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SM 300. (ARTH302, FREN300) The Making of Modern Paris. (B) Birch.

Paris, Ville-Lumiere, has long been renowned for its urbanity, architecture, and city design. This class will trace the people, ideas, and projects that contributed to this reputation, through an exploration of the city's built environment as expressed in literature and urban planning projects of the 19th and 20th centuries. Literary readings, including texts by Hugo, Baudelaire, Zola, and Breton, will be studied in conjunction with historical writings and projects ranging from works by Napoleon III and Haussmann to Mitterrand and Sarkozy. The course includes a field trip to France's capital city during Penn's Spring Break. Co-taught by Professors Eugenie Birch (Department of City and Regional Planning) and Andrea Goulet (Department of Romance Languages). Student travel expenses will be subsidized by the Mellon Foundation-sponsored Humanities + Urbanism + Design Project.

L/R 500. (URBS440) Introduction to City Planning: Past, Present and Future. (A) Vitiello or Ammon.

Orientation to the profession, tracing the evolution of city and regional planning from its late nineteenth century roots to its twentieth century expression. Field trips included.

501. Quantitative Planning Analysis Methods. (D) Guerra.

Introduction of methods in analyzing demographic conditions, land use and housing trends, employment and business changes, community and neighborhood development. Focus on using spreadsheet models and data analysis for local and neighborhood planning.

502. Urban Redevelopment and Infrastructure Finance. (B) Angelides.

Introduces students to the economic principles and vocabularies that city and regional planners rely on (those of welfare and public sector economics, land economics, and the economics of housing and neighborhoods), and familiarizes them with local government taxation, budgeting and borrowing practice.

503. (MUSA503) Modeling Geographical Objects. (A) Tomlin or Hillier.

This course offers a broad and practical introduction to the acquisition, storage, retrieval, maintenance, use, and presentation of digital cartographic data with vector-oriented (i.e. drawing-based) geographic information systems (GIS) for a variety of environmental science, planning, and management applications. Previous experience in GIS is not required.

504. Site Planning. (B) Page.

This course introduces students to the practice of site planning. Skills and methods examined in the course include observation of the physical and community environment; physical and environmental site inventorying and analysis; analysis of alternative site programming and uses; site design processes and strategy;and the creation of site plans and development standards. Methods of community participation and collaboration with other disciplines will be explored. The spring version of this course differs from the fall version in its orientation toward urban designers and/or those with prior design backgrounds and skills.

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505. Planning by Numbers. (B) Ryerson.

This class emphasizes the theory, practice, and use of statistics as applied to planning and policy problems and data. Starting with a review of basic descriptive statistics and measures of association, this course will introduce students to the regression techniques, including multiple regression analysis and logistical and probabilistic models for categorical data; data mining techniques, measures of spatial autocorrelation, and time-series modeling; and causal inference techniques, including structural equation modeling(SEM). A basic familiarity with descriptive and inferential statistics at the upper-division undergraduate level is expected at the beginning of the class. This course uses the popular, free, and open source statistical software R. Meets methods breadth requirement.

506. Negotiation and Conflict Resolution. (B) Sokoloff.

This course is designed to introduce graduate students to the theory and practice of negotiation, conflict resolution and community engagement. We will start by looking at basic approaches to interpersonal negotiation and then move to considering contemporary approaches to understanding and addressing public disputes using negotiation, facilitation and public involvement. Design professionals - architects, construction managers, planners and others - face a variety of kinds of problems and challenges in their work. Some problems and challenges, whether simple or complex, are amenable to technical solutions based solely on the expertise of planners, managers, architects and others. There are, however, other problems and challenges that require adaptive work, primarily because technical expertise alone is insufficient to address the problems or challenges being faced. In this course, we'll focus on perspectives and methods for working through those later sorts of problems and challenges. Meets methods breadth requirement.

507. Urban Design Research Methods. (A) Al.

This seminar focuses on professional and research techniques in the practice of urban design. Seminar topics in the first half will examine research methods associated with measuring, analyzing and guiding design in urban contexts, including: environmental behavior & psychology, cognition, mapping, morphology, design regulation and policy. The second half of the course includes professional techniques in: communication, self-representation, design roles, processes, and ethics.

