



Spring 2016 Elective Course Offerings ~ as of 1/4/2016

KLEINMAN CENTER FOR ENERGY POLICY

ENMG 503 401: Topics in Energy Policy: Technology and Policy Innovation for Energy Systems

William Hederman

Friday, 9:00am-12:00pm

Energy systems consist of physical components and algorithms for linking subsystems. They are complex, often spanning nations or continents and often governed by combinations of private and public agreements/regulations. It can be difficult to change the outputs and operational characteristics of complex systems. Today, energy users and suppliers—as well as governments—are demanding significant changes to key energy systems. This course will focus on several major energy systems relevant to North America, including high voltage power grids, transmission pipeline networks, and a system more local to the Philadelphia region. We will examine the current status and trends of the selected systems and will note key challenges applicable to each system. We will explore technological advances and policy changes that could enhance system performance. Students may select technical or policy topics to research. Potential topics include: renewable energy integration, Smart Grids, pipeline networks, energy storage options, and COP21 implications for energy systems.

ENMG 503 402: Topics in Energy Policy: Geopolitics of Energy

Anna Mikulska

Monday, Wednesday, 2:00pm-3:30pm

Energy is one of the most powerful elements of world economy and politics. Energy powers our industry and transport, shapes our physical landscapes and personal habits, and provides services that make us comfortable and secure. It is the world's largest business and a chief ingredient of state power. But it is also a curse that enables dictatorship and war, undermines democracy, and taints our environment. Internationally, it stitches together often very different countries in webs of mutual dependence. In this class, we will discuss global trends in the production and use of energy, its impact on the environment, and the geopolitical issues around energy security and trade using the United States energy developments and energy-related policies as a backdrop. We will look at policies such as the US ban on crude exports, regulation of LNG exports by FERC, the Jones Act, as well as environmental policies including but not limited to EPA's Clean Air Act and Clean Water Act. In this context we will explore theoretical debates about energy's influence on governance and development around the world, and consider the future roles of big exporters in the Middle East and growing centers of demand in Asia. We will study innovations and events that have reshaped the energy landscape in the United States and other big consumers, and look at policies that are shifting economies away from fossil fuels and nuclear power. We will also get involved in these debates, drafting recommendations intended to inform government policy.

CITY PLANNING

CPLN 620-001 Techniques of Urban Economic Development

Josh Warner

Monday, Wednesday, 10:30am-12:00pm

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 1, students build knowledge about how theories of growth, specialization, agglomeration and innovation inform (and fail to inform) economic development strategies. In part 2, 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 3, 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.

CPLN 630-001 Innovations in Growth Management

Zoe Warner

Tuesday, Thursday, 10:30am-12:00pm

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.

CPLN 631-001 Planning for Land Conservation

Thomas Daniels

Wednesdays, 2:00pm -5:00pm

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

CPLN 643-401 Design and Development

Paul Sehnert

Fridays, 9:00am- 12:00pm

This 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 apartments, subdivision homes and master-planned communities, downtown office buildings 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.

CPLN 535-401 Topics in Energy Policy

Staff

Fridays, 9:00am- 12:00pm

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.

CPLN 730-001: Sustainable Cities

Mark Alan Hughes, Howard Neukrug, and Alan Greenberger

Tuesday, 1:30pm – 4:30pm

Sustainability is the organizing device for some of the most sophisticated and innovative policy development by local governments around the world over the past decade. This diverse portfolio of ideas and actions has served as a platform for the introduction of metrics into governments, for the planning for resilience in assets and operations, and for the alignment of local government policies and practices within a common framework. As both policy-makers and policy-takers (from other governments and external interests), local governments now see the implementation of ambitious goals as a key focus of current sustainability policy and planning. This course unites three celebrated leaders to examine sustainability initiatives from American cities, with selected international comparisons, to explore cutting-edge challenges facing the next generation of leaders in Sustainable Cities. This course will be taught by Mark Alan Hughes, Professor of Practice at PennDesign and creator of the "Greenworks Philadelphia" plan; Alan Greenberger, Deputy Mayor for Economic Development and Planning and creator of the "Philadelphia2035" Comprehensive Plan; and Howard Neukrug, Water Commissioner for the City of Philadelphia's Water Department and creator of the "Green City, Clean Waters" plan.

MUSA 505-001, Web-based Mapping

Karl Dailey

Thursdays, 9:00am- 12:00pm

This hands-on course will teach students how to develop and implement web-and internet-based mapping tools and applications using ESRI's ArcGIS Server and ArcGIS Online products as well as the Google Maps Applications Programming Interface (API). Students will learn how to use web-based tools to build spatial databases, analyze and display spatial data at multiple scales, mix web-based vector and raster data with image data, conduct spatial analysis and develop urban and environmental planning applications.

ARCHITECTURE**ARCH-712-001 Topics in ARCH Theory II: Philosophy of Materials and Structures**

Manuel DeLanda

Thursday: 3:00 pm-6:00 pm

This lecture series introduces students to the basic philosophical concepts needed to understand contemporary science. Most of the examples and case studies discussed in class come from two fields that are intimately connected with architecture: structural engineering and materials science and engineering. But in addition, the class deals with the philosophical underpinnings of two other fields, one which has been the backbone of science since its inception, mathematics, and the other which has revolutionized mathematical models by setting them into motion: computer simulation.

ARCH-712-003 Topics in ARCH Theory II: Building Envelopes: Articulation and Performance

Ariel Genadt

Thursday 3:00 pm-6:00 pm

In the 20th century, building envelopes have become the prime architectural subject of experimentations and investments, as well as physical failures and theoretical conflicts. This semester examines the meaning of performance of 20th-century envelopes by unfolding their functions and behaviors in salient case studies, in practice and in theory. While the term performance is often used to denote quantifiable parameters, such as exchanges of energy, air and water, this seminar seeks to recouple these with other, simultaneous actions performed by the envelope and by the building it encloses. Albeit numbers cannot describe those performances, their consideration is key to the interpretation of quantifiable ones. Ultimately, the articulation of the polyvalence of envelopes becomes the measure of their architectural pertinence. Each class meeting includes a lecture, students' case studies presentations, and film screenings. This seminar qualifies as an elective for the Ecological Architecture Certificate and the M.E.B.D. program.

ARCH-712-005 Topics in ARCH Theory II: Urban Ideology: *Ways of Being Innovative with Architecture vis-à-vis Activism*

Srdjan Jovanovic Weiss

Thursday: 9:00 am-12 noon

This seminar explores expanding roles of a designer engaged in urban activism that engulf fields and knowledge of architecture, urbanism and art. The course provides tools for critical thinking to interpret urban tensions that are often self-organized, anonymous and spatial. At the same time we will look into tools to interpret recent shifts in the work of Peter Eisenman, Herzog & de Meuron and AMO/OMA as well as explore younger innovative and alternative practices. The course is given by Srdjan Jovanovic Weiss, PhD (Goldsmiths Centre for Research Architecture, London) and former architect and cultural researcher with Herzog & de Meuron Architects (Basel, Switzerland), founder of NAO (Normal Architecture Office) and co-founder of SMS (School of Missing Studies). The participants in the seminar will be involved in conceptualizing and creating the exhibit *Romancing Power* commissioned by the Anderson Gallery at The New School in New York to open February 2015. The exhibit will be produced in collaboration with Nina Krushcheva, grand-daughter of cold war president of Soviet Union, Nikita Khrushchev.

ARCH-712-006 Topics in ARCH Theory II: Baroque Parameters

Andrew Saunders

Tuesday 1:00 pm-4:00 pm

In this course we will use computation as an instrument to reassess the geometric principles of Baroque architecture. Deep plasticity and dynamism of form, space and light are explicit signatures of the work; less obvious are the disciplined mathematical principles that generate these effects. Geometry and mathematics were integral to 17th-century science, philosophy, art, architecture and religion. They are what link Baroque architects Francesco Borromini and Guarino Guarini to other great thinkers of the period including Descartes, Galileo, Kepler, Desargues and Newton. Through the exploitation of trigonometric parameters of the arc and the chord, Baroque architects produced astonishing effects, performance and continuity. Generative analysis by parametric reconstruction and new speculative modeling will reexamine the base principles behind 17th century topology and reveal renewed relevance of the Baroque to the contemporary paradigm.

ARCH 712-007 Topics in ARCH Theory II: The Skyscraper and the Suburb

Joseph Watson

Mondays 9:00 am-12:00 pm

This course examines the unlikely pairing of the skyscraper and the suburb. While these are typically treated as discrete historical phenomena, this course will develop an understanding of them as inextricably intertwined urban artifacts. Together they have inscribed a wide range of social, cultural, and economic desires onto landscapes across the globe. By considering the diverse ways that architects, planners, developers, filmmakers, historians, and theorists have understood these sites, students will develop a critical understanding of the role that the skyscraper and the suburb have played in defining architectural and urban thought from the late-nineteenth century to the present.

ARCH-714-001 Museum as Site: Critique, Intervention, and Production

Andrea Hornick

Wednesday: 9:00 am-12:00pm

In this course, we will take the museum as a site for critique, invention, and production. As architecture, cultural institution, and site of performance, the museum offers many relevant opportunities. Students will visit, analyze, and discuss a number of local exhibitions and produce their own intervention in individual or group projects. Exhibition design, design of museum, the process of curating, producing artworks ranging from paintings to installation and performance, as well as attention to conservation, installation, museum education, and the logistics and economics of exhibitions will be discussed on site and in seminar. These topics and others will be open for students to engage as part of their own creative work produced for the class and an online exhibition.

