URBAN STUDIES AND PLANNING (COURSE 11)

Introductory Subjects

11.001[J] Introduction to Urban Design and Development
Same subject as 4.250[J]
Prereq: None
Acad Year 2017-2018: Not offered
Acad Year 2018-2019: U (Fall)
3-0-9 units. HASS-H

Examines the evolving structure of cities and the way that cities, suburbs, and metropolitan areas can be designed and developed. Surveys the ideas of a wide range of people who have addressed urban problems. Stresses the connection between values and design. Demonstrates how physical, social, political and economic forces interact to shape and reshape cities over time.

L. Vale

11.002[J] Making Public Policy
Same subject as 17.30[J]
Prereq: None
U (Fall)
4-0-8 units. HASS-S; CI-H

Examines how the struggle among competing advocates shapes the outputs of government. Considers how conditions become problems for government to solve, why some political arguments are more persuasive than others, why some policy tools are preferred over others, and whether policies achieve their goals. Investigates the interactions among elected officials, think tanks, interest groups, the media, and the public in controversies over global warming, urban sprawl, Social Security, health care, education, and other issues.

Staff

11.003[J] Methods of Policy Analysis
Same subject as 17.303[J]
Prereq: 11.002[J]; Coreq: 14.01
Acad Year 2017-2018: U (Spring)
Acad Year 2018-2019: Not offered
3-0-9 units. HASS-S

Provides students with an introduction to public policy analysis. Examines various approaches to policy analysis by considering the concepts, tools, and methods used in economics, political science, and other disciplines. Students apply and critique these approaches through case studies of current public policy problems.

Staff

11.004[J] Past, Present, and Future of the Environment and Integration with Society (New)
Same subject as STS.033[J]
Prereq: None
U (Spring)
3-0-9 units. HASS-E

Explores solutions to present-day challenges by studying social, cultural, political, economic, environmental, and technological events. Examines the inter-relatedness of these events from a philosophical as well as a mathematical modeling perspective. Emulates real-world, large-scale environmental project systems development. Curriculum centers on a case study of Boston Harbor and an open-ended research problem. Students work in teams to study current needs, and then investigate plausible, symbiotic, systems-oriented solutions for going forward.

A. Glasmeier, J. Knox-Hayes, A. Slocum, R. Scheffler, J. Trancik

11.005 Introduction to International Development
Prereq: None
U (Spring)
3-0-9 units. HASS-S

Introduces the political economy of international economic development planning, using an applied, quantitative approach. Considers why some countries are able to develop faster than others. Presents major theories and models of development and underdevelopment, providing tools to understand the mechanisms and processes behind economic growth and broader notions of progress. Offers an alternative view of development, focusing on the persistence of dichotomies in current theory and practice. Using specific cases, explores how different combinations of actors and institutions at various scales may promote or inhibit economic development. Students re-examine conventional knowledge and engage critically with the assumptions behind current thinking and policy.

Staff

11.006 Poverty and Economic Security
Subject meets with 11.206
Prereq: None
Acad Year 2017-2018: Not offered
Acad Year 2018-2019: U (Fall)
3-0-9 units. HASS-S

Explores the evolution of poverty and economic security in the US within a global context. Examines the impacts of recent economic restructuring and globalization. Reviews current debates about the fate of the middle class, sources of increasing inequality, and approaches to advancing economic opportunity and security. Students taking graduate version complete additional assignments.

A. Glasmeier
11.011 The Art and Science of Negotiation  
Prereq: None  
U (Fall, Spring)  
3-0-9 units. HASS-S  
Introduction to negotiation theory and practice. Applications in government, business, and nonprofit settings are examined. Combines a "hands-on" personal skill-building orientation with a look at pertinent theory. Strategy, communications, ethics, and institutional influences are examined as they shape the ability of actors to analyze problems, negotiate agreements, and resolve disputes in social, organizational, and political circumstances characterized by interdependent interests.  
B. Verdini

11.013[J] American Urban History  
Same subject as 21H.217[J]  
Prereq: None  
U (Fall)  
2-0-7 units. HASS-H; CI-H  
Seminar on the history of institutions and institutional change in American cities from roughly 1850 to the present. Among the institutions to be looked at are political machines, police departments, courts, schools, prisons, public authorities, and universities. Focuses on readings and discussions.  
R. M. Fogelson

11.014[J] History of the Built Environment in the US  
Same subject as 21H.218[J]  
Prereq: None  
U (Fall)  
2-0-7 units. HASS-H; CI-H  
Seminar on the history of selected features of the physical environment of urban America. Among the features considered are parks, cemeteries, tenements, suburbs, zoos, skyscrapers, department stores, supermarkets, and amusement parks.  
R. M. Fogelson

11.015[J] Riots, Strikes, and Conspiracies in American History  
Same subject as 21H.226[J]  
Prereq: None  
Acad Year 2017-2018: U (Spring)  
Acad Year 2018-2019: Not offered  
3-0-9 units. HASS-H; CI-H  
See description under subject 21H.226[J].  
R. M. Fogelson

11.016[J] The Once and Future City  
Same subject as 4.211[J]  
Prereq: None  
U (Spring)  
3-0-9 units. HASS-H; CI-H  
Examines the evolving structure of cities, the dynamic processes that shape them, and the significance of a city's history for its future development. Develops the ability to read urban form as an interplay of natural processes and human purposes over time. Field assignments in Boston provide the opportunity to use, develop, and refine these concepts. Enrollment limited.  
A. Spirn

11.021[J] Environmental Law, Policy, and Economics: Pollution Prevention and Control  
Same subject as 1.801[J], 17.393[J], IDS.060[J]  
Subject meets with 1.811[J], 11.630[J], 15.663[J], IDS.540[J]  
Prereq: None  
U (Fall)  
3-0-9 units. HASS-S  
Reviews and analyzes federal and state regulation of air and water pollution, hazardous waste, green-house gas emissions, and the production and use of toxic chemicals. Analyzes pollution as an economic problem and the failure of markets. Explores the role of science and economics in legal decisions. Emphasizes use of legal mechanisms and alternative approaches (such as economic incentives and voluntary approaches) to control pollution and encourage chemical accident and pollution prevention. Focuses on the major federal legislation, the underlying administrative system, and the common law in analyzing environmental policy, economic consequences, and the role of the courts. Discusses classical pollutants and toxic industrial chemicals, green-house gas emissions, community right-to-know, and environmental justice. Develops basic legal skills: how to read/understand cases, regulations, and statutes. Students taking graduate version are expected to explore the subject in greater depth.  
N. Ashford, C. Caldart
11.022[J] Regulation of Chemicals, Radiation, and Biotechnology
Same subject as 1.802[J], IDS.061[J]
Subject meets with 1.812[J], 10.805[J], 11.631[J], IDS.436[J], IDS.541[J]
Prereq: 1.801[J] or permission of instructor
U (Spring)
Not offered regularly; consult department
3-0-9 units
Focuses on policy design and evaluation in the regulation of hazardous substances and processes. Includes risk assessment, industrial chemicals, pesticides, food contaminants, pharmaceuticals, radiation and radioactive wastes, product safety, workplace hazards, indoor air pollution, biotechnology, victims' compensation, and administrative law. Health and economic consequences of regulation, as well as its potential to spur technological change, are discussed for each regulatory regime. Students taking the graduate version are expected to explore the subject in greater depth.
N. Ashford, C. Caldart

11.025[J] D-Lab: Development
Same subject as EC.701[J]
Subject meets with 11.472[J], EC.781[J]
Prereq: None
U (Fall)
3-2-7 units. HASS-S
See description under subject EC.701[J]. Enrollment limited by lottery; must attend first class session.
S. L. Hsu, A. B. Smith, B. Sanyal

11.026[J] Downtown
Same subject as 21H.321[J]
Subject meets with 11.339
Prereq: None
U (Spring)
2-0-7 units. HASS-H
See description under subject 21H.321[J].
R. M. Fogelson

11.027 City to City: Comparing, Researching and Writing about Cities
Prereq: Permission of instructor
U (Spring)
3-0-9 units. HASS-S
Introduces client-oriented research and the use of urban planning tools. Students work directly with government and community agencies to find solutions to real world problems; interview planners and other field experts, and write and present findings to client and community audiences. Opportunity to travel for research. Limited to 14; preference to Course 11 majors.
C. Abbanat

Specialized Subjects

11.111 The Art and Science of Negotiation: Advanced Applications (New)
Prereq: 11.011 or permission of instructor
U (Spring)
3-0-9 units. HASS-S
Building on the skills and strategies honed in 11.011, explores advanced negotiation through theory and practice. Emphasizes an experiential, personal skill-building approach, underpinned by foundational and cutting-edge research. Examines applications in management, public policy, social entrepreneurship, international diplomacy, and scientific discovery. Strengthens collaborative decision-making, communication, and leadership skills while enhancing students' ability to proactively frame conflicts, analyze problems, engage stakeholders, create value, negotiate agreements, and resolve disputes.
B. Verdini

11.123 Big Plans and Mega-Urban Landscapes
Prereq: None
U (Spring)
3-0-6 units. HASS-S
Explores the physical, ecological, technological, political, economic and cultural implications of big plans and mega-urban landscapes in a global context. Uses local and international case studies to understand the process of making major changes to urban landscape and city fabric, and to regional landscape systems. Includes lectures by leading practitioners. Assignments consider planning and design strategies across multiple scales and time frames.
Staff
11.124 Introduction to Education: Looking Forward and Looking Back on Education
Prereq: None
U (Fall)
3-6-3 units. HASS-S; CI-H

One of two introductory subjects on teaching and learning science and mathematics in a variety of K-12 settings. Topics include education and media, education reform, the history of education, simulations, games, and the digital divide. Students gain practical experience through weekly visits to schools, classroom discussions, selected readings, and activities to develop a critical and broad understanding of past and current forces that shape the goals and processes of education, and explores the challenges and opportunities of teaching. Students work collaboratively and individually on papers, projects, and in-class presentations. Limited to 25.
E. Klopfer

11.125 Introduction to Education: Understanding and Evaluating Education
Prereq: None
U (Spring)
3-6-3 units. HASS-S; CI-H

One of two introductory subjects on teaching and learning science and mathematics in a variety of K-12 settings. Topics include student misconceptions, formative assessment, standards and standardized testing, multiple intelligences, and educational technology. Students gain practical experience through weekly visits to schools, classroom discussions, selected readings, and activities to develop a critical and broad understanding of past and current forces that shape the goals and processes of education, and explores the challenges and opportunities of teaching. Students work collaboratively and individually on papers, projects, and in-class presentations. Limited to 25.
E. Klopfer

11.127(I) Design and Development of Games for Learning
Same subject as CMS.590(I)
Subject meets with 11.252(I), CMS.863(I)
Prereq: None
U (Spring)
3-6-3 units. HASS-H

Immerses students in the process of building and testing their own digital and board games in order to better understand how we learn from games. Explores the design and use of games in the classroom in addition to research and development issues associated with computer-based (desktop and handheld) and non-computer-based media. In developing their own games, students examine what and how people learn from them (including field testing of products), as well as how games can be implemented in educational settings. All levels of computer experience welcome. Students taking graduate version complete additional assignments.
E. Klopfer

11.129 Educational Theory and Practice I
Prereq: None. Coreq: 11.124
U (Fall)
3-0-9 units. HASS-S

Concentrates on core set of skills and knowledge necessary for teaching in secondary schools. Topics include classroom management, student behavior and motivation, curriculum design, educational reform, and the teaching profession. Classroom observation is a key component. Assignments include readings from educational literature, written reflections on classroom observations, practice teaching and constructing curriculum. The first of the three-course sequence necessary to complete the Teacher Education Program. Limited to 15; preference to juniors and seniors.
G. Schwanbeck

11.130 Educational Theory and Practice II
Prereq: 11.129
U (IAP)
3-0-9 units

Concentrates on the theory and psychology associated with student learning. Topics include educational theory, educational psychology, and theories of learning. Students assume responsibility for full-time teaching of two or more classes at their designated school. Class sessions focus on debriefing and problem-solving. Second of a three-course sequence necessary to complete the Teacher Education Program.
G. Schwanbeck
11.131 Educational Theory and Practice III
Prereq: 11.130
U (Spring)
3-0-9 units. HASS-S

Students continue their IAP student teaching through mid March. Topics include educational psychology, theories of learning, and using technology and evaluating its effectiveness to enhance student learning. Assignments include readings from educational literature, written reflections on student teaching, presentations on class topics and creating a project that supports student learning at the school where the MIT student is teaching. This is the third of the three-course sequence necessary to complete the Teacher Education Program.
G. Schwanbeck

