Analyzes key economic forces and policy responses that shape the business environment and link countries around the world, such as financial crises, monetary and fiscal policy, trade wars, unsustainable debt, exchange rates, and financial contagion. Discusses current global economic issues to develop the tools and frameworks to be able to predict and plan for how governments will respond to different challenges in the future. Some background or coursework in international economics recommended. Preference given to MIT Sloan students.

K. Forbes

15.219[()] Global Energy: Politics, Markets, and Policy

Same subject as 11.267[()]

Prereq: None

G (Spring)

Not offered regularly; consult department

3-0-9 units

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

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

Staff

15.2191[J] Global Energy: Politics, Markets, and Policy

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

Prereq: None

U (Spring)

Not offered regularly; consult department

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.

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.

S. Johnson

15.225 Modern Business in China: China Lab

Prereq: None

Acad Year 2023-2024: Not offered

Acad Year 2024-2025: G (Spring)

3-0-9 units

Provides integrated approach to analyze the economy, geopolitics, and geo-economy of China through action learning. Covers modern history, economics, and politics in China that shape the business environment, cases of companies entering or operating in the Chinese market, and project-related issues and personal and learning reflections. Students work in teams to tackle a real world problems and challenges facing organizations in China. Projects focus on dynamic sectors such as artificial intelligence, the sharing economy, social media, health care, energy, and manufacturing. Examples of projects include creating a business plan for fundraising, developing a new market strategy, and assembling financial models. Subject to availability, some projects may explore policy issues. Limited to graduate students who participate in China Lab.

Y. Huang, J. Grant

15.226 Modern Business in Southeast Asia: ASEAN Lab

Prereq: None

Acad Year 2023-2024: G (Spring)

Acad Year 2024-2025: Not offered

3-0-9 units

Provides integrated approach to analyze the economies of the Association of Southeast Asian Nations (ASEAN) region — specifically Thailand, Vietnam, Malaysia, and Indonesia — through action learning. Covers modern history, economics, and politics in that region that shape the business environment, cases of companies operating in that region, and project-related issues and personal and learning reflections. Students work in teams to tackle a real world business problem with an entrepreneurial Indian ASEAN-based company and produce a final deliverable for the host company. Projects focus on dynamic sectors such as artificial intelligence, the sharing economy, social media, health care, energy, and manufacturing; examples include creating a business plan for fundraising, developing a new market strategy, and assembling financial models. Limited to graduate students who participate in ASEAN Lab.

Y. Huang, J. Grant

15.227 - 15.229 Seminar in International Management

Prereq: None

G (Spring)

Not offered regularly; consult department

Units arranged

Can be repeated for credit.

Group study of current topics related to international business.

Staff

15.230 Public Policy and the Private Sector

Prereq: None

G (Fall)

Not offered regularly; consult department

3-0-6 units

Explores the intersection of public policy and the private sector. Senior level guests, who have been deeply involved in public policy, will join this discussion-based course weekly focusing on key economic policy choices - touching on technology, trade, tax, financial, macro-economic and competitions policies. Provides a deep understanding of the process by which policy comes to life. Examines how the private sector affects - and sometimes shapes - public policy. Taught through the lens of US policy decision-making; also covers international dimensions.

Staff

15.232 Breakthrough Ventures: 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

15.235 Blockchain and Money

Prereq: None

G (Fall)

3-0-3 units

Explores blockchain technology's potential use - by entrepreneurs and incumbents - to change the world of money and finance. Begins with a review of the technology's initial application, the cryptocurrency Bitcoin, giving students an understanding of the commercial, technical and public policy fundamentals of blockchain technology, distributed ledgers and smart contracts in both open-sourced and private applications. Focuses on current and potential blockchain applications in the financial sector. Includes reviews of potential use cases for payment systems, central banking, venture capital, secondary market trading, trade finance, commercial banking, post-trade possessing, and digital ID. Also explores the markets and regulatory landscape for cryptocurrencies, initial coin offerings, other tokens, and crypto derivatives. Open to undergraduates with permission of instructor.

S. Johnson

15.236 Global Business of Artificial Intelligence and Robotics (GBAIR)

Prereq: Permission of instructor

G (Spring)

2-2-2 units

Discussion based-course examines applications of artificial intelligence and robotics in the business world. Emphasizes understanding the likely direction of technology and how it is likely to be used. Students examine particular applications to deepen their understanding of topical issues. Also focuses on how global economies will change in light of this wave of technology. Preference to Sloan graduate students.

S. Johnson, J. Ruane, L. Videgaray

15.238[] Shaping the Future of Technology: From Early Agriculture to Artificial Intelligence

Same subject as 14.78[]

Prereq: None

Acad Year 2023-2024: Not offered

Acad Year 2024-2025: U (Spring)

4-0-8 units. HASS-S; CI-H

See description under subject 14.78[].

D. Acemoglu, S. Johnson

15.239[J] China's Growth: Political Economy, Business, and Urbanization

Same subject as 11.257[J]

Subject meets with 11.157[J], 15.2391[J]

Prereq: None

Acad Year 2023-2024: Not offered

Acad Year 2024-2025: G (Spring; second half of term)

3-0-3 units

See description under subject 11.257[J].

Y. Huang, S. Zheng, Z. Tan

15.2391[J] China's Growth: Political Economy, Business, and Urbanization

Same subject as 11.157[J]

Subject meets with 11.257[J], 15.239[J]

Prereq: None

Acad Year 2023-2024: Not offered

Acad Year 2024-2025: U (Spring; second half of term)

3-0-3 units

See description under subject 11.157[J].

Y. Huang, S. Zheng, Z. Tan

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

Prereq: None

G (Fall, IAP)

3-1-8 units

Experiential study of Israel's innovation and entrepreneurial ecosystem. Provides context about the country and its social and geopolitical issues, as they pertain to doing business in Israel. Explores the role entrepreneurs, venture capitalists, multinational corporations, and other play in this unique ecosystem by hearing from key stakeholders. Teaches McKinsey process for successful consulting engagements and what makes for high performing teams. Student teams travel to Tel-Aviv during IAP to work with and consult for host companies on strategic managerial issues in tech industries such as: AI/ML, big data/analytics, quantum computing, advanced life sciences, robotics, fintech, cybersecurity, and web3.0. Provides students an opportunity to work with startup executives looking to scale and to meet with their venture capitalist backers. Leveraging the historic Abraham Accords offers projects at Israeli companies based in the UAE.

J. Cohen

History, Environment and Ethics**15.268 Choice Points: Thinking about Life and Leadership through Literature**

Prereq: None

G (Spring)

3-0-6 units

Explores decision making and leadership. Analyzes the dilemmas and decisions characters face in a selection of plays, stories, and films. Provokes reflection on what constitutes effective and moral reasoning in critical moments of both life and leadership. Restricted to Sloan Fellow MBAs.

Consult J. DiFabio

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 Chimamanda Ngozi Adichie, Seamus Heaney, Aravind Adiga, Ursula LeGuin, Hao Jingfang, Mohsin Hamid, and others; films have included *The Lives of Others*, *Daughters of the Dust*, *Hotel Rwanda*, *Hamilton*, 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 (Fall, Spring)
 3-0-9 units

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. Limited to 25; priority to 15-2 and 6-14 majors.

L. Breslow

15.277 Seminar in Communications

Prereq: None
 G (Spring)
 Not offered regularly; consult department
 Units arranged
 Can be repeated for credit.

Group study of current topics related to communication.
Staff

15.278 Seminar in Communications

Prereq: None
 G (Spring)
 Not offered regularly; consult department
 Units arranged [P/D/F]
 Can be repeated for credit.

Group study of current topics related to communication.
Staff

15.279 Management Communication for Undergraduates

Prereq: None
 U (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.

M. Webster

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, L. Breslow, V. Healy-Tangney, K. Blackburn, M. Kazakoff, J. Yates, B. Shields

15.281 Advanced Leadership Communication

Prereq: 15.279, 15.280, 15.284, 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, V. Healy-Tangney

15.282 EnActing Leadership: Shakespeare and Performance

Prereq: None
 G (Spring)
 Not offered regularly; consult department
 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 content creation, and a final group project on social media strategy and content.

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 Fellow MBAs.

N. Hartman, L. Breslow

15.285 Sports Strategy and Analytics

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

Explores how leaders and organizations apply data and analytics to gain a competitive edge in the multibillion-dollar global sports industry. Provides context on the structure and dynamics of the sports industry, discusses best practices in data-driven decision making both on- and off-the-field, and improves students' skills in analyzing and communicating data. Assignments include a decision analysis paper and a final team project in which students apply their skills to solve a problem in sports.

B. Shields, R. Reagans

15.286 Communicating with Data

Prereq: 15.280, 15.284, or permission of instructor
G (Spring; first half of term)
3-0-3 units
Credit cannot also be received for 15.287, 15.721

Focuses on structuring the oral and visual communication of data. Introduces these concepts and a methodology of self-reflection to help one accelerate his or her life-long learning process. Improves students' ability to develop strategic communications that use data to persuade others to take action. Primary focus is on reducing barriers to action by making data as easy as possible for others to absorb through clear structure, clear design, and clear delivery. Significant time will be devoted to practice. Students give and receive substantial feedback on their work.

M. Kazakoff, A. Mehrotra

15.287 Communication and Persuasion Through Data

Prereq: None
G (IAP)
2-0-1 units
Credit cannot also be received for 15.286, 15.721

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. Restricted to Sloan Master of Business Analytics students.

A. Telio, N. Hartman, B. Shields, L. Breslow

15.288 Tough Conversations: Science, Strategies & Skills for Communicating About & Across Difference

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

Equips managers with the knowledge and skills to productively navigate conversations about race, gender, and other aspects of social identities at work. Analyzes the structure of difficult conversations, investigates the research on conversational dynamics, and explores strategies for speaking up in organizations. Significant class time is devoted to experiential exercises. Weekly assignments include individual written reflections based on readings and research. For the final project, students write a short case, record a conversation, and assess their work. Restricted to second-year MBA students.

K. Blackburn

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 preparing and delivering conference papers and job talks, formulating and rehearsing elevator pitches, methods for effective teaching, creating your professional presence on social media, and discussions for conferences. Participants are expected to deliver multiple oral presentations based on their current research and practice effective teaching methods. Priority to Sloan doctoral students who have completed their first year.

E. So

Work and Organizational Studies

15.301 People, Teams, and Organizations 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

15.302[J] Power: Interpersonal, Organizational, and Global Dimensions

Same subject as 11.045[J], 17.045[J], 21A.127[J]

Subject meets with 21A.129

Prereq: None

Acad Year 2023-2024: Not offered

Acad Year 2024-2025: U (Spring)

3-0-9 units. HASS-S

See description under subject 21A.127[J].

S. Silbey

15.304 Being Effective: Power and Influence

Prereq: None

G (Spring)

Not offered regularly; consult department

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, Spring)

3-0-6 units

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

P. Francik, J. Huck, B. Collins

15.308 Leading the Way: Interpersonal and Organizational Strategies for Advancing DE&I

Prereq: None

Acad Year 2023-2024: Not offered

Acad Year 2024-2025: G (Spring)

3-0-6 units

Introduces and analyzes competing explanations and claims about inequality within US workplaces; reviews evidence regarding the effectiveness of diversity, equity, and inclusion initiatives and policies; and investigates how race, gender, and other identities may affect employees' experience in work organizations. Significant class time is devoted to experiential exercises to develop skills for interacting effectively with diverse others, managing teams and critical conversations, and advocating thoughtfully for change. Weekly assignments include written reflections based on readings and social science research. Restricted to Sloan MBA students.

K. Blackburn, E. Kelly

15.309 Leadership Lessons Learned from the Military

Prereq: None

G (IAP)

2-1-3 units

Focuses on the nature of military leadership and its relevance to the civilian professional and organizational experience. Draws on expertise among personnel in the ROTC units at MIT, the service experience of veterans in various MIT Sloan programs, invited keynote speakers, and Sloan faculty.

*L. Hafrey***15.310 People, Teams, and Organizations**

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 structural 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.

*K. Kellogg***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)

3-1-0 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.

*J. S. Carroll***15.317 Leadership and Organizational Change**

Prereq: None

G (Spring, Summer; second half of term)

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: None

G (Fall; second half of term)

3-0-6 units

Credit cannot also be received for 15.739

Provides the tools to better understand an individual's unique way of leading, i.e., one's leadership signature. Involves intensive self-assessment and interactive exercises aimed to identify the leadership patterns that help and hinder one's ability to make change happen. Focuses on identifying core leadership strengths and weaknesses, immunity to change, and developing one's leadership signature. Explores alternative leadership approaches in order to determine capabilities to emulate and plan changes in behavior moving forward. Readings from psychology, family systems, developmental psychology, and leadership literature augment analyses.

K. Isaacs

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 take advantage of new information technologies. 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)

Not offered regularly; consult department

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 Sloan Fellow MBAs.

J. Van Maanen

15.323 Leading from the Middle

Prereq: None

G (Spring; first 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

15.325 Leadership in Disrupted Industries

Prereq: None

G (Fall; second half of term)

2-0-1 units

Exposes students to accomplished leaders facing disruptive forces that are changing their industries, and explores leadership strategies to navigate disruption from the perspective of top management. Student panels prepare a detailed set of questions for each leader based on their organization and industry context. All students write two short papers — the first evaluating the leadership of a prior manager and the second explaining the planned changes to their own leadership approach.