ARCH-724-002: Technology in Design: Non-Discrete Architectures Digital Prosthetics Connectivity & Augmented Space

Shawn Rickenbacker

Wednesday 9:00 am-12:00pm

This sponsored research course will examine advances in computing technology that are producing a new range of digitally enhanced environments, structures and spaces. Through Digital Prosthetics, Connectivity and Augmented Space designers are now operating equally with tangible form as well as with intangible attributes (the virtual). Referred to as the imminent convergence of digital and physical space, this is being accomplished through new digital interactive exchanges and engagements fostered by increased digital connectivity. Embedded computing, sensors and ever increasing ubiquitous technologies are the enablers, targeting objects, users and physical space. This directly challenges the former singular concept of space known predominantly as static, in favor of new concepts of space, such as: Networked, Interactive, Immersive, Dynamic, Augmented and Data controlled. These new concepts and the corresponding new digital technology medium are the principal subjects of this research seminar. As a laboratory we will investigate the expanding the role of the designer's work, propose and prototype plausible design fictions and research how we as humans will interface with our new corresponding digital prosthetics, connectivity, dynamic spaces and augmented architectures? This course will run in conjunction with the Spring 15' Symposium, Non Discrete Architectures: Digital Prosthetics, Connectivity and Augmented Spaces. The seminar/lab explores the design of our environment through emerging technologies in computing, interface and device culture. The lab is directed by Shawn Rickenbacker and resides at the University of Pennsylvania's Graduate School of Design.

ARCH-724-003: Technology in Design: Aperiodic -The Mathematics of Tiling in Architectural Design

Joshua Freese

Wednesday 6:00pm-9:00 pm

Repetition and difference in geometric tiling patterns produce visual complexity, intricacy, economy and articulation. From textiles and ceramics to architectural design, the tradition of tiling has culled from mathematical systems that inscribe two- and three-dimensional geometric conditions, ultimately yielding cultural effects that are unique to their time. By examining this tradition across time and disciplines, this course will explore a range of mathematical systems, tools and media as well as how they advance contemporary architectural topics such as parametrics, optimization, fabrication, and implementation. Through lectures, readings and workshops, the course will lead students to develop contemporary and future-oriented methods that establish new parameters for tiling systems. Students will identify particular tiling families from guest lectures, historical precedents and readings, and will establish conditions for scripting new assemblies for generating three-dimensional patterns and assemblies. Fabrication methods will consider an economy-of-means, using minimal variation in base models and molds to achieve maximum differentiation in the aggregation of tiles into 3-dimensional volumetric models. It is through this negotiation between fixed rules and variable freedoms that tiling systems have historically asserted their cultural value – and this will be the ultimate goal of the course.

ARCH-724-004: Technology in Design: Data and Adaptation

Mark Nicol

Tuesday 9:00 am-12:00pm

Data + Adaptation seeks to study emerging tools and workflows that allow designers to tap into abundant sources of data and leverage them towards crafting adaptable, dynamic constructions. Low cost sensors and simple scripting techniques will be used to collect and visualize complex data fields. Design tools within the Rhino/Grasshopper or Maya ecosystem with the capability of designing and simulating dynamic responses to shifting data fields will be explored. In the end, students will take a position with regards to how data might affect design and furthermore how architectural constructions might be designed with the capacity to dynamically adapt to those fluctuating data.

ARCH 726-401 Contemporary Furniture Design

Katrín Mueller-Russo

Tuesday 12:00pm-3:00 pm

This course provides a platform, in the form of furniture, to execute and deploy architectural and engineering principles at full scale. It will be conducted as a seminar and workshop and will introduce students to a variety of design methodologies that are unique to product design. The course will engage in many of the considerations that are affiliated with mass production; quality control, efficient use of material, durability, and human factors. Students will conduct research into industrial design processes, both traditional and contemporary, and will adapt these processes into techniques to design a prototype for limited production. Instruction will include; model making, the full scale production of a prototype, its detailing; design for mass production and the possibility of mass customization; design for assembly, furniture case studies; design techniques, software integration, optimization studies; Computer Aided Manufacturing (CAM) and a site visit to a furniture manufacturer.

ARCH 727-401 Industrial Design I

Peter Bressler

Wednesday 9:00am-12:00pm

Industrial design (ID) is the professional service of creating and developing concepts and specifications that optimize the function, value and appearance of products and systems for the mutual benefit of both user and manufacturer. Industrial designers develop these concepts and specifications through collection, analysis and synthesis of user needs data guided by the special requirements of the client or manufacturer. They are trained to prepare clear and concise recommendations through drawings, models and verbal descriptions. The profession has evolved to take its appropriate place alongside Engineering and Marketing as one of the cornerstones of Integrated Product Design teams. The core of Industrial Design's knowledge base is a mixture of fine arts, commercial arts and applied sciences utilized with a set of priorities that are focused firstly on the needs of the end user and functionality, then the market and manufacturing criteria. This course will provide an overview and understanding of the theories, thought processes and methodologies employed in the daily practice of Industrial Design. This includes understanding of ethnographic research and methodologies, product problem solving, creative visual communication, human factors / ergonomics application and formal and surface development in product scale. This course will not enable one to become an industrial designer but will enable one to understand and appreciate what industrial design does, what it can contribute to society and why it is so much fun.

ARCH 728-401 Design of Contemporary Products: Smart Objects

Carla Diana

Tuesday 9:00 am- 12:00 pm

Smart objects are information-based products that are in ongoing dialogs with people, the cloud and each other. By crafting rich interactions, designers can create expressive behaviors for these objects based on sophisticated programmed responses. With an explosion of new possibilities for object interaction and human control, it is the designer's role to envision new solutions that are both meaningful and responsible. This course will explore product design solutions through a combination of physical and digital design methods. Beginning with an examination of case studies, students will gain a sense of the breadth of product and interaction design practice as it applies to smart objects. Through a series of lectures and hands-on studio exercises, students will explore all aspects of smart object design including expressive behaviors (light, sound and movement), interaction systems, ergonomics, data networks and contexts of use. The course will culminate in a final project that considers all aspects of smart object design within the context of a larger theme.

ARCH 730-001 Techniques, Morphology, and Detailing of a Pavilion

Mohamad Al-Khayer

Wednesday 6:00pm-9:00pm

The course will focus on the design, morphology detailing, and the construction of "PennDesign Pavilion inspired by Russel Write Designs" which is set to be constructed in Spring 2016 on a site located at the University of Pennsylvania Campus. The course will develop through hands-on workshops and will focus on acquiring knowledge through making (Techne), understanding the morphological transformation of a given geometric packing, and building using readily available materials. The process consists of building and testing physical models that simulates the actual pavilion. In addition to digital simulation sessions to realize the desired design, which answers to the program developed by PennDesign faculty. The second half of the semester will focus on using lightweight construction materials to fabricate the pavilion's actual components, including structural elements, molded components, and joints, which are required for pavilion's final assembly. Additionally students will learn to organize design and fabrication teams, control design and production schedules, and work with set budget, which requires keeping track of construction cost and forecast for required procurements, including material quantities takeoff, ordering and schedule deliveries and receiving.

ARCH 732-001 Advanced Enclosures

Charles Berman

Wednesday 9:00 am-12:00 pm

This seminar seeks to expand a framework of understanding enclosures as integral to the student's architectural intentions. We will seek to move beneath the numerical facts of what is accepted as facade design (criteria, codes, loads, forces and consumptions) to seek a deeper understanding of the generative process underlying these physical criteria in order to evade the mere acceptance of these external facts to the intentions of the Architect. The nature of enclosures will be explored through methods of analysis and interrogation of materials, their attributes, their forms of assembly and the natures of their manufacture. The vehicle for this interrogation will be the act of drawing and assembling. Case studies of new materials, new processes and new applications will provide the basis gaining this dissecting /cutting ability (Frascati). In addition the students will engage in generative detailing exercises, at simultaneous scales, to analyze and apply these decontextualized results to reveal their nature manifest in facade.

ARCH 734-001 Architecture and Ecology

Todd Woodward

Tuesday 9:00am-12:00pm

Architecture is an inherently exploitive act – we utilize resources from the earth and produce waste and pollution to create and occupy buildings. We have learned that buildings are responsible for 40% of greenhouse gas emissions, 15% of water use and 30% of landfill debris. This growing realization has led building designers to look for ways to minimize negative environmental impacts. Green building design practices are seemingly becoming mainstream. Green building certification programs and building performance metrics are no longer considered fringe ideas. This course will investigate these trends and the underlying theory with a critical eye. Is "mainstream green" really delivering the earth-saving architecture it claims? As green building practices become more widespread, there remains something unsatisfying about a design approach that focuses on limits, checklists, negative impacts and being "less bad." Can we aspire to something more? If so, what would that be? How can or should the act of design change to accommodate an ecological approach?

ARCH 738-001 The Modern House: Technology Then and Now

Annette Fierro

Wednesday 9:00 am-12:00 pm

In the current age of new fabrication methodologies, methods are emerging for the conception and design of the contemporary house which have radical potential for enclosure, habitation and practices of daily life. This course begins by examining the canonical houses of the original avant-garde--Adolf Loos, Frank Lloyd Wright, Le Corbusier, Mies van der Rohe and Alvar Aalto—on the premise that their houses were working manifestos for rethinking space, form and indeed ideas of life itself—all of which were prompted by new concepts of construction. From this spectrum of issues, contemporary houses and contemporary methods and materials will be studied extensively to develop equally new ideas between matter and quotidian life. As the primary task of the course, students will work in teams to develop highly detailed constructional proposals for a facade of a speculative home.