11.137 Financing Economic Development
Subject meets with 11.437
Prereq: None
U (Fall)
4-0-8 units

Focuses on financing tools and program models to support local economic development. Provides an overview of private capital markets and financing sources to understand capital market imperfections that constrain economic development, business accounting, financial statement analysis, federal economic development programs, and public finance tools. Covers policies and program models, including revolving loan funds, guarantee programs, venture capital funds, bank holding companies, community development loan funds and credit unions, micro enterprise funds, and the Community Reinvestment Act. Students taking graduate version complete additional assignments. Limited to 25.
K. Seidman

11.139 The City in Film
Subject meets with 11.239
Prereq: None
U (Spring)
2-2-5 units. HASS-H; CI-H

Surveys important developments in urbanism from 1900 to the present, using film as a lens to explore and interpret aspects of the urban experience in the US and abroad. Topics include industrialization, demographics, diversity, the environment, and the relationship between the community and the individual. Films vary from year to year but always include a balance of classics from the history of film, an occasional experimental/avant-garde film, and a number of more recent, mainstream movies. Students taking undergraduate version complete writing assignments that focus on observation, analysis, and the essay, and give an oral presentation. Limited to 18.
E. Glenn

11.140 Urbanization and Development
Subject meets with 11.480
Prereq: None
U (Spring)
3-0-9 units. HASS-S

Examines developmental dynamics of rapidly urbanizing locales, with a special focus on the developing world. Case studies from India, China, Mexico, Brazil, and South Africa form the basis for discussion of social, spatial, political and economic changes in cities spurred by the decline of industry, the rise of services, and the proliferation of urban mega projects. Emphasizes the challenges of growing urban inequality, environmental risk, citizen displacement, insufficient housing, and the lack of effective institutions for metropolitan governance. Students taking graduate version complete additional assignments.
Staff

11.142 Geography of the Global Economy
Prereq: None
U (Spring)
3-0-9 units. HASS-S

Analyzes implications of economic globalization for communities, regions, international businesses and economic development organizations. Uses spatial analysis techniques to model the role of energy resources in shaping international political economy. Investigates key drivers of human, physical, and social capital flows and their roles in modern human settlement systems. Surveys contemporary models of industrialization and places them in geographic context. Connects forces of change with their implications for the distribution of wealth and human well-being.
A. Glasmeier
11.144 Project Appraisal in Developing Countries
Subject meets with 11.484
Prereq: Permission of instructor
U (Spring)
Not offered regularly; consult department
3-0-9 units
Covers techniques of financial analysis of investment expenditures, as well as the economic and distributive appraisal of development projects. Critical analysis of these tools in the political economy of international development is discussed. Topics include appraisal's role in the project cycle, planning under conditions of uncertainty, constraints in data quality and the limits of rational analysis, and the coordination of an interdisciplinary appraisal team. Students taking graduate version complete additional assignments. Enrollment limited; preference to majors.
Y. Hong

11.145 International Housing Economics and Finance
Prereq: 14.01
U (Spring)
3-0-6 units
Credit cannot also be received for 11.355
Presents a theory of comparative differences in international housing outcomes. Introduces institutional differences in the ways housing expenditures are financed, and the economic determinants of housing outcomes, such as construction costs, land values, housing quality, and ownership rates. Analyzes the flow of funds to and from the different national housing finance sectors. Develops an understanding of the greater financial and macroeconomic implications of the mortgage credit sector, and how policies affect the ways housing asset fluctuations impact national economies. Considers the perspective of investors in international real estate markets and the risks and rewards involved. Draws on lessons from an international comparative approach, and applies them to economic and finance policies at the local, state/provincial, and federal levels within a country of choice. Meets with 11.355 when offered concurrently. Students taking graduate version complete additional assignments.
A. Saiz

11.146 Urbanizing China
Subject meets with 11.476
Prereq: None
U (Fall)
Not offered regularly; consult department
2-0-7 units
Discusses China's daunting urban challenges: congestion and smog, housing affordability, land reform and urban financing, migrants and locals, and social and spatial inequality. Provides examples of laudable achievements and diverse and innovative responses across more than six hundred cities. Presents China's urbanization as the joint result of natural socioeconomic processes and conscious actions by governments, markets, and the public. Presents multidisciplinary approaches and alternative narratives. Examines the intricate interaction between state and market in China's context, yielding a variety of state-market 'cocktails' devised and experimented in different cities in response to local problems, each involving a multilayered projection onto urban space. Students taking graduate version complete additional assignments.
J. Zhao

11.147 Budgeting and Finance for the Public Sector
Subject meets with 11.487
Prereq: Permission of instructor
U (Spring)
3-0-9 units. HASS-S
Examines globally relevant challenges of adequately and effectively attending to public sector responsibilities for basic services with limited resources. Particular attention to the contexts of fiscal crises and rapid population growth, as well as shrinkage, through an introduction to methods and processes of budgeting, accounting, and financial mobilization. Case studies and practice exercises explore revenue strategies, demonstrate fiscal analytical competencies, and familiarize students with pioneering examples of promising budget and accounting processes and innovative funding mobilization via taxation, capital markets, and other mechanisms (e.g., land-value capture). Students taking graduate version explore the subject in greater depth.
G. Carolini
11.148 Environmental Justice: Law and Policy
Subject meets with 11.368
Prereq: None
Acad Year 2017-2018: U (Fall)
Acad Year 2018-2019: Not offered
3-0-9 units. HASS-S

Introduces frameworks for analyzing and addressing inequalities in the distribution of environmental benefits and burdens. Explores the foundations and principles of the environmental justice movement from the perspectives of social science, public policy, and law. Applies environmental justice principles to contemporary issues in urban policy and planning. Students taking graduate version complete additional assignments.

Staff

11.150[J] Metropolis: A Comparative History of New York City
Same subject as 21H.220[J]
Prereq: None
Acad Year 2017-2018: Not offered
Acad Year 2018-2019: U (Fall)
3-0-9 units. HASS-H

See description under subject 21H.220[J].

C. Wilder

11.151[J] Youth Political Participation
Same subject as STS.080[J]
Prereq: None
Acad Year 2017-2018: Not offered
Acad Year 2018-2019: U (Spring)
3-0-9 units. HASS-H

See description under subject STS.080[J]. Limited to 40.

J. S. Light

11.152[J] The Ghetto: From Venice to Harlem
Same subject as 21H.385[J]
Prereq: None
U (Spring)
2-0-10 units. HASS-S

See description under subject 21H.385[J].

C. Wilder

11.153[J] Shanghai and China's Modernization
Same subject as 21H.351[J]
Prereq: None
Acad Year 2017-2018: Not offered
Acad Year 2018-2019: U (Fall)
2-0-10 units. HASS-H

See description under subject 21H.351[J].

C. Leighton

11.156 Healthy Cities: Assessing Health Impacts of Policies and Plans
Subject meets with 11.356
Prereq: None
U (Spring)
3-0-9 units

Examines the built, psychosocial, economic, and natural environment factors that affect health behaviors and outcomes. Introduces tools designed to integrate public health considerations into policymaking and planning. Provides extensive practical training in the application of health impact assessment (HIA) methodology, which brings a health lens to policy, budgeting, and planning debates. Emphasizes health equity and healthy cities. Students taking graduate version complete additional assignments. Limited to 30.

M. Arcaya

11.158 Behavior and Policy: Connections in Transportation
Subject meets with 11.478
Prereq: None
U (Spring)
3-0-9 units

Examines the behavioral foundation for policy design using urban transportation examples. Introduces multiple frameworks for understanding behavior while contrasting the perspectives of classic economic theory with behavioral economics and social psychology. Suggests corresponding policy interventions and establishes a mapping across behavior, theory, and policy. Presents a spectrum of instruments for positively influencing behavior and improving welfare. Challenges students to critique, design, implement and interpret experiments that nudge travel behavior. Brings behavioral insights to creative design of transport policies that are efficient and equitable as well as simple, consistent, transparent, acceptable, and adaptive to behavioral changes. Students taking graduate version complete additional assignments.

J. Zhao

Same subject as 14.43[J], 15.031[J], 17.397[J], 21A.415[J]
Prereq: 14.01, 15.0111, or permission of instructor
Acad Year 2017-2018: Not offered
Acad Year 2018-2019: U (Fall)
4-0-8 units. HASS-S

See description under subject 15.031[J].

C. Warshaw
11.162 Politics of Energy and the Environment
Prereq: None
Acad Year 2017-2018: U (Spring)
Acad Year 2018-2019: Not offered
3-0-9 units. HASS-S

Focuses on the politics of making local, state, national and international decisions on energy and the environment. Topics include implementing energy efficiency measures, siting nuclear and alternative energy plants, promoting oil and gas development offshore and in wilderness, adapting to climate change, handling toxic waste, protecting endangered species, and conserving water. Case studies include Cape Wind, disputes over oil and gas exploration in the Arctic, the response to Hurricane Katrina, and efforts to craft and comply with the greenhouse gas emissions limits.

Staff

B. Rajagopal

11.164[J] Human Rights at Home and Abroad
Same subject as 17.391[J]
Subject meets with 11.497
Prereq: Permission of instructor
Acad Year 2017-2018: U (Fall)
Acad Year 2018-2019: Not offered
2-0-10 units. HASS-S

Provides a rigorous and critical introduction to the history, foundation, structure, and operation of the human rights movement. Focuses on key ideas, actors, methods and sources, and critically evaluates the field. Addresses current debates in human rights, including the relationship with security, democracy, development and globalization, urbanization, equality (in housing and other economic and social rights; women’s rights; ethnic, religious and racial discrimination; and policing/conflict), post-conflict rebuilding and transitional justice, and technology in human rights activism. No prior coursework needed, but work experience, or community service that demonstrates familiarity with global affairs or engagement with ethics and social justice issues, preferred. Students taking graduate version are expected to write a research paper.

B. Rajagopal

11.165 Urban Energy Systems and Policy
Subject meets with 1.286[J], 11.477[J]
Prereq: 14.01 or permission of instructor
U (Fall)
3-0-9 units. HASS-S

Examines efforts in developing and advanced nations and regions. Examines key issues in the current and future development of urban energy systems, such as technology, use, behavior, regulation, climate change, and lack of access or energy poverty. Case studies on a diverse sampling of cities explore how prospective technologies and policies can be implemented. Includes intensive group research projects, discussion, and debate. Students taking the graduate version complete additional assignments.

D. Hsu

11.166 Law, Social Movements, and Public Policy: Comparative and International Experience
Subject meets with 11.496
Prereq: Permission of instructor
Acad Year 2017-2018: Not offered
Acad Year 2018-2019: U (Spring)
3-0-9 units. HASS-S

Studies the interaction between law, courts, and social movements in shaping domestic and global public policy. Examines how groups mobilize to use law to affect change and why they succeed and fail. Case studies explore the interplay between law, social movements, and public policy in current issues, such as gender, race, labor, trade, climate change/environment, and LGBTQ rights. Introduces theories of public policy, social movements, law and society, and transnational studies. Students taking graduate version complete additional assignments. Limited to 15.

B. Rajagopal

11.169 Global Climate Policy and Sustainability
Subject meets with 11.269
Prereq: None
U (Spring)
3-0-9 units

Examines climate politics both nationally and globally. Addresses economic growth, environmental preservation, and social equity through the lens of sustainability. Uses various country and regional cases to analyze how sociopolitical, economic and environmental values shape climate policy. Students develop recommendations for making climate policy more effective and sustainable. Students taking the graduate version complete additional assignments. Limited to 25.

J. Knox-Hayes
Laboratories

11.188 Urban Planning and Social Science Laboratory
Prereq: None
U (Spring)
3-3-6 units. Institute LAB
Credit cannot also be received for 11.205

An introduction to the research and empirical analysis of urban planning issues using geographic information systems. Extensive hands-on exercises provide experience with various techniques in spatial analysis and querying databases. Includes a small project on an urban planning problem involving the selection of appropriate methods, the use of primary and secondary data, computer-based modeling, and spatial analysis. Requires some computing experience.

J. Ferreira

Tutorials, Fieldwork, and Internships

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

Undergraduate research opportunities in Urban Studies and Planning. For further information, consult the Departmental Coordinators.

J. Ferreira, Jr.

11.URG Undergraduate Research
Prereq: None
U (Fall, IAP, Spring, Summer)
Units arranged
Can be repeated for credit.