Consult R. Pozen, B. Shields

15.326 Seminar in Leadership II

Prereq: 15.325

G (Spring; second half of term)

2-0-1 units

Continuation of 15.325, providing students opportunities to meet senior executives of private and public institutions, including current or former policymakers, and discuss challenges associated with the management of country and global affairs. Restricted to Sloan Fellow MBAs.

Staff

15.328 Seminar in Organizational Studies

Prereq: None

G (Summer)

Not offered regularly; consult department

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

G (Spring)

Not offered regularly; consult department

Units arranged

Can be repeated for credit.

Group study of current topics related to organizational studies.

*Consult D. G. Ancona***15.335 Organizations Lab: Leading with Impact**

Prereq: None

G (Spring)

3-0-6 units

Experiential study of the organizational change process within the larger context of the community in which the organization resides. Exposes students to leadership exemplars in the for-profit, nonprofit, and public sectors. Examines cases of complex social dynamics in areas of housing, employment, credit, education, and criminal justice. Centers around a semester-long action learning project in which students assist a local nonprofit organization in achieving sustainable social justice objectives. Through a project identified with the nonprofit leaders, students apply their knowledge of systems and their practice of leadership to recommend an operational change that advances the mission of the organization.

*N. Repenning, B. Akinc***15.336 ID Lab: Individual Development and Interpersonal Dynamics**

Prereq: Permission of instructor

G (Spring)

3-0-6 units

Introduces specific frameworks and tools to help students refine the relevant leadership skills of self-reflection, inquiry, listening, perspective-taking, and strategic expression. Includes weekly class sessions, written reflections, interactive exercises, and professional executive coaching to enable students to clarify and articulate important aspects of who they are and how they impact others. Includes oral presentations and writing assignments focusing heavily on the cycle of practicing, reflecting, and revising. Students receive extensive, personalized feedback from teaching team, coaches, and classmates. Readings from developmental psychology and leadership literature augment analyses.

*T. Purinton***15.337 Teams Lab**

Prereq: Permission of instructor

G (Fall)

3-0-6 units

Develops tools, perspectives, and skills needed to be an effective team member and team leader. Begins with frameworks and theories that enable participants to reflect on how they contribute to both negative and positive team outcomes. Later sessions cultivate the self-awareness and skills required to improve team effectiveness as both a participant and a leader. Students must be involved in a co-curricular team activity, such as leading a student club or organizing a conference, to enroll.

*N. Repenning***15.338 Leadership and Teams Lab**

Prereq: None

G (Summer)

3-0-3 units

Required subject spanning the Sloan Fellows summer term. Introduces foundational leadership frameworks by weaving theory, assignments, living cases, and one-one-one and team coaching together. Building on the observation that conflict is the feedstock of innovation for both teams and organizations, frames the core challenge of leadership as leveraging the benefits of competing perspectives without falling prey to the negative interpersonal dynamics that such differences can catalyze. Offers several tools to develop increased self-awareness and emotional self-regulation to constructively uncover conflict and leverage diversity. Employs a variety of learning modalities, including experiential learning, executive coaching, and facilitated team reflections. Restricted to Sloan Fellow MBA students.

N. Repenning

15.339 Developing Leadership Capabilities

Prereq: Permission of instructor

G (IAP)

2-0-4 units

Focuses on the key leadership capabilities needed in today's increasingly decentralized organizations: sensemaking, relating, visioning, and inventing. Through conceptual discussions, small group exercises, and self-reflection in a workshop setting, students examine a model of leadership, assess their leadership strengths and weaknesses, articulate their values and aspirations, and practice developing leadership capabilities in interaction with class members. Admission by application.

T. Malone, W. Orlikowski

15.341 Individuals, Groups, and Organizations

Prereq: Permission of instructor

Acad Year 2023-2024: Not offered

Acad Year 2024-2025: 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)

Not offered regularly; consult department

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

Subject meets with 21A.809

Prereq: Permission of instructor

G (Spring)

3-0-9 units

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

E. Castilla

15.348 Doctoral Seminar in Research Methods II

Prereq: 15.347 or permission of instructor

G (Fall)

3-0-6 units

Builds on 15.347 to examine contemporary social research methods in depth. Focuses on making students familiar with the most important quantitative methods (e.g., logit/probit models, models for ordinal and nominal outcomes, count models, event history models).

E. J. Castilla

Technology, Innovation and Entrepreneurship

15.350 Managing Technological Innovation and Entrepreneurship

Prereq: None

G (Spring)

Not offered regularly; consult department

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[[J]] Introduction to Making and Hardware Ventures

Same subject as 2.351[[J]]

Prereq: Permission of instructor

G (Spring)

3-0-3 units

Introduces core maker technologies alongside the Disciplined Entrepreneurship framework to form a foundation for creating hardware-based ventures. Fosters an understanding of how to make the abstract concrete and develops competency in rapid prototyping. Includes a large hands-on component that builds skills in the various elements of making. Enrollment limited; application required.

C. Lowell, M. Kenney, M. Culpepper

15.352[[J]] StartMIT: Workshop for Entrepreneurs and Innovators

Same subject as 6.9302[[J]]

Subject meets with 6.9300

Prereq: None

G (IAP)

4-0-2 units

See description under subject 6.9302[[J]].

B. Aulet, A. Chandrakasan, C. Chase

15.356 Lead User Innovation Methods

Prereq: None

G (Spring; second half of term)

4-0-5 units

Explains both the theory behind lead user innovation development methods, and how they can be profitably used in practice. Covers lead user searches, internet-based crowdsourcing, design by customers using 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 Platform Strategy and Entrepreneurship

Prereq: 15.900 or 15.902

Acad Year 2023-2024: Not offered

Acad Year 2024-2025: G (Spring; second half of term)

3-0-3 units

Considers key strategic concepts and ideas useful for managers and entrepreneurs, especially the distinction between a product versus a platform strategy as well as product versus a service strategy. Takes a relatively deep dive into various hardware and software technologies that have stimulated new platforms and business models as well as applications and startup companies in a variety of fields. Topics may include enterprise Software as a Service, blockchain, Gig/sharing economy ventures, AI/ML in self-driving technology and other enterprise applications, cybersecurity, Industrial Internet of Things, and Quantum Computing. Classes consist of lectures, case studies, guest lectures, videos, and weekly student team presentations as well as final papers.

M. Cusumano

15.359[J] Engineering Innovation: Global Security Systems

Same subject as 6.9160[J]

Prereq: None

U (Spring)

3-3-6 units

Provides students with the perspective of a chief technology officer and systems engineer in innovation-focused organizations such as the Departments of Defense, DARPA, NATO, and the UN. Discusses technological and innovation measures taken to ensure mutual safety and security globally. Outlines the journey from ideation to impact, revolving around complex engineering design challenges. Involves iterative testing and refinement of solutions, focusing on scalability in operational environments. Emphasis is placed on efficient team-building and leadership within the innovation landscape and is supported by stakeholders. Examines stakeholders' roles in successfully deploying solutions. Develops skills to organize technical thoughts, write impactful reports, and present convincing arguments effectively. Equips students with the ability to navigate design challenges, adjust to engineering frameworks, and manage use case variations.

*F. Murray, V. Bulovic, G. Keselman***15.360 Entrepreneurship & Innovation Proseminar**

Prereq: Permission of instructor

Acad Year 2023-2024: Not offered

Acad Year 2024-2025: G (Fall)

2-0-1 units

Provides an overview of entrepreneurial knowledge for founding, developing and growing new enterprises, primarily focused on companies with a technological base. Aimed at students who are enthusiastic about possible careers as entrepreneurs or "joiners" in early-stage firms. Weekly lectures and discussions by academic and practitioner faculty in the MIT Entrepreneurship Program and by leaders of related MIT entrepreneurship activities, e.g., Trust Center for MIT Entrepreneurship, Deshpande Center, and Venture Mentoring Service, as well as by successful entrepreneurs and venture capitalists. Includes student Open Mic presentations and discussion of new business ideas, as well as project study of existing young companies. Enrollment in Silicon Valley Study Tour for the following spring term is required. No listeners; restricted to students in Sloan Entrepreneurship and Innovation (E&I) MBA track.

*S. Stern, B. Aulet***15.361 Executing Strategy for Results**

Prereq: None

G (Fall; first half of term)

Not offered regularly; consult department

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 Life Science Ventures**

Same subject as HST.971[J]

Prereq: None

G (Spring)

3-0-6 units

Surveys key strategic decisions faced by managers, investors and scientists at each stage in the value chain of the life science industry. Aims to develop students' ability to understand and effectively assess these strategic challenges. Focuses on the biotech sector, with additional examples from the digital health and precision medicine industries. 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 Innovation Ecosystems for Regional Entrepreneurship Acceleration Leaders (iEco4REAL)

Prereq: None

G (Spring)

3-0-6 units

Credit cannot also be received for 15.3641

Aimed at students seeking an action-oriented understanding of innovation ecosystems, such as Silicon Valley, Greater Boston, Singapore, Lagos, and other sites across the globe. Provides a framework for analyzing these critical innovation economies from the perspective of key stakeholders: large corporations, governments, universities, entrepreneurs, and risk capital providers. Outlines the design and delivery of policies and programs (e.g., hackathons, accelerators, prizes, tax policy, immigration policy) intended to accelerate innovation-driven entrepreneurship in an ecosystem. Focused on how these programs can be used to drive corporate innovation and entrepreneurship and build stronger cultures of innovation. Meets with 15.3641 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 Innovation Ecosystems for Regional Entrepreneurship Acceleration Leaders (iEco4REAL)

Prereq: None

U (Spring)

Not offered regularly; consult department

3-0-6 units

Credit cannot also be received for 15.364

Aimed at students seeking an action-oriented understanding of innovation ecosystems, such as Silicon Valley, Greater Boston, Singapore, Lagos, and other sites across the globe. Provides a framework for analyzing these critical innovation economies from the perspective of key stakeholders: large corporations, governments, universities, entrepreneurs, and risk capital providers. Outlines the design and delivery of policies and programs (e.g., hackathons, accelerators, prizes, tax policy, immigration policy) intended to accelerate innovation-driven entrepreneurship in an ecosystem. Focuses on how these programs can be used to drive corporate innovation and entrepreneurship and build stronger cultures of innovation. 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*

15.365 Overcoming Obstacles to Entrepreneurial Success

Prereq: 15.360, 15.378, 15.390, 15.399, or permission of instructor G (Fall)

3-0-6 units

Identifying, understanding, and coping with the key problems from founding a firm throughout its full life cycle to success. Each week a successful MIT-alum entrepreneur forwards a brief on their major issue that had to be overcome. Guest speakers include prominent entrepreneurial role models. Student teams propose solutions for class discussion followed by the speaker's response and what they actually did and why. The speaker then relates the rest of the firm's development up to the present. Class begins with the research on the day's focus and ends with student teams creating one-page take-aways. Delta v, MIT Fuse, MIT 100K Finals, Sandbox or the EMBA Program are also accepted prereqs. Exemplifies the preferred dual-track entrepreneurial education, integrating academic research and practitioner experience.

*E. Roberts, J. Sayeed***15.366 Climate & Energy Ventures**

Prereq: Permission of instructor

G (Fall)

3-0-9 units

Project-based approach to innovation and venture creation in the energy sector and sectors that can mitigate climate change. Explores how innovation and entrepreneurial concepts apply (or do not apply) to the significant opportunities in these industries. Working in teams, students create new ventures specifically for the energy sector or to address climate change. Lectures guide teams through key elements of their projects. 15.390 is recommended as a prerequisite.

*T. Hynes, F. O'Sullivan, L. Wayman***15.367[[]] Healthcare Ventures**

Same subject as HST.978[[]]

Prereq: None

G (Spring)

3-0-9 units

See description under subject HST.978[[]].

M. Gray, Z. Chu

15.368 Disciplined Entrepreneurship Lab

Prereq: None

G (IAP)

1-0-5 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.

*B. Aulet***15.369 Entrepreneurship in Organizations**

Prereq: None

G (Spring)

3-0-6 units

Addresses the practical steps that can be taken to make existing organizations (corporations, non-profits, government, etc.) become more entrepreneurial. Uses a systematic approach to integrate lectures, exercises, guest speakers, and a team project. Application required.

*S. Siegel, S. Neal, Y. Kuo***15.371[J] Innovation Teams**

Same subject as 2.907[J], 10.807[J]

Prereq: None

G (Fall)

4-4-4 units

Introduces skills and capabilities for real-world problem solving to take technology from lab to societal impact: technical and functional exploration, opportunity discovery, market understanding, value economics, scale-up, intellectual property, and communicating/working for impact across disciplines. Students work in multidisciplinary teams formed around MIT research breakthroughs, with extensive in-class coaching and guidance from faculty, lab members, and select mentors. Follows 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.

*L. Perez-Breva, D. Hart***15.373[J] Venture Engineering**

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

Prereq: None

U (Spring)

3-0-9 units

Provides an integrated approach to the development and growth of new innovative ventures. Intended for students who seek to leverage their engineering and science background through innovation-driven entrepreneurship. Emphasizes the concept that innovation-driven entrepreneurs must make a set of interdependent choices under conditions of high uncertainty, and demonstrates that venture engineering involves reducing uncertainty through a structured process of experimental learning and staged commitments. Provides deep understanding of the core technical, customer, and strategic choices and challenges facing start-up innovators, and a synthetic framework for the development and implementation of ventures in dynamic environments.