ARCH 740-001 Formal Efficiencies

Eric Carcamo

Tuesday 12:00 pm-3:00 pm

The seminar is a discourse based in the use of multi-layered techniques and production processes that allow for control over intelligent geometries, calibration of parts, and behavioral taxonomies, normalizing an innovative field of predictability. Our goal is to explore innovative, potential architectural expressions of the current discourse around form through technique elaboration, material intelligence, formal logic efficiencies and precision assemblies as an ultimate condition of design. The seminar will develop and investigate the notion of proficient geometric variations at a level of complexity, so that questions towards geometrical effectiveness, accuracy and performance can begin to be understood in a contemporary setting.

ARCH 744-401 Digital Fabrication

Ferda Kolatan

Monday 6:00 pm-9:00 pm

This seminar course investigates the fabrication of digital structures through the use of rapid prototyping (RP) and computer-aided manufacturing (CAM) technologies, which offer the production of building components directly from 3D digital models. In contrast to the industrial-age paradigms of prefabrication and mass production in architecture, this course focuses on the development of repetitive non-standardized building systems (mass-customization) through digitally controlled variation and serial differentiation. Various RP and CAM technologies are introduced with examples of use in contemporary building design and construction.

Arch 750-002

Hina Jamelle

Wednesday 6:00 pm -9:00 pm

The seminar will define and elaborate on the following topics for the digital discourse- the contemporary diagram, technique, structure, architectural systems and aesthetic projections. Integrative elegance is a method of complete design that looks to achieve a synthesis to pull the seemingly disparate webs of research, technique, structure and architectural exploration together. The seminar seeks to reframe the questions facing architectural design, opening the possibility for an increasingly expansive set of possible solutions. Integrative Elegance is an idea for ordering the processes, techniques, and structures of architectural design framed by the discourse of abstract machines, morphogenesis, and non-linearity. The design process seeks to balance internal morphogenetic logics and evolutionary processes with external criteria for evaluation and selection in the development and deployment of form.

ARCH 754-001 Performance Design Workshop

Yun Yi

Friday 9:00 am-12:00pm

The workshop applies simulation and diagramming techniques to a series of discrete design projects at different scales. The emphasis is on refinement and optimization of performance based building design. Performance analysis techniques can provide enormous amounts of information to support the design process, acting as feedback mechanisms for improved performance, but careful interpretation and implementation are required to achieve better buildings. Energy, lighting, and air flow are the three main domains covered in the workshop. Students will learn how to utilize domain tools at an advanced level, and utilize them as applications to examine the environmental performance of existing buildings. Using the results of analytical techniques, the students will develop high-performance design strategies in all three domains.

ARCH 762-401 Design and Development

Paul Sehnert

Fridays 9:00am-12:00 pm

This course provides an introduction to the relationship between architectural design and real estate development. Following a discussion of fundamentals, examples focus on commercial building types, and illustrate how architectural design can contribute to real estate development. Topics include housing design commercial buildings, adaptive reuse, downtown development, mixed-use projects, and planned communities. The course consists of lectures, reading assignments, short essays, a group project, and a mid-term test. Invited lecturers include architects and real estate developers. Readings consist of a Bulkpack available from Wharton Reprographics. There is one course text: Witold Rybczynski, "Last Harvest.

ARCH-765-001: Project Management

Charles Capaldi

Friday 9:00am-12:00pm

This course is an introduction to techniques and tools of managing the design and construction of large, and small, construction projects. Topics include project delivery systems, management tools, cost-control and budgeting systems, professional roles. Case studies serve to illustrate applications. Cost and schedule control systems are described. Case studies illustrate the application of techniques in the field.

ARCH 816-001: Advanced Topics in Architecture Culture from World War II through 2001

Joan Ockman

Thursdays 1:00pm-2:30 pm

This seminar will be taught as an advanced section of ARCH 512. It is primarily for students who are in their first year of the PhD program in Architecture but it is open to other upper-level students with instructor permission. In addition to the weekly discussion-format seminar on Tuesday afternoons (1½ hours), students are also expected to attend the lectures associated with ARCH 512 on Tuesday mornings (10:30–12). Assigned readings will go beyond those on the 512 syllabus to include more complex and sophisticated source material. The subject of both ARCH 512 and 812 is the evolution of the culture of architecture from World War II to the turn of the twenty-first century. Starting with the period of wartime planning and postwar reconstruction in the 1940s, we will move decade by decade up to the present century, considering the transformations of modernist culture under the impact of social, political, technological, and urban changes. We will address the challenges posed to architecture from inside as well as outside the discipline and from around the world, attending to material and ideological developments and to relations between individual protagonists and larger historical and institutional forces. Note: This course is intended for Ph.D. students. Others will be admitted by permission of the instructor.

FINE ARTS**FNAR-523 Drawing I**

- Section 401 -Matt Neff - Monday & Wednesday 10:00a.m.-1:00p.m.
- Section 402 -Deidre Murphy - Tuesday & Thursday 9:00a.m.-12:00p.m.
- Section 403 -Deidre Murphy - Tuesday & Thursday 1:30p.m.-4:30p.m.
- Section 404 –Andrea Hornick- Monday & Wednesday 2:00p.m.-5:00p.m.
- Section 405 –Marc Blumthal- Tuesday & Thursday 5:00p.m.-8:00p.m.

This course is designed to develop visual awareness and perceptual acuity through the process of drawing. Students learn to sharpen perceptual skills through observational drawing, and to explore the expressive potential of drawing. A variety of problems and media will be presented in order to familiarize students with various methods of working and ways of communicating ideas visually. Subject matter will include object study, still life, interior and exterior space, self-portrait and the figure. Different techniques and materials (charcoal, graphite, ink, and collage) are explored in order to understand the relationship between means, material and concept. Critical thinking skills are developed through frequent class critiques and through the presentation of and research into historical and contemporary precedent in drawing. If you need assistance registering for a closed section, please email the department at fnarug@design.upenn.edu

FNAR-524 Drawing Investigations

- Section 401 – Joan Curran- Monday & Wednesday 10:00a.m.-1:00p.m.

Drawing is a fundamental means of visualization and a hub for thinking, constructing, and engaging in a wide variety of creative activities and problem solving. This studio class explores drawing in both its traditional and contemporary forms. The projects are designed to help students in all disciplines find ways to express and clarify their ideas through the process of drawing. The semester begins with the refinement of perceptual skills acquired in Drawing I, while encouraging experimentation through the introduction of color, abstract agendas, conceptual problem solving and collaborative exercises, as well as new materials, techniques and large format drawings. Particular attention is given to ways to conduct visual research in the development of personal imagery. Assignments are thematic or conceptually based with ample opportunity for individual approaches to media, subject, scale and process. The goal is to strengthen facility, develop clarity in intent and expand expression. Attention is paid to the development of perceptual sensitivity, methods of image construction, and the processes of synthesis and transformation in order to communicate ideas through visual means. Recommended for students in all areas. Prerequisite(s): FNAR 523.

FNAR-526 Sequential Drawing

- Section 401- Jeremy Holmes-Tuesday & Thursday 7:30p.m.-10:30p.m.

Sequential drawing instructs in the visualization of storytelling through the exploration of visual narrative components (visual iconography, panel- to-panel transition types, picture/word relations) and their application to a narrative through the use of formal drawing techniques (composition, color, perspective, line, form). The class begins with various exercises in paneling, pacing and style development, and concludes with the student applying the concepts and techniques they've acquired to the creation of a graphic novel. Prerequisite(s): FNAR 523

FNAR-531 Painting Practices

- Section 401- Joan Curran- Monday & Wednesday 2:00p.m.-5:00p.m.
- Section 402- Marjorie Edgerton- Monday & Wednesday 10:00a.m.-1:00p.m.

Painting practices is an introduction to the methods and materials of oil painting. This course begins with an investigation of color and color relationships. The beginning of the semester will cover technical issues and develop the student's ability to create a convincing sense of form in space using mass, color, light and composition. The majority of work is from direct observation including object study, still life, landscape, interior and exterior space and the self-portrait. Class problems advance sequentially with attention paid to perceptual clarity, the selection and development of imagery, the process of synthesis and translation, color, structure and composition, content and personal expression. Students will become familiar with contemporary and art historical precedent in order to familiarize them with the history of visual ideas and find appropriate solutions to their painting problems. Prerequisite(s): FNAR 523.

FNAR-536 Digital Figure Modeling

- Section 401-Scott White- Monday & Wednesday 2:00p.m.-5:00p.m.

This course introduces methods of modeling, texturing, and rendering human and animal figures. Students will study anatomical bone and muscle structures, and then employ this knowledge as they develop polygonal models for real-time 3D simulations or gaming environments, high-resolution renderings, and rapid prototyping. Prerequisite(s): FNAR 635; Recommended FNAR 543 or FNAR 580. Course Fee \$75.00

FNAR-543 Figure Sculpture I

- Section 401 – Thomas Bendtsen- Monday & Wednesday 10:00a.m.-1:00p.m.