Undergraduate research opportunities in Urban Studies and Planning. For further information, consult the Departmental Coordinators.

E. Klopfer

Same subject as 4.THT[J]
Prereq: None
U (Fall)
3-0-9 units
Can be repeated for credit.

Designed for students writing a thesis in Urban Studies and Planning or Architecture. Develop research topics, review relevant research and scholarship, frame research questions and arguments, choose an appropriate methodology for analysis, and draft introductory and methodology sections.

C. Abbanat

11.THU Undergraduate Thesis
Prereq: 11.THT[J]
U (Fall, IAP, Spring, Summer)
Units arranged
Can be repeated for credit.

Program of research leading to the writing of an SB thesis. To be arranged by the student under approved supervision.

Staff

11.189-11.190 Urban Fieldwork
Prereq: None
U (Fall, Spring)
Units arranged [P/D/F]
Can be repeated for credit.

Practical application of city and regional planning techniques to towns, cities, and regions, including problems of replanning, redevelopment, and renewal of existing communities. Includes internships, under staff supervision, in municipal and state agencies and departments.

Staff

11.191-11.192 Independent Study
Prereq: None
U (Fall, IAP, Spring)
Units arranged [P/D/F]
Can be repeated for credit.

For undergraduates wishing to pursue further study in specialized areas of urban studies or city and regional planning not covered in regular subjects.

Staff
11.193-11.194 Supervised Readings
Prereq: None
U (Fall, Spring)
Units arranged [P/D/F]
Can be repeated for credit.

Reading and discussion of topics in urban studies and planning.  
Staff

11.195 Special Subject: Urban Studies and Planning
Prereq: None
U (Spring)
Units arranged
Can be repeated for credit.

For undergraduates wishing to pursue further study or fieldwork in specialized areas of urban studies or city and regional planning not covered in regular subjects of instruction.  
Staff

11.196-11.199 Special Subject: Urban Studies and Planning
Prereq: None
U (Spring)
Units arranged
Can be repeated for credit.

For undergraduates wishing to pursue further study or fieldwork in specialized areas of urban studies or city and regional planning not covered in regular subjects of instruction. 11.198 is graded P/D/F.  
Staff

Master's Core Subjects

11.201 Gateway: Planning Action
Prereq: None
G (Fall)
4-1-7 units

Introduces the profession of urban and regional planning. Emphasizes the key sensibilities necessary for effective planning practice as well as professional writing and oral communication skills. 
J. Buckley

11.202 Planning Economics
Prereq: 11.203
G (Fall; partial term)
2-0-2 units

Introduces applications of microeconomic theory to planning problems including urban form and structure, government's role in urban settings and problems of housing finance. 
A. Saiz

11.203 Microeconomics
Prereq: None
G (Fall; partial term)
3-0-5 units

Introduces basic economic analysis for planning students including the functioning of markets, the allocation of scarce resources among competing uses, profit maximizing behavior in different market structures. Course illustrates theory with contemporary economic issues.  
A. Saiz

11.205 Introduction to Spatial Analysis
Prereq: None
G (Fall, Spring; partial term)
2-2-2 units

Credit cannot also be received for 11.188

Practical introduction to spatial analysis and geographic information systems (GIS). Examines how geography is represented digitally and how nonrandom distributions of phenomena as diverse as poverty and scenic resources can be better understood by examining their spatial characteristics. Limited enrollment; preference to first-year MCP students. 
Fall: S. Williams 
Spring: J. Ferreira

11.206 Poverty and Economic Security
Subject meets with 11.006
Prereq: None
Acad Year 2017-2018: Not offered
Acad Year 2018-2019: G (Fall)
3-0-9 units

Explores the evolution of poverty and economic security in the US within a global context. Examines the impacts of recent economic restructuring and globalization. Reviews current debates about the fate of the middle class, sources of increasing inequality, and approaches to advancing economic opportunity and security. Students taking graduate version complete additional assignments.  
A. Glasmeier
11.220 Quantitative Reasoning and Statistical Methods for Planning I
Prereq: Permission of instructor
G (Spring)
4-2-6 units
Develops logical, empirically based arguments using statistical techniques and analytic methods. Covers elementary statistics, probability, and other types of quantitative reasoning useful for description, estimation, comparison, and explanation. Emphasizes the use and limitations of analytical techniques in planning practice. Restricted to MCP students.
J. Zhao

Department-wide Subjects
11.225 Argumentation and Communication
Prereq: None
G (Fall)
Not offered regularly; consult department
2-0-4 units
Can be repeated for credit.
A writing practicum associated with 11.201 that focuses on helping students write and present their ideas in cogent, persuasive arguments and other analytical frameworks. Reading and writing assignments and other exercises stress the connections between clear thinking, critical reading, and effective writing.
C. Abbanat

11.229 Advanced Writing Seminar
Prereq: None
Acad Year 2017-2018: G (Spring)
Acad Year 2018-2019: Not offered
2-0-7 units
Can be repeated for credit.
Focuses on writing and speaking skills. Students bring their writing from other classes to the workshop to practice reviewing and rewriting skills and make several oral presentations. Different types of writing including proposals, memos, thesis, press releases, and writing sound bites for the media.
C. Abbanat

11.233 Research Design for Policy Analysis and Planning
Prereq: Permission of instructor
G (Fall)
3-0-9 units
Develops skills in research design for policy analysis and planning. Emphasizes the logic of the research process and its constituent elements. Topics include philosophy of science, question formulation, hypothesis generation and theory construction, data collection techniques (e.g. experimental, survey, interview), ethical issues in research, and research proposal preparation. Limited to doctoral students in Course 11.
G. Carolini

11.234 Making Sense: Qualitative Methods for Designers and Planners
Prereq: None
G (Spring)
3-3-6 units
Surveys uses of qualitative methods in urban design and planning research and practice. Topics include observing environments, physical traces, and environmental behavior; asking questions; focused interviews; standardized questionnaires; use of written archival materials; use of visual materials, including photographs, new media, and maps; case studies; and comparative methods. Emphasizes use of each of these skills to collect and make sense of qualitative data in community and institutional settings.
Staff

11.236 Participatory Action Research (PAR) 1
Prereq: None
G (Fall; partial term)
2-0-4 units
Introduces students to participatory action research (PAR), an approach to research and inquiry that enables communities to examine and address consequential societal problems. Explores theoretical and practical questions at the heart of partnerships between applied social scientists and community partners. Focus includes the history of PAR and action research; debates regarding PAR as a form of applied social science; and practical, political, and ethical questions in the practice of PAR. Guides students through an iterative process for developing their own personal theories of practice.
D. Cunningham
11.237 Participatory Action Research (PAR) 2
Prereq: 11.236 or permission of instructor
G (Spring; partial term)
3-0-3 units

Focuses on co-designing and co-conducting research with community partners at various stages of the research process; examination of actual cases in which PAR-like methods have been used with greater or lesser success; and interaction with community members, organizations, and individuals who have been involved in PAR collaborations. Students produce a PAR research proposal, as well as content that can be added to the PAR website.
D. Cunningham

11.238[J] Ethics of Intervention
Same subject as 21A.409[J]
Prereq: Permission of instructor
G (Fall)
3-0-9 units

An historical and cross-cultural study of the logics and practices of intervention: the ways that individuals, institutions, and governments identify conditions of need or states of emergency within and across borders that require a response. Examines when a response is viewed as obligatory, when is it deemed unnecessary, and by whom; when the intercession is considered fulfilled; and the rationales or assumptions that are employed in assessing interventions. Theories of the state, globalization, and humanitarianism; power, policy, and institutions; gender, race, and ethnicity; and law, ethics, and morality are examined.
E. C. James

11.239 The City in Film
Subject meets with 11.139
Prereq: Permission of instructor
G (Spring)
2-2-5 units

Surveys important developments in urbanism from 1900 to the present, using film as a lens to explore and interpret aspects of the urban experience in the US and abroad. Topics include industrialization, demographics, diversity, the environment, and the relationship between the community and the individual. Films vary from year to year but always include a balance of classics from the history of film, an occasional experimental/avant-garde film, and a number of more recent, mainstream movies. Students taking undergraduate version complete writing assignments that focus on observation, analysis, and the essay, and give an oral presentation.
E. Glenn

11.245[J] DesignX Entrepreneurship (New)
Same subject as 4.245[J]
Prereq: Permission of instructor
G (IAP)
6-0-0 units

Students work in teams to create their own design and business narrative, technology and social strategies, and preliminary plan for moving their innovation forward. Lectures and workshops are interspersed with one-on-one critiques with instructors and outside mentors in specific areas of student interest. Students visit SA +P alumni firms to learn how principals have developed their own business, technology, design, and civic platforms. End-of-term presentation highlights important features of their venture. Limited to 30; preference to students in DesignX Program.
D. Frenchman and G. Rosenzweig

11.246[J] DesignX Accelerator (New)
Same subject as 4.246[J]
Prereq: Permission of instructor
G (Spring)
2-4-6 units

Students work in entrepreneurial teams to advance innovative ideas, products, services, and firms oriented to design and the built environment. Lectures, demonstrations, and presentations are supplemented by workshop time, when teams interact individually with instructors and industry mentors, and by additional networking events and field trips. At the end of the term, teams pitch for support of their venture to outside investors, accelerators, companies, or cities. Limited to 30; preference to students in DesignX Program.
D. Frenchman, G. Rosenzweig

11.250 Transportation Research Design
Prereq: Permission of Instructor
G (Fall)
2-0-1 units
Can be repeated for credit.

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.
J. Zhao
11.252[J] Design and Development of Games for Learning
Same subject as CMS.863[J]
Subject meets with 11.127[J], CMS.590[J]
Prereq: None
G (Spring)
3-6-3 units

Immerses students in the process of building and testing their own digital and board games in order to better understand how we learn from games. Explores the design and use of games in the classroom in addition to research and development issues associated with computer-based (desktop and handheld) and non-computer-based media. In developing their own games, students examine what and how people learn from them (including field testing of products), as well as how games can be implemented in educational settings. All levels of computer experience welcome. Students taking graduate version complete additional assignments.

E. Klopfer

11.255 Negotiation and Dispute Resolution in the Public Sector
Prereq: None
G (Spring)
4-0-8 units

Investigates social conflict and distributonal disputes in the public sector. While theoretical aspects of conflict and consensus building are considered, focus is on the practice of negotiation and dispute resolution. Comparisons between unassisted and assisted negotiation are reviewed along with the techniques of facilitation and mediation.

L. Susskind

11.260 Sustainable Development and Institutions (New)
Prereq: None
G (Fall)
3-0-9 units

Explores the theory and application of the principles of sustainable development as they relate to organizational change management, decision-making processes, goal setting methodology and solution development. Leverages the MIT campus as a living laboratory to gain unique insight into the change management and solution development process. Limited to 18.

J. Newman

11.269 Global Climate Policy and Sustainability (New)
Subject meets with 11.169
Prereq: None
G (Spring)
3-0-9 units

Examines climate politics both nationally and globally. Addresses economic growth, environmental preservation, and social equity through the lens of sustainability. Uses various country and regional cases to analyze how sociopolitical, economic and environmental values shape climate policy. Students develop recommendations for making climate policy more effective and sustainable. Students taking graduate version complete additional assignments. Limited to 25.

J. Knox-Hayes

Program Group Subjects

11.301[J] Introduction to Urban Design and Development
Same subject as 4.252[J]
Prereq: Permission of instructor
G (Fall)
3-0-9 units

Examines both the physical and social structure of cities and ways they can be changed. Includes historical forces that have produced cities, models of urban form analysis, contemporary theories of urban design, implementation strategies. Core lectures supplemented by student projects analyzing the evolution of urban place, and factors of high quality urban design and development. Guest speakers present cases involving current projects illustrating the scope and methods of urban design practice.

D. Frenchman

11.302[J] Urban Design Politics
Same subject as 4.253[J]
Prereq: Permission of instructor
G (Spring)
3-0-9 units

Examines ways urban design contributes to distribution of political power and resources in cities. Investigates the nature of relations between built form and political purposes through close study of a wide variety of situations where public sector design commissions and planning processes have been clearly motivated by political pressures. Lectures and discussions focus on specific case studies of 20th-century government-sponsored designs carried out under diverse regimes in the US, Europe, and elsewhere.