*S. Stern, E. Fitzgerald***15.374 Organizing for Innovation**

Prereq: None

G (Spring; first half of term)

3-0-3 units

Builds an understanding of 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 product development processes to R&D portfolios to building an experimental capacity); and emphasizing the connection between the management of innovation and competitive strategy.

*P. Azoulay***15.375[J] Global 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, R. Raskar

15.376[J] AI for Impact: Solving Societal-Scale Problems

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].

R. Rasksar, J. Bonsen A. Pentland

15.378 Building an Entrepreneurial Venture: Advanced Tools and Techniques

Prereq: Permission of instructor

G (Fall, Spring)

3-1-8 units

Credit cannot also be received for 15.3781

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. Meets with 15.3781 when offered concurrently. Expectations and evaluation criteria differ for students taking graduate version; consult syllabus or instructor for specific details. Application required; consult instructor. No listeners.

K. Ligris

15.3781 Building an Entrepreneurial Venture: Advanced Tools and Techniques

Prereq: 15.3901 or permission of instructor

U (Spring)

Not offered regularly; consult department

3-1-8 units

Credit cannot also be received for 15.378

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. Meets with 15.378 when offered concurrently. Expectations and evaluation criteria differ for students taking graduate version; consult syllabus or instructor for specific details. Application required; consult instructor. No listeners.

C. Chase, K. Arnold, J. Baum

15.379[J] Mobility Ventures: Driving Innovation in Transportation Systems

Same subject as 11.529[J]

Subject meets with 11.029[J], 15.3791[J]

Prereq: None

G (Fall)

3-3-6 units

See description under subject 11.529[J].

J. Zhao, J. Moavenzadeh, J. Larios Berlin

15.3791[J] Mobility Ventures: Driving Innovation in Transportation Systems

Same subject as 11.029[J]

Subject meets with 11.529[J], 15.379[J]

Prereq: None

U (Fall)

3-3-6 units

See description under subject 11.029[J]. Preference to juniors and seniors.

J. Zhao, J. Moavenzadeh, J. Larios Berlin

15.382 Managing Innovation in Financial Institutions

Prereq: None

G (Fall)

3-0-6 units

Provides a practical guide to managing financial service firms, such as mutual funds, sovereign funds, banks, insurance companies, and pension plans. Focuses on strategies for adopting innovative products and services in responding to unmet financial needs and disrupting existing parts of the financial sector.

R. Pozen

15.383 Corporate Boards: Functions and Responsibilities

Prereq: None

G (Spring; second half of term)

3-0-3 units

Provides a practical guide to the functions and responsibilities of directors on boards of public and private companies. Focuses on the activities of the audit, compensation, and nominating committees, as well as the duties of directors in battles for control.

R. Pozen

15.385 Innovating for Impact

Prereq: None

G (Fall; first half of term)

3-0-3 units

Provides a structured approach to innovation and entrepreneurship that creates business value while solving social and environmental problems. Covers physical domains of sustainability, e.g., waste, water, food, energy, and mobility, as well as social and human capital domains, such as health and education. Students explore case studies of critical decisions made in the early stages of an enterprise that help determine its impact. Considers perspective and tools applicable to the startup context or to new lines of business in existing enterprises.

J. Jay

15.386 Leading in Ambiguity: Steering Through Strategic Inflection Points

Prereq: None

G (Fall, Spring; second half of term)

3-0-3 units

Develops the skills required to think and lead in complex, ambiguous, multi-dimensional situations. Senior leaders from a wide variety of organizations, both public and private, profit and non-profit, large and small, discuss complex real-life situations. Students are frequently asked to take a position about how they might approach each situation, perhaps using management frameworks they have studied previously. Executives then discuss what they did, or are doing, and reflect on their own journeys as enterprise-level leaders. Assignments ask students to reflect on how they have and will show up as leaders in a variety of contexts. Restricted to Sloan graduate students. No listeners or guests.

C. Chilton

15.387 Entrepreneurial Sales

Prereq: 15.390 or read the book *Disciplined Entrepreneurship*

G (Fall, Spring)

3-0-9 units

Instruction in the fundamental Go-to-Market motions and how to identify, build and execute on the right motion(s) for technology startups. This includes not only building out a sales organization, but also the underlying processes and sales fundamentals required to measure results and sustain competitive advantage. This course is highly relevant to anyone interested in building a business or better understanding how to drive revenue from founding to scale.

J. Baum, A. Blake, M. Faingezicht, E. Skala

15.388 Venture Creation Tactics

Prereq: 15.390 and permission of instructor

G (Fall, Spring)

3-1-8 units

Advanced, intensive, project-based subject intended for solo-founders or startup teams already working on building a new, high-impact venture, with a refined business plan. Supports students in their development of data to derisk the opportunity of pursuing a new venture full-time for founders, investors, and new recruits. This lab-style class promotes rapid experimentation by connecting the dots from the frameworks, concepts, and first principles covered in the introductory entrepreneurship subjects and guides students on how to tactically apply them in real-world situations. Topics include: advanced early go-to-market, enhanced target customer profile and persona development, digital advertising, outbound sales, UX design, rapid prototyping, recruiting early team members, and executing a fundraising plan. Application required; consult instructor. No listeners.

P. Cheek

15.389 Global Entrepreneurship Lab

Prereq: None

G (Fall, IAP)

3-1-8 units

Experiential study of the climate for innovation and determinants of entrepreneurial success. Students work in teams of four with the top management of a company to address a real world business challenge, gaining insight as to how companies build, run, and scale a new enterprise. Focuses primarily on start-ups operating in emerging markets. Restricted to graduate students.

S. Johnson, M. Jester

15.390 New Enterprises

Prereq: None

G (Fall, Spring)

2-2-8 units

Credit cannot also be received for 15.3901

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.

B. Aulet, P. Cheek

15.3901 New Enterprises

Prereq: None

U (Fall, Spring)

2-2-8 units

Credit cannot also be received for 15.390

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.

B. Aulet, P. Cheek

15.392 Scaling Entrepreneurial Ventures

Prereq: 10.807[[]] or 15.390

G (Fall; second 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 and guest speakers.

E. Cohen, B. Halligan, J. Larios Berlin

15.393 The Nuts and Bolts of New Ventures

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 Entrepreneurial Founding and Teams

Prereq: None

G (Fall, Spring)

3-0-6 units

Credit cannot also be received for 15.3941

Explores key organizational and strategic decisions in founding and building a new venture. Through a series of cases, readings, and activities, students examine the trade-offs and consequences of early founder decisions: whom to include in the founding team, how to allocate equity among co-founders, how to determine founder roles, how to hire and motivate early-employees, and whether to involve external investors. 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.

K. Hickey, E. Scott

15.3941 Entrepreneurial Founding and Teams

Prereq: None

U (Spring)

3-0-6 units

Credit cannot also be received for 15.394

Explores key organizational and strategic decisions in founding and building a new venture. Through a series of cases, readings, and activities, students examine the trade-offs and consequences of early founder decisions: whom to include in the founding team, how to allocate equity among co-founders, how to determine founder roles, how to hire and motivate early-employees, and whether to involve external investors. 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.

K. Hickey, E. Scott

15.396 Seminar in Entrepreneurship

Prereq: None

G (Spring)

Not offered regularly; consult department

Units arranged

Group study of current topics related to entrepreneurship.

W. Aulet

15.397 Seminar in Entrepreneurship

Prereq: None

G (Fall)

Not offered regularly; consult department

Units arranged

Can be repeated for credit.

Group study of current topics related to high-tech entrepreneurship.

Staff

15.398 Corporations at the Crossroads: Leading an Organization Through Change & Challenge

Prereq: None

G (Fall, Spring)

2-0-4 units

Focuses on the CEO and other analogous leadership roles such as co-founder, chairman of the board, etc. Provides a unique opportunity for students to interact with some of the world's leading organizational leaders who are invited to participate in each class. The guest speakers offer advice and answer questions related to issues in management, strategy, and leadership, and the fulfillment experienced via their role and responsibilities.

D. Schmittlein, S. Hockfield

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 surrounding colleges work with startups on problems of strategic importance to the venture. Provides an introduction to entrepreneurship, and the action learning component allows students to apply their academic knowledge to the problems faced by entrepreneurial firms. 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.

K. Hickey, D. Patel, K. Boucher

15.3991 Entrepreneurship Lab

Prereq: None

U (Spring)

Not offered regularly; consult department

2-9-1 units

Credit cannot also be received for 15.399

Project-based subject, in which teams of students from MIT and surrounding colleges work with startups on problems of strategic importance to the venture. Lectures provide an introduction to entrepreneurship, and the action learning component allows students to apply their academic knowledge to the problems faced by entrepreneurial firms. 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.

K. Hickey, D. Patel, K. Boucher

Finance

15.401 Managerial Finance

Prereq: None

G (Fall, Spring)

4-0-5 units

Introduction to finance from the perspective of business people and finance professionals. Designed to build effective decision-making skills based on sound financial knowledge, focusing on areas such as day-to-day operational issues and management, launching a startup, or negotiating option bonuses. Provides a firm grounding in the modern financial analysis underlying any decision, through three core themes: determining the value of a project, deciding how to finance a project, and managing its risk. Students also hone their ability to negotiate skillfully and speak intelligently about finance. Meets with 15.417 when offered concurrently. Expectations and evaluation criteria differ for students taking graduate version; consult syllabus or instructor for specific details. Some sections are restricted to graduate students only without the permission of the instructor. See syllabus url for further details.

L. Schmidt, L. Mota, E. Lazarus, T. Choukhmane

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 finance which focuses on financing a firm through turbulence, for innovation, and for growth. Primarily uses case studies to introduce financial analytical tools needed to make real-world value-enhancing business decisions across many industries: how to decide which projects to invest in, how to finance those investments, and how to manage the cash flows of the firm. Meets with 15.418 when offered concurrently.

P. Asquith, M. Farboodi, C. Palmer

15.403 Introduction to the Practice of Finance

Prereq: None

G (Fall, Spring)

2-0-1 units

Explores various career paths within the finance industry, from private equity to public policy, FinTech to social impact, investment banking to investment management, corporate finance to venture capital. Students engage with industry professionals about the challenges they face and how their part of the industry is changing. They also network with peers to discover the challenges and rewards associated with various careers, and explore how coursework connects with industry practice. Restricted to first year MBA students in the Finance Track.

T. Bertsekas

15.410 Finance Ethics & Regulation

Prereq: None

G (Fall)

2-0-1 units

Explores a range of ethical issues and challenges that arise in organizations and financial practice. Provides fundamental theories typically used to evaluate ethical dilemmas and references both real situations and hypothetical examples. Highlights the importance of ethical values and their impact on financial regulation for professional practice. Discusses the various factors that influence ethical behavior, such as family, religious values, personal standards and needs, senior leadership behavior, norms among colleagues, organizational expressed and implicit standards, and broader community values. Restricted to students in the Master of Finance Program.

J. Cohen, E. Golding

15.414 Financial Management

Prereq: 15.511

G (Fall)

3-0-6 units

Credit cannot also be received for 15.724

Provides a rigorous introduction to corporate finance and capital markets, with an emphasis on applications vital to corporate managers. Exposes students to the major financial decisions made by leaders within a firm and to the ways the firm interacts with investors, with a focus on valuation. Topics include project and company valuation, measuring risk and return, stock pricing, corporate financing policy, the cost of capital, and risk management. Presents a broad overview of both theory and practice. Restricted to Sloan Fellow MBAs.

E. Verner

15.415 Foundations of Modern Finance

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)

3-3-9 units. Institute LAB

Introduction to finance with a lab component that puts theory into practice. Designed to build effective decision-making skills for business and to develop hands-on analytical techniques that are used by investment managers and traders. Lectures provide a firm grounding in financial analysis--determining the value of a decision, deciding how to finance a project, and assessing its risk. Lab sessions introduce students to modern tools and methods used in financial markets. Through team projects, students develop and test asset-pricing models, forecasting methods, and investment strategies using real-world market data. Provides instruction in writing and speaking from a financial perspective. Meets with 15.401 when offered concurrently.

P. Mende

15.418 Laboratory in Corporate Finance

Prereq: None. *Coreq: 15.501*

U (Fall)

4-2-9 units. Institute LAB

Credit cannot also be received for 15.402

Introduction to corporate finance. Classroom portion primarily uses case studies to introduce financial analytical tools needed to make real-world value-enhancing business decisions across many industries: how to decide which projects to invest in, how to finance those investments, and how to manage the cash flows of the firm. Laboratory sessions are organized around team valuation projects, such as valuation of an oil field and analysis of a potential merger between two public firms proposed by student teams. Projects require extensive use of financial databases. Laboratory sessions also provide instruction on writing and speaking on financial topics. Meets with 15.402 when offered concurrently.

C. Palmer

15.425 Corporate Finance

Prereq: 15.415

G (Fall)

3-0-6 units

Foundational, applied course providing instruction in the tools and techniques of corporate financial management from the perspective of the CFO. Case studies present the financial tools needed to make value-enhancing business decisions: how to decide which projects to invest in, how to finance those investments, and how to manage the cash flows of the firm. 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, L. Weiss

15.426[*J*] Real Estate Finance and Investment

Same subject as 11.431[*J*]

Prereq: Permission of instructor

G (Fall)

4-0-8 units

See description under subject 11.431[*J*]. Limited to graduate students.