An introduction of modeling the human figure in clay. Students will work from the live model, acquainting themselves with issues of basic anatomy, form and function, and clay modeling. No previous experience is required; drawing experience a plus. Course Fee \$75.00

FNAR-545 Sculpture Practices

- Section 401 – Thomas Bendtsen -Monday & Wednesday 2:00p.m.-5:00p.m.

As an introduction to traditional and contemporary three-dimensional practice, this course is concerned with the concepts and methodologies surrounding three-dimensional art making in our time. Students experiment with a variety of modes of production, and develop some of the fundamental techniques used in sculpture. In addition to these investigations, assignments relative to the history and social impact of these practices are reinforced through readings and group discussion. Processes covered include use of the Fab Lab, wood construction, clay, paper, mixed media, and more. If you need assistance registering for a closed section, please email the department at fnarug@design.upenn.edu

FNAR-547 Environmental Animation

- Section 401- C Landau- Tuesday & Thursday 9:00a.m.-12:00p.m.

This studio-based course examines intersections of landscape, art, and architecture through the medium of 3D animation. As our experience and understanding of environments is increasingly defined by digital systems of representation, this course will define connections between biological, psychological, poetic and computational perspectives. We will draw on different data to use as inputs and drivers for the articulation of environments, from formal navigation of raster, vector, and 3D data to scripting or narration of more interconnected or agent ecosystems. This course will allow for a range of entry points from different disciplines. Assignments will range from proposal-focused objectives to the designing open-ended representational systems. We will examine and discuss standard visualization typologies such as the architectural walk-through and animated diagrams as well as filmic strategies all as starting points for creative reinterpretation of space. We will primarily be using 3D Studio Max and After Effects with support from Rhino, Grasshopper, NextGen 3D-scanning, and, of course, scripting experience in landscape architecture, architecture, animation, programming, film, Photoshop, or graphic design is strongly encouraged but not required. This course will embrace a spirit of invention, experimentation and interdisciplinary cross-pollination. Prerequisite(s): Experience in landscape architecture, architecture, animation, programming, film, Photoshop, or graphic design is strongly encouraged but not required.

FNAR-550 Intro to Printmaking

- Section 401- Marc Blumthal- Tuesday & Thursday 1:30-4:30PM

The course offers an introduction to several forms of printmaking including: intaglio, screen printing, relief, and mono-printing. Through in-class demonstrations students are introduced to various approaches to making and printing in each medium. The course enhances a student's capacity for developing images through two-dimensional design and conceptual processes. Technical and conceptual skills are developed through discussions and critiques. Course Fee \$75.00

FNAR-551 Printmaking: Etching

- Section 401- Ivanco Talevski- Monday & Wednesday 5:00p.m.-8:00p.m.

The class will challenge the possibilities of experimental drawing and ways of creating incisions and textures using copper plates as the matrix, which then will be printed on paper and other materials. The class offers full technical and historical description of each individual process: Dry Point, Etching, Hard ground, Soft Ground, Aquatint, Shine Cole', Spit-Biting, Sugar Lift, Color Printing and Viscosity printing. Course Fee \$75.00

FNAR-553 Advanced Projects Printmaking

- Section 401 V Marti Jr. - Wednesday 10:00a.m.-1:00p.m.

This course will concentrate on expanding imagery in print media. The course requires the proposal of a directed final project to be developed during the semester. Three initial exploratory projects will culminate in the final. Projects are open to all print media, but there will be an emphasis on screen printing. Techniques will be addressed as they serve the needs of ideas rather than a set technical procedure. Through individual consultation, scheduled class critiques, and field trips, attention will be given to studio work in and out of printmaking so that the technical and conceptual strengths of print media can serve as a worthwhile adjunct to an overall studio practice. Prerequisite(s): FNAR 551 and FNAR 552 or FNAR 557. Course Fee \$75.00

FNAR-558 Introduction to Clay: The Potter's Wheel and Beyond.

- Section 401 Matthew Courtney - Monday & Wednesday 5:00p.m.-8:00p.m
- Section 402 - Sumi Maeshima - Monday & Wednesday 2:00p.m.-5:00p.m
- Section 403 - Ryan Greenheck - Tuesday & Thursday 1:30-4:30PM

In this introductory clay class, students will learn all the fundamental skills needed to create three dimensional forms in clay using a variety of methods: wheel throwing, hand building (such as coil building and slab construction), and press molding. Whether creating utilitarian forms or creating sculpture, projects are designed to strengthen both craftsmanship and individual creativity. In addition to developing a working knowledge of the ceramic process, including surface treatments and glazing, students will also be introduced to design issues as well as contemporary art/ceramics topics that influence our aesthetic sensibilities. No prerequisites. Course Fee \$75.00

FNAR-559 Beginning Clay

- Section 401- Sumi Maeshima- Monday & Wednesday 5:00p.m.-8:00p.m

Modeling and casting are fundamental methods of object-making. Students will learn basic hand building techniques such as coil building, slab construction, and mold making through assignments that incorporate conceptual and technical issues. Through experimentation with these methods, this course promotes an understanding of materials, processes, visual concepts, and techniques for creating three-dimensional forms in space. In addition to using different water-based clays and plaster, other materials such as wax, plastiline, paper pulp, cardboard, and tar paper will be explored. No prerequisites. Course Fee \$75.00

FNAR-563 Advanced Wheel Studio

- Section 401- Ryan Greenheck – Tuesday & Thursday 5:00p.m.-8:00p.m

This course teaches students more advanced wheel throwing techniques while helping to develop their critical skills in other areas of ceramic work. Students will learn to throw, employing larger masses of clay, and to increase the complexity of their work by combining and altering thrown parts. There will be an emphasis on experimentation in surface treatment and design, the goal of which is to expand a student's ability to create more complicated and personalized clay works. In addition to learning the technical knowledge, there will be critical discussions of contemporary ceramics issues through image presentations, reading materials and field trips. Prerequisite(s): FNAR 561. Course Fee \$75.00

FNAR-566 Graphic Design

- Section 401- M Yavuz- Tuesday & Thursday 4:30pm-8:30PM

The aim of this course is to introduce students to creative ways to use color, typography, and layout across new materials and media, ranging from print to physical objects. Students will explore visual design through a set of assignments and projects that are geared towards exploring the role of design in visual arts, interaction design, media design and architecture. The course introduces a number of design concepts such as content organization, navigation, interaction and data-driven design and show ways to develop new design metaphors, presentation techniques, and imagery using old and new technologies. This course is structured as a combination of lectures and hands on workshops where students will have the chance to work both individually and collaboratively to realize their projects. Prerequisite(s): FNAR 636. Course Fee \$75.00

FNAR-570 Graphic Design Practicum

- Section 401- David Comberg- Tuesday & Thursday 1:30pm-4:30PM

Practicum provides a real world experience for students interested in solving design problems for nonprofit and community organizations. The studio works with two clients each semester, and previous projects have included print design, web design, interpretive signage and exhibit interactives. All projects are real and will result in a portfolio-ready finished product. Students will participate in a full design experience including design, client interaction, presentations, production, and project management. In addition, students will take field trips, meet professionals and go on studio visits. Prerequisite(s): FNAR 566 or FNAR 569. Course Fee \$75.00

FNAR-571 Intro to Photography

- Section 401- Karen Rodewald- Monday 5:00p.m.-8:00p.m.
- Section 403 – Gabriel Martinez- Thursday 1:30-4:30PM

This course is an introduction to the basic processes and techniques of black & white photography. Students will learn how to expose and process 35mm film, SLR camera operation, darkroom procedures & printing, basic lighting and controlled applications. It begins with an emphasis on understanding and mastering technical procedures and evolves into an investigation of the creative and expressive possibilities of making images. This is a project-based course, where students will begin to develop their personal vision, their understanding of aesthetic issues and photographic history. Assignments, ideas and important examples of contemporary art will be presented via a series of slide lectures, critiques and discussion. No previous experience necessary. 35mm SLR cameras will be available throughout the semester for reservation and checkout from the photography equipment room. If you need assistance registering for a closed section, please email the department at fnarug@design.upenn.edu. Course Fee \$75.00

FNAR-572 Advanced Photography

- Section 401- Karen Rodewald- Tuesday 1:00pm-4:00p.m.

This studio course seeks to broaden each student's skills by experimenting with a wide range of photographic media. Advanced analog, digital and experimental lens-based techniques will be covered, as well as larger camera formats to expand their vocabulary as image-makers. Emphasis will be on an integrated experience of the photographic medium and the development of a body of work that is both theoretically and historically informed. The course will be a means to view and discuss various strategies of important contemporary photographers. Focused assignments, readings, slide lectures and gallery visits will supplement each student's artistic practice and research. Prerequisite(s): FNAR 571 or Permission of Instructor. Course Fee \$75.00

FNAR-575 Drawing Seminar

- Section 201- Matt Freedman-Monday 2:00p.m.-5:00p.m.

This seminar examines the essential nature drawing has in an artist's process. Direct visual perception, self-referential mark making, the viability of space and understanding it, and drawing from one's own work are some of the drawing experiences encountered in the course. There are regular critiques and discussions based on the work and readings.

FNAR-577 Studio Lighting: Object and Form

- Section 401 Brent Wahl- Wednesday 10:00a.m.-1:00p.m.