509. Law of Planning and Urban Development. (B) Keene.

The central focus will be on selected aspects of the field of the law of planning and development, a field that embraces a range of legal doctrines that are particularly relevant to cities and suburbs. We will study the principles that govern the regulation of land use and management of urban growth (through land use controls and other techniques for regulating new development)and, to a limited extent, environmental planning laws.

L/R 510. Urban and Planning Theory. (A) Landis.

Exploration of the representational tasks related to planning cities and regions. Review of the construction, management and reconciliation of contesting images.

520. Introduction to Community and Economic Development. (B) Staff.

Introduction to the theories and practices of urban economic and community development with a focus on improving opportunity and quality of life in low-income communities. Provides foundation for advanced courses in real estate and economic development finance, housing policy, downtown and neighborhood revitalization, workforce development and metropolitan regional development.

SM 528. (URBS428) Research Seminar 21st Century Urbanism. (B) Staff.

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530. Introduction to Land Use Planning. (A) Daniels.

Exploration of the methods and tools for managing land use and shaping the built environment. Presents how to create a successful Comprehensive Plan, Zoning Ordinance, Subdivision Regulations, Capital Improvements Progam, and design guidelines. Also, presents functional area, regional, and state-level plans.

531. Introduction to Environmental Planning & Policy. (A) Daniels.

Overview of federal programs for protecting air quality, water quality, and endangered species along with managing climate change, solid waste, toxics, energy, transportation, and remediating brownfields in an overall sustainability framework. State-level, local government, and NGO efforts to protect the environment are also explored as are green infrastructure and green cities.

SM 535. (ENMG503) Topics in Energy Policy. Staff..

This research seminar focuses on changing energy policy topics that provide students with a deep examination of an aspect of energy technology, markets, or regulation and an opportunity for research on an emerging issue related to the topic. The seminar meets weekly to discuss the relevant literature and workshop student research projects.

540. Introduction to Property Development. (A) Staff.

This course is designed to acquaint students with the fundamental skills and techniques of real estate property development. It is designed as a first course for anyone interested in how to be a developer, and as a foundation for further courses in urban development and real estate.

550. Introduction to Transportation Planning. (A) Guerra.

Survey of the technological and design aspects of urban transportation systems and land use patterns. Covers facilities operations, congestion, environmental concerns and policy debates revolving around mobility issues at the federal, state, and metropolitan levels.

SM 560. Introduction to Graphics for Urban Design. (B) Fogelson.

This course introduces students to visual literacy and the use of a variety of software packages. Through a series of assignments and in class discussions participants develop a visual vocabulary and skills to function in and between AutoCAD, Adobe Creative Suite, and 3D modeling software.

590. (MUSA507) Spatial Analysis for Urban and Environmental Planning. (A) Steif.Prerequisite(s): MUSA 501 or CPLN 503 or equivalent.

This course builds on prior knowledge of GIS and basic statistics to help students to develop GIS and spatial analysis applications for use in urban and environmental planning and management. Each weekly session will focus on a particular analytical approach (e.g., buffering, geo-processing, map algebra, network analysis) as applied to a particular urban or environmental planning tasks (e.g., identification of development opportunities, prioritizing conservation lands, urban growth modeling, housing price modeling). The format of the class includes weekly lectures/in-class demos; and weekly homework assignments. The course will make extensive use of ArcGIS and associate Extensions, especially Spatial Analyst, Network Analyst, and Business Analyst. One-year student versions of ArcGIS and ArcGIS extensions will be available free of charge at the City Planning Office. ArcGIS runs best on Windows machines; those with Macs will need to install a Windows emulator.

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600. Planning Workshop. (B) Landis.

Application of planning skills (including community inventorying and reconnaissance, goal articulation; alternatives creation and analysis, and plan development and implementation) to community plan creation. Students work in groups of seven to eight students each. Juried presentation required.

620. Techniques of Urban Economic Development. (B) Staff.

This course is about how planners act to catalyze and support economic well-being in cities and regions. Students in the course examine the effectiveness of alternative strategies and approaches to economic development and practice a variety of specific economic development policy and finance techniques. The semester is divided into three modules. In part one, students build knowledge about how theories of growth, specialization, agglomeration and innovation inform (and fail to inform) economic development strategies. In part two, they develop a working understanding of economic development finance, completing exercises on tax increment finance, tax-credit financed development and "double bottom line" lending and equity investment. In part three, they review best practices in the formulation and negotiation of location incentives and subsidies, examine "growth with equity" policies, and explore the technical and political details of economic impact analysis.