W. Torous

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

Same subject as 11.353[*J*]

Prereq: 11.431[*J*], 15.401, or permission of instructor

G (Spring; second half of term)

3-0-3 units

See description under subject 11.353[*J*]. Limited to 55.

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

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, T. Liu

15.4311 Entrepreneurial Finance and Venture Capital

Prereq: 15.417

U (Fall)

3-0-6 units

Credit cannot also be received for 15.431

Examines the elements of entrepreneurial finance, focusing on technology-based start-up ventures, and the early stages of company development. Addresses key questions which challenge all entrepreneurs: how much money can and should be raised; when should it be raised and from whom; what is a reasonable valuation of a company; and how funding, employment contracts and exit decisions should be structured. Aims to prepare students for these decisions, both as entrepreneurs and venture capitalists. In-depth analysis of the structure of the private equity industry. Meets with 15.431 when offered concurrently. Expectations and evaluation criteria for graduate students will differ from those of undergraduates; consult syllabus or instructor for specific details.
M. Rhodes-Kropf, T. Liu

15.433 Financial Markets

Subject meets with 15.4331

Prereq: 15.401, 15.414, or 15.415

G (Fall)

3-0-6 units

Provides students with a solid understanding of key financial markets and the empirical skills and tools used to support decision making. Employs an in-depth, empirically-driven exploration of markets, including equity, fixed income, and derivatives. Students apply real-world financial data to test and understand financial models, focusing on key risk factors and risk management concerns in these markets, along with the quantitative tools used to analyze risk. Discusses major institutions and players involved in each market, the evolution of the markets, and issues such as liquidity. Meets with 15.4331 when offered concurrently. Expectations and evaluation criteria differ for students taking graduate version; consult syllabus or instructor for specific details.
H. Zhu

15.4331 Financial Markets

Subject meets with 15.433

Prereq: 15.417

U (Fall)

3-0-6 units

Provides students with a solid understanding of key financial markets and the empirical skills and tools used to support decision making. Employs an in-depth, empirically-driven exploration of markets, including equity, fixed income, and derivatives. Students apply real-world financial data to test and understand financial models, focusing on key risk factors and risk management concerns in these markets, along with the quantitative tools used to analyze risk. Discusses major institutions and players involved in each market, the evolution of the markets, and issues such as liquidity. Meets with 15.433 when offered concurrently. Expectations and evaluation criteria differ for students taking graduate version; consult syllabus or instructor for specific details. Preference to Course 15 students.
H. Zhu

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

Exposes students to advanced application of tools and techniques of corporate financial management. Covers complex valuations, modelling of capital structure decisions, financial restructuring, analysis and modelling of merger transactions, and real options. Additional topics include security design, choice of financial instruments, pricing of convertible bonds and convertible preferred stocks. Also covers project finance and other hybrid financing facilities.
E. Matveyev

15.4341 Advanced Corporate Finance

Prereq: 15.418

U (Fall)

3-0-6 units

Credit cannot also be received for 15.434

Exposes students to advanced application of tools and techniques of corporate financial management. Covers complex valuations, modelling of capital structure decisions, financial restructuring, analysis and modelling of merger transactions, and real options. Additional topics include security design, choice of financial instruments, pricing of convertible bonds and convertible preferred stocks. Also covers project finance and other hybrid financing facilities.
E. Matveyev

15.436 Corporate Financial Strategy

Prereq: 15.402, 15.414, or 15.415

G (Fall)

3-0-6 units

Case-based subject that bridges theory and practice in corporate finance, exploring the connection between finance and strategy. Covers a range of transactions and financial engineering steps used by companies to pursue their strategic goals, such as carve-outs, spin-offs, and related tools to break up and refocus business assets; special purpose vehicles to raise non-traditional capital and reconfigure corporate assets and operations; diversification as a financial strategy; control setups such as dual class shares; recapitalizations and strategic use of debt leverage; steps to address financial distress and bankruptcy; and more. Students work in study teams to complete homework assignments and prepare for class discussion. Includes project and team case competition.

*N. Gregory***15.437 Options and Futures Markets**

Prereq: 15.401, 15.414, or 15.415

G (Spring)

3-0-6 units

Credit cannot also be received for 15.4371

Students develop the economic intuition and technical skills necessary to understand how to hedge and price derivatives, and how to use them for investment and risk management purposes. 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, 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.

*D. Lucas***15.4371 Options and Futures Markets**

Prereq: 15.417

U (Spring)

3-0-6 units

Credit cannot also be received for 15.437

Students develop the economic intuition and technical skills necessary to understand how to hedge and price derivatives, and how to use them for investment and risk management purposes. 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, 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.

*D. Lucas***15.438 Fixed Income Securities and Derivatives**

Prereq: 15.401, 15.414, or 15.415

G (Spring)

3-0-6 units

Credit cannot also be received for 15.4381

Develops an overall familiarity with fixed income markets and instruments, and a sophisticated understanding of tools used for valuation, and 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; securitization; with applications to recent market and financial policy developments. Meets with 15.4381 when offered concurrently. Expectations and evaluation criteria differ for students taking graduate version; consult syllabus or instructor for specific details.

D. Lucas

15.4381 Fixed Income Securities and Derivatives (New)

Prereq: 15.417

U (Spring)

3-0-6 units

Credit cannot also be received for 15.438

Develops an overall familiarity with fixed income markets and instruments, and a sophisticated understanding of tools used for valuation, and 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; securitization; with applications to recent market and financial policy developments. Meets with 15.438 when offered concurrently. Expectations and evaluation criteria differ for students taking graduate version; consult syllabus or instructor for specific details.

*D. Lucas***15.439 Quantitative Investment Management**

Prereq: 15.401, 15.414, or 15.415

G (Spring)

3-0-6 units

Focuses on implementing successful investment strategies - blending academic finance with the practice of investment management employed by the world's most sophisticated (quantitative) investors. Covers the dynamics of behavioral finance and their effects on markets; investment strategies in current use, and how to build and test your own quantitative strategies; portfolio construction and trading, considering transaction costs, risk management, and efficient trade execution; and current trends and regulatory changes. Includes guest lecturers. Requires an understanding of basic statistical and financial concepts.

*M. Rothman***15.445 Mergers, Acquisitions, and Private Equity**

Prereq: 15.401, 15.414, or 15.415; Coreq: 15.402

G (Spring)

3-0-6 units

Credit cannot also be received for 15.4451

Uses case studies to explore the financial aspects of a wide range of corporate mergers and buyout transactions: classic stock and cash mergers; minority squeeze-outs; 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; and more. Includes guest lectures on the practices and tools used in private equity and M&A. Students participate in group work, both in and out of class, including a full-term project involving the mock sale of a company. Meets with 15.4451 when offered concurrently. Expectations and evaluation criteria for graduate students differ from those of undergraduates; consult syllabus or instructor for specific details.

*N. Gregory***15.4451 Mergers, Acquisitions, and Private Equity**

Prereq: 15.417; Coreq: 15.418

U (Spring)

3-0-6 units

Credit cannot also be received for 15.445

Uses case studies to explore the financial aspects of a wide range of corporate mergers and buyout transactions: classic stock and cash mergers; minority squeeze-outs; 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; and more. Includes guest lectures on the practices and tools used in private equity and M&A. Students participate in group work, both in and out of class, including a full-term project involving the mock sale of a company. 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

15.446 Public versus Private Capital Markets

Prereq: 15.401, 15.402, or permission of instructor

G (Spring)

3-0-6 units

Reviews the merits and trade-offs of public versus private capital markets, which have witnessed tremendous growth over the last decade, from a corporate governance standpoint. Specific phenomena affecting public companies, such as shareholder activism and passive investing, are also considered. Uses corporate case studies for extensive analysis and discussion.

P. Novelli

15.447 International Capital Markets

Prereq: 15.401, 15.414, or 15.415

G (Spring)

Not offered regularly; consult department

3-0-6 units

Provides a strategic framework for current and future finance leaders - with domestic or multinational startups, established companies, investment banks or asset management firms - for investing and operating in international capital markets. Includes currency markets; measuring and managing exchange rate exposure; exchange rate determination and forecasting; international financial instruments and institutions; international trading strategies; and the dynamics of global financial crises. Incorporates real-world events into interactive discussions.

J. Parker

15.448-15.449 Seminar in Finance

Prereq: None

G (Fall)

Not offered regularly; consult department

Units arranged

Can be repeated for credit.

Group study of current topics related to finance.

Staff

15.450 Analytics of Finance

Prereq: 15.401, 15.414, or 15.415

G (Spring)

5-0-7 units

Credit cannot also be received for 15.457

Introduces a set of modern analytical tools that specifically target finance applications. Topics include statistical inference, financial time series, event study analysis, and basic machine learning techniques for forecasting. Focuses on how to apply these tools for financial and macro forecasting, quantitative trading, risk management, and fintech innovations such as Kensho's "financial answer machine" and big-data lending platforms. 15.457 is a more advanced version of 15.450. Students with solid background in statistics and proficiency in programming are encouraged to register for 15.457.

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.

M. Kritzman

15.452 Proseminar in Corporate Finance/Investment Banking/Private Equity

Prereq: 15.402, 15.414, or 15.415

G (Fall)

3-0-6 units

This action learning course provides an opportunity to bring theory into practice by working on projects sponsored by leaders in corporate finance, investment banking, and private equity. Students work in teams to analyze and problem-solve, culminating in reports which teams present to sponsors for evaluation and feedback. Develops and hones skills required to distill the complexity of a real-world finance problems and to provide an insightful solution that is sensitive to the full context. Recent project sponsors include leading investment banks (Goldman Sachs, JP Morgan), private equity firms (Apollo, KKR, Carlyle), and consulting firms (McKinsey, Bain PE group). Not open to students from other institutions.

E. Matveyev

15.453 Finance Lab

Prereq: 15.401, 15.414, or 15.415

G (IAP, Spring; first half of term)

3-0-6 units

Bridges theory and practice, providing students with an immersive research and analysis experience during IAP followed by a classroom segment in the first half of spring term. Students work with leading industry practitioners and a diverse cross-section of students on collaborative teams, focusing on topical, real-world finance research questions posed by the practitioners. Teams then deliver a nuanced analysis and report findings, gaining insight and coaching from the experts. Practitioners 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 fundamental industry analysis. Application required; restricted to MIT students.

*G. Rao***15.454 Financial Mathematics**

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.

*P. Mende***15.455 Advanced Mathematical Methods for Financial Engineering**

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 15.454. Restricted to students in the Master of Finance Program.

*P. Mende***15.456 Financial Engineering**

Prereq: 15.401, 15.414, or 15.415

G (Fall)

4-0-5 units

Exposes students to the cutting edge of financial engineering. Includes a deep immersion into 'how things work,' where students develop and test sophisticated computational models and solve highly complex financial problems. Covers stochastic modeling, dynamic optimization, stochastic calculus and Monte Carlo simulation through topics such as dynamic asset pricing and investment management, market equilibrium and portfolio choice with frictions and constraints, and risk management. Assumes solid undergraduate-level background in calculus, probability, statistics, and programming and includes a substantial coding component. Classroom examples presented using Python and R.

*L. Kogan, P. Mende***15.457 Advanced Analytics of Finance**

Prereq: 15.401, 15.414, or 15.415

G (Spring)

5-0-7 units

Credit cannot also be received for 15.450

Introduces a set of modern analytical tools that specifically target finance applications. Topics include statistical inference, financial time series, event study analysis, and machine learning techniques. Focuses on how to apply these tools for financial and macro forecasting, quantitative trading, risk management, and fintech innovations such as big-data lending and robo-advisors. 15.457 is a more advanced version of 15.450. Students with a solid background in statistics and proficiency in programming are encouraged to register for 15.457.

*H. Chen***15.458 Financial Data Science and Computing**

Prereq: 15.401, 15.414, or 15.415

G (Fall)

3-0-6 units

Covers methods of managing data and extracting insights from real-world financial sources. Topics include machine learning, natural language processing, predictive analytics, regression methods, and time series analysis. Applications include algorithmic trading, portfolio risk management, high-frequency market microstructure, and option pricing. Studies major sources of financial data, raw data cleaning, data visualization, and data architecture. Provides instruction in tools used in the financial industry to process massive data sets, including SQL, relational and multidimensional databases. Emphasizes computer implementations throughout.

P. Mende

15.465 Alphanomics: A New Approach to Security Analysis

Prereq: 15.401

G (Spring)

3-0-6 units

Focuses on investment decisions in the presence of noisy market prices. Exposes students to the role of informational arbitrage, whereby some agents invest resources to become informed about mispricing (i.e., noise) relative to fundamental values, with hopes of profiting from it. Explains the practice of active investing, the relation between information flows and market pricing dynamics, and the roles of retail investors. Topics included derive from financial economics: market efficiency, cognitive constraints, limits to arbitrage, quantitative stock selection; and accounting-based research: equity valuation, fundamental analysis, and the role of financial analysts.

*E. So***15.466 Functional and Strategic Finance**

Prereq: 15.433 or 15.437

G (Spring)

3-0-6 units

Applies finance science and financial engineering tools and theory to the design and management of global financial institutions, markets, and the financial system to better understand the dynamics of institutional change and financial product/service design. Focuses on foundational analytical tools students will rely upon throughout their careers - derivative pricing and risk measurement; portfolio analysis and risk accounting; and performance measurement to analyze and implement concepts and new product ideas. Examines the needs of government as user, producer and overseer of the financial system, and how tools are applied to measure and manage risks in financial and other economic crises (e.g. 1973-1975 vs. 2007-2009 vs. 2020-2022). Preference to MBA and MFin students.

