MIT Mobility Initiative

MIT Transportation Classes

Fall 2022

1.022 Introduction to Network Models

Instructor: Ali Jadbabale and Amir Ajorlou

Prereq: (1.010, 18.03, and (1.00 or 1.000)) or permission of instructor

Units: 4-0-8 Lecture: TR10.30-12 (1-242) Recitation: F11 (1-242)

URL: https://learning-modules.mit.edu/class/index.html?uuid=/course/1/fa20/1.022#info

Provides an introduction to complex networks, their structure, and function, with examples from engineering, applied mathematics and social sciences. Topics include spectral graph theory, notions of centrality, random graph models, contagion phenomena, cascades and diffusion, and opinion dynamics.

1.200/1.041/11.544 Transportation: Foundations and Methods

Instructor: Cathay Wu

Prereq: 1.010 and (1.00 or 1.000) Units: 3-1-8

Lecture: WF2.30-4 (48-308) Recitation: M2.30 (48-308)

This class is suitable for students who are interested in a technical introduction to transportation systems. Covers core analytical and numerical methods for modeling, planning, operations, and control of transportation systems. Traffic flow theory, vehicle dynamics and behavior, numerical integration and simulation, graphical analysis. Properties of delays, queueing theory. Resource allocation, optimization models, linear and integer programming. Autonomy in transport, Markov Decision Processes, reinforcement learning, deep learning. Applications drawn broadly from land, air, and sea transport; private and public sector; transport of passengers and goods; futuristic, modern, and historical. Hands-on computational labs. Linear algebra background is encouraged but not required. Students taking graduate version complete additional assignments.

1.205 Advanced Demand Modeling

Instructor: Moshe Ben-Akiva

Units: 3-0-9 Lecture: F2-5 (2-105/Zoom)

Canvas Site: https://canvas.mit.edu/courses/10027

Advanced theories and applications of models for analysis and forecasting of users' behavior and demand for facilities, services, and products. Topics typically include linear and nonlinear latent variable models, including discrete choice models, structural equations and latent class models; estimation techniques with multiple data sources; joint discrete and continuous choice models; dynamic models; analysis of panel data; analysis of complex choices; estimation and forecasting with large choice sets; multidimensional probabilistic choice models; decisions under risk; advanced choice models, including behavioral mixtures, treatment of inter- and intra-agent heterogeneity, endogeneity, hybrid choice models, hidden Markov models, Monte Carlo and MCMC simulation, Bayesian methods, survey design, sampling, model transferability, use of stated preferences data, semi-parametric specifications, and discrete choice models with machine learning.

1.208 Resilient Networks

Instructor: Saurabh Amin

Prereq: 6.431 or 15.093 Units: 3-0-9

Network and combinatorial optimization methods and game-theoretic modeling for resilience of large-scale networks against disruptions, both random and adversarial. Topics include network resilience metrics, interdiction and security games, strategic resource allocation and network design, cascades in networks, routing games and network equilibrium models, reliability and security assessment of networked systems, and incentive problems in network security. Applications to transportation, logistics, supply chain, communication, and electric power systems.

1.231(J)/16.781(J)/IDS.670(J) Planning and Design of Airport Systems

[Not offered in 2021 and will be offered in 2022]

Instructor: R. de Neufville, A. R. Odoni

Units: 3-0-9

Focuses on current practice, developing trends, and advanced concepts in airport design and planning. Considers economic, environmental, and other trade-offs related to airport location, as well as the impacts of emphasizing "green" measures. Includes an analysis of the effect of airline operations on airports. Topics include demand prediction, determination of airfield capacity, and estimation of levels of congestion; terminal design; the role of airports in the aviation and transportation system; access problems; optimal configuration of air transport networks and implications for airport development; and economics, financing, and institutional aspects. Special attention to international practice and developments.