The necessity of light and how light is rendered in relationship to what is seen and understood, is often a key ingredient in the portrayal of a subject. The origin of the still life can be found in images as far back as antiquity and has dealt with notions of death, science, class, social customs and even sex. Photography picked up on the tradition in 1827 and has not only made use of the form, but has expanded the topic into very unique territories. Contemporary artists have re-invented and re-invigorated the still life, formalism & abstract photography. As a framework for exploring 'hands-on' lighting techniques, students will creatively grapple with the photography of objects in the studio. Working with the physical, symbolic, and conceptual ramifications of depicting specific forms in an image, teamed with the discussion of key texts, critiques, and studio lighting seminars, each student will create a considered and unique portfolio of images.

FNAR-580 Figure Drawing I

- Section 401 Douglas Martenson- Monday & Wednesday 5:00p.m.-8:00p.m.
- Section 402 – Ivanco Talevski- Tuesday & Thursday 1:30pm-4:30p.m.

Students work directly from the nude model and focus on its articulation through an understanding of anatomical structure and function. Students will investigate a broad variety of drawing techniques and materials. The model will be used as the sole element in a composition and as a contextualized element. Prerequisite(s): FNAR 523. Course Fee \$75.00

FNAR-581 Figure Drawing II

- Section 401 Douglas Martenson- Monday & Wednesday 5:00p.m.-8:00p.m

Figure Drawing II is an advanced class designed to further develop the student's skill and facility in capturing the human form. Content and conceptual issues will be explored through individualized projects concentrating on the figure. Students will also expand on their knowledge of drawing media and application. Prerequisite(s): FNAR 580. Course Fee \$75.00

FNAR-585 Performance Studio

- Section 401 Sharon Hayes- Friday 10:00a.m.-4:00p.m.

This course supports the individual and collaborative production of performance works. As the medium of performance consists of diverse forms, actions, activities, practices and methodologies, the course allows for an open exploration in terms of material and form. Students are invited to utilize technologies, materials and methodologies from other mediums and/or disciplines such as video, photography, writing and sound. In addition to the production component, the course will examine multiple histories of performance through readings, screenings and directed research.

FNAR-589 Mixed Media Animation

- Section 401- Josh Mosley- Tuesday & Thursday 1:30pm-4:30p.m.

Mixed Media Animation is a contemporary survey of stop-motion animation concepts and techniques. Students use digital SLR cameras, scanners and digital compositing software to produce works in hand-drawn animation, puppet and clay animation, sand animation, and multiplane collage animation. Screenings and discussions in the course introduce key historical examples of animation demonstrating how these techniques have been used in meaningful ways. Students then learn how to composite two or more of these methods with matte painting, computer animation or video. Prerequisite(s): FNAR 523 and FNAR 636. Course Fee \$75.00

FNAR-591 The Body and Photography

- Section 001- Gabriel Martinez- Wednesday 5:00pm-8:00p.m.

The last few decades have introduced dramatic changes in the way we interact with each other, the way we communicate, the way we date, watch porn, etc. Ethical concerns have arisen with scientific advances such as stem cell research, fertility drugs, Botox, cloning and erectile dysfunction. This studio course will investigate the myriad ways in which the corporeal is addressed and manipulated in contemporary art, science, religion, pop culture and media. Students will develop photographic projects related to updated questions concerning gender, sexuality and social issues. Lectures, readings and class discussion will focus and inform their individual work. Prerequisite(s): FNAR 523 and FNAR 636. Course Fee \$75.00

FNAR-622 Big Picture: Mural Arts in Philadelphia

- Section 401- Jane Golden/ Shira Walinsky- Monday & Wednesday 2:00p.m.-5:00p.m.

The history and practice of the contemporary mural movement couples step by step analysis of the process of designing and painting a mural. In addition students will learn to see mural art as a tool for social change. This course combines theory with practice. Students will design and paint a large outdoor mural in West Philadelphia in collaboration with Philadelphia high school students and community groups. The class is co-taught by Jane Golden, director of the Mural Arts Program in Philadelphia, and Shira Walinsky, a mural arts painter and founder of Southeast by Southeast project, a community center for Burmese refugees in South Philadelphia.

FNAR-631 Interdisciplinary Studio: Sites of Color, Convergence and Hybridity

- Section 401- Jackie Tileston- Tuesday & Thursday 1:30pm-4:30p.m.

This course takes an experimental multimedia approach to investigating some of the boundaries in contemporary art making practices. Painting, photography, video, design and sculpture intersect, overlap, and converge in complicated ways. Projects will be designed to explore hybrid forms, collage, space/ installation, and color through a variety of strategic and conceptual proposals as students work towards unique ways of expanding their own work. Weekly readings, critiques, and presentations will be integrated with studio projects. This studio/seminar is appropriate for students at all levels and from all areas of Fine Arts and Design. Prerequisite(s): One previous studio course (such as FNAR 523, FNAR145, FNAR640, FNAR 531 or FNAR 636 or Penn Design course) or permission from the instructor.

FNAR-633 Digital Illustration

- Section 401- Scotty Reifsnyder- Monday & Wednesday 1:00p.m. - 4:00p.m.

Digital Illustration is a course designed to expose students to the diverse techniques and approaches used in creating digital illustration for print publication. Course assignments will include two-dimensional animation storyboard rendering, figure illustration, technical diagram illustration, photographic retouching and enhancing. Digital applications will include morphing with layers, surface cloning, three-dimensional modeling and spatial transformation of scenes and objects. Students completing this course will possess the capability to design and plan creatively and skillfully execute finished artwork. Prerequisite(s): FNAR 636 and FNAR 523. Course Fee \$75.00

FNAR-634 Art of the Web

- Section 401- Sebastien Derenoncourt- Monday & Wednesday 6:00pm-9:00p.m.

Art of the Web: Interactive concepts for art and design is a first step in learning how to create, analyze and discuss interactive content, as a visual creator. It is an exploration of the culture of the internet, the ideas behind its quirks, the dreams and freedoms it encapsulates, and the creative power it gives to us. Students will be assigned projects that will challenge their current understanding of the web, and the ways it shapes human connectivity and interaction. Upon completion of this course, students will possess a working knowledge how to organize and design websites and learn to critique web-content including navigation, UX design and information architecture. The course will require analytical and conceptual skills and foster creative thinking. Prerequisite(s): FNAR 636. Course Fee \$75.00

FNAR-635 3-D Computer Modeling

- Section 401- Scott White- Monday & Wednesday 10:00a.m.-1:00p.m.

Students will develop a comprehensive knowledge of how virtual worlds are constructed using contemporary computer graphics technique with a fine arts perspective. The course will offer the opportunity to explore the construction, texturing, and rendering of forms, environments, and mechanisms while conforming to modeling specifications required for animation, real-time simulations or gaming environments, and rapid prototyping. Prerequisite(s): FNAR 523 and FNAR 636. Course Fee \$75.00

FNAR-636 Art, Design & Digital Culture

- Section 401 –Scotty Reifsnnyder- Monday & Wednesday 10:00a.m.-1:00p.m.
- Section 402- J Rivkin- Monday & Wednesday 4:00p.m.-7:00p.m.
- Section 403 K Fledderman- Tuesday & Thursday 4:30pm-7:30PM
- Section 404 J Rivkin - Monday & Wednesday 7:00p.m.-10:00p.m.

This course is an introduction to the fundamental perception, representation, aesthetics, and design that shape today's visual culture. It addresses the way artists and designers create images; design with analog and digital tools; communicate, exchange, and express meaning over broad range of media; and find their voices within the fabric of contemporary art, design, and visual culture. Emphasis is placed on building an extended form of visual literacy by studying and making images using a variety of representation techniques; learning to organize and structure two-dimensional and three-dimensional space, and designing with time-based and procedural media. Students learn to develop an individual style of idea-generation, experimentation, iteration, and critique as part of their creative and critical responses to visual culture. If you need assistance registering for a closed section, please email the department at fnarug@design.upenn.edu . Course Fee \$75.00

FNAR-637 Information Design and Visualization

- Section 401- David Comberg- Tuesday & Thursday 9:00a.m.-12:00p.m.

Information design and visualization is an introductory course that explores the structure of information (text, numbers, images, sounds, video, etc.) and presents strategies for designing effective visual communication appropriate for various users and audiences. The course seeks to articulate a vocabulary of information visualization and find new design forms for an increasingly complex culture. Prerequisite(s): FNAR 636. Course Fee \$75.00

FNAR-640 Digital Photography

- Section 401- Michael Bryant - Monday 10:00a.m.-1:00p.m.
- Section 402 - Anna Neighbor - Monday 1:00p.m.-4:00p.m.
- Section 403 - Karen Rodewald -Tuesday 5:00p.m.-8:00p.m.
- Section 404 - Gabriel Martinez -Tuesday 10:00a.m.-1:00p.m.
- Section 405 - Tony Ward -Wednesday 10:00a.m.-1:00p.m.
- Section 406 - Jamie Diamond - Wednesday 2:00p.m.-5:00p.m.
- Section 407 - Gabriel Martinez- Tuesday 2:00p.m.-5:00p.m.
- Section 408 -Jamie Diamond -Wednesday 5:00p.m.-8:00p.m
- Section 409 – F Wahl- Thursday 1:00p.m.-4:00p.m.
- Section 410 – Tony Ward- Friday 1:00p.m.-4:00p.m.