*R. Merton***15.467 Asset Management, Lifecycle Investing, and Retirement Finance**

Prereq: 15.401, 15.414, or 15.415

G (Spring)

3-0-6 units

Applies finance science and financial engineering tools and theory to asset management, lifecycle investing, and retirement finance. Focuses on foundational analytical tools students will rely upon throughout their careers - 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 comfortable with portfolio-selection theory, CAPM, option pricing, futures, swaps, and other derivative securities. 15.433 is a strongly recommended co-requisite. Preference to MBA and MFin students.

*R. Merton***15.470[[]] Asset Pricing**

Same subject as 14.416[[]]

Prereq: None

G (Fall)

4-0-8 units

Provides a foundation in the neoclassical theory of finance that underlies more advanced study. Covers arbitrage asset pricing, optimal consumption-portfolio choices, neo-classic theory of corporate finance, static equilibrium models of asset pricing, asymmetric information, and dynamic modeling. Prepares students for further study of asset pricing theories, corporate finance and econometric work in finance. Primarily for doctoral students in finance, economics, and accounting.

*L. Schmidt, L. Mota***15.471[[]] Corporate Finance**

Same subject as 14.441[[]]

Prereq: None

G (Spring)

3-0-9 units

Provides an introduction to the basic theoretical and empirical contributions in corporate finance. Exposes students to the key methodological tools in modern corporate finance. Covers capital structure, corporate governance, agency problems, incomplete financial contracting, the market for corporate control, product market corporate finance interactions, corporate reorganization and bankruptcy, banking, and other selected topics. Primarily for doctoral students in finance, economics, and accounting.

A. Schoar, D. Thesmar

15.472[J] Advanced Asset Pricing

Same subject as 14.442[J]

Prereq: None

G (Fall)

3-0-9 units

Focuses on solving, estimating, and empirically evaluating theoretical models of asset prices and financial markets, as well as their microeconomic foundations and macroeconomic implications. Discusses theory and econometric methods, the state of the literature, and recent developments and empirical evidence. Covers topics such as cross-sectional and time-series models, consumption-based and intermediary-based models, financial institutions, household finance, housing, behavioral finance, financial crises, and continuous-time tools and applications. Students complete a short term paper and a presentation. Primarily for doctoral students in finance, economics, and accounting.

*J. Parker***15.473[J] Advanced Corporate Finance**

Same subject as 14.440[J]

Prereq: None

G (Spring)

3-0-9 units

This course builds on 15.471[J] and considers further topics that are at the frontier of corporate finance research. Topics covered include: structural estimation of corporate finance models, financial intermediation, corporate taxation, aggregate effects of financing frictions, corporate finance with irrational managers or irrational investors and entrepreneurial finance (young firm dynamics, venture capital and private equity). Primarily for doctoral students in finance, economics, and accounting.

*A. Schoar***15.474[J] Current Topics in Finance**

Same subject as 14.448[J]

Prereq: None

G (Spring)

3-0-9 units

Can be repeated for credit.

Faculty present their current research in a wide variety of topics in finance. Provides a rapid overview of the literature, an in-depth presentation of selected contributions, and a list of potential research ideas for each topic. Faculty rotate every year to cover new topics. Primarily for doctoral students in accounting, economics, and finance.

*Consult J. Alton***15.475[J] Current Research in Financial Economics**

Same subject as 14.449[J]

Prereq: Permission of instructor

G (Fall, IAP, Spring, Summer)

3-0-3 units

Can be repeated for credit.

Advanced seminar intended for PhD students interested in finance. Topics and papers vary by term, following the latest research in academia and in correlation with the weekly finance faculty research seminar. Each week, students will critically review the contributions, method of analysis, and presentation of evidence of existing research; one session is devoted to preparing for the finance seminar, while the other session discusses further work on the same topic. Restricted to doctoral students.

*Consult J. Alton***15.480[J] Science and Business of Biotechnology**

Same subject as 7.546[J], 20.586[J]

Prereq: None. *Coreq: 15.401*; permission of instructor

G (Spring)

3-0-6 units

See description under subject 7.546[J].

*J. Chen, A. Koehler, A. Lo, H. Lodish***15.481[J] Financial Market Dynamics and Human Behavior**

Same subject as 6.9350[J]

Prereq: 15.401, 15.414, or 15.415

Acad Year 2023-2024: Not offered

Acad Year 2024-2025: G (Spring)

4-0-5 units

Drawing on the latest research in psychology, evolutionary biology, neuroscience, and artificial intelligence, as well as in behavioral and mainstream financial economics, provides new perspectives and insights into the role that human behavior plays in the business environment and the dynamics of financial markets and institutions. Incorporates practical applications from several industries including finance, insurance, biotechnology, pharmaceuticals, and government policy. Students apply ideas from this perspective to formulate original hypotheses regarding new career opportunities and disruptive technologies in their industry of choice. Enrollment may be limited; preference to Sloan graduate students.

A. Lo

15.482 Healthcare Finance

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

Acad Year 2023-2024: Not offered

Acad Year 2024-2025: G (Fall)

3-0-6 units

Covers the role of finance in the biotech and pharmaceutical industries; specifically, the application of novel financing methods and business structures to facilitate drug discovery, clinical development, and greater patient access to high-cost therapies. Topics include basic financial analysis for the life-sciences professional; risks and returns in the biopharma industries; the mechanics of biotech startup financing; capital budgeting for biopharma companies; and applications of financial engineering in modern healthcare investment strategies and institutions. Develops a systemic framework for addressing the biggest challenges in the biomedical ecosystem. Enrollment may be limited; preference to Sloan graduate students.

A. Lo

15.483 Consumer Finance and FinTech

Prereq: 15.401, 15.414, or 15.415

G (Spring)

3-0-6 units

Explores consumer finance and the ways in which financial innovation and new technologies disrupt the financial services industry, leading to material change in business models and product design in financial markets. Provides a solid understanding of rational and behavioral aspects of consumer decision-making and how the players, products, funding markets, regulatory frameworks, and fundamentals all interact to shape ever-changing consumer financial markets, including consumer debt, investment, transactions, and advising markets. Covers past and current innovations and technologies ranging from peer-to-peer lending, AI, deep learning, cryptocurrencies, blockchain technology, and open API's, to the role of FinTech startups. A combination of case studies, guest speakers and group discussion provide real-world insight and interactivity, while special review sessions help hone technical skills.

J. Parker

15.492 Practice of Finance: Crypto Finance

Prereq: None

G (Spring; first half of term)

3-0-3 units

Explores the markets for cryptocurrencies, such as Bitcoin. Begins with the basics and economics of crypto assets' underlying blockchain technology and then turns to the trading and markets for cryptocurrencies, initial coin offerings, other tokens and crypto derivatives. Students gain an understanding and comparison to traditional finance of the market structure, participants, regulation and dynamics of this relatively new and volatile asset class.

P. Asquith, Y. Gao

15.493 Practice of Finance: Perspectives on Investment Management

Prereq: 15.402, 15.414, or 15.415

G (Spring; second half of term)

Not offered regularly; consult department

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

15.497 FinTech Ventures

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

G (Fall)

3-0-6 units

Designed for entrepreneurial types interested in the FinTech space, this course presents a unique opportunity to work through the nuts and bolts of developing, investing in or acquiring a FinTech startup. Bring your idea and/or team, or find both at class and develop your plan for the final "Demo Day" in front of a group of investors. In each class a new speaker (entrepreneurs, legal experts, venture capitalists) is welcomed who addresses relevant topics, while students present progress reports and receive advice and feedback. Students with an interest in being part of a FinTech startup, regardless of background (legal, financial, computer science, operations, etc.) should apply, individually or as part of a team. JD students from Harvard Law School and technical students from MIT are encouraged to apply. Enrollment by application only.

M. Rhodes-Kropf

15.499 Practice of Finance: Social Impact Investing

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

G (Spring)

3-0-6 units

Deep dive into social impact investing -- an approach intentionally seeking to create financial return and positive social impact that is actively measured. Imparts a solid analytical framework for evaluating the spectrum of social impact investments, including mission related investing. Includes a project which provides practical experience in evaluating an impact enterprise or a public markets ESG strategy. 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. Designed for students interested in the intersection of finance and social impact. Provides career guidance and networking opportunities.

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.

Staff

15.511 Financial Accounting

Prereq: Permission of instructor

G (Summer)

3-0-6 units

Credit cannot also be received for 15.515, 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 Fellow MBAs.

S. Kothari

15.515 Financial Accounting

Prereq: Permission of instructor

G (Fall)

4-0-5 units

Credit cannot also be received for 15.511, 15.720

An intensive introduction to the 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

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 and decision-making. Topics include taxation of various investments and types of compensation; retirement planning; considerations for choosing organizational form when starting a business; methods of merging, acquiring, divesting business entities; international tax planning strategies; and high wealth planning and estate tax. Applies current debates on tax policy options and recent tax law changes to class discussions. Intended to show how taxes affect individual investment as well as business decisions. 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 and decision-making. Topics include taxation of various investments and types of compensation; retirement planning; considerations for choosing organizational form when starting a business; methods of merging, acquiring, divesting business entities; international tax planning strategies; and high wealth planning and estate tax. Applies current debates on tax policy options and recent tax law changes to class discussions. Intended to show how taxes affect individual investment as well as business decisions. 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 Accounting Information for Decision Makers

Prereq: None

G (Fall, Spring; first half of term)

3-0-3 units

Focuses on how organizations use granular-level information from their accounting systems on a day-to-day basis for two purposes -- making decisions and evaluating those decisions after the fact. The primary audience is students who intend to work as managers or management consultants. Featuring real-world situations from diverse operating environments, course content emphasizes practical skills that can be applied across various functional areas within organizations.

C. Noe

15.535 Business Analysis Using Financial Statements

Prereq: 15.501, 15.511, 15.515, or 15.516; Coreq: 15.401, 15.414, 15.415, or 15.417

G (Fall, Spring)

3-0-6 units

Focuses on the strategic, financial, and accounting analysis of a company by means of historical financial statement data. Also studies financial statement forecasting along with a specific application of forecasting - valuation. 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.

R. Verdi, E. So

15.540 Theory Studies in Accounting Research

Prereq: None

G (Fall, Spring)

3-0-3 units

Can be repeated for credit.

Exposes PhD students to theoretical foundations of cutting-edge research in accounting. Rotating modules cover topics on disclosure, contracting, compensation, asset pricing, and investments.

E. So, R. Verdi

Information Technologies

15.561 Information Technology Essentials

Prereq: None

G (Fall, Spring)

3-0-6 units

Emphasizes programming in scripting languages (e.g., Python, R, spreadsheet) within the context of emerging trends underlying current and future uses of information technology (IT) in business. Provides a solid grasp of programming basics and foundations of computing. Other topics include web technologies, database systems, digital experimentation, crowdsourcing, and machine learning.

A. Almaatouq, J. Horton

15.562 Web3 and Strategy: Blockchain, Metaverse, and NFT Essentials

Prereq: None

G (Fall)

3-0-3 units

Covers how Web3 and the Metaverse impact business strategy, organizations, entrepreneurship, and investing. Lectures and guest speakers discuss blockchain, crypto-assets, decentralized currency design, NFTs, decentralized finance (DeFi) and organizations (DAOs), smart contracts, and the impacts of these technologies on the digital economy and beyond.

S. Aral

15.563[J] Artificial Intelligence for Business

Same subject as 6.4150[J]

Prereq: None

G (Spring)

3-0-6 units

Explores how to design and evaluate products and policy based on artificial intelligence. Provides a functional (as opposed to mechanistic) understanding of the emerging technologies underlying AI. Presents AI's opportunities and risks and how to create conditions under which its deployment can succeed. No technical background required.

M. Raghavan

15.567 The Economics of Information: Strategy, Structure and Pricing

Prereq: Permission of instructor

G (Spring; second 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.

J. Horton

15.568 The Art of Leading: Experiencing Leadership in Practice (New)

Prereq: None

G (Spring; second half of term)

3-0-3 units

Integrates the MIT Sloan 4-Capabilities Leadership model with arts processes to translate leadership capabilities into practice. Through discussions, guest speakers, and reflective exercises, focuses on individual and team practices that develop and sustain effective leadership. Structured around the capabilities of visioning, relating, sensemaking, and inventing as these are expressed in creative processes that facilitate novel perspectives, generate collaborative connections, and enable adaptive innovation.

W. Orlikowski, A. Shapira

15.570 Digital Marketing and Social Media Analytics

Prereq: 15.809, 15.814, or permission of instructor

G (Fall)

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

15.572 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, A. Almaatouq

15.575 Economics of Information and Information Technology

Prereq: Permission of instructor

G (Spring)

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.

J. Horton

15.576 Research Seminar in Information Technology and Organizations: Social Perspectives

Prereq: Permission of instructor
 Acad Year 2023-2024: Not offered
 Acad Year 2024-2025: G (Spring)
 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 Seminar in Information Technology

Prereq: None
 G (Fall)
 Units arranged
 Can be repeated for credit.