2.28 Fundamentals and Applications of Combustion

Instructor: Ahmed F. Ghoniem

Units: 3-0-9 Lecture: MW 2.30-4 (1-273)

The course covers fundamentals of combustion, defined broadly as coupled thermochemical-transport processes that convert chemical energy to thermal energy. Topics include thermodynamics, chemical kinetics, molecular transport and governing equations of reactive flow, flames, turbulence, multiphase flows and gas dynamics. Gaseous, liquid and solid fuels (chemical energy carrier). Applications to power and propulsion, IC and gas GT engines, jet and ramjet-scram engines, rockets, burners, explosions and fires, detonation, gasification and reforming, etc. Knowledge is used to determine conditions, size, rates, temperature, and design of combustion chamber, safety, emissions, etc., surrounding the use of fuels.

2.625(J)/10.625(J) Electrochemical Energy Conversion and Storage: Fundamentals, Materials and Applications

Instructor: Yang Shao-Horn (TA: Jiayu Peng)

Prerequisites: 2.005, 3.046, 3.53, 10.40, (2.051 and 2.06), or permission of instructor

Units: 4-0-8

Lecture: *TR2.30-4* (3-333) Recitation: *W4* (5-134)

Canvas Site: https://canvas.mit.edu/courses/10423

This course explores fundamental concepts, tools, and applications in electrochemical science and engineering. It introduces thermodynamics, kinetics and transport of electrochemical reactions and describes how materials structure and properties affect electrochemical behavior of particular applications, for instance in lithium rechargeable batteries, electrochemical capacitors, fuel cells, photo electrochemical cells, and electrolytic cells. Furthermore we discuss state-of-the-art electrochemical energy technologies for portable electronic devices, hybrid and plug-in vehicles, electrical vehicles. Theoretical and experimental exploration of electrochemical measurement techniques in cell testing, and in bulk and interfacial transport measurements (electronic and ionic resistivity and charge transfer cross the electrode-electrolyte interface) are also explored.

4.557(J)/MAS.552(J) City Science

Instructor: Kent Larson

Prereq: Permission of instructor

Units: 3-0-9 Lecture: *W2-5* (E14-638)

Focuses on architectural and mobility interventions that respond to changing patterns of living, working, and transport. Emphasizes mass-customized housing, autonomous parking, charging infrastructure, and shared-use networks of lightweight electric vehicles (LEVs).

Students work in small teams and are lead by researchers from the Changing Places group. Projects focus on the application of these ideas to case study cities and may include travel. Invited guests from academia and industry participate. Repeatable for credit with permission of instructor.

6.251(J)/15.081(J) Introduction to Mathematical Programming

Instructor: D. Bertsimas

Prereq: 18.06 Units: 4-0-8

Lecture: *TR1-2.30* (E52-164) Recitation: *F10* (4-231) or *F12* (4-231) *+final*

Introduction to linear optimization and its extensions emphasizing both methodology and the underlying mathematical structures and geometrical ideas. Covers classical theory of linear programming as well as some recent advances in the field. Topics: simplex method; duality theory; sensitivity analysis; network flow problems; decomposition; robust optimization; integer programming; interior point algorithms for linear programming; and introduction to combinatorial optimization and NP-completeness.

6.829 Computer Networks

Instructor: Hari Balakrishnan

Prereq: 6.033 or permission of instructor Units: 4-0-8

http://web.mit.edu/6.829/www/currentsemester/

Lecture: *TR1-2.30* (32-124)

Topics on the engineering and analysis of network protocols and architecture, including architectural principles for designing heterogeneous networks; transport protocols; Internet routing; router design; congestion control and network resource management; wireless networks; network security; naming; overlay and peer-to-peer networks. Readings from original research papers. Semester-long project and paper.

6.867 Machine Learning

Instructor: T. Jaakkola

Prereq: 18.06 and (6.008, 6.041, or 18.600)

Units: 3-0-9 Lecture: *TR2.30-4* (32-123)   Recitation: *TBA +final*

Principles, techniques, and algorithms in machine learning from the point of view of statistical inference; representation, generalization, and model selection; and methods such as linear/additive models, active learning, boosting, support vector machines, non-parametric Bayesian methods, hidden Markov models, Bayesian networks, and convolutional and recurrent neural networks. Recommended prerequisite: 6.036 or other previous experience in machine learning. Enrollment may be limited.