L. Vale
11.303[J] Real Estate Development Studio  
Same subject as 4.254[J]  
Prereq: Permission of instructor  
G (Spring)  
6-0-12 units

Focuses on the synthesis of urban, mixed-use real estate projects, including the integration of physical design and programming with finance and marketing. Interdisciplinary student teams analyze how to maximize value across multiple dimensions in the process of preparing professional development proposals for sites in US cities and internationally. Reviews emerging real estate products and innovative developments to provide a foundation for studio work. Two major projects are interspersed with lectures and field trips. Integrates skills and knowledge in the MSRED program; also open to other students interested in real estate development.

*D. Frenchman, K. Shen*

11.304[J] Site and Environmental Systems Planning  
Same subject as 4.255[J]  
Prereq: Permission of instructor  
G (Spring)  
6-0-9 units

Introduces a range of practical approaches involved in evaluating and planning sites within the context of natural and cultural systems. Develops the knowledge and skills to analyze and plan a site for development through exercises and an urban design project. Topics include land inventory, urban form, spatial organization of uses, parcelization, design of roadways, grading, utility systems, off-site impacts, and landscape architecture.

*M. A. Ocampo*

11.307[J] Beijing Urban Design Studio  
Same subject as 4.173[J]  
Prereq: Permission of instructor  
Acad Year 2017-2018: Not offered  
Acad Year 2018-2019: G (Fall)  
0-18-0 units

Design studio that includes architects and city planners working in teams on a contemporary development project of importance in China. Students analyze conditions, explore alternatives, and synthesize architecture, city design, and implementation plans. Lectures and brief study tours expose students to history and contemporary issues of urbanism in China. Offered every other summer in residence at Tsinghua University, Beijing, involving students and faculty from both schools. Limited to 10.

*D. Frenchman*

11.308[J] Ecological Urbanism Seminar  
Same subject as 4.213[J]  
Prereq: Permission of instructor  
G (Fall)  
3-0-9 units

Examines the urban environment as a natural phenomenon, human habitat, medium of expression, and forum for action. Subject has two related, major themes: how ideas of nature influence the way cities are perceived, designed, built, and managed; and how natural processes and urban form interact and the consequences of these for human health safety and welfare. Enrollment limited.

*A. Spirn*

11.309[J] Sensing Place: Photography as Inquiry  
Same subject as 4.215[J]  
Prereq: None  
G (Fall)  
3-0-9 units

Explores photography as a disciplined way of seeing, of investigating urban landscapes and expressing ideas. Readings, observations, and photographs form the basis of discussions on light, detail, place, poetics, narrative, and how photography can inform design and planning. Enrollment limited.

*A. Spirn*

11.312 Engaging Community: Models and Methods for Designers and Planners  
Prereq: None  
G (Spring)  
3-0-9 units

Reviews a range of models for engaging communities, from a client-consultant relationship to advocacy, community organizing, consensus building, capacity building, and knowledge building. Considers the ways these different models can be used to strengthen democracy and advance equity in planning processes.

*C. McDowell*

11.313 Advanced Research Workshop in Landscape and Urbanism  
Prereq: Permission of Instructor  
Acad Year 2017-2018: G (Spring)  
Acad Year 2018-2019: Not offered  
3-0-9 units

In-depth research workshop on pressing environmental design issue of our time, includes discussion and practices of various Landscape-based disciplines used to generate design-based solutions and landscape infrastructural responses to physical urban entropy and decline. Specific focus is adjusted each year.

*A. Berger*
Same subject as 4.214[J]
Prereq: Permission of instructor
Acad Year 2017-2018: G (Spring)
Acad Year 2018-2019: Not offered
3-3-6 units
Can be repeated for credit.

See description under subject 4.214[J]. Limited to 15.
J. Wescoat

11.315[J] Disaster Resilient Design
Same subject as 4.217[J]
Prereq: None
Acad Year 2017-2018: G (Fall)
Acad Year 2018-2019: Not offered
3-0-6 units

J. Wescoat

11.316[J] Landscape and Urban Heritage Conservation
Same subject as 4.216[J]
Prereq: Permission of instructor
Acad Year 2017-2018: G (Spring)
Acad Year 2018-2019: Not offered
3-3-6 units
Can be repeated for credit.

See description under subject 4.216[J]. Limited to 15.
J. Wescoat

11.318 Senseable Cities
Prereq: Permission of instructor
G (Spring)
3-0-9 units

Studies how ubiquitous and real-time information technology can help us to understand and improve cities and regions. Explores the impact of integrating real-time information technology into the built environment. Introduces theoretical foundations of ubiquitous computing. Provides technical tools for tactile development of small-scale projects. Limited to 24.
C. Ratti

11.320 Digital City Design Workshop
Prereq: Permission of instructor
G (Spring)
3-0-9 units

Students develop proposals, at the city and neighborhood scales, that integrate urban design, planning, and digital technology. Aims to create more efficient, responsive, and livable urban places and systems that combine physical form with digital media, sensing, communications, and data analysis. Students conduct field research, build project briefs, and deliver designs or prototypes, while supported by lectures, case studies, and involvement from experts and representatives of subject cities. Limited to 12.
C. Ratti

11.328[J] Urban Design Skills: Observing, Interpreting, and Representing the City
Same subject as 4.240[J]
Prereq: None
G (Fall)
4-2-9 units

Introduces methods of recording, evaluating, and representing the urban environment. Through visual observation, field analysis, measurements, interviews, and other means, students draw on their senses and develop their ability to deduce, conclude, question, and test conclusions about how the environment is used and valued. Using representational tools such as drawing, photographing, computer modeling and desktop publishing, students communicate what they observe along with their impressions and design ideas. Intended as a foundation for future studio work in urban design. Includes design-based projects.
E. Ben-Joseph

Same subject as 4.241[J]
Subject meets with 4.251
Prereq: 4.252[J], 11.001[J], or permission of instructor
G (Spring)
Units arranged

See description under subject 4.241[J].
L. Jacobi, R. Segal

11.332[J] Urban Design Studio
Same subject as 4.163[J]
Prereq: 4.162 or permission of instructor
G (Fall, Spring)
Units arranged
Can be repeated for credit.

See description under subject 4.163[J].
R. Segal, A. Berger
11.333[J] Urban Design Seminar: Perspectives on Contemporary Practice
Same subject as 4.244[J]
Prereq: None
G (Spring)
2-0-7 units
Examines innovations in urban design practice occurring through the work of leading practitioners in the fields of architecture, landscape architecture, and urban planning. Features lectures by major national and global practitioners in urban design. Projects and topics vary based on term and speakers but may cover architectural urbanism, landscape and ecology, arts and culture, urban design regulation and planning agencies, and citywide and regional design. Focuses on analysis and synthesis of themes discussed in presentations and discussions.

Staff

11.334[J] Advanced Seminar in Landscape and Urbanism
Same subject as 4.264[J]
Prereq: Permission of instructor
G (Spring)
3-0-9 units
Explores theories, practices, and emerging trends in the fields of landscape architecture and urbanism, such as systemic design, landscape urbanism, engineered nature, drosscapes, urban biodiversity, urban mobility, megaregions, and urban agriculture. Lectures, readings, and guest speakers present a wide array of multi-disciplinary topics, including current works from P-REX lab. Students conduct independent and group research that is future-oriented.
A. Berger

11.337[J] Urban Design Ideals and Action
Same subject as 4.247[J]
Prereq: 11.301[J] or permission of instructor
G (Spring)
2-0-7 units
Examines the relationship between urban design ideals, urban design action, and the built environment through readings, discussions, presentations, and papers. Analyzes the diverse design ideals that influence cities and settlements, and investigates how urban designers use them to shape urban form. Provides a critical understanding of the diverse formal methods used to intervene creatively in both developed and developing contexts, especially pluralistic and informal built environments.
B. Ryan

11.338 Urban Design Studio
Prereq: 11.328[J]
Acad Year 2017-2018: Not offered
Acad Year 2018-2019: G (Fall)
0-12-9 units
Examines the rehabilitation and re-imagination of a city. Analyzes the city at three scales: citywide, neighborhood, and individual dwellings. Aims to shape innovative design solutions, enhance social amenity, and improve economic equity through strategic and creative geographical, urban design and architectural thinking. Intended for students with backgrounds in architecture, community development, and physical planning. Limited to 12 via application and lottery.
B. Ryan

11.339 Downtown
Subject meets with 11.026[J], 21H.321[J]
Prereq: None
G (Spring)
2-0-7 units
Seminar on downtown in US cities from the late 19th century to the late 20th. Emphasis on downtown as an idea, place, and cluster of interests, on the changing character of downtown, and on recent efforts to rebuild it. Topics considered include subways, skyscrapers, highways, urban renewal, and retail centers. Focus on readings, discussions, and individual research projects. Students taking graduate version complete additional assignments.
R. M. Fogelson

11.344[J] Innovative Project Delivery in the Public and Private Sectors
Same subject as 1.472[J]
Prereq: Permission of instructor
G (Spring; first half of term)
2-0-4 units
Develops a strong strategic understanding of how best to deliver various types of projects in the built environment. Examines the compatibility of various project delivery methods, consisting of organizations, contracts, and award methods, with certain types of projects and owners. Six methods examined: traditional general contracting; construction management; multiple primes; design-build; turnkey; and build-operate-transfer. Includes lectures, case studies, guest speakers, and a team project to analyze a case example.
C. M. Gordon
11.345[J] Entrepreneurship in Construction and Real Estate Development
Same subject as 1.462[J]
Prereq: Permission of instructor
G (Fall; second half of term)
2-0-4 units
Develops skills necessary to incubate concepts for new real estate/built environment ventures and to evolve those ideas into viable startup ventures. Addresses the progression of an idea, from inception to opportunity to sustainable business. Students develop a business plan. Guest lecturers share their entrepreneurial paths and relevant experience. Explores the role of real estate developers in developing/emerging markets, with a focus on solving social development challenges, innovating new development strategies/products, and generating triple bottom-line returns with development projects.
J. F. Kennedy

11.351 Real Estate Ventures I: Negotiating Development-Phase Agreements
Prereq: None
G (Fall)
3-0-9 units
Focuses on key business and legal issues within the principal agreements used to control, entitle, capitalize, and construct a mixed-use real estate development. Through the lens of the real estate developer and its counter-parties, students identify, discuss, and negotiate the most important business issues in right of entry, purchase and sale, development, and joint-venture agreements, as well as a construction contract and construction loan agreement. Students work closely with attorneys who specialize in the construction of such agreements and with students from area law schools and Columbia University and New York University. Enrollment limited; preference to MSRED students; no listeners.
W. T. McGrath

11.352 Real Estate Ventures II: Negotiating Leases, Financings, and Restructurings
Prereq: None
G (Spring)
3-0-9 units
Focuses on key business and legal issues within the principal agreements used to lease, finance, and restructure a real estate venture. Through the lens of the real estate developer and its counter-parties, students identify, discuss and negotiate the most important business issues in office and retail leases, and permanent loan, mezzanine loan, inter-creditor, standstill/forbearance, and loan modification (workout) agreements. Students work closely with attorneys who specialize in the construction of such agreements and with students from area law schools and New York University and Columbia University. Single-asset real estate bankruptcy and the federal income tax consequences of debt restructuring are also addressed. Enrollment limited; preference to MSRED students; no listeners.
W. T. McGrath

11.353[J] Securitization of Mortgages and Other Assets
Same subject as 15.429[J]
Prereq: 15.426[J], 15.401, or permission of instructor
G (Spring)
3-0-6 units
See description under subject 15.429[J].
W. Torous

11.354 Real Estate Products Development
Prereq: None
G (Fall)
3-0-9 units
Introduces core components of developing commercial real estate. Explores the process of developing, from initial site selection to site and design planning, entitlements, deal financing, and construction. Includes faculty and industry leader lectures, field trips, and group work on a real-time development case study.
J. Cooke
11.355 International Housing Economics and Finance
Prereq: 11.202, 11.203, 14.01 or permission of instructor
G (Spring)
3-0-6 units
Credit cannot also be received for 11.145
Presents a theory of comparative differences in international housing outcomes. Introduces institutional differences in the ways housing expenditures are financed, and the economic determinants of housing outcomes, such as construction costs, land values, housing quality, and ownership rates. Analyzes the flow of funds to and from the different national housing finance sectors. Develops an understanding of the greater financial and macroeconomic implications of the mortgage credit sector, and how policies affect the ways housing asset fluctuations impact national economies. Considers the perspective of investors in international real estate markets and the risks and rewards involved. Draws on lessons from an international comparative approach, and applies them to economic and finance policies at the local, state/provincial, and federal levels within a country of choice. Meets with 11.355 when offered concurrently. Students taking graduate version complete additional assignments.
A. Saiz