Group study of current topics related to information technology.
S. Aral

15.579-15.580 Seminar in Information Technology

Prereq: None
 G (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

Law

15.615 Essential Law for Business

Prereq: None
 G (Fall, Spring)
 3-0-6 units
 Credit cannot also be received for 15.6151

Provides a solid grounding in what managers need to know about how law shapes opportunities and risks for the businesses they manage and their own careers. Enhances leadership skills for navigating critical law-sensitive junctures that managers encounter in young and mature companies. Explores the legal frameworks of contracts and deals; litigation and liability; employment and changing jobs; regulation and criminal sanctions; complex transactions, including public and private mergers and acquisitions; finance and private equity; distress, reorganization, and bankruptcy; cutting-edge digital technologies; and effective use of IP. No prior knowledge of law expected. Meets with 15.6151 when offered concurrently. Expectations and evaluation criteria differ for students taking graduate version.

J. Akula, L. Rodriques

15.6151 Essential Law for Business

Prereq: None
 U (Fall, Spring)
 3-0-6 units
 Credit cannot also be received for 15.615

Provides a solid grounding in what managers need to know about how law shapes opportunities and risks for the businesses they manage and their own careers. Enhances leadership skills for navigating critical law-sensitive junctures that managers encounter in young and mature companies. Explores the legal frameworks of contracts and deals; litigation and liability; employment and changing jobs; regulation and criminal sanctions; complex transactions, including public and private mergers and acquisitions; finance and private equity; distress, reorganization, and bankruptcy; cutting-edge digital technologies; and effective use of IP. No prior knowledge of law expected. Meets with 15.615 when offered concurrently. Expectations and evaluation criteria differ for students taking graduate version.

J. Akula, L. Rodriques

15.617 Deals, Finance, and the Law

Prereq: None

G (Spring)

Not offered regularly; consult department

3-0-6 units

Credit cannot also be received for 15.6171

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

*J. Akula***15.6171 Deals, Finance, and the Law**

Prereq: None

U (Spring)

Not offered regularly; consult department

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 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. No prior knowledge of law expected. Meets with 15.6181 when offered concurrently. Expectations and evaluation criteria differ for students taking graduate version.

*J. Akula***15.6181 Startups and the Law**

Prereq: None

U (Fall, 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. No prior knowledge of law expected. Meets with 15.6181 when offered concurrently. Expectations and evaluation criteria differ for students taking graduate version.

*J. Akula***15.620 Patent Law Fundamentals**

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

15.621 Your Career and the Law: Key Junctures, Opportunities and Risks

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

Explores legal opportunities and risks in employment from the perspectives of both employees and managers. Special attention to issues faced by tech-savvy employees and tech-intensive ventures; employees starting competing ventures; compensation and equity arrangements; the challenges of the gig economy; employee privacy; and discrimination, gender and other inclusion-related issues in the workplace. Led by former practicing attorneys, focuses on how employment law issues play out in the real world. Utilizes realistic scenarios and documents, such as offer letters and non-competition and invention assignment agreements. No prior knowledge of law expected.

J. Akula, L. Rodriques

15.622 The Law of AI, Big Data & Social Media

Prereq: None
 G (Fall, Spring)
 2-0-4 units
 Credit cannot also be received for 15.6221

Focuses on the emerging legal framework of cutting-edge digital technologies, including AI/machine learning, big data and analytics, blockchain, the internet, and social media. Considers the law's impact on the development and application of these technologies, and the legal response to beneficial and mischievous impacts. Topics include law-sensitive aspects of privacy and bias, fintech, fair competition and fair dealing in digital markets, political discourse on social media, digital technologies in the workplace, and intellectual property rights in software and other innovations. Gives special attention to the legal concerns of those planning careers built on cutting-edge skills, and of managers and entrepreneurs bringing innovations from ideas to impact. How to find and make good use of legal advice. Meets with 15.6221 when offered concurrently. Expectations and evaluation criteria differ for students taking graduate version.

J. Akula, L. Rodriques

15.6221 The Law of AI, Big Data & Social Media

Prereq: None
 U (Fall, Spring)
 2-0-4 units
 Credit cannot also be received for 15.622

Focuses on the emerging legal framework of cutting-edge digital technologies, including AI/machine learning, big data and analytics, blockchain, the internet, and social media. Considers the law's impact on the development and application of these technologies, and the legal response to beneficial and mischievous impacts. Topics include law-sensitive aspects of privacy and bias, fintech, fair competition and fair dealing in digital markets, political discourse on social media, digital technologies in the workplace, and intellectual property rights on software and other innovations. Gives special attention to the legal concerns of those planning careers built on cutting-edge skills, and of managers and entrepreneurs bringing innovations from ideas to impact. How to find and make good use of legal advice. Meets with 15.622 when offered concurrently. Expectations and evaluation criteria differ for students taking undergraduate version.

J. Akula, L. Rodriques

15.630 Law, Ethics, and Data Privacy

Prereq: None
 G (IAP)
 2-0-1 units

Surveys selected ethical dilemmas and legal issues that arise in business analytics and AI. Explains how to maintain current knowledge about key laws and regulations for evolving technologies. Issues of data privacy are presented through consideration of the European Legislation General Data Protection Regulation (GDPR) and its requirements. Explores the many ethical dilemmas that arise beyond legal regulations with guests who work on the cutting edge of law, ethics, and data science. Restricted to Master of Business Analytics students.

Consult M. Li

15.647-15.649 Seminar in Law

Prereq: None
 G (Fall)
 Not offered regularly; consult department
 Units arranged
 Can be repeated for credit.

Group study of current topics related to law.

J. L. Akula

15.655[] Law, Technology, and Public Policy

Same subject as 11.422[], IDS.435[]

Subject meets with 11.122[], IDS.066[]

Prereq: None

G (Fall)

3-0-9 units

See description under subject IDS.435[].

N. Ashford, C. Caldart

15.657[] Technology, Globalization, and Sustainable Development

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

Prereq: Permission of instructor

G (Fall)

3-0-9 units

See description under subject IDS.437[].

N. Ashford

Industrial Relations and Human Resource Management**15.661 Building Successful Careers and Organizations**

Prereq: None

G (Fall; second 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. No listeners.

E. Castilla

15.662[] People and Profits: Shaping the Future of Work

Same subject as 11.383[]

Prereq: None

G (Spring)

3-1-8 units

Examines managing work in the 21st century in the interests of both people and profits through the context of rising inequality, technological change, globalization, and the growth of the gig economy. Students evaluate various business and policy interventions intended to improve work through critical analysis of the evidence, interviews with workers and evaluations of firms, and guest speakers. Guests include business leaders at leading-edge firms and labor leaders experimenting with new ways of providing workers a voice in the workplace. Draws on materials from the MIT Task Force on Work of the Future and the online course Shaping Work of the Future.

A. Stansbury

15.663[] Environmental Law, Policy, and Economics: Pollution Prevention and Control

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

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

Prereq: None

G (Spring)

3-0-9 units

See description under subject IDS.540[].

N. Ashford, C. Caldart

15.665 Power and Negotiation

Prereq: Permission of instructor

G (Fall, Spring)

3-0-6 units

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. Lu, B. Tewfik

15.669 Strategies for People Analytics

Prereq: 15.311 or permission of instructor

G (Fall; first 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. No listeners.

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 15.675, 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 15.675, 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 15.675, 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 15.675, 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

15.674[] Leading Creative Teams

Same subject as 6.9280[], 16.990[]

Prereq: Permission of instructor

G (Fall, Spring)

3-0-6 units

See description under subject 6.9280[]. Enrollment limited.

D. Nino, J. Wu

15.675 Negotiation Seminar

Prereq: None

G (IAP)

3-0-3 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. Restricted to Sloan Fellow MBAs.

J. Curhan

15.676 Work, Employment, and Industrial Relations Theory

Prereq: Permission of instructor

G (Spring)

Not offered regularly; consult department

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] Labor Markets and Employment Policy

Same subject as 11.427[J]

Prereq: Permission of instructor

G (Spring)

3-0-9 units

Research-based examination of how labor markets work — and how they have evolved over time — through trends such as rising income inequality, technological change, globalization, falling worker power, and the fissuring of the workplace. Through reading and engaging with economics research papers, students use theoretical frameworks and rigorous empirical evidence to analyze public policy interventions in the labor market, including unemployment insurance, minimum wage, unions, family leave, anti-discrimination policies, and workforce development. Preference to graduate and PhD students.

A. Stansbury

15.679[J] USA Lab: Bridging the American Divides

Same subject as 11.651[J]

Prereq: None

G (Spring)

3-1-5 units

Practical exploration of community revitalization in America's small towns and rural regions. Focuses on work, community, and culture. Consists of rigorous classroom discussions, research, and team projects with community development organizations. Site visit over SIP week and spring break required for project fieldwork.

L. Hafrey, C. McDowell

15.681 From Analytics to Action

Prereq: None

G (Fall, Summer)

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, M. Terrab

15.690 Diversity as Discovery

Prereq: None

Acad Year 2023-2024: Not offered

Acad Year 2024-2025: U (Fall; first half of term)

3-0-3 units

Aims to help students discover who they are as individuals and members of a community. Course operates under two basic assumptions: that we can accomplish more together than alone, and that a significant part of who we are as individuals is left out of most organizational settings. Confronts the lack of tools and frameworks for dealing with the wealth of diversity among populations, and discusses the value diversity could potentially create.

R. Reagans

15.691 Research Seminar in Work, Employment and Industrial Relations

Prereq: Permission of instructor

G (Fall)

Not offered regularly; consult department

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)

Not offered regularly; consult department

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, Spring)

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)

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)

3-3-3 units

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

15.704 IDEA Lab

Prereq: 15.701

G (Spring)

6-0-9 units

Opportunity to work with interested organizations - or on a startup - to explore and leverage innovation ecosystems, build greater strength in innovation-driven entrepreneurial advantage, and build a stronger culture of corporate innovation. Faculty and students co-create projects along one of two tracks: the innovation track, focused on organizations wishing to become more innovative and/or engage the ecosystem; or the entrepreneurship track, principally for students with startup enterprises/ventures. Further explores themes of innovation ecosystems, stakeholders, and the innovation loop of experimentation and evaluation. Innovation projects are team-based and can be Boston-based. Entrepreneurship projects can be a solo enterprise, but teams are also encouraged. Restricted to second year Executive MBA students.

F. Murray, P. Budden

15.705 Organizations Lab

Prereq: Permission of instructor

G (Fall)

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**

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**

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 15.672, 15.6721, 15.673, 15.6731, 15.675

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

15.714 Competitive Strategy

Prereq: Permission of instructor

G (Spring)

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

Prereq: None

G (IAP; second half of term)

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

15.718 Introduction to Disciplined Entrepreneurship

Prereq: None

G (IAP; second half of term)

1-0-2 units

Fast-paced introduction to the disciplined entrepreneurship approach to enhancing entrepreneurial skills needed to be more productive at work, start a new venture, interact and evaluate new ventures, and understand what entrepreneurship is and is not. Interactive, action-oriented workshops build skills to apply knowledge imparted by the books *Disciplined Entrepreneurship: 24 Steps to a Successful Startup* and the *Disciplined Entrepreneurship Workbook*. Restricted to Executive MBA and Sloan Fellow MBA students.

B. Aulet

15.719 Entrepreneurial Finance

Prereq: None

G (IAP)

1-0-2 units

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, 15.515

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***15.721 Communication and Persuasion Through Data for Executives**

Prereq: None

G (IAP)

1-0-2 units

Credit cannot also be received for 15.286, 15.287

Explains how to better convey complex, quantitative information to non-experts inside and outside of one's organization. Aims to improve skill set and teach tools that can be used to demonstrate to others how to be more effective. Specific skills covered include improving ability to create effective visuals for communicating quantitative information, maximizing audience comprehension when presenting data, and cultivating ability to communicate complex ideas in writing. Restricted to Executive MBA and Sloan Fellow MBA students.

*M. Kazakoff***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 (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

Provides a rigorous introduction to corporate finance and capital markets, with an emphasis on applications vital to corporate managers. Exposes students to the major financial decisions made by leaders within a firm and to the ways the firm interacts with investors, with a focus on valuation. Topics include project and company valuation, measuring risk and return, stock pricing, corporate financing policy, the cost of capital, and risk management. Presents 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

G (Spring)

3-0-6 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

15.729 Leadership: Quantitative and Qualitative Approaches (LQ²)

Prereq: None

G (IAP)

1-0-2 units

Uses interdisciplinary approaches and real-world examples to show how analytics inform organizational change. Takes into account the human and cultural components of organizations. Restricted to Executive MBA and Sloan Fellow MBA 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 and 15.734) or permission of 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 15.814, 15.8141

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***15.733 Global Financial Markets**

Prereq: None

G (IAP)

1-0-2 units

Addresses the risks taken by trading goods and services across borders and by borrowing and investing globally. Provides a framework for understanding and assessing cross-border transactions, global financing, and global investment opportunities, with a particular attention to exchange rate risk and how it affects decision-making. Restricted to Executive MBA and Sloan Fellow MBA students.

*Consult J. Hising DiFabio***15.734 Introduction to Operations Management**

Prereq: Permission of instructor

G (Spring, 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 (Spring, Summer)

3-0-6 units

Credit cannot also be received for 15.871, 15.873, 15.8731

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. Hising DiFabio***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 and Sloan Fellows students.

Consult J. Hising DiFabio

15.738 Corporate Finance for Turbulence and Innovation

Prereq: 15.414 or 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 Fellow MBA students.