621. Metropolitan Food System. (B) Vitiello.

This course introduces students to the planning and development of metropolitan food systems. Major topics include regional planning and policy; sustainable agriculture; food access and distribution; and markets. The class includes a mix of lectures, discussion, and field trips; and students will work on real-world projects in Philadelphia. Ultimately, the course aims to develop students' broad knowledge of food systems planning in the global North and South, with an emphasis on community and economic development strategies for sustainable food systems and food security.

622. (PUBH515) Community Development and Public Health. (B) Hillier.

This course will focus on the intersection of city planning and public health by looking closely at the role of the built environment in health. We will cover such topics as food access, physical activity, walkability, bike-ability, air quality, water quality, community engagement, outdoor media and health commuication. We will learn how to conduct Health Impact Assessments (HIA) - screening, scoping, assessments, recommendations, reporting, and monitoring - and to use various environmental audit tools to measure the built environment. Our final projects will involve working with local government and nonprofit agencies to condcut applied health research projects.

SM 624. (URBS524) Metro Labor Markets. (B) Staff.

This class is an introduction to metropolitan labor markets: how they function, how (and for whom) they fail, how they are changing, and what this implies for planning and policy entrepreneurs in economic and community development. We will examine contemporary labor markets through two thematic lenses. One is the growing discussion of knowledge industries and "knowledge workers" and their importance to regional innovative capacity and competitive advantage in a global economy. The other is the persistent challenge of unemployment, underemployment and working poverty within metropolitan regions. In exploring these themes, readings for the class synthesize perspectives on work, labor markets and economic growth from economics, sociology, history and political science. Class lecture and discussion, supplemented by the occasional guest practitioner, will focus on translating academic research into knowledge that can be used in local economic and community development practice.

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625. (GAFL569, URBS451) Housing & Community Development Policy. Kromer.

This course offers an exploration of how legislative action, government policymaking, and citizen advocacy influence plans for the investment of public capital in distressed urban neighborhoods. Course topics this semester will include an evaluation of the results of City of Philadelphia development policies under the administration of Mayor Michael A. Nutter, an assessment of a large-scale property acquisition and development strategy being implemented by the Philadelphia Housing Authority in North Philadelphia, and a review of recent and current reinvestment plans for Camden's waterfront and downtown-area neighborhoods.

630. Innovations in Growth Management. (B) Staff.Prerequisite(s): CPLN 530 or CPLN 531.

The US population is expected to grow by more than 85 million from now to 2050.This course evaluates the tools and techniques for managing growth in America, especially to control sprawl in metropolitan regions. The course analyzes the form and functions of the central cities, suburbs, edge cities, ex-urbs, and megaregions. Federal,state, and local programs that influence metro change are evaluated. Regional planning approaches are analyzed in case studies.

631. Planning for Land Conservation. (B) Daniels.

Land preservation is one of the most powerful, yet least understood planning tools for managing growth and protecting the environment. This course provides an introduction to the tools and methods for preserving private lands by government agencies and private non-profit organizations (e.g., land trusts). Topics include purchase and donation of development rights (also known as conservation easements), transfer of development rights, land acquisition, limited development, and the preservation of urban greenways, trails, and parks. Preservation examples analyzed: open space and scenic areas, farmland, forestland, battlefields, and natural areas.

632. (LARP741) Modeling Geographic Space. (B) Tomlin.

The major objective of this course is to explore the nature and use of image-based (as opposed to drawing-based) geographic information systems (GIS) for the analysis and synthesis of spatial patterns and processes. This course is open to all. Previous experience in GIS is not required.

633. Ecological Principles for Planners. (B) Hewitt.

This course will provide an overview of ecology and the environmental sciences,focusing on issues important to practicing land use and environmental planners. It will combine both lectures and on-site practical experience. The latter will entail analyses of basic environmental factors, including soils, water and biodiversity. Topics to be covered will include species taxonomy and biodiversity, population and community ecology, ecosystem energetics, soil structure and function, nutrient movement, hydrology, plant ecology and physiology, and animal ecology.