6.S080 Data-Driven Decision Making and Society

Instructors: Aleksander Madry, Asuman Ozdaglar, Ashia Wilson

Undergraduate Level Units 4-0-8

Prereqs: 6.041, 6.042, or 18.600; or any one of these as a co-requisite.

Website: https://people.csail.mit.edu/madry/6.S080/

Lecture: TR11-12.30 (54-100) Recitation: F1 (13-3101) or F2 (13-3101) or F3 (13-3101)

The last decade brought us tremendous advances in the power and sophistication of the data-driven decision-making techniques that are at our disposal. Encouraged by this progress, we are witnessing a broad deployment of these techniques in the real world. They now touch on---and sometime even govern---just about every aspect of our lives. However, as much as these techniques were deployed with the promise ofbringing a decisively positive change, it has become abundantly clear that they often are a mixed blessing, at best. Indeed, it turns out that the interface of algorithmic decision-making and society is rife with subtle and non-obvious interactions, undesirable feedback loops, and unintended consequences.

How should we make sense of and navigate these issues? This class will survey some of the key challenges emerging in the context of societal impact of data-driven decision making. The overarching goal is to enable the students to develop their own principled perspective on the interaction of data-driven decision making and society as well as get introduced to potential approaches to addressing these challenges.

6.S898 Deep Learning

Instructor: Philip Isola

Pre-requisites: 6.036, 6.041 or 6.042, 18.06; basically, if you have taken an intro course on ML, at the level of 6.036 or beyond, then you should be in good shape.

Course website: https://phillipi.github.io/6.s898/

Lectures: TR 1-2:30pm (4-231)

Fundamentals of deep learning, including both theory and applications. Topics include neural net architectures (MLPs, CNNs, RNNs, transformers), backpropagation and automatic differentiation, learning theory and generalization in high-dimensions, and applications to computer vision, natural language processing, and robotics. Each lecture will be from a different invited expert in the field.

This semester it will be a seminar series, with each lecture given by a different expert in the field -- we have a great line up of MIT faculty and guests!

Listeners are also welcome to attend -- in person attendance may be limited, but lectures will also be broadcast on zoom.

11.250 Transportation Research Design

Instructor: Jinhua Zhao

Prereq: Permission of instructor

Units: 2-0-1 [P/D/F] Lecture: *F9.30-11* (9-451)

Seminar dissects ten transportation studies from head to toe to illustrate how research ideas are initiated, framed, analyzed, evidenced, written, presented, criticized, revised, extended, and published, quoted and applied. Students design and execute their own transportation research. Limited to 20.

11.251 Frontier of Transportation Research

Instructor: Jinhua Zhao

Prereq: Permission of instructor

Units: 2-0-1 [P/D/F] Lecture: *F12:00-1:00pm (online via Zoom)*

Survey of the latest transportation research offered by 12 MIT faculty each presenting their ongoing research. Students are required to attend the classes, read the assigned articles, and write a brief reflection memo. The class meets with the MIT Mobility Forum.

11.449/11.149 Decarbonizing Urban Mobility

Instructors: Jinhua Zhao, Andrew Salzberg

Units: 3-3-6 Lecture: M2-5 (9-451) First class: Sep 13, 2021

Syllabus

This summer’s extreme weather and the just-released IPCC report have brought renewed attention to the urgent need to drive global carbon dioxide emissions to zero by 2050. Transportation is the single largest source of those emissions in the United States, and a major source globally. What combination of policy, technology, behavior change, and investment is best positioned to accelerate the decarbonization of urban mobility? A new course from MIT Mobility Initiative and DUSP Prof. Jinhua Zhao and transportation & climate change professional Andrew Salzberg will grapple with this question, drawing from the latest research and industry trends.