11.356 Healthy Cities: Assessing Health Impacts of Policies and Plans
Subject meets with 11.156
Prereq: None
G (Spring)
3-0-9 units
Examines the built, psychosocial, economic, and natural environment factors that affect health behaviors and outcomes. Introduces tools designed to integrate public health considerations into policymaking and planning. Provides extensive practical training in the application of health impact assessment (HIA) methodology, which brings a health lens to policy, budgeting, and planning debates. Emphasizes health equity and healthy cities. Students taking graduate version complete additional assignments. Limited to 30.
M. Arcaya

11.360 Community Growth and Land Use Planning
Prereq: Permission of Instructor
G (Fall)
3-0-9 units
Practicum workshop on strategies of planning and control for growth and land use, chiefly at the municipal level. Growth and its local consequences; land use planning approaches; implementation tools including innovative zoning and regulatory techniques, physical design, and natural systems integration. Semester-long projects arranged with student teams serving municipal clients. Preference to MCP second year students.
T. S. Szold

11.364 International Environmental Treaties and Their Implementation
Prereq: 11.601, 11.255, or permission of instructor
G (Fall)
Not offered regularly; consult department
3-0-6 units
Examines the history and dynamics of international environmental treaty-making, or what is called environmental diplomacy. Emphasis is on climate change and other atmospheric, marine resource, global waste management and sustainability-related treaties and the problems of implementing them. Reviews the legal, economic, and political dynamics of managing shared resources, involving civil society on a global basis, and enforcing transboundary agreements. Focuses especially on principles from international relations, international law, environmental management and negotiation theory as they relate to common-pool resource management.
L. Susskind

11.367 The Law and Politics of Land Use
Prereq: Permission of instructor
G (Spring)
3-0-9 units
Analysis of local and state power to regulate land use and development. Particular emphasis on the evolution of planning and zoning regulations, and the perceived narrowing of the relationship between public improvements requirements and development impact. The ability of regulatory bodies to impose environmental performance standards and limit development activity is explored in relation to recent Supreme Court and State SJC decisions. Development decisions rendered by public agencies are reviewed, critiqued, and discussed.
T. S. Szold
11.368 Environmental Justice: Law and Policy
Subject meets with 11.148
Prereq: Permission of instructor
Acad Year 2017-2018: G (Fall)
Acad Year 2018-2019: Not offered
3-0-9 units

Introduces frameworks for analyzing and addressing inequalities in the distribution of environmental benefits and burdens. Explores the foundations and principles of the environmental justice movement from the perspectives of social science, public policy, and law. Applies environmental justice principles to contemporary issues in urban policy and planning.

Staff

11.371[J] Sustainable Energy
Same subject as 1.818[J], 2.65[J], 10.391[J], 22.811[J]
Subject meets with 2.650[J], 10.291[J], 22.081[J]
Prereq: Permission of instructor
G (Fall)
3-1-8 units

See description under subject 22.811[J].

M. W. Golay

11.373[J] Science, Politics, and Environmental Policy
Same subject as 12.885[J]
Subject meets with 12.385
Prereq: Permission of instructor
Acad Year 2017-2018: Not offered
Acad Year 2018-2019: G (Fall)
3-0-6 units

See description under subject 12.885[J].

S. Solomon, J. Knox-Hayes

11.376 Urban Sustainability in Action
Prereq: Permission of instructor
G (Spring)
Not offered regularly; consult department
3-0-9 units

Considers the theory and practice of urban sustainability. Introduces concepts of environmental sustainability, systems dynamics, ecological footprints, and environmental indicators. Investigates cutting-edge practices of cities in the US and around the world. Drawing on those examples, students work in and around the City of Boston on local sustainability initiatives.

Staff

11.377 Food Systems and the Environment
Prereq: Permission of instructor
G (Fall)
Not offered regularly; consult department
3-0-9 units

Explores the evolution of food production in the US and globally. Considers the science, economics, and politics behind the transition from pre-industrial to an industrial food system. Debates the costs and benefits of genetically modified food, organic agriculture, and local/regional food production. Focuses on the environmental sustainability and human-health consequences of different approaches, for both the developed and developing world.

Staff

11.378[J] Water Planning, Policy, and Design
Same subject as 4.625[J]
Prereq: Permission of instructor
Acad Year 2017-2018: Not offered
Acad Year 2018-2019: G (Fall)
Units arranged
Can be repeated for credit.

See description under subject 4.625[J]. Limited to 15.

J. Wescoat

11.380 Urban Climate Adaptation
Prereq: Permission of instructor
G (Spring)
Not offered regularly; consult department
3-0-9 units

Examines the challenges cities face and strategies to prepare for the impacts of climate change. Particular attention to the needs of vulnerable populations and resource-constrained cities, global and national adaptation policies and funding mechanisms, and ways in which local government and community-based activities can promote climate-readiness.

Staff
**11.381 Infrastructure Systems in Theory and Practice**
Prereq: 14.01; 11.202 or 11.203; or by permission of instructor
Acad Year 2017-2018: Not offered
Acad Year 2018-2019: G (Fall)
3-0-9 units

Examines theories of infrastructure from science and technology studies, history, economics, and anthropology in order to understand the prospects for change for many new and existing infrastructure systems. Examines how these theories are then implemented within systems in the modern city, including but not limited to, energy, water, transportation, and telecommunications infrastructure. Seminar is conducted with intensive group research projects, in-class discussions and debates.
* D. Hsu

**11.382 Water Diplomacy: The Science, Policy, & Politics of Managing Shared Resources**
Prereq: Permission of instructor
G (Spring)
3-0-9 units

Examines the history and dynamics of international environmental treaty-making, or what is called environmental diplomacy. Emphasizes climate change and other atmospheric, marine resource, global waste management and sustainability-related treaties and the problems of implementing them. Reviews the legal, economic, and political dynamics of managing shared resources, involving civil society on a global basis, and enforcing transboundary agreements. Focuses especially on principles from international relations, international law, environmental management, and negotiation theory as they relate to common-pool resource management.
* L. Susskind

**11.383[J] Managing Sustainable Businesses for People and Profits**
Same subject as 15.662[J]
Prereq: None
G (Spring)
3-3-3 units

See description under subject 15.662[J].
* T. Kochan, B. Dyer

**11.384 Preparation for Malaysia Sustainable Cities Fieldwork**
Prereq: Permission of instructor
G (Fall; second half of term)
0-0-3 units

Under faculty supervision, students conduct independent research to familiarize themselves with the culture, economy, politics, geography, ecology, and history of Malaysia. Selection by application.
* L. Susskind

**11.385 Malaysia Sustainable Cities Fieldwork**
Prereq: 11.384
G (IAP)
3-0-3 units

Investigates sustainable development efforts of regional development agencies in Penang, Kuala Lumpur, or Johor Bahru. In addition to these sites, students visit the government city of Putrajaya, the World Heritage cities of George Town in Penang and Malacca, and Kuching in East Malaysia. Selection by application.
* L. Susskind

**11.386 Malaysia Sustainable Cities Practicum**
Prereq: 11.385
G (Spring; partial term)
2-0-1 units

Examines examples of city development that reflect a commitment to the principles of sustainability, including economic development that ensures ecological sustainability, strategies for addressing intercultural tensions, and environmental quality improvements catalyzed by city development.
* L. Susskind

**11.387 Environmental Finance and Political Economy**
Prereq: Permission of Instructor
Acad Year 2017-2018: G (Fall)
Acad Year 2018-2019: Not offered
3-0-9 units

Examines the sociopolitical, cultural and economic dimensions of the financialization of environmental goods and services. Provides an introduction to key financial terms, practices, and institutions; analyzes the logics and origins of environmental finance, as well as the operation and implications of particular systems such as carbon-trading, REDD and ecosystem service pricing and swapping. Limited to 15.
* J. Knox-Hayes
11.401 Introduction to Housing, Community and Economic Development
Prereq: None
G (Fall)
3-0-9 units

Provides a critical introduction to the shape and determinants of political, social, and economic inequality in America. Explores the role of the city in visions of justice. Analyzes the historical, political, and institutional contexts of housing and community development policy in the U.S., including federalism, municipal fragmentation, and decentralized public financing. Reviews major themes in U.S. housing policy, such as private housing finance, public housing policy, state and local housing affordability mechanisms. Reviews major themes in community economic development, including drivers of economic inequality, small business policy, employment policy, and cooperative economics.
J. Steil

11.402 Urban Politics: Race and Political Change
Prereq: None
Acad Year 2017-2018: Not offered
Acad Year 2018-2019: G (Fall)
3-0-9 units

Examines the place of US cities in political theory and practice. Particular attention given to contemporary issues of racial polarization, demographic change, poverty, sprawl, and globalization. Specific cities are a focus for discussion.
J. P. Thompson

11.403 China Urban and Real Estate Research Seminar (New)
Prereq: Permission of instructor
G (Fall)
2-0-7 units
Can be repeated for credit.

Examines the behavioral foundations and key policy issues of urban development, real estate markets, and sustainability in China. Discusses urban agglomeration economies and location choice behaviors; real estate price formation and dynamics; land use, transportation, and smart growth; financial knowledge and innovations in real estate asset market; land property rights, land markets and policies; housing affordability policies and regulations; green cities and environmental policies; entrepreneurship and governance innovation in providing livable cities; and social responsibility in urban and real estate development, focusing on China but with some international comparisons.
S. Zheng

11.404 Housing Policy and Planning in the US and Abroad
Prereq: None
G (Spring)
Not offered regularly; consult department
3-0-9 units

Explores the policy tools and planning techniques used to formulate and implement housing strategies at local, state and federal levels. Topics include America’s housing finance system and the causes of instability in mortgage markets; economic and social inequality in access to affordable housing; approaches to meeting community housing needs through local and state planning programs; programs for addressing homelessness; and emerging ideas about sustainable development and green building related to housing development and renovation. Introduces comparative policy approaches from other countries.
Staff

11.405 Political Economy & Society
Prereq: Permission of Instructor
G (Fall)
3-0-6 units

Focuses on the connection (or not) between mind (theory) and matter (lived experience). Examines basic tenets of classical and recent political economic theories and their explication in ideas of market economies, centrally planned economies, social market economies, and co-creative economies. Assesses theories according to their relation to the lived experiences of people in communities and workplaces.
J. P. Thompson

11.406 Key Ideas in City Planning History and Theory
Prereq: None
Acad Year 2017-2018: Not offered
Acad Year 2018-2019: G (Fall)
3-0-9 units

Investigates the evolution of the ideals, the profession, and the practice of city planning throughout history by looking at key ideas that have driven theorists and practitioners. Explores city and regional planning in the light of broader historical trends, such as changing ideas about who cities are for; different approaches to urban problem-solving; variable factors affecting how urban settlements should be organized and re-organized; the development of human understanding about relationships between the built and natural environments; and about the effects of urban form and organization on society. Focuses substantially but not entirely upon the American experience.
Staff
11.407 Economic Development Tools and Techniques
Prereq: Permission of instructor
Acad Year 2017-2018: G (Fall)
Acad Year 2018-2019: Not offered
3-0-9 units

Introduces a suite of tools representing the basic set of practices used in the development field. Presents a wealth creation framework that focuses on place, improving livelihoods, incentivizing collaboration, creating multiple forms of wealth, and promoting local ownership. Students work with web-based tools designed for use in a professional setting. Discussions are based on results from tools, their interpretation, and their meaning. Relevant to all students interested in the structure and function of local, state, national and international economic contexts. Students develop a series of memos as students complete assignments.
A. Glasmeier

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

See description under subject 15.677[J].
P. Osterman

11.430[J] Leadership in Real Estate
Same subject as 15.941[J]
Prereq: None
G (Fall; first half of term)
3-0-3 units

See description under subject 15.941[J]. Limited to 15.
G. Schuck

11.431[J] Real Estate Finance and Investment
Same subject as 15.426[J]
Prereq: Permission of instructor
G (Fall)
4-0-8 units

Concepts and techniques for analyzing financial decisions in commercial property development and investment. Topics include property income streams, urban economics, discounted cash flow, equity valuation, leverage and income tax considerations, development projects, and joint ventures.
D. Geltner

11.432[J] Real Estate Capital Markets
Same subject as 15.427[J]
Prereq: 11.431[J], 15.402 or 15.414
G (Spring; first half of term)
2-0-4 units