641. Progressive Development. (B) Landis.Prerequisite(s): CPLN 540 or REAL 821.

Using a lecture/guest lecture/case study approach, this course will teach students how to plan,develop, and finance a variety of progressive real estate development forms including affordable housing;infill, mixed -use and brownfield development transit-oriented development; green and LEED-certified office and housing development; historic preservation projects; public-private partnerships; and suburban retrofit and master- planned-community development. In each case, we will consider site acquisition, entitlement, market and marketing conditions, financing options, ownership and deal structures, ongoing operation and asset management issues; and connections to the community. Sessions will include lectures as well as case study presentations by guest developers and students.

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651. Public Infrastructure & Finance. (A) Angelides.

This class is designed to help you develop the analytical skills necessary to understand and tackle common infrastructure problems in cities around the world, by emphasizing simple but key calculations that will help you focus on the key issues in each system, such as estimating system costs, capacity, and congestion. The first half of the class will focus on planning and engineering issues for systems for water, energy, telecommunications and large-scale transportation infrastructure such as ports and airports, but the overall emphasis will be on developing skills and tools applicable to any system. The second half of the class will focus on financing mechanisms, such as the size and structure of government investment, authority financing mechanisms, user fees, and public-private partnerships.

642. (GAFL642) Downtown Development. (A) Levy.

The course will provide an overview of the changing role of downtowns and commercial centers, how and why they have evolved, diversified and been redeveloped and who are the various public and private actors that are helping them reposition themselves in a new regional and global context. There will be a strong focus on implementation, on how things get done, on the role of business improvement districts, not-for-profit development corporations and local government in the United States, Canada and a few international cities.

643. (ARCH762) Design and Development. (B) Sehnert.

This newly reconstituted course will introduce designers and planners to practical methods of design and development for major real estate product types. Topics will include product archetypes, site selection and obtaining entitlements, basic site planning, programming, and conceptual and basic design principles. Project types will include, among others; infill and suburban office parks, all retail forms, campus and institutional projects. Two-person teams of developers and architects will present and discuss actual development projects.

650. (ESE 548) Transportation Planning Methods. (B) Ryerson.Prerequisite(s): CPLN 505 or other planning statistics course.

This course introduces students to the development and uses of the 4-step urban transportation model (trip generation-trip distribution-mode choice-traffic assignment) for community and metropolitan mobility planning. Using the VISUM transportation desktop planning package, students will learn how to build and test their own models, apply them to real projects, and critique the results.

SM 652. Regional Infrastructure Seminar. (B) Yaro.

654. Urban Transit Systems and Technology. (B) Guerra.

This is a graduate-level planning class exploring transit planning practice. The goals of this class are to develop, organize and understand transit related planning issues, and conduct research.The class will emphasize the practice of transit planning, methods, problem definition and problem solving, the collection and manipulation of data to take the greatest advantage of available local and regional resources. Local and regional studies and projects will be used to illustrate the actual work done by transit practitioners to the greatest extent possible. There will also be emphasis on how a transit planner in many different roles will approach their respcetive jobs.

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655. Multimodal Transport. (B) Guerra.

The purpose of this course is to explore contemporary multimodal transportation systems, policy, planning, and practice through a series of comparative international case studies. Topics include innovative parking management in San Francisco, congestion charging in London, Metro investments in Mexico City, informal transportation in Indonesia, Bus Rapid Transit in Bogota, and bicycle infrastructure investments in Copenhagen. The course will also include one or more site visits to innovative multimodal transportation projects in the Philadelphia or New York City regions. By analyzing contemporary planning challenges and best practices, students will develop a better understanding of how the transportation system works and how to design and employ specific multimodal interventions and policies effectively.

660. (LARP660) Fundamentals of Urban Design. (B) Al.

This course is a requirement for students enrolled in Certificate in Urban Design and for Master of City Planning students enrolled in the Urban Design concentration. How should urban designers give shape to the city? What urban design methods could they apply? This course helps students acquire the principles that can inform urban design practice. It has three major pedagogical objectives. First, it helps students understand the contemporary city through a series urban design tools. Second, it covers both historical and modern urban design principles. Finally, it includes all the scales in which urban designers operate, ranging from the fundamentals of social interaction in public space, to the sustainability of the region." This course is open to other interested PennDesign students if there is space and with permission of the instructor.

SM 670. (LARP743) Geospatial Software Design. (A) Tomlin.