Students will be invited to explore the impact of urban development, transit, walking, electric vehicles, and new mobility technologies while framing these technical and behavioral solutions in the context of recent political and policy developments. We welcome students from a broad range of disciplines - urban & transportation planning, energy systems, vehicle technology and batteries, etc. - to take the course and work together to build comprehensive solutions to the problem.

11.540 Urban Transportation Planning

Instructor: Jim Aloisi
Units: 3-0-9 Lecture: F2-5 (9-451)

The course examines transportation policymaking and planning, its relationship to social and environmental justice and the influences of politics, governance structures and human and institutional behavior. Through the lens of history and current events we will explore the pathway to today's legacy infrastructure (and legacy thinking), how attitudes are influenced, and how change happens. We will examine the tensions and potential synergies among traditional transportation policy values of individual mobility, system efficiency and "sustainability". We will assess traditional planning methods with a critical eye, and through that process consider how to approach transportation planning in a way that responds to contemporary needs and values, with an emphasis on transport justice. We will also discuss planning and policymaking in relation to the COVID-19 pandemic, which brings an unprecedented level of uncertainty and complexity to the policy context.

14.320 Econometric Data Science

Instructors: (Fall) A. Mikusheva; (Spring) J. Angrist

Prereq: 14.300 Units: 4-4-4

Lecture: TR1-2.30 (E51-395) Recitation: F2 (E51-395) + final

Introduces multiple regression methods for causal inference and descriptive analysis in economics and related disciplines. Extensions include instrumental variables methods, analysis of randomized experiments and quasi-experimental research designs, and regression with time series data. Develops the skills needed to conduct - and critique - empirical studies in economics and related fields. Students complete an empirical project with a written description and interpretation of results; this may involve original data collection or use of existing data sets. Applications drawn from real-world examples and frontier research. Familiarity with statistical programming languages is helpful. Students taking graduate version complete additional assignments.

14.43(J)/15.0201(J) Economics of Energy, Innovation, and Sustainability

Instructor: Staff

Prereq: 14.01 or 15.0111 Units: 3-0-9

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.

15.072 Advanced Analytics Edge

Instructor: Alexandre Jacquillat

Prereq: Permission of instructor

Units: 4-0-8 Credit cannot also be received for 15.071, 15.0711

Lecture: *MW1-2.30* (E51-345) Recitation: *F9* (E51-345)

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) 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.

15.081(J)/6.251[(J) Introduction to Mathematical Programming

Instructor: Dimitris Bertsimas

Units: 4-0-8 Lecture: TR1-2.30 (E52-164) Recitation: F10 4-231) or F12 (4-231)

Introduction to linear optimization and its extensions emphasizing both methodology and the underlying mathematical structures and geometrical ideas. Covers classical theory of linear programming as well as some recent advances in the field. Topics: simplex method; duality theory; sensitivity analysis; network flow problems; decomposition; robust optimization; integer programming; interior point algorithms for linear programming; and introduction to combinatorial optimization and NP-completeness.

15.095 Machine Learning under a Modern Optimization Lens

Instructor: Dimitris Bertsimas

Unit: 3-1-8 Lecture: MW4-5.30 (E51-315) Recitation: F10.30 (E51-335) + final

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.

15.379/15.3791/11.529/ 11.029 Mobility Ventures: Driving Innovation in Transportation Systems

Instructors: Jinhua Zhao, John Moavenzadeh, Bill Aulet, Annie Hudson

Units 3-3-6 Schedule MW (11:30-1:00) (E25-117)

Syllabus

This course is designed for students who aspire to shape the future of mobility. The course explores technological, behavioral, policy and systems-wide frameworks for innovation in transportation systems, complemented with case studies across the mobility spectrum, from autonomous vehicles to urban air mobility to last-mile sidewalk robots. Students will interact with a series of guest lecturers from CEOs and other business and government executives who are actively reshaping the future of mobility. Interdisciplinary teams of students will work to deliver business plans for startups or action plans for solving “real world” challenges in established companies, governments or NGOs.