Introduces real estate capital markets for institutional investors. Topics include real estate investment trusts (REIT), commercial mortgage-backed securities (CMBS), and private equity. Concepts and techniques for investment analysis include portfolio theory and equilibrium asset pricing. Additional topics may include price indexing and derivatives.
D. Geltner

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

Develops understanding of the fundamental economic factors that shape the market for real property, as well as the influence of capital markets in asset pricing. Analyzes housing as well as commercial real estate. Covers demographic analysis, regional growth, construction cycles, urban land markets, and location theory. Exercises and modeling techniques for measuring and predicting property demand, supply, vacancy, and prices.
W. C. Wheaton

11.434[J] Tools for Analysis: Design for Real Estate and Infrastructure Development
Same subject as 15.428[J], IDS.720[J]
Prereq: None
G (Spring; second half of term)
2-0-4 units

Introduction to analytical tools to support design and decision-making in real estate, infrastructure development, and investment. Particular focus on identifying and valuing sources of flexibility using "real options," Monte-Carlo simulation, and other techniques from the field of engineering systems. Integrates economic and engineering perspectives, and is suitable for students with various backgrounds. Provides useful preparation for thesis work in the area.
D. Geltner, R. de Neufville
11.435 Mixed-Income Housing Development
Prereq: None
G (Spring; first half of term)
3-0-9 units
Provides an overview of affordable and mixed-income housing development for students who wish to understand the fundamental issues and requirements of urban scale housing development, and the process of planning, financing and developing such housing. Students gain practical experience assembling a mixed-income housing development proposal.
*P. Roth*

11.436 Housing Studio: Neighborhood Sustainability Plan
Prereq: 11.401, 11.301[J], or 11.601
G (Spring)
6-0-9 units
Explores ways to improve housing quality and affordability, increase energy savings, and promote transportation access as part of a neighborhood sustainability plan. Students work with a local client to define the terms of local sustainability for a specific Boston neighborhood, then design an appropriate framework for action for the target site focusing on existing and future housing needs, community services, transit connections, and energy policy.
*Staff*

11.437 Financing Economic Development
Subject meets with 11.137
Prereq: None
G (Fall)
4-0-8 units
Focuses on financing tools and program models to support local economic development. Provides an overview of private capital markets and financing sources to understand capital market imperfections that constrain economic development, business accounting, financial statement analysis, federal economic development programs, and public finance tools. Covers policies and program models, including revolving loan funds, guarantee programs, venture capital funds, bank holding companies, community development loan funds and credit unions, micro enterprise funds, and the Community Reinvestment Act. Students taking graduate version complete additional assignments. Limited to 25.
*K. Seidman*

11.438 Economic Development Planning
Prereq: 11.203, 11.220, and permission of instructor
Acad Year 2017-2018: G (Spring)
Acad Year 2018-2019: Not offered
3-0-9 units
Focuses on the policy tools and planning techniques used to formulate and implement local economic development strategies. Includes an overview of economic development theory, discussion of major policy areas and practices employed to influence local economic development, a review of analytic tools to assess local economies and how to formulate strategy. Coursework includes formulation of a local economic development strategy for a client. Limited to 15.
*K. Seidman*

11.439 Revitalizing Urban Main Streets
Prereq: 11.301[J], 11.328[J], or 11.401; permission of instructor
Acad Year 2017-2018: Not offered
Acad Year 2018-2019: G (Spring)
4-0-11 units
Workshop explores the integration of economic development and physical planning interventions to revitalize urban commercial districts. Covers: an overview of the causes of urban business district decline, revitalization challenges, and the strategies to address them; the planning tools used to understand and assess urban Main Streets from both physical design and economic development perspectives; and the policies, interventions, and investments used to foster urban commercial revitalization. Students apply the theories, tools and interventions discussed in class to preparing a formal neighborhood commercial revitalization plan for a client business district. Limited to 15.
*K. Seidman, M. A. Ocampo*

Same subject as 4.232[J]
Prereq: Permission of instructor
G (Spring)
3-0-6 units
See description under subject 4.232[J].
*R. Goethert*
11.450 Real Estate Development Building Systems  
Prereq: None  
G (Fall; first half of term)  
2-0-1 units  

Provides students with a concise overview of the range of building systems that are encountered in professional commercial real estate development practice in the USA. Focuses on the relationship between real estate product types, building systems, and the factors that real estate development professionals must consider when evaluating these products and systems for a specific development project. Surveys commercial building technology including Foundation, Structural, MEP/FP, Envelope, and Interiors systems and analyzes the factors that lead development professionals to select specific systems for specific product types. One or more field trips to active construction sites may be scheduled during non-class hours based on student availability.  
Y. Tsipis

11.455 Financial Decision Making in Real Estate and Other Markets (New)  
Prereq: None  
G (Fall)  
3-0-6 units  

Provides a rigorous introduction to the fundamentals of modern finance including valuation, risk analysis and investment decisions. Where possible, applications and examples drawn from real estate and mortgage markets.  
W. N. Torous

11.457 More than Data: Smart Cities, Big Data, Civic Technology and Policy  
Prereq: None  
Acad Year 2017-2018: Not offered  
Acad Year 2018-2019: G (Spring)  
3-0-6 units  

Discussions of future directions in the 'smart cities' debate. Begins by framing the current smart city with past trends such as the efficient city movement of the 1930s and the Modernist city of the 1950s and 60s. Examines current trends in big data, civic apps, Code for America, the open data movement, DIY data collections devices, and their policy impacts.  
S. Williams

11.458 Crowd Sourced City: Civic Tech Prototyping Class  
Prereq: None  
G (Spring)  
3-0-9 units  

Investigates the use of social medial and digital technologies for planning and advocacy by working with actual planning and advocacy organizations to develop, implement, and evaluate prototype digital tools. Students use the development of their digital tools as a way to investigate new media technologies that can be used for planning.  
S. Williams

11.461[J] Technocracy  
Same subject as STS.463[J]  
Prereq: None  
Acad Year 2017-2018: Not offered  
Acad Year 2018-2019: G (Fall)  
3-0-9 units  

See description under subject STS.463[J].  
J. S. Light

11.463[J] Structuring Low-Income Housing Projects in Developing Countries  
Same subject as 4.236[J]  
Prereq: Permission of instructor  
G (Fall)  
3-0-9 units  

See description under subject 4.236[J].  
R. Goethert

11.466[J] Technology, Globalization, and Sustainable Development  
Same subject as 1.813[J], 15.657[J], IDS.437[J]  
Prereq: Permission of instructor  
G (Fall)  
3-0-9 units  

See description under subject IDS.437[J].  
N. Ashford

11.468[J] SIGUS Workshop  
Same subject as 4.230[J]  
Subject meets with 4.231  
Prereq: Permission of instructor  
G (Fall, IAP)  
Units arranged  
Can be repeated for credit.  

See description under subject 4.230[J].  
R. Goethert
11.469 Urban Sociology in Theory and Practice
Prereq: Permission of instructor
Acad Year 2017-2018: Not offered
Acad Year 2018-2019: G (Spring)
3-0-9 units

Introduction to core writings in urban sociology. Explores the nature and changing character of the city and the urban experience, providing context for the development of urban studies research and planning skills. Topics include the changing nature of community, neighborhood effects, social capital and networks, social stratification, feminist theory and critical race theory, and the interaction of social structure and political power. Subject will take place in the Massachusetts Correctional Institution at Norfolk with half of the class from MIT and half of the class from MCI-Norfolk. Limited to 25.

J. Steil

11.470 The Politics of Development Policy
Prereq: Permission of instructor
G (Fall)
Not offered regularly; consult department
3-0-9 units

Examines the political forces and conditions that affect urban, regional, and national development policymaking. Key protagonists include political parties, state actors, social movements, NGOs (domestic and global), business groups, and labor organizations, both formal and informal. Primary emphasis is the developing world, but seeks parallels across a variety of comparative and historical contexts.

Staff

11.472[J] D-Lab: Development
Same subject as EC.781[J]
Subject meets with 11.025[J], EC.701[J]
Prereq: None
G (Fall)
3-2-7 units

See description under subject EC.781[J]. Enrollment limited by lottery; must attend first class session.
S. L. Hsu, A. B. Smith, B. Sanyal

11.474 D-Lab: Disseminating Water, Sanitation and Hygiene Innovations for the Common Good
Subject meets with EC.715
Prereq: None
G (Fall)
3-0-6 units

Focuses on disseminating water, sanitation and hygiene (WASH) innovations in developing countries, especially among underserved communities. Structured around field-based learning, case studies, lectures and videos. Emphasis on core WASH principles, culture-specific solutions, appropriate and sustainable technologies, behavior change, social marketing and building partnerships. Term project entails implementing the "next steps" in a WASH innovation in a specific locale and/or a new proposal/plan/project. Long-term commitment to specific real-world WASH projects which have been disseminated by MIT faculty, students and alumni. Students taking graduate version complete additional assignments. Limited to 30.
S. E. Murcott

11.475 Navigating Power in Water and Sanitation Planning
Prereq: Open to undergraduates with permission of instructor
G (Spring)
3-0-9 units

Informs and prepares students to navigate the explicit and implicit power dynamics among stakeholders in decision-making processes that govern the planning and delivery of water and sanitation systems. Through investigations of organization, regulation, financing, physical delivery, and research designs, students examine the trajectory of decisions that shape and influence the accessibility, affordability, and adequacy of water and sanitation services, particularly in vulnerable neighborhoods in mostly urban and peri-urban areas. Emphasis is placed on the importance of moving beyond the limited dimensions of supply and demand studies and gaining fluency in the multiplicative political-economic and social factors driving choices in water and sanitation systems planning. In-depth, globally comparative readings inform the course, and expose basic services in water and sanitation as a misnomer.
G. Carolini
11.476 Urbanizing China
Subject meets with 11.146
Prereq: Permission of instructor
G (Fall)
Not offered regularly; consult department
2-0-7 units

Discusses China's daunting urban challenges: congestion and smog, housing affordability, land reform and urban financing, migrants and locals, and social and spatial inequality. Provides examples of laudable achievements and diverse and innovative responses across more than six hundred cities. Presents China's urbanization as the joint result of natural socioeconomic processes and conscious actions by governments, markets, and the public. Presents multidisciplinary approaches and alternative narratives. Examines the intricate interaction between state and market in China's context, yielding a variety of state-market 'cocktails' devised and experimented in different cities in response to local problems, each involving a multilayered projection onto urban space. Students taking graduate version complete additional assignments.

J. Zhao

Same subject as 1.286[J]
Subject meets with 11.165
Prereq: 11.203, 14.01, or permission of instructor
G (Fall)
3-0-9 units

Examines efforts in developing and advanced nations and regions. Examines key issues in the current and future development of urban energy systems, such as technology, use, behavior, regulation, climate change, and lack of access or energy poverty. Case studies on a diverse sampling of cities explore how prospective technologies and policies can be implemented. Includes intensive group research projects, discussion, and debate.

D. Hsu

11.478 Behavior and Policy: Connections in Transportation
Subject meets with 11.158
Prereq: Permission of instructor
G (Spring)
3-0-9 units

Examines the behavioral foundation for policy design using urban transportation examples. Introduces multiple frameworks for understanding behavior while contrasting the perspectives of classic economic theory with behavioral economics and social psychology. Suggests corresponding policy interventions and establishes a mapping across behavior, theory, and policy. Presents a spectrum of instruments for positively influencing behavior and improving welfare. Challenges students to critique, design, implement and interpret experiments that nudge travel behavior. Brings behavioral insights to creative design of transport policies that are efficient and equitable as well as simple, consistent, transparent, acceptable, and adaptive to behavioral changes. Students taking graduate version complete additional assignments.

J. Zhao

11.479[J] Water, Sanitation, Hygiene and Environmental Sanitation (WASH-ENV) in Low- and Middle-income Countries
Same subject as 1.851[J]
Prereq: None
G (Spring)
Units arranged

See description under subject 1.851[J].

Staff

11.480 Urbanization and Development
Subject meets with 11.140
Prereq: None
G (Spring)
3-0-9 units

Examines developmental dynamics of rapidly urbanizing locales, with a special focus on the developing world. Case studies from India, China, Mexico, Brazil, and South Africa form the basis for discussion of social, spatial, political and economic changes in cities spurred by the decline of industry, the rise of services, and the proliferation of urban mega projects. Emphasizes the challenges of growing urban inequality, environmental risk, citizen displacement, insufficient housing, and the lack of effective institutions for metropolitan governance. Students taking graduate version complete additional assignments.