The purpose of this course is to equip students with a selected set of advanced tools and techniques for the development and customization of geospatial data-processing capabilities. It is open to any student with experience equivalent to that of an entry-level class on GIS.

SM 676. (SOCI270, URBS270) The Immigrant City. (B) Vitiello.

Immigration is among the most important yet controversial forces shaping cities, regions, and neighborhoods. The diversity of immigrant and receiving communities means that the dynamics and impacts of migration are varied and complex. This course examines the development of immigrant and receiving communities in the United States. It surveys public policy and community and economic development practices related to migration at the local, regional, national, and trans-national scale. Class readings, discussions, and visits to Philadelphia's immigrant neighborhoods explore themes including labor markets, housing experiences, political mobilization, civil society, cultural preservation, and the built environment.

The first half of the course surveys migration and community formation among a broad range of ethnic groups in different parts of the city and suburbs, mainly through history, sociology, and geography; the second half focuses on specific policy and community and economic development initiatives. Ultimately, the class aims to provide students with 1) a broad knowledge of immigration and its impacts on cities and regions; 2) an in-depth understanding of urban policies and institutions working on immigration in U.S. cities; and 3) familiarity with community and economic development strategies for migrant and receiving communities.

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671. (MUSA500) Big Urban Data Analysis. (A) Brusilovskiy.

This course, co-listed with MUSA 501, will introduce graduate planning students to the use of large, spatially-explicit datasets for addressing urban planning and management problems. Among the topics to be included: (1) Real-time data acquisition using web-based and sensing technologies; (2) Data cleaning and organization using the R programming language; (3) Data visualization and exploratory analysis in R; (3) Predictive and causal modeling techniques using large datasets in R; (4) Use of statistical data reduction and machine learning techniques with big data; (5) Derivation and use spatial autocorrelation and other spatial patterning metrics in urban planning applications of big data; (6) Heuristic visualization of analytical and modeling results.

673. (LARP781) Contemporary Urbanism. (B) Gouverneur.

This course will expose students to a wide array of case studies in Planning, Urban Design, and Landscape Architecture. They include: notions of sustainable development, the interplay between open space and built form, the rehabilitation of existing areas as historic districts,, commercial corridors, and the improvement of squatter settlements. Also, it will focus on city expansions and new towns, housing, mixed-use developments, and areas of new centrality. The program will address as well territorial planning, the improvement of open space systems, and site specific interventions of parks, plazas, streetscape and gardens. Cases will provide the proper ground for analysis and interpretation of issues related to the design and implementation of "good" landscape and urban form. Class discussions will be complemented with short design exercises. We will also enjoy the presence of outstanding visiting lecturers, who will share with us cutting-edge information, derived from their professional practice and research. Regstration limited to students in the MLA 602 level; students in the Certificate in Urban Design program and a limited number of MLA students needing to fulfill the Theory III requirement; other PennDesign graduate students must seek permission of theinstructor.

675. Land Use and Environmental Modeling. (B) Landis.Prerequisite(s): Some knowledge of GIS and statistics.

Planners at every scale and of every type are increasingly using spatial data and models to analyze existing patterns, identify and parameterize key trends and urban processes, visualize alternative futures, and evaluate development impacts. This course will introduce students to various GIS-based land use andenvironmental planning models, including, among others: TR55 for analyzing parcel-level stormwater runoff; BASINS for analyzing watershed-level stream volumes, runoff, and water quality; HAZUS for analyzing the potential damage impacts of floods, earthquakes, and hurricanes; UPlan and CUF/CURBA for developing detailed urban growth projections; CommunityViz for analyzing, simulating, and visualizing the impacts of proposed development projects; and other packages as available. A basic familiarity with ArcGIS is required.

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SM 678. (URBS478) Elements of a Sustainable Development Policy. (B) Keene.

This course has several objectives. The central focus will be on developing a comprehensive understanding of the principles of sustainable development, a broad, deep, and in fact, revolutionary new way of shaping the operations of society. It was first defined in the 1987 Report of the United Nations' World Commission in Environment and Development (the Brundtland Report) as: "... development that meets the needs to the present without compromising the ability of future generations to meet their own needs." The course will combine lectures on general concepts and ways of viewing sustainable development with individuals and team presentations on a wide variety of sustainable development programs. Students will examine the efforts of universities, companies, local governments, state governments, and national governments to being to moderate man's impact of the natural environment and to make societies more economically viable and just - and therefore, more sustainable - in the long run. Students will learn how sustainable development strategies involve the full range of human activities, such as energy production and use, creation of urban communities, transportation, food systems, building construction and operation, waste disposal, control of environmental pollution, water use and treatment, and social inclusion,
migration, and global poverty.