16.445(J)/STS.468(J) Entrepreneurship in Aerospace and Mobility Systems

Instructor: David A. Mindell

Units: 3-0-9 Lecture: T9-12 (33-422)

Examines concepts and procedures for new venture creation in aerospace and mobility systems, and other arenas where safety, regulation, and infrastructure are significant components. Includes space systems, aviation, autonomous vehicles, urban aerial mobility, transit and similar arenas. Includes preparation for entrepreneurship, founders’ dilemmas, venture finance, financial modeling and unit economics, fundraising and pitching, recruiting, problem definition, organizational creation, value proposition, go-to-market and product development.

16.485 Visual Navigation for Autonomous Vehicles

Instructor: Luca Carlone

Prereq: 16.32 or permission of instructor

Units: 3-2-7 **Lecture:** *MWF1* (35-225) **Lab:** *W3-5* (31-120)

Covers the mathematical foundations and state-of-the-art implementations of algorithms for vision-based navigation of autonomous vehicles (e.g., mobile robots, self-driving cars, drones). Topics include geometric control, 3D vision, visual-inertial navigation, place recognition, and simultaneous localization and mapping. Provides students with a rigorous but pragmatic overview of differential geometry and optimization on manifolds and knowledge of the fundamentals of 2-view and multi-view geometric vision for real-time motion estimation, calibration, localization, and mapping. The theoretical foundations are complemented with hands-on labs based on state-of-the-art mini race car and drone platforms. Culminates in a critical review of recent advances in the field and a team project aimed at advancing the state-of-the-art.

16.71/1.232/15.054 The Airline Industry

Instructors: Peter Belobaba (coordinator), Hamsa Balakrishnan, Arnold Barnett , Florian Allroggen, Tom Kochan, Tom Reynolds, William Swelbar

Unit: 3-0-9 Lecture: MW 1-2.30 (33-419)

Overview of the global airline industry, focusing on recent industry performance, current issues and challenges for the future. Fundamentals of airline industry structure, airline economics, operations planning, safety, labor relations, airports and air traffic control, distribution, and competitive strategies, with an emphasis on the interrelationships among major industry stakeholders. Recent research findings are showcased, including the effects of mergers and bankruptcies, changing network and capacity strategies, and competitive effects of new entrant low-cost carriers (LCCs). The unprecedented impacts of the COVID-19 pandemic on airlines and the prospects for airline industry recovery will be discussed, and will be the focus of the final team project.

16.715 Aerospace, Energy, and the Environment

Instructors: Stephen Barrett, J. Sabnis

Prereq: Chemistry (GIR) and (1.060, 2.006, 10.301, 16.003, 16.004, or permission of instructor)

Units: 3-0-9

Addresses energy and environmental challenges facing aerospace in the 21st century. Topics include: aircraft performance and energy requirements, propulsion technologies, jet fuels and alternative fuels, lifecycle assessment of fuels, combustion, emissions, climate change due to aviation, aircraft contrails, air pollution impacts of aviation, impacts of supersonic aircraft, and aviation noise. Includes an in-depth introduction to the relevant atmospheric and combustion physics and chemistry with no prior knowledge assumed. Discussion and analysis of near-term technological, fuel-based, regulatory and operational mitigation options for aviation, and longer-term technical possibilities.

16.72 Air Traffic Control

Instructor: Staff

Prereq: Permission of instructor

Units: 3-0-9

Introduces the various aspects of present and future Air Traffic Control systems. Descriptions of the present system: systems-analysis approach to problems of capacity and safety; surveillance, including NAS and ARTS; navigation subsystem technology; aircraft guidance and control; communications; collision avoidance systems; sequencing and spacing in terminal areas; future directions and development; critical discussion of past proposals and of probable future problem areas. Requires term paper.