This class offers an in-depth technical and conceptual foundation in digital imagery and the opportunity to explore the creative, expressive possibilities of photography. Students will become proficient with the basic use of the camera, techniques of digital capture, color management and color correction. They will also develop competency in scanning, retouching, printing and a variety of manipulation techniques in Photoshop. Through weekly lectures and critiques, students will become familiar with some of the most critical issues of representation, consider examples from photo history, and analyze the impact of new technologies and social media. With an emphasis on structured shooting assignments, students are encouraged to experiment, expand their visual vocabulary while refining their technical skills. No previous experience is necessary. Although it is beneficial for students to have their own Digital SLR camera, registered students may reserve and checkout Digital SLR cameras and other high-end equipment from the department. If you need assistance registering for a closed section, please email the department at fnarug@design.upenn.edu. Course Fee \$75.00

FNAR-643 Language of Design

- Section 401- Sharka Hyland- Monday 4:00p.m.-8:00 p.m.

The course will explore the changing relationship during the modern era between design (structure, model, plan of a work of art) and language (metaphor for a system of communication; speech, writing, literature). Our readings and visual presentations will focus on topics in the decorative arts, painting, architecture, typography and visual communication. We will focus on primary sources in order to situate our inquiry in a larger historical context. The discussion will center on claims about the inherent meaning of forms, discuss different roles for design as an ideological statement, as an agent of societal change, and as an idiosyncratic expression. Topics will also include the search for a universal visual language, attempts at bridging the perceived gap between spoken and written language, and the impact of visual form on the meaning of literary texts (particularly when the author has been involved). Students can suggest additional topics related to their field of study.

FNAR-645 Book & Publication Design

- Section 401- Sharka Hyland- Wednesday 4:00p.m.-8:00 p.m.

Book and Publication Design will focus on the theory and professional practice of designing multi-page publications. Students will analyze formal structures of different types of books-literature and poetry, fiction and non-fiction compilations, illustrated volumes such as art catalogues, monographs and textbooks, and serial editions-discussing both traditional and experimental approaches. The format of the course will be split between theoretical and historical evaluations of book formats by drawing on the Van Pelt Rare Book Collection-and studio time where students will design books with attention to the format's conceptual relationship to the material at hand with a focus on typography and page layout, as well as on understanding production methods of printing and binding. In addition to the conventions of page layout students will examine para-textual elements (title page, practices of pagination and other internal structuring, content lists and indexes, colophons, notes and marginalia, end-leaves, binding, etc.). Prerequisite(s): FNAR 636 or permission from the instructor.

FNAR-647 Expanded Documentary

- Section 401- Nancy Davenport- Thursday 10:00a.m.-2:00p.m.

The sites and situations of documentary in our culture have exploded exponentially - from standardized formulas (like reality TV), to social media and cross-platform journalism. In contemporary art, documentary practice has also significantly expanded and diversified. Since the early 2000's, with several influential exhibitions following Documenta XI, a new generation of artists have taken up the ambition of depicting our social reality, and have done so by re-engaging and re-inventing the documentary mode. This intermediate course will examine this vital contemporary field and will also offer students a comprehensive introduction to the history of documentary practice. We will investigate a series of key questions regarding the relation between politics and aesthetics, mediums and mobility, how documents function to both approximate and deny a sense of 'reality' and perhaps most importantly- what kinds of social, political or personal realities you want to propose in your artwork. The class will be driven by a series of studio assignments and practical experimentation. Although there will be an emphasis on photography and video, students will also explore a multiplicity of strategies and forms (including archival display, essayistic installation, image-text relationships, and the documentation of performance.)

FNAR-654 Printmaking Publications

- 401 Kayla Romberger - Tuesday & Thursday 9:00a.m.-12:00p.m.

This course introduces students to independent publishing and artists' publications through print methods in letterpress, Risograph, and Xerox. The class will focus on the self-published artists' zine/ book as an affordable, accessible, and easily reproducible format for exploring ideas, disseminating artists' work, and collaborating across disciplines. Students will learn a range of skills, including techniques in both mechanized and hand-pulled forms of printed media (Risograph, copy machine, Vandercook letterpress); short- run editions and binding; design and layout; pre-press and print production; and the web as it relates to and supports independent and democratic modes of distribution. Students will learn about and become acquainted with some of the most significant independent publishers working today and throughout history. Students will leave class having completed three individual projects: a 16-page booklet/zine; a carefully considered online publication, and a final collaborative book designed, developed and published as a class. The course commences with a field trip to New York City's Printed Matter, one of the oldest and most important nonprofit facilities dedicated to the promotion of artists' books, where students will be encouraged to submit a publication by semester's end.

FNAR-661 Video I

- Section 401 –David Novack- Monday 1:00p.m.-4:00p.m.
- Section 402 –Emory VanCleve- Wednesday 10:00a.m.-4:00p.m.
- Section 404 -Sharon Hayes- Thursday 1:30pm-4:30p.m.
- Section 405 -James Howzell- Wednesday 5:00pm-8:00p.m.

This course provides students with the introductory skills and concepts related to producing short works that explore the language of the moving image. Students will learn the basics of cinematography and editing through a series of assignments designed to facilitate the use of the medium for artistic inquiry, cultural expression and narrative storytelling, through both individual and group projects. If you need assistance registering for a closed section, please email the department at fnarug@design.upenn.edu. Course Fee \$75.00

FNAR-662 Video II

- 401-David Hartt- Tuesday 1:30pm-4:30p.m.

Video II offers opportunities to further explore the role of cinematic narrative technique, non-narrative forms, digital video cinematography, editing, and screen aesthetics. Through a series of several video projects and a variety of technical exercises, students will refine their ability to articulate technically and conceptually complex creative projects in digital cinema. In addition, one presentation on a contemporary issue related to the application of cinematic storytelling and/or the cultural context of digital video is required. Prerequisite(s): FNAR 661. Course Fee \$75.00

FNAR-665 Cinema Production

- Section 401 – Emery Van Cleve- Wednesday 2:00pm-5:00p.m.

This course focuses on the practices and theory of producing narrative based cinema. Members of the course will become the film crew and produce a short digital film. Workshops on producing, directing, lighting, camera, sound and editing will build skills necessary for the hands-on production shoots. Visiting lecturers will critically discuss the individual roles of production in the context of the history of film. Prerequisite(s): FNAR 661. Course Fee \$75.00

FNAR-673 Machine for Seeing: Architecture and the Moving Image

- Section 401- David Hartt- Monday 10:00a.m.-1:00p.m.

Architecture's relationship with cinema was established with the very first motion picture. In *Sortie de l'usine Lumiere de Lyon* by Auguste and Louis Lumiere we see a didactic presentation of film titles as workers from the Lumiere brother's factory stream forth from its interior at days end. In many ways the context of the film is its subject as well. The title of the class plays on Le Corbusier's maxim that architecture is machine for living and perhaps cinema is simply a machine for helping us understand the vast construct of our built environment. A device, which allows us to imagine even greater follies or more importantly to think critically about architecture's relationship with and impact on society. Readings, screenings, discussions and critiques make up the curriculum along with studio time. Students will produce their own film and we will look at films produced by a range of practitioners: From architects speculating on the nature of and use of public space and urban development to documentarians researching the pathologies of neo-liberalism and its effect on the privatization of space. We will also look at the work of artists who engage with the poetics of space and who unpack the conflicted legacies of the built environment.

FNAR-675 Image and Sound Editing

- Section 401 – David Novack- Monday 5:00pm-8:00p.m.

This course presents an in-depth look at the storytelling power of image and sound in both narrative and documentary motion pictures. Students apply a theoretical framework in ongoing workshops, exploring practical approaches to picture editing and sound design. Students edit scenes with a variety of aesthetic approaches, and create story-driven soundtracks with the use of sound FX, dialogue replacement, foleys, music and mixing. Students not only learn critical skills that expand creative possibilities, but also broaden their understanding of the critical relationship between image and sound. Prerequisite(s): FNAR 661. Course Fee \$75.00

FNAR-678 Interfacing Culture

- Section 401- Sebastien Derenoncourt- Friday 9:00a.m.-1:00p.m.

This course introduces advanced topics related to contemporary media technologies, ranging from social media to mobile phones applications and urban interfaces. Students learn how to use new methods from interaction design, service design, and social media and work towards prototyping their ideas using new platforms and media. The class will cover a range of topics such as online gaming, viral communication, interface culture, networked environments, internet of things and discuss their artistic, social, and cultural implications to the public domain. Prerequisite (s): FNAR 634. Course Fee \$75.00

FNAR-712 Visual Epistemologies

- Section 201- Orkan Telhan- Friday 10:00a.m.-1:00p.m.

In this joint seminar between Architecture and Fine Arts, we investigate the alternative modes of diagrammatic thinking that are influencing art and design disciplines. The course provides a historical perspective on the evolution of visual epistemologies from late 1950s and reviews its current state from the lens of contemporary representation theory, computation, fabrication and information technologies. The goal is to gain both theoretical and hands-on experience with the contemporary diagramming techniques in order to advance both designs and the thinking behind them.