690. (MUSA610) Java and Javascript Programming for Planning Applications. (A) Faculty.

This course will introduce city planning, MUSA and design graduate students to Java and Javascript. Students will learn the logic and syntax of the Java programming language for use in simple web applications (Weeks 1 to 7); as well as how to program database and map-oriented web and desktop applications using Javascript (Weeks 8 to 14). The "hands-on" uses of Java and Javascript in urban planning applications will be emphasized. Students will hone their programming and applications development skills through a series of bi-weekly assignments.

SM 679. (ARCH756) Policy and Design. (B) Hughes.

This seminar provides an advanced introduction to policy development and is intended to engage students in policy-making. Policy outcomes often have formal and/or scalar qualities. Yet policy developers often treat these as unintended consequences. And designers typically operate within the constraints created by such consequences. But could design thinking improve policy outcomes? Our test bed for this examination will be the relationship between energy and urban form, which presents a critical policy challenge for young professionals from many fields. The seminar will survey current research and policy options emerging from local, regional, state, and federal governments and discuss their implications for design outcomes at the scale of buildings, neighborhoods, and regions? None of these implications have been fully explored by policy makers at any level of government. This seminar will explore each in turn, allowing students to develop a deep understanding of the policy content on this important issue as well as of the policy process in general. Students will develop projects ranging from an analysis of policy to a presentation of the design implications of existing/proposed/alternative energy policies. The intent is for the seminar to make an active contribution

SM 680. (LARP745) Advanced Topics in GIS. (A) Tomlin.Prerequisite(s): CPLN-623.

The primary objective of this course is to equip students with a selected set of sophisticated and specialized tools for the practical use of geographic information systems in a variety of application settings. Participants will have the opportunity to focus on particular topics in each of four major areas including: data acquisition - e.g. remote sensing, LiDAR imagery, global positioning systems, mobile GIS, applied geocoding, geodatabases, ArcSketch, and/or CAD interaction; communication - e.g. web mapping, animation, and/or professional cartographic techniques; problem solving - e.g. cartographic pattern recognition, geospatial allocation, agent-based modeling, geostatistics, network analysis, and/or spatio-temporal simulation; and tool building - e.g. Python scripting, GoogleMap mashups, and/or open source GIS. The course is conducted in a seminar format with weekly sessions devoted to lectures, demonstrations, and discussions conducted by the instructor, studentsand invited guests. Offered in the spring annually.

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SM 682. (ARTH581) HUMANITIES,URBAN,DESIGN. (B)

701. Planning Studio. (B) Yaro.

Intensive study of a selected planning topic. Teams of students work with clients to develop alternative scenarios and produce plan and implementation strategies. Multiple presentations required.

702. Planning Studio. (B) Al.

Intensive study of a selected planning topic. Teams of students work with clients to develop alternative scenarios and produce plan and implementation strategies. Multiple presentations required.

703. Planning Studio. (B) Staff.

Intensive study of a selected planning topic. Teams of students work with clients to develop alternative scenarios and produce plan and implementation strategies. Multiple presentations required.

704. Planning Studio. (B)

705. Planning Studio. (B) Landis.

707. Planning Studio. (B)

708. Planning Studio. (B) Landis.

720. Community and Economic Development Practicum. (C) Vitiello.

This practicum involves a weekly mixture of lecture and seminar course-time with applied problem solving for real-world clients. It will be a second-year course focused on organizational development, business planning, and other strategic planning techniques that complement the physical planning focus on PennPlanning Workshop and Studio. Required of students in the CED concentration.

730. Sustainable Cities. (B) Hughes.

Sustainability as a concept has been around for almost thirty years, but only recently has become a major factor in planning practice. This seminar course will explore the following sustainability topics and practices:(i) Goals and organization of urban sustainability initiatives;(ii)Transportation, water and air quality, solid waste reduction;(iii)Climate change and energy efficiency initiatives; and (iv) Green building policies. We will thoroughly examine case studies drawn from sustainability planning initiatives from major American cities, with selected international comparisons.