16.886 Air Transportation Systems Architecting

Instructors: *John Hansman, M. Drela*

Prereq: Permission of instructor

Units: 3-2-7

Addresses the architecting of air transportation systems. Focuses on the conceptual phase of product definition including technical, economic, market, environmental, regulatory, legal, manufacturing, and societal factors. Centers on a realistic system case study and includes a number of lectures from industry and government. Past examples include the Very Large Transport Aircraft, a Supersonic Business Jet and a Next Generation Cargo System. Identifies the critical system level issues and analyzes them in depth via student team projects and individual assignments. Overall goal is to produce a business plan and a system specifications document that can be used to assess candidate systems.

IDS.131(J)/6.439(J) Statistics, Computation and Applications

(Subject meets with 6.419[J], IDS.012[J])

Instructors: *C. Uhler, S. Jegelka*

Prereq: ((2.087, 6.0002, 6.01, 18.03, or 18.06) and (6.008, 6.041, 14.30, 16.09, or 18.05)) or permission of instructor

Units: 3-1-8

Lecture: *MW12.30-2* (34-101) Recitation: *W4* (36-156) or *F10* (36-112) or *F11* (36-112)

Hands-on analysis of data demonstrates the interplay between statistics and computation. Includes four modules, each centered on a specific data set, and introduced by a domain expert. Provides instruction in specific, relevant analysis methods and corresponding algorithmic aspects. Potential modules may include medical data, gene regulation, social networks, finance data (time series), traffic, transportation, weather forecasting, policy, or industrial web applications. Projects address a large-scale data analysis question. Students taking graduate version complete additional assignments. Limited enrollment; priority to Statistics and Data Science minors and to juniors and seniors.

IDS.145(J)/15.062(J) Data Mining: Finding the Models and Predictions that Create Value

(second half of term)

Instructor: R. Welsch

(Subject meets with 15.0621) Prereq: 15.060, 15.075, or permission of instructor

Units: 2-0-4

Begins Nov 1. Lecture: MW4-5.30 (E51-335) Recitation: T4 (E51-395)

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 undergraduate version; consult syllabus or instructor for specific details.

MAS.552/4.557 City Science

Instructors: Kent Larson & Luis Alonso (with City Science Researchers & Guest Lecturers)
TA: Maitane Iruretagoyena, maitanei@mit.edu
Prereq: Permission of instructor
Units: 3-0-9 Lecture: *W2-5* (E14-638) (1st class meets on September 8)

Focuses on architectural and mobility interventions that respond to changing patterns of living, working, and transport. Emphasizes mass-customized housing, autonomous parking, charging infrastructure, and shared-use networks of lightweight electric vehicles (LEVs). Students work in small teams and are lead by researchers from the Changing Places group. Projects focus on the application of these ideas to case study cities and may include travel. Invited guests from academia and industry participate. Repeatable for credit with permission of instructor. This workshop will be a rapid-fire, high-level exploration of how to model urban interventions that could enable low-carbon (ultimately zero-carbon) cities, using the MIT-Kendall Square district as a case study. We will focus on two questions:

• What would be required for MIT-Kendall Square to achieve zero-carbon in 20 years?
• Can social performance be simultaneously increased to create a model entrepreneurship community?

MAS.665(J)/15.375(J)/EC.731(J) Global Ventures

Instructor: A. Pentland

Prereq: Permission of instructor

Units: 3-0-9 Lecture: R10-12 (E14-633)

Seminar on founding, financing, and building entrepreneurial ventures in developing nations. Challenges students to craft enduring and economically viable solutions to the problems faced by these countries. Cases illustrate examples of both successful and failed businesses, and the difficulties in deploying and diffusing products and services through entrepreneurial action. Explores a range of established and emerging business models, as well as new business opportunities enabled by innovations emerging from MIT labs and beyond. Students develop a business plan executive summary suitable for submission in the MIT $100K Entrepreneurship Competition's Accelerate Contest or MIT IDEAS.

SCM.260(J)/1.260(J)/15.770(J)/IDS.730(J) Logistics Systems

Instructor: C. Caplice

Units: 3-0-9 Lecture: MW8.30-10 (E51-315)

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