LANDSCAPE ARCHITECTURE

LARP 741-401/ CPLN 632-401 Topics in Digital Media: Modeling Geographic Space

Dana Tomlin

Wednesday, 2:00pm - 5:00 pm

The major objective of this course is to explore the nature and use of raster-oriented geographic information systems (GIS) for the analysis and synthesis of spatial patterns and processes. In contrast to the spring semester course, CPLN 666 – Modeling Geographical Objects, LARP 741 is oriented more toward the qualities of geographical space itself (*e.g.* proximity, density, or interspersed) than the discrete objects that may occupy such space (*e.g.* water bodies, land parcels, or structures). The course focuses on the use of GIS for “cartographic modeling,” a general but well defined methodology that can be used to address a wide variety of analytical mapping applications in a clear and consistent manner. This is done by decomposing data, data-processing capabilities, and data-processing control techniques into elemental components that can then be recomposed with relative ease and with great flexibility. The result is what amounts to a “map algebra” in which cartographic layers for individual characteristics such as soil type, land value, or population are treated as variables that can be transformed or combined into new variables by way of specified operations. Just as conventional algebraic operations (such as adding, subtracting, multiplying, or dividing) might be combined into a complex system of simultaneous equations, these cartographic operations (such as superimposing one map onto another, measuring distances or travel times, characterizing geographic shapes, computing topographic slopes and aspects, determining visibility, or simulating flow patterns) might be combined into a model of soil erosion or land development potential.

LARP 745-401/ CPLN 680-401 Topics in Digital Media: Advanced Topics in GIS

Dana Tomlin

Thursday, 9:00am - 12:00pm

This course offers students an opportunity to work closely with faculty, staff, local practitioners, and each other on independent projects that involve the development and/or application of geographic information system (GIS) technology. These projects often take advantage of resources made available through Penn’s Cartographic Modeling Lab [<http://www.cml.upenn.edu>]. The course is organized as a seminar: a series of weekly meetings and intervening assignments that ultimately lead to the implementation and presentation of student-initiated projects. Early in the semester, each student selects a term project dealing with one particular topic in the field of GIS, broadly defined. Topics may range from the basic development of geospatial tools and techniques to practical applications in any of a variety of fields. Projects may be completed working either as individuals or in small groups. Ultimately, they presented in the form of in-class briefings and a final publication. Each week’s class meeting generally involves a lecture and/or discussion engaging local GIS practitioners and relating to student projects, advanced techniques, or current GIS practice.

LARP 750-001 Topics in Construction, Horticulture and Planting Design: Detailing in Landscape Design

Lindsay Falck & Abdallah Tabet

Thursday, 9:00am - 12:00pm

What is the role of the detail in landscape architecture? What makes a good detail, technically and conceptually? How do we understand “detailing” as a process? The detail is the moment of intersection between the conceptual and the practical, born out of the designer’s effort to merge an idealized vision with a set of imposed – and often conflicting – parameters and constraints. For some, the detail may contain the essence of a project, a representation of the idea made manifest. Yet it may also be the reason the whole thing falls apart. Through case studies of exemplary projects, lectures, discussions, and design exercises involving drawing, modeling, and fabrication at a range of scales, this seminar course will explore detailing as an idea, as a process, and as a vital component of design practice and construction methodology. This course offers students the opportunity to develop a strong grounding in the logic and language of details, supporting continued inquiry and critical engagement with design over the course of a career.

LARP 756-001 Topics in Horticulture & Planting Design: Issues in Arboretum Management II

Cynthia Skema

Tuesday, 1:30pm - 4:30pm

A continuation of LARP 755. This course is designed as an introduction to all aspects of public gardens, with an integration of both theoretical and practical coursework. Course topics include the role of gardens as public institutions, basic horticultural and botanical concepts underpinning public garden management, the management and curation of living plant collections, as well as education, public programs, sustainability, historic preservation, development, marketing, and stormwater management as related to public gardens. This course takes place at the Morris Arboretum in the Chestnut Hill section of Philadelphia and students are responsible for getting to and from the arboretum on their own. PennDesign students interested in taking this course should contact Cynthia Skema, cskema@upenn.edu for further information. Pre-requisite: LARP 755-001 Issues in Arboretum Management I.

LARP 760-001 Topics in Ecological Design: Large-Scale Landscape Reclamation Projects

William Young

Friday, 10:00am - 1:00pm

This course will present practical techniques for the restoration of large tracts of disturbed lands. The course will emphasize techniques used to evaluate sites before a landscape design or restoration plan is prepared. Case studies will be employed to illustrate real world, practical application of course principles. Topics will include examples of how to evaluate and assess health and ecological (toxicity) condition of sites, remediation using sustainable practices, and how to add real economic value to clients' projects and portfolios of properties through ecological restoration. The class promotes sustainable design through the application of "the triple bottom line": Ecology-Economy-Culture, and a template approach on how to achieve that on every project.

LARP 770-401/ HSPV 620-401 Topics in History & Theory: Seminar in American Architecture

Architectures of Commerce: Buildings and Landscapes of American Retail from the Colonial Era to the Present

Aaron Wunsch

Monday, 2:00pm - 5:00pm

Merchants and the "world of goods" have left an indelible mark on America's neighborhoods, cities, and regions. We will examine the structures and spaces in which commercial activities occurred – an excursion running the gamut from counting houses to warehouses, from pushcarts to mini-malls. Studying these buildings as distinctive types, we will also analyze the roles they have played in the American cultural landscape. Doing so requires forays into urban, economic, and cultural history. Close reading and student-led discussion form the course's backbone. This seminar grapples with a significant and sometimes elusive topic: the "therapeutic" landscape in American history. We will begin by examining the theoretical literature on what constitutes a therapeutic landscape, whether the concept can be applied beyond a specific era, and what it does and doesn't explain. Attending to differences as well as connections, we'll study the rise of penitentiaries, asylums, hospitals and cemeteries as physical environments, keeping in mind the productive tension between their idealistic origins and sometimes-dystopic realizations. "Landscape" in its broadest sense will be our focus: not simply buildings, siting, circulation, and planting and but the cultural significance of these elements. Moving into the post- Civil War era, we'll investigate the way therapeutic impulses migrated into other types, e.g. college campuses, even as they lost some of their antebellum coherence. The last third of the course will bring us through the 20th century. It will examine postwar institutional landscape design, notably that of corporate office parks, and, in the last week, discuss what has become of the therapeutic landscapes with which we began.

LARP 780-001 Topics in Theory & Design: WORK - Aspects and Topics in Landscape Architecture

Laurie Olin

Monday, 9:00 am - 12:00pm

What landscape architects actually do: this course will examine the nature of professional practice, its projects and typologies in the past century and today. It will examine a diversity and particular issues of a number of project types, their genesis and production from the instructor's experience if the past 50 years of practical experience: the clients, the politics, the design and craft, and their production and construction. It will also examine the nature of collaboration with clients and allied professionals, largely architects and engineers. This is not a "How to" pro-practice course, nor a history, but rather an investigation of the nature of work as it has been evolving in the field as applied to a number of problem types, and aspects that are common or particular to each. Specific project typologies presented will include: private gardens and estates; public parks – large and small; campus planning and design; civic spaces and plazas; community planning and development, redevelopment, and design; institutional grounds and settings; memorials and monuments; corporate and commercial facilities; infrastructure (highways, roads, streets, trails, harbors, water systems, etc.); regional and large district plans for resources, development, resilience; miscellaneous such as tourist, recreational, agricultural facilities.

LARP 780-002 Topics in Theory & Design: Designing with Risk

Matthijs Bouw

Tuesday, 1:30pm - 4:30pm

This research seminar investigates designing with risk, particularly as it relates to the problem of climate adaptation and resilience. The role design can have in managing risk is to a large extent uncharted territory. Our aim is to explore the potential roles and tools of design as a means of responding to risk in spatial, infrastructural and policy projects for resilience at a variety of scales. In collaboration with faculty, students and thinkers in other disciplines, we will develop a body of knowledge about risk and how it relates to streams of intellectual energy around resilience, and we will identify design tools and strategies to manage both climate risks and project risks. We will use the research seminar to collectively scope the openings where design can have the greatest agency (in either reducing risk or leveraging the potential for change that risk and instability create). These will be opportunities for further research, design projects, studios, investment or other intervention. Parallel to the seminar, a symposium and a workshop will be organized in conjunction with Rebuild by Design, NYU/Institute for Public Knowledge and Columbia University.

HISTORIC PRESERVATION**HSPV 531-001 American Domestic Interiors**

Laura Keim

Wednesday, 9:00 am – 12:00 pm

This course will examine the American domestic interior from the seventeenth century through the twentieth century with emphasis on the cultural, economic, and technological forces that determined the decoration and furnishing of the American home. Topics to be covered include the decorative arts; floor, wall and window treatments; and developments in lighting, heating, plumbing, food preparation and service, and communication technologies. In addition to the identification of period forms and materials, the course will give special emphasis to historical finishes. The final project will involve re-creation of an historic interior based on in-depth household inventory analysis and study. Several class periods will be devoted to off-site field trips.

HSPV 541-001 American Building Technology: Building Archaeology

1/13/16 – 3/4/16

Frank Matero

Monday, 9:00 am – 12:00 pm

Built works— be they barns or bridges, gardens or corn fields, palaces or pit houses – all embody something of their makers and users, and the prevailing social and cultural norms of the day. As a form of material culture, things-buildings and landscapes- are made and modified consciously and unconsciously, reflecting individual and societal forces at play. Since the physical fabric and its alteration present one primary mode of evidence, their investigation provides a critical form of research, especially in association (and often in contest) with archival documentary sources and oral histories. This course will examine the theories and techniques used to investigate the morphological evolution of built works, sometimes known as “above ground archaeology”. Students will learn and apply methods relevant to the reading of architectural fabric. Methods of investigation will include absolute and relative dating techniques such as dendrochronology, finishes stratigraphy, mortar analysis, and various typological - seriation studies including framing, molding, fastener (nails and screws), and hardware analyses. Students are expected to use this knowledge in combination with the recording skills of HSPV 601 to record their assigned sites.