760. Public Realm Studio. (A) Al.

This intensive foundation studio focuses on the physical planning and design skills necessary in shaping the public realm. Students will undertake a series of targeted exercises that introduce them to project conceptualization, context analysis, programming, site planning, technical issues, and detailed design of public space in cities. Focusing on issues pertinent to local municipalities, students will work collaboratively and individually over the semester on design elements that cover a range of scales. Intellectual objectives within the studio include: the links between theory and practice, the development of principles to guide design, understanding associations between design and stakeholder-user interests, and exploring larger issues of sustainability and participation in design practice. Emphasis on the pragmatics of problem solving and implementation will be balanced with essential skills in visioning, critical thinking and design leadership.

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SM 750. (ESE 550) Advance Transportation Seminar, Air Transportation Systems Planning. (B) Ryerson.Prerequisite(s): CPLN 550 or equivalent.

Air transportation is a fascinating multi-disciplinary area of transportation bringing together business, planning, engineering, and policy. In this course, we explore the air transportation system from multiple perspectives through a series of lessons and case studies. Topics will include airport and intercity multimodal environmental planning, network design and reliability, air traffic management and recovery from irregular operations, airline operations, economics, and fuel, air transportation sustainability, and land use issues related to air transportation systems. This course will introduce concepts in economics and behavioral modeling, operations research, statistics, environmental planning, and human factors that are used in aviation and are apllicable to other transportations systems. The course will emphasize learning through lessons, guest lecturers, case studies of airport development, and an individual group and research project.

791. CPLN Summer Institute: Spreadsheet Review. (L) Faculty.

Excel for Planners: use of Excel to develop simple planning indicators (e.g., location quotients), simple planning models (e.g., fiscal impact models), and database operations. Course enrollment is by permit only. Please contact Roslynne Carter (CPLN Dept.) at at roslynne@design.upenn.edu.

792. CPLN Summer Institute: Statistics. (L) Faculty.

Basic Statistics for Planners: review of descriptive and basic inferential statistics, including z-scores, confidence intervals, t-tests, and chi-squared. Course enrollment is by permit only. Please contact Roslynne Carter (CPLN Dept.) at at roslynne@design.upenn.edu.

793. CPLN Summer Institute: Computer Methods Computer Graphics. (L) Faculty.

Introduction to Presentation and Report Graphics for Planners: including one day each on Photoshop, Illustrator, Sketchup, and InDesign Course enrollment is by permit only. Please contact Roslynne Carter (CPLN Dept.) at at roslynne@design.upenn.edu.

794. CPLN Summer Institute: Microeconomics Review. (L) Faculty.

Micro-econ Review: review of principles of supply and demand, elasticities, equilibrium prices and quantities. Course enrollment is by permit only. Please contact Roslynne Carter (CPLN Dept.) at at roslynne@design.upenn.edu.

795. CPLN SUMMER:INTRO TO GIS. (L) Faculty.

The summer GIS Bootcamp prepares students for the intermediate GIS classes thatbegin in the fall semester. It begins with a discussion of GIS in planning and the social sciences and then moves on to topics related to spatial data, geocoding, projection, vector and raster-based geoprocessing, 3D visualization and more. Each class includes a brief lecture and a walk through involving actual planning related data. Course enrollment is by permit only. Please contact Roslynne Carter (CPLN Dept.) at at roslynne@design.upenn.edu.

796. Professional Project. (B) Staff. Capstone project, supervised by a faculty member.

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SM 800. (HIST608, URBS608) Doctoral Seminar. (C) Birch.

Open to PhD students, this scholar-oriented seminar explores how academic researchers from different disciplines define researchable questions, craft research designs, and contribute to knowledge through an examination of important and/or recently published books and monographs with an urban focus. Required of all first- and second- year CPLN doctoral students and those doctoral students enrolled in the Urban Studies Graduate Certificate Program, enrollment is limited to 15 students. Other doctoral students may enroll on a space available basis. Course requirements include completion of a major research paper on a topic selected in consultation with the instructor.

999. Independent Study and Research. (C) Staff. Ph.D. candidates. Independent study and research under faculty supervision.