Staff
11.481[J] Analyzing and Accounting for Regional Economic Change
Same subject as 1.284[J]
Prereq: 14.03, 14.04
G (Spring)
3-0-9 units

Surveys theories of regional growth, factor mobility, clustering, industrial restructuring, learning regions, and global supply chains from a political-economy perspective. Examines/critiques multipliers, linkages, and supply chains used to assess employment and environmental impacts, energy and infrastructure investments, and accounting issues related to the underground economy, work in the home, and environmental degradation. Assesses price indices, industrial location and employment measures, and shift-share analyses. Discussions of US and foreign applications.

Staff

11.482[J] Regional Socioeconomic Impact Analyses and Modeling
Same subject as 1.285[J]
Prereq: 11.481[J] or permission of instructor
G (Fall)
Not offered regularly; consult department
2-1-9 units

Reviews regional economic theories and models and provides students with experience in using alternative economic impact assessment models on microcomputers. Problem sets are oriented around infrastructure, housing, energy, and environmental issues. Students work with a client generally in Boston and make a presentation to the client. Emphasis on written and oral presentation skills.

K. R. Polenske

11.483 Housing and Land Use in Rapidly Urbanizing Regions
Prereq: Permission of instructor
G (Spring)
Not offered regularly; consult department
3-0-9 units

Studies current urban controversies over affordable housing, land redevelopment, and public space, with special attention to property rights. Reviews how law, economics, sociology and planning theories frame these issues and interplays them with spatial approaches of urban design and geography. Explores cases that use property rights strategies to increase economic growth and social justice, providing insight for future design and policymaking. Topics include land trusts for affordable housing, mixed-use public space, and critical cartography.

Y. Hong

11.484 Project Appraisal in Developing Countries
Subject meets with 11.144
Prereq: Permission of instructor
G (Spring)
Not offered regularly; consult department
3-0-9 units

Covers techniques of financial analysis of investment expenditures, as well as the economic and distributive appraisal of development projects. Critical analysis of these tools in the political economy of international development is discussed. Topics include appraisal’s role in the project cycle, planning under conditions of uncertainty, constraints in data quality and the limits of rational analysis, and the coordination of an interdisciplinary appraisal team. Students taking graduate version complete additional assignments. Enrollment limited; preference to majors.

Y. Hong

11.487 Budgeting and Finance for the Public Sector
Subject meets with 11.147
Prereq: None
G (Spring)
3-0-9 units

Examines globally relevant challenges of adequately and effectively attending to public sector responsibilities for basic services with limited resources. Particular attention to the contexts of fiscal crises and rapid population growth, as well as shrinkage, through an introduction to methods and processes of budgeting, accounting, and financial mobilization. Case studies and practice exercises explore revenue strategies, demonstrate fiscal analytical competencies, and familiarize students with pioneering examples of promising budget and accounting processes and innovative funding mobilization via taxation, capital markets, and other mechanisms (e.g., land-value capture). Students taking graduate version explore the subject in greater depth.

G. Carolini
11.488 Urban Development in Conflict Cities: Planning Challenges and Policy Innovations  
Prereq: Permission of Instructor  
G (Fall)  
Not offered regularly; consult department  
3-0-9 units  

Economic, religious, gender and ethnic differences must be negotiated every day in the urban arena. When tensions and conflict escalate into violence, the urban space becomes the battlespace in which these tensions are negotiated. Examines urban development challenges in conflict cities through multiple disciplinary perspectives on urban conflict. Review of the literature about when violence and cities intersect. Focuses on policy innovations, and an examination of potential planning, design, and policy solutions.  
Staff  

11.490 Law and Development  
Prereq: Permission of instructor  
Acad Year 2017-2018: Not offered  
Acad Year 2018-2019: G (Spring)  
2-0-10 units  

Examines the role of law in development and introduces economic and legal theories. Topics include formality/informality of property, contracts and bargaining in the shadow of the law, institutions for transparency and accountability, legitimation of law, sequencing of legal reform, and international economic law aspects. Studies the roles of property rights in economic development, the judiciary and the bureaucracy in development, and law in aid policy. Includes selected country case studies. Limited to 15.  
B. Rajagopal  

Same subject as 17.176[J]  
Prereq: 11.701  
G (Fall)  
Not offered regularly; consult department  
3-0-9 units  

Examines the process of economic development to understand why some countries or regions within countries have increased their incomes and reduced their poverty faster than others. Economic development is treated as a process of learning, as countries weigh theories and role models as guides for policy formulation and institution building. Historical and empirical examination of three role models for development/underdevelopment, as formulated by the Third World's new intelligentsia that emerged after decolonization: the OPEC development role model, the East Asian role model, and the Brazilian role model.  
Staff  

11.493 Property and Land Use Law for Planners  
Prereq: None  
Acad Year 2017-2018: Not offered  
Acad Year 2018-2019: G (Fall)  
3-0-9 units  

Examines legal and institutional arrangements for the establishment, transfer, and control over property under American and selected comparative systems including India and South Africa. Focuses on key issues of property and land use law regarding planning and economic development. Emphasizes just and efficient resource use; institutional, entitlement and social relational approaches to property; distributional and other social aspects; and the relationship between property, culture, and democracy. Students taking graduate version complete additional assignments.  
B. Rajagopal  

11.495 Governance and Law in Developing Countries  
Prereq: Permission of instructor  
Acad Year 2017-2018: Not offered  
Acad Year 2018-2019: G (Fall)  
2-0-10 units  

Examines the multiple dimensions of governance in international development with a focus on the role of legal norms and institutions in the balance between state and the market. Analyzes changes in the distribution of political and legal authority as a result of economic globalization. Topics include the regulation of firms; forms of state and non-state monitoring; varieties of capitalism, global governance and development; and good governance, including transparency and accountability mechanisms, the role of the judiciary and legal culture, and tools for measuring governance performance.  
B. Rajagopal  

11.496 Law, Social Movements, and Public Policy: Comparative and International Experience  
Subject meets with 11.166  
Prereq: Permission of instructor  
Acad Year 2017-2018: Not offered  
Acad Year 2018-2019: G (Spring)  
3-0-9 units  

Studies the interaction between law, courts, and social movements in shaping domestic and global public policy. Examines how groups mobilize to use law to affect change and why they succeed and fail. Case studies explore the interplay between law, social movements, and public policy in current issues, such as gender, race, labor, trade, climate change/environment, and LGBTQ rights. Introduces theories of public policy, social movements, law and society, and transnational studies. Students taking graduate version complete additional assignments. Limited to 15.  
B. Rajagopal
11.497 Human Rights at Home and Abroad
Subject meets with 11.164[J], 17.391[J]
Prereq: None
Acad Year 2017-2018: G (Fall)
Acad Year 2018-2019: Not offered
2-0-10 units
Provides a rigorous and critical introduction to the history, foundation, structure, and operation of the human rights movement. Focuses on key ideas, actors, methods and sources, and critically evaluates the field. Addresses current debates in human rights, including the relationship with security, democracy, development and globalization, urbanization, equality (in housing and other economic and social rights; women’s rights; ethnic, religious and racial discrimination; and policing/conflict), post-conflict rebuilding and transitional justice, and technology in human rights activism. Students taking graduate version expected to write a research paper.
B. Rajagopal

11.499 Master of Science in Real Estate Development Thesis Preparation
Prereq: None
G (Spring; first half of term)
2-0-1 units
Seminar provides students with a concise overview of the requirements for thesis writing and submission. Covers types of theses, COUHES requirements, formatting and submission requirements and stipulations. Culminates in submission of thesis proposal.
A. Saiz

11.520 Workshop on Geographic Information Systems
Prereq: 11.205 or permission of instructor
G (Fall, Spring; partial term)
2-2-2 units
An introduction to geographic information systems (GIS) as applied to urban and regional planning, community development, and local government. Emphasis on learning GIS technology and spatial analysis techniques through extensive hands-on exercises using real-world data sets such as the US census of population and housing. Includes a small project on an urban planning problem involving the selection of appropriate methods, the use of primary and secondary data, computer-based modeling, and spatial analysis. Enrollment limited; preference to MCP students.
Fall: S. Williams
Spring: J. Ferreira

11.521 Spatial Database Management and Advanced Geographic Information Systems
Prereq: Permission of instructor; or 11.205 and Coreq: 11.220
G (Spring)
3-3-6 units
Credit cannot also be received for 11.523, 11.524
Extends the computing and geographic information systems (GIS) skills developed in 11.520 to include spatial data management in client/server environments and advanced GIS techniques. First half covers the content of 11.523, introducing database management concepts, SQL (Structured Query Language), and enterprise-class database management software. Second half explores advanced features and the customization features of GIS software that perform analyses for decision support that go beyond basic thematic mapping. Includes the half-term GIS project of 11.524 that studies a real-world planning issue.
J. Ferreira

11.522 Research Seminar on Urban Information Systems
Prereq: 11.521 or permission of instructor
Acad Year 2017-2018: Not offered
Acad Year 2018-2019: G (Fall)
2-4-6 units
Can be repeated for credit.
Advanced research seminar enhances computer and analytic skills developed in other subjects in this sequence. Students present a structured discussion of journal articles representative of their current research interests involving urban information systems and complete a short research project. Suggested research projects include topics related to ongoing UIS Group research.
J. Ferreira

11.523 Fundamentals of Spatial Database Management
Prereq: Permission of instructor
G (Spring; first half of term)
2-2-2 units
Credit cannot also be received for 11.521, 11.524
The fundamentals of database management systems as applied to spatial analysis. Includes extensive hands-on exercises using real-world planning data. Introduces database management concepts, SQL (Structured Query Language), and enterprise-class database software. Same content as first half of 11.521.
J. Ferreira
11.524 Advanced Geographic Information System Project
Prereq: 11.523 or permission of instructor
G (Spring; second half of term)
Units arranged
Can be repeated for credit. Credit cannot also be received for 11.521, 11.523

Learning and utilizing advanced geographic information system techniques in studio/lab setting with real-world client problem and complex digital spatial data infrastructure. Projects typically use the client and infrastructure setting for 11.521. Credit cannot also be received for 11.521 in the same term.

J. Ferreira

11.526[J] Comparative Land Use and Transportation Planning
Same subject as 1.251[J]
Prereq: Permission of Instructor
G (Spring)
3-0-9 units

Focuses on the integration of land use and transportation planning, drawing from cases in both industrialized and developing countries. Reviews underlying theories, analytical techniques, and the empirical evidence of the land use-transportation relationship at the metropolitan, intra-metropolitan, and micro-scales. Also covers the various ways of measuring urban structure, form, and the "built environment." Develops students' skills to assess relevant policies, interventions and impacts.

C. Zegras

11.527 Advanced Seminar in Transportation Finance
Prereq: Permission of instructor
Acad Year 2017-2018: Not offered
Acad Year 2018-2019: G (Fall)
2-1-9 units

Focuses on the theory and practice of transportation system finance, examining the range of relevant topics including basic public finance, politics, institutional structures, externalities, pricing, and the role of advanced technologies. Primarily oriented around land-based, surface transportation, although in their research students are welcome to examine air and maritime modes according to their interests. Explores issues across a range of contexts, including North America, Europe, Latin America, and Asia.

C. Zegras

11.533 Ecological Planning with GIS
Prereq: 11.205
G (Spring)
Not offered regularly; consult department
3-3-6 units

Provides a practical introduction to spatial environmental assessment and planning methods, from landscape to regional scales. Lectures and discussions focus on key concepts in landscape ecology as well as the data and methods needed to incorporate these concepts in environmental planning. Weekly lab exercises demonstrate how natural systems are represented in modern geographic information systems, how to synthesize information using overlay analysis and suitability modeling, and design methods that build on the resulting syntheses. Features raster GIS analysis methods.

Staff

11.540[J] Urban Transportation Planning
Same subject as 1.252[J]
Prereq: Permission of instructor
G (Fall)
Not offered regularly; consult department
3-0-9 units

See description under subject 1.252[J].

F. Salvucci, M. Murga

11.541[J] Public Transportation Systems
Same subject as 1.258[J]
Prereq: 1.201[J] or permission of instructor
G (Spring)
3-0-9 units

See description under subject 1.258[J].

Staff

11.543[J] Transportation Policy, the Environment, and Livable Communities
Same subject as 1.253[J]
Subject meets with 1.153
Prereq: Permission of instructor
G (Spring)
3-0-9 units

See description under subject 1.253[J].