HSPV 551-001 HSPV Building Pathology

Michael Henry

Friday, 2:00 pm – 5:00 pm

This course addresses the subject of deterioration of buildings, their materials, assemblies and systems, with the emphasis on the technical aspects of the mechanisms of deterioration and their enabling factors, material durability and longevity of assemblies. Details of construction and assemblies are analyzed relative to functional and performance characteristics. Lectures cover: concepts in durability; climate, psychrometric, soils & hydrologic conditions; physics of moisture in buildings; enclosure, wall and roof systems; structural systems; and building services systems with attention to performance, deterioration, and approaches to evaluation of remedial interventions. Prerequisite(s): HSPV 555 or one technical course in architecture.

HSPV 555-001 Conservation Science

Frank Matero

Thursday, 9:00 am – 12:00 pm

This course provides an introduction to architectural conservation and the technical study of traditional building materials. Lectures and accompanying laboratory sessions introduce the nature and composition of these materials, their properties, and mechanisms of deterioration, and the general laboratory skills necessary for field and laboratory characterization. Knowledge of basic college level chemistry is required.

HSPV 606-001 Historic Site Management

Faculty

Friday, 9:00 am – 12:00 pm

The course focuses on management, planning, and decision making for all types of heritage sites from individual buildings to historic sites to whole landscapes. Course material will draw on model approaches to management, as well as a series of domestic and international case studies, with the goal of understanding the practicalities of site management. Particular topics to be examined in greater detail might include conservation policy, interpretation, tourism, or economic development strategies.

HSPV 620-401 Architectures of Commerce: *Buildings and Landscapes of American Retail from the Colonial Era to the Present*

Aaron Wunsch

Monday, 2:00 pm – 5:00 pm

Merchants and the “world of goods” have left an indelible mark on America’s neighborhoods, cities, and regions. We will examine the structures and spaces in which commercial activities occurred – an excursion running the gamut from counting houses to warehouses, from pushcarts to mini-malls. Studying these buildings as distinctive types, we will also analyze the roles they have played in the American cultural landscape. Doing so requires forays into urban, economic, and cultural history. Close reading and student-led discussion form the course’s backbone.

HSPV 621-301 Urban Conservation Seminar: Heritage and Urbanism in China

Randall Mason

Wednesday, 2:00 pm – 5:00 pm

The course will compare and contrast the experiences of European cities, where urban conservation has developed over centuries, and Asian cities that have been experiencing explosive growth and are informed by quite different theories of urbanism and heritage. This seminar covers basic concepts, tools, history, theory and case studies in urban conservation—a specialist area of preservation bringing to bear aspects of urban history, planning, design, development, policy and governance. Greatest emphasis rests on the experience of contemporary Chinese cities. A series of lectures, intensive readings, case studies, small writing projects and guest presentations will build familiarity with the subject of the course. The second half of the semester will include intensive practical project on Shanghai and Beijing (involving travel to China over spring break).

HSPV 625-001 Preservation Economics

Donovan Rypkema

Tuesday, 9:00 am – 12:00 pm

The primary objective is to prepare the student, as a practicing preservationist, to understand the language of the development community, to make the case through feasibility analysis why a preservation project should be undertaken, and to be able to quantify the need for public/non-profit intervention in the development process. A second objective is to acquaint the student with measurements of the economic impact of historic preservation and to critically evaluate "economic hardship" claims made to regulatory bodies by private owners.

HSPV 638-401 Topics in Historic Preservation: Cities and Sound: The Spatial Politics of Sound in Modern Urban Life

Francesca Ammon and Naomi Waltham-Smith

Thursday, 9:00 am – 12:00 pm

This seminar will examine the role of sound in shaping modern urban spaces and life. While music plays a large part in the sounds of the city, we will focus on soundscapes more broadly. From the late 19th century through the present, and in geographies spanning from Paris to Philadelphia, we will explore the making, meaning, and experience of sound for varied populations; the politics of sound as an instrument of power; and the policies of noise regulation. As an interdisciplinary seminar supported by the Mellon Humanities+Urbanism+Design Initiative, the course will bring together students and faculty from diverse fields to probe the subject of urban sound through the lenses of both theory and practice. We will read across a wide variety of disciplines, including urban and environmental history, sound studies, urban geography, the history of sensation, musicology, anthropology, and critical theory. We will engage with sound archives, installations, films, and photographs, and also have an opportunity to make field recordings of our own. The format of the final project is flexible and could include a research paper, theoretical essay, visualizations, GIS mapping, sonic compositions, short film, or other types of media.

HSPV 661-301 Theories of Historic Preservation II

3/14/16 – 4/27/16

Randall Mason

Monday, 9:00 am – 12:00 pm

Theories of historic preservation serve as models for practice, integrating the humanistic, artistic, design, scientific and political understandings of the field. HSPV 661 builds on HSPV 660, which examines the historical evolution of historic preservation, reviews theoretical frameworks and issues, and explores current modes of practice. HSPV 661 engages advanced topics such as cultural landscape theory, economics of preservation, sustainability and environmental conservation, social justice, and urban design. In addition to readings and lectures, case studies from contemporary practice will be used to examine theories in practice. The principal assignment will be a term research paper. The instructor's permission is required for any student not registered in the Graduate Program in Historic Preservation. (Note that the course is the second of two parts; the first half, on the basics of preservation theory, is taught in the fall semester while the second half takes place in the spring semester.)

HSPV 671-001 Historic Preservation law

Autumn Michael

Friday, 2:00 pm – 5:00 pm

Introduction to the legal framework of urban planning and historic preservation, with special emphasis on key constitutional issues, zoning, historic districts, growth management, and state and local laws for conserving historic buildings.

HSPV 703-301 Topical Studio/Seminar: Urban Regeneration in Quito

Eduardo Rojas

Tuesday, 1:30pm - 4:30 pm

This 1-CU course-combining seminar and studio teaching methods-will focus on the opportunities and challenges posed by the sustainable conservation of urban heritage areas with a particular focus in the historic centers of Latin America. Adapting urban heritage sites and buildings for contemporary uses with proven demand is a strategy that is gaining acceptance around the world and is considered more capable of sustaining the conservation of urban heritage than traditional conservation methods based on the strict preservation of the physical characteristics and uses. However, the adaptive rehabilitation of historic neighborhoods and buildings poses significant conceptual and design challenges. Class sessions will explore the conceptual problems involved in the adaptive rehabilitation of heritage building and public spaces in historic centers including all historic periods: pre-Columbian, colonial, republican and those from the modern movement. The methodology includes the analysis and discussion of case studies of successful listing and adaptive rehabilitation efforts. The Studio exercise will focus on the practical challenges posed by this approach to heritage conservation in the historic center of Quito in Ecuador, the first urban heritage area included in UNESCO's World Heritage List. The students will work in close cooperation with government officials in Ecuador in charge of managing the historic center.

HSPV 713-301 Rural Studio/Seminar

Elizabeth Watson

Tuesday, 1:30pm - 4:30 pm

The preservation of rural places -- landscapes, villages and towns -- presents a widespread and urgent challenge. Economic restructuring, metropolitan development and other social forces continue to challenge the integrity and vitality of rural communities and landscapes across the U.S. This seminar/studio course explores means of activating rural places while retaining their character. Issues of abandonment and underutilization, industrial and agricultural restructuring, environmental conservation, and new economic opportunities will be explored. Tools from historic preservation, land conservation, economic development, community engagement and ecological design will be considered and applied. Research and focused readings will establish key issues, case studies, innovative ideas and institutions; students will create focused proposals for the conservation and redevelopment of a chosen study site in southeastern Pennsylvania.

HSPV 743-301 Pit and Quarry: The Cement and Slate Industries of Lehigh Valley

Frank Matero

Wednesday, 2:00 pm – 5:00 pm

This advanced research studio builds on a current PennPraxis grant focused on the study of the cement and slate industries of Pennsylvania's Lehigh Valley. It is funded by the J. M. Kaplan Fund and directed by Frank Matero, Professor of Architecture and Historic Preservation, and aims to bring a more critical approach to the identification, evaluation, and preservation of the most important and neglected of American industrial sites. Using information already collected, students will identify specific plants within the cement and slate belts and develop conservation programs for their preservation and interpretation. Focus will be on the industrial remains: buildings, structures, machinery, and features and involve their physical recording, condition survey, and analysis. Interested students should contact Frank Matero at fgmatero@design.upenn.edu

DEPARTMENTAL CONTACT INFORMATION:

- Architecture: arch@design.upenn.edu
- City Planning: roslynne@design.upenn.edu
- Fine Arts: fnarug@design.upenn.edu or mfa@design.upenn.edu
- Historic Preservation: pennhspv@design.upenn.edu
- Landscape Architecture: landarch@design.upenn.edu
- Kleinman Center for Energy Policy: ccolijn@design.upenn.edu

DETAILED INFORMATION ON REGISTRATION IS AVAILABLE ONLINE AT: [COURSES AND REGISTRATION](#)

QUESTIONS/CONCERNS REGARDING COURSE REGISTRATION: REGISTRAR@DESIGN.UPENN.EDU