Consult J. Hising DiFabio

15.739 Discovering Your Leadership Signature

Prereq: None

G (Fall)

3-0-6 units

Credit cannot also be received for 15.318

Introspective course that helps students understand and develop their unique way of leading, i.e., their leadership signature. Students delve deeply into their patterns of leadership to understand what helps and hinders them in becoming a better leader. Substantial time spent learning how to effectively tell leadership stories and examine leadership identity, drawing on theory from the leadership literature, family systems, developmental psychology, personality psychology, and organizational change. Builds on the four capabilities (4-CAPS+) model and includes case studies, reflection, video analysis, and storytelling. Restricted to Executive MBA and Sloan Fellow MBA students.

D. Ancona

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

15.741 Game Theory for Strategic Advantage

Prereq: None

Acad Year 2023-2024: Not offered

Acad Year 2024-2025: G (IAP)

1-0-2 units

Credit cannot also be received for 15.025, 15.0251

Leverages game theory — the analysis of multi-person decision problems — to develop interactive thinking in strategic environments. Students play and analyze games that arise frequently in business settings and discuss numerous real-world examples. Restricted to Executive MBA and Sloan Fellow MBA students.

Consult J. Hising DiFabio

15.742 Platform Strategy

Prereq: None

G (IAP)

1-0-2 units

Provides a framework for strategy for firms pursuing multi-sided platform business models. Emphasizes the development and application of conceptual frameworks that enable managers to make effective decisions as they seek to create value with a platform, and to capture value from it in the face of competition from other platform providers. Restricted to Executive MBA and Sloan Fellow MBA students.

Consult J. Hising DiFabio

Operations Management

15.761 Introduction to Operations Management

Prereq: 6.3700, 15.060, 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. Summer section is primarily for Leaders for Global Operations students.

J. Jonasson, N. Trichakis

15.7611 Introduction to Operations Management

Prereq: 15.069, 18.600, 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 15.761 when offered concurrently. Expectations and evaluation criteria differ for students taking graduate version.

Staff

15.762[J] Supply Chain Analytics

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

Prereq: 15.761 or SCM.260[J]

G (Spring)

3-0-9 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.

N. Trichakis, S. Willems

15.763[J] Supply Chain: Capacity Analytics

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

Prereq: 15.761, 15.778, or SCM.260[J]

G (Spring; second half of term)

Not offered regularly; consult department

2-0-4 units

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

S. Graves, N. Trichakis, S. Willems

15.764[J] The Theory of Operations Management

Same subject as 1.271[J], IDS.250[J]

Prereq: (6.7210[J] and 6.7700[J]) or permission of instructor
G (Spring)

Not offered regularly; consult department

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.

Staff

15.765[J] Global Supply Chain Management

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

Prereq: 15.761, 15.778, SCM.260[J], SCM.261[J], or permission of instructor
G (Spring)

Not offered regularly; consult department

2-0-4 units

See description under subject SCM.265[J].

Staff

15.768 Management of Services: Concepts, Design, and Delivery

Prereq: None. *Coreq: 15.761 or 15.778*

G (Fall)

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.

Z. Ton

15.769 Operations Strategy

Prereq: 15.761, 15.778, or permission of instructor

G (Spring)

3-0-6 units

Provides a unifying framework for analyzing strategic decisions in manufacturing and service operations. Covers decisions in technology, facilities, vertical integration, human resources, sourcing, supply chain, and other strategic areas. Examines how decisions in these areas can be made to align with business strategy, and emphasizes the concept of operations as a source of competitive advantage. Discusses operations strategy within the firm, across the supply chain, and for growth and new business models. Qualifies as an elective for the Sloan Sustainability Certificate.

T. Roemer, K. Zheng

15.770[J] Logistics Systems

Same subject as 1.260[J], IDS.730[J], SCM.260[J]

Subject meets with SCM.271

Prereq: Permission of instructor

G (Fall)

3-0-9 units

See description under subject SCM.260[J].

C. Caplice, D. Correll

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

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

Prereq: None

G (Spring; second half of term)

2-0-4 units

See description under subject SCM.261[J].

J. Byrnes

15.772[J] D-Lab: Supply Chains

Same subject as 2.771[J], EC.733[J]

Subject meets with 2.871

Prereq: None

U (Spring)

Not offered regularly; consult department

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. Students taking graduate version complete additional assignments.

S. C. Graves

15.773 Hands-on Deep Learning

Prereq: None. *Coreq: 15.071 or 15.072*; or permission of instructor

G (Spring; second half of term)

3-0-3 units

Fast-paced introduction to Deep Learning, the engine behind modern artificial intelligence, with an emphasis on developing a practical understanding of how to build models to solve complex problems involving unstructured data. Topics include the basics of deep neural networks and how to set up and train them, convolutional networks to process images and videos, transformers for natural language processing, generative large language models (such as ChatGPT), and text-to-image models (such as MidJourney). Prior familiarity with Python and fundamental machine learning concepts (such as training/validation/testing, overfitting/underfitting, and regularization) required.

R. Ramakrishnan, V. Farias

15.774 The Analytics of Operations Management

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 Python). Covers topics such as machine learning, time series forecasting, choice modeling, dynamic programming, mixed-integer programming, stochastic optimization, matching algorithms, and multi-armed bandits. Draws on real-world applications from retail, healthcare, logistics, supply chain, public sector, social applications, and online learning.

M. Fazel Zarandi

15.775 Analytics Proseminar

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.

Consult M. Li

15.777 Healthcare Lab: Introduction to Healthcare Delivery in the United States

Prereq: 15.060 and 15.761

G (Fall, IAP)

4-0-11 units

Focuses on the business challenges and opportunities to deliver high-quality and reasonably-priced health services, mainly in the United States. Provides an opportunity to interact with guest speakers and senior executives from the health sector. Topics include aspects of healthcare delivery operations and how they are affected by healthcare reform policies, alternative payment models, population health perspectives, and social determinants of health. Discussions include examples from the ongoing healthcare-related work of Sloan faculty, as well as the potential for analytics and digitization to impact healthcare delivery. Provides a broad perspective on various career paths, such as consulting, entrepreneurship, delivery system management, and digital innovation development. Student teams work with a provider, supplier or healthcare-related startup organization on an applied project. Includes on-site work during fall and IAP.

A. Quaadgras, J. Jonasson

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 Sloan Fellow MBAs.

V. Farias

15.779 Technology, Design and Entrepreneurship: Operating in Emerging Communities

Subject meets with 15.781
 Prereq: Permission of instructor
 G (Spring)
 Not offered regularly; consult department
 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.

C. Vaishnav, D. Rigos, R. Stoner, C. Fine

15.780 Analytics of Operations Management

Prereq: 6.3700, 15.069, or permission of instructor
 U (Fall)
 3-0-9 units

Introduces core concepts in data-driven modeling that inform and optimize business decisions under uncertainty. Covers models and frameworks, such as machine learning, time series forecasting, dynamic programming, stochastic optimization, and multi-armed bandits. Draws on real-world applications, with several examples from retail, healthcare, logistics, supply chain, and public sector.

M. Fazel Zarandi

15.781 Technology, Design and Entrepreneurship: Operating in Emerging Communities

Subject meets with 15.779
 Prereq: Permission of instructor
 G (Spring)
 Not offered regularly; consult department
 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. Vaishnav, D. Rigos, R. Stoner, C. Fine

15.782 Product Development Methods

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

Covers modern tools and methods for product design and development, including human-centered design, agile development, product planning, identifying customer needs, concept generation, product architecture, industrial design, concept design, sustainable design methods, and product management. Limited enrollment.

S. Eppinger, M. Yang

15.783[] Product Design and Development

Same subject as 2.739[]
 Prereq: 2.009, 15.761, 15.778, 15.814, 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 human-centered design, agile development, 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.

S. Eppinger, M. C. Yang

15.784 Operations LaboratoryPrereq: None. *Coreq: 15.761*

G (Spring)

2-3-4 units

Provides an interactive learning experience in implementing operations improvement and an opportunity to work on challenging operations problems across industries in the Boston area, across the United States, and abroad. Teams of three to four students use their training and experience to help improve operations in organizations that range from small and medium businesses to multi-national corporations. Teams conduct term-long projects via remote interactions with companies, and travel to work on-site at the client company during the Sloan Innovation Period. Boston-area projects involve periodic visits throughout the term.

*T. Roemer***15.785 Product Management**

Prereq: None

G (Spring; first half of term)

2-0-4 units

Credit cannot also be received for 15.786

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.

*V. Farias, C. Fine***15.786 Product Management with Lab**Prereq: None. *Coreq: 15.761*; permission of instructor

G (IAP, Spring; first half of term)

3-0-9 units

Credit cannot also be received for 15.785

Adds an action learning component to 15.785. Students are matched with partner companies and contribute (over IAP) to a PM-related project at the company. Students must register for both IAP and spring to receive credit and participate in the company project.

*V. Farias, C. Fine***15.792[*J*] Global Operations Leadership Seminar**Same subject as 2.890[*J*], 10.792[*J*], 16.985[*J*]

Prereq: None

G (Fall, Spring)

2-0-0 units

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.

Required course designed for Leaders for Global Operations (LGO) students in conjunction with on-site projects at LGO partner companies. Internship experience must be at least 1,000 hours in length over 25-week period over the course of two academic terms, and students enter a formal agreement with their internship host company. Students work on faculty-supervised thesis research projects that deal with a specific aspect of operations, informed by this experience. Students' completion of requirements will be certified by faculty advisor. Students are required to summarize their work in the context of understanding organization, leadership, teamwork, and task management, in conjunction with 15.317.

*T. Roemer***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 Sloan Fellow MBAs.

D. Simester

15.814 Marketing Innovation

Prereq: None

G (Fall, Spring)

3-0-6 units

Credit cannot also be received for 15.732, 15.8141

Develops the skills necessary to market innovations, including new products, services, concepts, and customer experiences. Covers how to select the right market, target that market effectively, position a product or service for maximum success, and combine analytics, frameworks, and research for maximum potential. Emphasizes both marketing theory and practice: proven solutions to marketing problems, case sessions to illustrate the application of these techniques in various industries, and practice sessions to apply these techniques to real problems.

Consult J. Hauser, J. Zhang

15.8141 Marketing Innovation

Prereq: None

U (Spring)

3-0-6 units

Credit cannot also be received for 15.732, 15.814

Develops the skills necessary to market innovations, including new products, services, concepts, and customer experiences. Covers how to select the right market, target that market effectively, position a product or service for maximum success, and combine analytics, frameworks, and research for maximum potential. Emphasizes both marketing theory and practice: proven solutions to marketing problems, case sessions to illustrate the application of these techniques in various industries, and practice sessions to apply these techniques to real problems.

R. Bhui

15.815 Applied Behavioral Economics

Prereq: None

G (Spring; second half of term)

3-0-6 units

Introduction to behavioral economics for future managers, analysts, consultants or advisors to private and public enterprises. Presents basic principles of behavioral economics, and selected applications to marketing, management, finance, and public policy. Focuses on hidden influences, habits, and irrationalities in our behavior. Treats departures from 'rational behavior' as opportunities - for individuals to improve themselves, for companies to solve consumers' problems, for society to create new institutions and policies.

D. Prelec

15.818 Pricing

Prereq: 15.809, 15.814, or permission of instructor

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

15.819 Marketing and Product Analytics

Prereq: 15.809, 15.814, or permission of instructor

G (Spring)

3-0-6 units

Uses quantitative data to inform, make, and automate marketing decisions, including growth marketing, product design, pricing and promotions, advertising, and customer retention. Topics include creating metrics, randomized experiments, models for targeting, network effects, and analyzing launches. Features lectures, industry examples and guests, and data analysis assignments supported by in-class labs. Draws inspiration from the internet industry, but applications span many industries.

D. Eckles

15.821 Listening to the Customer

Prereq: 15.809, 15.814, or permission of instructor
 Acad Year 2023-2024: Not offered
 Acad Year 2024-2025: G (Spring; first half of term)
 3-0-3 units

Introduces proven methods for listening to customers and understanding their needs in order to generate new ideas to build the top line. Students practice experiential interviewing and discuss how to use metaphor analysis, observation, the voice of the customer, and other methods to uncover customer needs.

J. Hauser

15.822 Strategic Market Measurement

Prereq: None
 G (Spring; second half of term)
 Not offered regularly; consult department
 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

15.830 Enterprise Management Lab

Prereq: None. *Coreq: 15.761, 15.814, or 15.900*
 G (Fall, IAP)
 3-0-6 units

Lays the foundation for the Enterprise Management (EM) Track by developing students' ability to apply integrated management perspectives and practices through action-learning. Small teams of students deliver quality deliverables by working on projects for large organizations and emergent innovators that integrate marketing, operations, and/or strategy. Students engage with faculty mentors and guest faculty speakers from marketing, strategy, and operations. Promotes a holistic cross-functional approach to addressing business issues. Significant class time allocated to team collaboration on projects. Students must register for both the fall term and IAP. Restricted to Sloan MBA and Sloan Fellow MBA students in EM Track.

S. Chatterjee

15.833 Business-to-Business Marketing

Prereq: 15.809, 15.814, or permission of instructor
 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: 15.809, 15.814, or permission of instructor
 G (Spring; first half of term)
 Not offered regularly; consult department
 4-0-2 units

Prepares students to formulate the marketing component of overall corporate strategy. Students examine three types of situations: some in which firms leverage their existing competitive advantages; some in which they build new competitive advantages; and some in which a seemingly weaker competitor, such as a start-up, leapfrogs a larger incumbent. Presents material through a combination of cases, lectures, and a group project.