J. Coughlin
Same subject as 1.200[J]
Prereq: 1.010, permission of instructor
G (Fall)
3-1-8 units
See description under subject 1.200[J].
C. Osorio

11.545[J] Transportation Systems Analysis: Demand and Economics
Same subject as 1.201[J]
Prereq: Permission of instructor
G (Fall)
3-1-8 units
See description under subject 1.201[J].
Staff

11.601 Introduction to Environmental Policy and Planning
Prereq: None
G (Fall)
3-0-9 units
Required introductory subject for graduate students pursuing environmental policy and planning as their specialization in the MCP Program. Also open to other graduate students interested in environmental policymaking and the practice of environmental planning. Taught comparatively, with numerous references to examples from around the world. Four major areas of focus: National Environmental Policymaking, Environmental Ethics, Environmental Forecasting and Analysis Techniques, and Strategies for Collaborative Decision-making.
L. Susskind

11.630[J] Environmental Law, Policy, and Economics: Pollution Prevention and Control
Same subject as 1.811[J], 15.663[J], IDS.540[J]
Subject meets with 1.801[J], 11.021[J], 17.393[J], IDS.060[J]
Prereq: None
G (Fall)
3-0-9 units
Reviews and analyzes federal and state regulation of air and water pollution, hazardous waste, green-house gas emissions, and the production and use of toxic chemicals. Analyzes pollution as an economic problem and the failure of markets. Explores the role of science and economics in legal decisions. Emphasizes use of legal mechanisms and alternative approaches (such as economic incentives and voluntary approaches) to control pollution and encourage chemical accident and pollution prevention. Focuses on the major federal legislation, the underlying administrative system, and the common law in analyzing environmental policy, economic consequences, and the role of the courts. Discusses classical pollutants and toxic industrial chemicals, green-house gas emissions, community right-to-know, and environmental justice. Develops basic legal skills: how to read/understand cases, regulations, and statutes. Students taking graduate version are expected to explore the subject in greater depth.
N. Ashford, C. Caldart

11.631[J] Regulation of Chemicals, Radiation, and Biotechnology
Same subject as 1.812[J], IDS.541[J]
Subject meets with 1.802[J], 10.805[J], 11.022[J], IDS.061[J], IDS.436[J]
Prereq: 1.811[J] or permission of instructor
G (Spring)
Not offered regularly; consult department
3-0-9 units
Focuses on policy design and evaluation in the regulation of hazardous substances and processes. Includes risk assessment, industrial chemicals, pesticides, food contaminants, pharmaceuticals, radiation and radioactive wastes, product safety, workplace hazards, indoor air pollution, biotechnology, victims' compensation, and administrative law. Health and economic consequences of regulation, as well as its potential to spur technological change, are discussed for each regulator regime. Students taking the graduate version are expected to explore the subject in greater depth.
N. Ashford, C. Caldart
11.701 Introduction to International Development Planning
Prereq: None
G (Fall)
3-0-9 units

Studies interactions between planners and institutions at different scales, from local to global/transnational. Emphasizes historical and institutional approaches to development planning. Includes an overview of theories of development, actors, organizational arrangements, and implementation mechanisms. Covers current topics in development planning, such as migration, participatory planning, urban-rural linkages, corruption, legal institutions and post-conflict development. Analyzes various roles planners play in different institutional contexts. Restricted to first-year MCP and SPURS students.
B. Rajagopal

Tutorials, Research, and Fieldwork Subjects

11.800 Reading, Writing and Research
Prereq: 11.233; Coreq: 11.801
G (Spring)
3-0-6 units

Required subject intended solely for 1st-year DUSP PhD students. Develops capacity of doctoral students to become independent scholars by helping them to prepare their first-year papers and plan for their dissertation work. Focuses on the process by which theory, research questions, literature reviews, and new data are synthesized into new and original contributions to the literature. Seminar is conducted with intensive discussions, draft writing, peer review, revisions, and editing. Guest speakers from faculty and advanced students discuss strategies and potential pitfalls with doctoral-level research.
D. Hsu

11.801 Doctoral Research Paper
Prereq: Permission of instructor, Coreq: 11.800
G (Spring)
3-0-6 units

Students develop a first-year research paper in consultation with their advisor.
Staff

11.901 Independent Study: Urban Studies and Planning
Prereq: Permission of instructor
G (Fall, IAP, Spring)
Units arranged
Can be repeated for credit.
Opportunity for independent study under regular supervision by a faculty member.
Staff

11.902 Independent Study: Urban Studies and Planning
Prereq: Permission of instructor
G (Fall, IAP, Spring)
Units arranged [P/D/F]
Can be repeated for credit.
Opportunity for independent study under regular supervision by a faculty member.
Staff

11.903 Supervised Readings in Urban Studies
Prereq: Permission of instructor
G (Fall, IAP, Spring)
Units arranged [P/D/F]
Can be repeated for credit.
Reading and discussion of topics in urban studies and planning.
Staff

11.904 Supervised Readings in Urban Studies
Prereq: Permission of instructor
G (Fall, Spring, Summer)
Units arranged
Can be repeated for credit.
Reading and discussion of topics in urban studies and planning.
Staff

11.905 Research Seminar in Urban Studies and Planning
Prereq: Permission of instructor
G (Fall, IAP, Spring)
Units arranged
Can be repeated for credit.
Special research issues in urban planning.
Staff
11.906 Research Seminar in Urban Studies and Planning
Prereq: None
G (Fall, IAP, Spring)
Units arranged [P/D/F]
Can be repeated for credit.

Special research issues in urban planning.
Staff

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

Practical application of planning techniques to towns, cities, and regions, including problems of replanning, redevelopment, and renewal of existing communities. Includes internships, under staff supervision, in municipal and state agencies and departments.
Staff

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

Practical application of planning techniques to towns, cities, and regions, including problems of replanning, redevelopment, and renewal of existing communities. Includes internships, under staff supervision, in municipal and state agencies and departments.
Staff

11.909 Graduate Tutorial
Prereq: None
G (Fall)
Units arranged [P/D/F]
Can be repeated for credit.

Planned programs of instruction for a minimum of three students on a planning topic not covered in regular subjects of instruction. Registration subject to prior arrangement with appropriate faculty member.
Staff

11.910 Doctoral Tutorial
Prereq: None
G (Fall)
3-0-3 units

Required subject exclusively for first-year DUSP PhD candidates, but with multiple colloquium sessions open to the full department community. Introduces students to a range of department faculty (and others) by offering opportunities to discuss applications of planning theory and planning history. Assists in clarifying the departments intellectual diversity. Encourages development of a personal intellectual voice and capacity to synthesize and respond to the arguments made by others.
L. Vale, J. Zhao

11.920 Planning in Practice
Prereq: Permission of instructor
G (Fall, Spring)
0-0-3 units
Can be repeated for credit.

Familiarizes students with the practice of planning, by requiring actual experience in professional internship placements. Requires students to both apply what they are learning in their classes in an actual professional setting and to reflect, using a variety of platforms, on the learning personal and professional - growing out of their internship experience. Through readings, practical experience and reflection, empirical observation, and contact with practitioners, students gain deeper general understanding of the practice of the profession. Meets 3 times throughout the term: once at the beginning, midpoint, and end.
M. J. Daly

11.960 Independent Study: Real Estate
Prereq: None
G (Fall, IAP, Spring, Summer)
Units arranged [P/D/F]
Can be repeated for credit.

Opportunity for independent study under regular supervision by a faculty member.
Staff

11.961 Independent Study: Real Estate
Prereq: None
G (Fall, IAP, Spring, Summer)
Units arranged
Can be repeated for credit.

Opportunity for independent study under regular supervision by a faculty member.
Staff
11.962 Fieldwork: Real Estate
Prereq: Permission of instructor
G (Fall, IAP, Spring, Summer)
Units arranged [P/D/F]
Can be repeated for credit.
Practical application of real estate techniques in the field.
Staff

11.963 Independent Study: Real Estate
Prereq: Permission of instructor
G (Fall, IAP, Spring, Summer)
Units arranged
Can be repeated for credit.
Opportunity for independent study under regular supervision by a faculty member.
Staff

11.964 Independent Study: Real Estate
Prereq: Permission of instructor
G (Fall, IAP, Spring, Summer)
Units arranged [P/D/F]
Can be repeated for credit.
Opportunity for independent study under regular supervision by a faculty member.
Staff

11.985 Summer Field Work
Prereq: None
G (Summer)
Units arranged [P/D/F]
Practical application of planning techniques over the summer with prior arrangement.
S. Wellford

11.938 Special Subject: Urban Studies and Planning
Prereq: None
G (Fall, Spring)
Units arranged
Can be repeated for credit.
For graduate students wishing to pursue further study in advanced areas of urban studies and planning not covered in regular subjects of instruction.
Staff

11.939 Special Subject: Urban Studies and Planning
Prereq: None
G (Fall, Spring)
Units arranged
Can be repeated for credit.
For graduate students wishing to pursue further study in advanced areas of urban studies and city and regional planning not covered in regular subjects of instruction.
Staff

11.940-11.944 Special Subject: Urban Studies and Planning
Prereq: Permission of instructor
G (Fall)
Units arranged
Can be repeated for credit.
For graduate students wishing to pursue further study in advanced areas of urban studies and city and regional planning not covered in regular subjects of instruction.
M. Kothari

11.945-11.949 Special Subject: Urban Studies and Planning
Prereq: Permission of instructor
G (Spring)
Units arranged
Can be repeated for credit.
For graduate students wishing to pursue further study in advanced areas of urban studies and city and regional planning not covered in regular subjects of instruction.
Staff

11.950-11.957 Special Seminar: Urban Studies and Planning
Prereq: Permission of instructor
G (Fall)
Units arranged [P/D/F]
Can be repeated for credit.
For graduate students wishing to pursue further study in advanced areas of urban studies and city and regional planning not covered in regular subjects of instruction.
Staff

11.958 Special Seminar: Urban Studies and Planning
Prereq: Permission of instructor
G (Spring)
Units arranged [P/D/F]
Can be repeated for credit.
For graduate students wishing to pursue further study in advanced areas of urban studies and city and regional planning not covered in regular subjects of instruction.
Staff
Prereq: Permission of instructor
G (Spring)
Units arranged [P/D/F]
Can be repeated for credit.

For graduate students wishing to pursue further study in advanced areas of urban studies and city and regional planning not covered in regular subjects of instruction.

Staff

11.S965 Special Subject: Real Estate
Prereq: Permission of instructor
G (Fall, IAP, Spring, Summer)
Units arranged [P/D/F]
Can be repeated for credit.

Small group study of advanced subjects under staff supervision. For graduate students wishing to pursue further study in advanced areas of real estate not covered in regular subjects of instruction.

Staff

11.S966 Special Subject: Real Estate
Prereq: Permission of instructor
G (Fall, IAP, Spring, Summer)
Units arranged
Can be repeated for credit.

Small group study of advanced subjects under staff supervision. For graduate students wishing to pursue further study in advanced areas of real estate not covered in regular subjects of instruction.

Staff

11.S967 Special Subject: Real Estate
Prereq: Permission of instructor
G (Fall, IAP, Spring, Summer)
Units arranged
Can be repeated for credit.

Small group study of advanced subjects under staff supervision. For graduate students wishing to pursue further study in advanced areas of real estate not covered in regular subjects of instruction.

Staff

11.S968 Special Seminar: Real Estate
Prereq: Permission of instructor
G (Fall, IAP, Spring, Summer)
Units arranged [P/D/F]
Can be repeated for credit.

Small group study of advanced subjects under staff supervision. For graduate students wishing to pursue further study in advanced areas of real estate not covered in regular subjects of instruction.

Staff

11.S969 Special Seminar: Real Estate
Prereq: Permission of instructor
G (Fall, IAP, Spring, Summer; first half of term)
Units arranged [P/D/F]
Can be repeated for credit.

Small group study of advanced subjects under staff supervision. For graduate students wishing to pursue further study in advanced areas of real estate not covered in regular subjects of instruction.

Staff

11.S970 Special Seminar: Real Estate
Prereq: Permission of instructor
G (Spring)
Units arranged [P/D/F]
Can be repeated for credit.

Small group study of advanced subjects under staff supervision. For graduate students wishing to pursue further study in advanced areas of real estate not covered in regular subjects of instruction.

Staff

11.THG Graduate Thesis
Prereq: Permission of instructor
G (Fall, IAP, Spring, Summer)
Units arranged
Can be repeated for credit.

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

Staff