B. Wernerfelt

15.835 Entrepreneurial Marketing

Prereq: None
 G (Spring; second half of term)
 Not offered regularly; consult department
 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.
D. Eckles, D. Prelec

15.839 Workshop in Marketing

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

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

15.840-15.843 Seminar in Marketing

Prereq: 15.810
 G (Fall)
 Not offered regularly; consult department
 Units arranged
 Can be repeated for credit.

Group study of current topics related to marketing.
Staff

15.846 Branding

Prereq: 15.809, 15.814, or permission of instructor
 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 customer experience, brand architecture, and management strategies 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 behavioral academic research. Also looks at the development of leadership branding.
R. Gosline

15.847[J] Consumer Behavior

Same subject as 9.550[J]
 Prereq: 15.809, 15.814, or permission of instructor
 G (Fall)
 3-0-6 units
 Credit cannot also be received for 9.55[J], 15.8471[J]

Examines the behavior of consumers through the lens of behavioral economics, cognitive science, and social psychology. Reviews theory and research and brings this knowledge to bear on a wide range of applications in business and public policy. Lectures are combined with cases, guest speakers, and brainstorming sessions where students work in teams to apply concepts to real-world problems. Meets with 15.8471[J] when offered concurrently. Expectations and evaluation criteria may differ for students taking the graduate version; consult syllabus or instructor for specific details.
D. Rand

15.8471[J] Consumer Behavior

Same subject as 9.55[J]
 Prereq: None
 U (Fall)
 3-0-6 units
 Credit cannot also be received for 9.550[J], 15.847[J]

Examines the behavior of consumers through the lens of behavioral economics, cognitive science, and social psychology. Reviews theory and research and brings this knowledge to bear on a wide range of applications in business and public policy. Lectures are combined with cases, guest speakers, and brainstorming sessions where students work in teams to apply concepts to real-world problems. Meets with 15.847[J] when offered concurrently. Expectations and evaluation criteria may differ for students taking the graduate version; consult syllabus or instructor for specific details.
D. Rand

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, 15.873, 15.8731

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, public policy, product development, and others. Principles for effective use of modeling in the real world. Meets with 15.873 first half of term when offered concurrently. Students taking 15.871 complete additional assignments.

J. Chu, V. Yang, D. Keith

15.872 System Dynamics II

Prereq: 15.871

G (Spring; second half of term)

Not offered regularly; consult department

3-0-3 units

Credit cannot also be received for 15.737

Emphasizes tools and methods needed to apply systems thinking and simulation modeling successfully in diverse real-world settings, including supply chains, forecasting, project management, process improvement, service operations, and platform-based businesses, among others. 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 develop proficiency in how to use qualitative and quantitative data to formulate and test models, and how to work effectively with senior executives to implement change successfully. Expectations and evaluation criteria differ for students taking half-term graduate version; consult syllabus or instructor for specific details.

Staff

15.873 System Dynamics for Business and Policy

Prereq: None

G (Fall, Spring)

3-0-6 units

Credit cannot also be received for 15.736, 15.871, 15.8731

Focuses on developing the skills and tools needed to successfully apply systems thinking and simulation modeling in diverse real-world settings, including growth strategy, management of technology, operations, public policy, product development, supply chains, forecasting, project management, process improvement, service operations, and platform-based businesses, among others. Uses simulation models, management flight simulators, and case studies to deepen conceptual and modeling skills beyond what is introduced in 15.871. Exploring case studies of successful applications, students develop proficiency in how to use qualitative and quantitative data to formulate and test models, and how to work effectively with senior executives to successfully implement change. Prepares students for further work in the field. Meets with 15.871 in first half of term when offered concurrently. Students taking 15.871 complete additional assignments.

J. Chu, V. Yang, D. Keith

15.8731 System Dynamics: Tools for Solving Complex Problems

Prereq: None

U (Fall, Spring)

3-0-6 units

Credit cannot also be received for 15.736, 15.871, 15.873

Introduction to field of system dynamics. Builds on ideas of control theory to understand dynamics of social, technological and organizational systems. Focuses on developing skills and tools needed to successfully apply systems thinking and simulation modeling in diverse real-world settings, including sustainability, strategy, project management, product development, public policy, healthcare, forecasting, platform-based businesses, and others. Utilizes simulation models, management flight simulators, and case studies to deepen conceptual and modeling skills. Develops proficiency in using qualitative and quantitative data to formulate and test models and how to work effectively with policy makers and executives to successfully implement change. Meets with 15.873 when offered concurrently. Expectations and evaluation criteria may differ for students taking the graduate version; consult syllabus or instructor for specific details.

J. Chu, V. Yang

15.874[[]] People and the Planet: Environmental Governance and Science

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. Sterman

15.878 Sustainable Business Lab

Prereq: None. *Coreq: 15.915*

G (Spring)

3-0-6 units

Integrative experience that explores the complex set of circumstances and choices leaders must face in light of uncertain environmental and social consequences. Drawing on academic and practical experiences, students engage in a semester-long project focused on a host organization's sustainability challenge. Peer-to-peer learning accompanies in-class cases, simulations, and role-playing to provide students with practical skills for application in projects and for careers beyond. A shared deep dive into a systemic challenge provides a chance for students across programs to reflect and engage in dialogue about the ethical landscape of business. Through personal reflection and career visioning, students clarify their own personal commitments to leadership and change.

J. Jay, B. Patten

15.879 Research Seminar in System Dynamics

Prereq: 15.873 and permission of instructor

G (Fall, Spring)

3-0-9 units

Can be repeated for credit.

Doctoral seminar in system dynamics modeling, with a focus on building advanced modeling and research skills. Topics vary from year to year and may include: classic works in dynamic modeling from various disciplines (e.g., psychology, sociology, behavioral economics) and current research problems and papers; advanced system dynamics models focused on research and practical problems of interest to students; analytic tools and methods for model development, estimation, and analysis (e.g., automating modeling workflow, maximum likelihood, simulated method of moments, dynamical games, dynamic programming); bootcamp for enhancing modeling skills working on multiple problem sets.

Consult J. Chu, V. Yang

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, P. Azoulay

15.9001 Competitive Strategy

Prereq: None

U (Spring; first half of term)

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.

G. Rilinger

15.902 Advanced Strategic Management

Prereq: Permission of instructor

G (Spring; first half of term)

Not offered regularly; consult department

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.

Staff

15.903 Managing the Modern Organization: Organizational Economics and Corporate Strategy

Prereq: 15.010 and 15.311

G (Spring; second half of term)

3-0-3 units

Focuses on how managers build and manage complex organizations to achieve strategic goals (e.g., competitive advantages for firms). Develops theoretical frameworks that build on 15.010 and 15.311. Applies these frameworks to corporate strategy, with an emphasis on managerial practices as key drivers of organizational success.

*C. Angelucci***15.904 Strategy and the CEO**

Prereq: 15.900 or permission of instructor

Acad Year 2023-2024: Not offered

Acad Year 2024-2025: G (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 teaching 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; differences between analytical versus prescriptive tools for strategic thinking and planning; external versus internal influences on financial results; and sources of enduring competitive advantage. Key themes include the role of CEO leadership in strategy formulation and execution, how to view company performance in context, and the role of platform strategies as a tool for competition in the digital age.

*M. Cusumano***15.906 Competitive Strategy Boot Camp (New)**

Prereq: 15.809

G (Fall; first half of term)

2-0-1 units

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 value capture, the sources of competitive advantage and the interaction between industry structure and organizational capabilities. Restricted to Sloan Fellow MBA students.

*D. Li***15.910 Innovation Strategy**

Prereq: None

G (Fall; second 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.

*J. Pless***15.911 Entrepreneurial Strategy**

Prereq: None

G (Fall, Spring; second half of term)

6-0-3 units

Credit cannot also be received for 15.715

Teaches an integrated strategy framework for start-ups. Provides a deep understanding of the core strategic choices facing innovation-based entrepreneurs, a synthetic framework for the process of choosing and the implementation of entrepreneurial strategy, and the core challenges and approaches for scaling ventures over time. Highlights the process of how to choose an entrepreneurial strategy, the specific choices that matter, how key choices fit together to form an overall entrepreneurial strategy, and the playbook for particular strategies for startups.

*S. Stern, E. Scott***15.912 Strategic Management of Innovation and Entrepreneurship**

Prereq: 15.910, 15.911, or permission of instructor

G (Spring; second half of term)

Not offered regularly; consult department

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)

Not offered regularly; consult department

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 and (15.369, 15.567, 15.900, or 15.902)

G (Spring)

Not offered regularly; consult department

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 Business Strategies for a Sustainable Future

Prereq: None

G (Spring)

3-0-6 units

Develops a pragmatic, action-oriented approach to sustainability: the alignment between healthy businesses, healthy environments, healthy societies, and an economy that meets human needs. In-class simulations and role-playing provide a robust foundation for understanding sustainability challenges. Cases analyze innovative strategies for sustainable businesses and organizations. Class discussions explore how sustainability is changing existing business models and market structures, how to develop sustainable management practices, and how firms can implement those practices successfully.

J. Jay, B. Patten, J. Sterman, J. de Zegher

15.928 The Sociology of Strategy

Prereq: 15.342

Acad Year 2023-2024: Not offered

Acad Year 2024-2025: G (Spring)

3-0-9 units

Doctoral seminar in theory building for social scientists interested in economic sociology, organization theory, strategic management, and related fields. Builds skills for developing social scientific theory. Focuses on assessing and developing the relevance of sociological research for key questions in strategy research: what explains the relative performance of firms and the variety of their strategies for achieving performance. Students also develop skills in evaluating academic research in this area. Restricted to doctoral students.

E. Zuckerman

15.929 Identity and Action

Prereq: 15.342

Acad Year 2023-2024: G (Spring)

Acad Year 2024-2025: Not offered

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)

Not offered regularly; consult department

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[J] Leadership in Real Estate

Same subject as 11.430[J]

Prereq: None

G (Fall; first half of term)

3-0-3 units

See description under subject 11.430[J]. Limited to 15.

G. Schuck

15.949 Seminar in Strategy

Prereq: None

G (Fall)

Not offered regularly; consult department

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, 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, 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 (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.S04 Special Seminar in Management

Prereq: Permission of instructor

G (Spring; 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.S05 Special Seminar in Management

Prereq: Permission of instructor

G (Fall, 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 (IAP, Spring; 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)

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 (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.

Staff

15.S09 Special Seminar in Management

Prereq: Permission of instructor

G (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, Spring, Summer)

Units arranged

Can be repeated for credit.

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

Consult Sloan Educational Services

15.S11 Special Seminar in Management

Prereq: Permission of instructor

G (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.S10-15.S12 Special Seminar in Management

Prereq: Permission of instructor

G (Fall, 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.S13 Special Seminar in Management

Prereq: Permission of instructor

G (IAP)

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 Education Services

15.S14 Special Seminar in Management

Prereq: Permission of instructor

G (Spring, 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.

Consult Department Headquarters

15.S15 Special Seminar in Management

Prereq: Permission of instructor

G (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, 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.S17 Special Seminar in Management

Prereq: Permission of instructor

G (Spring, Summer; 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.S18 Special Seminar in Management

Prereq: Permission of instructor

G (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.S19 Special Seminar in Management

Prereq: Permission of instructor

G (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)

Not offered regularly; consult department

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 (IAP, 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 (IAP, 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 (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 (IAP)

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 (IAP, Spring)

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

U (IAP)

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; 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)
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)
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)
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)
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 (Fall, IAP, Summer; 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.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 (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 (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.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, 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.S58 Special Seminar in Management

Prereq: Permission of instructor

G (IAP, 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.S59 Special Seminar in Management

Prereq: Permission of instructor

G (IAP, 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.S60 Special Seminar in Management

Prereq: Permission of instructor

G (IAP, 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.S61 Special Seminar in Management

Prereq: Permission of instructor

G (IAP, 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 (IAP, 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, IAP, Summer; first 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 (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 (Summer; first 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.S68 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.S69 Special Seminar in Management

Prereq: Permission of instructor
G (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.S70-15.S75 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.
Consult Sloan Educational Services

Thesis, Research, and Practice

15.UAR[JJ] Climate and Sustainability Undergraduate Advanced Research

Same subject as 1.UAR[JJ], 3.UAR[JJ], 5.UAR[JJ], 11.UAR[JJ], 12.UAR[JJ], 22.UAR[JJ]
Prereq: Permission of instructor
U (Fall, Spring)
2-0-4 units
Can be repeated for credit.

See description under subject 1.UAR[JJ]. Application required; consult MCSC website for more information.
D. Plata, E. Olivetti

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.EPE UPOP Engineering Practice Experience**

Engineering School-Wide Elective Subject.

Offered under: 1.EPE, 2.EPE, 3.EPE, 6.EPE, 8.EPE, 10.EPE, 15.EPE, 16.EPE, 20.EPE, 22.EPE

Prereq: None

U (Fall, Spring)

0-0-1 units

Can be repeated for credit.

See description under subject 2.EPE. Application required; consult UPOP website for more information.

*K. Tan-Tiongco, D. Fordell***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, Summer)

0-1-0 units

Can be repeated for credit.

For Course 15 undergraduate students participating in management curriculum-related off-campus internship 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***15.998 Independent Group Study in Action Learning**

Prereq: None

G (Fall, IAP, Spring, Summer)

Not offered regularly; consult department

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.

Elective subject in which 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. Internship experience must be at least two weeks in length, and students must have a formal offer letter from host employer/organization. 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