



Electives: Fall 2018

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[Introduction to Historic Preservation](#)

ARCH 4107/6107

Dr. Leslie N. Sharp

This course will help students develop an understanding of the history, philosophy, organization, current legislation, policies, and practices of historic preservation in the United States. The course is designed to give students an overview of the field and its relationship with other built environment professions, such as architecture, construction, planning, engineering, and landscape architecture and the critical role historic preservation plays in creating sustainable communities. Service projects give students real-life experience in historic preservation.

[Architecture and Ecology](#)

ARCH 4227/6227

Frederick Pearsall

This course responds by bringing together people and discourses from multiple disciplines to develop more comprehensive ways to address these things through lively dialogue and new lines of research relevant to individual interests and career directions and the reconstruction of architecture and urbanism's deeper project. It provides a new knowledge-base and interdisciplinary approach for a new generation to bring into practice, reconnecting not only nature and culture, and science and art on a new basis. This requires the development of both a practical and theoretical understanding of the dynamic interactions between the natural and built environments and inhabitants, and a rethinking of the ways in which a truly ecological built environment can begin to operate within them.

[The Practice of Architecture](#)

ARCH 4315/6315

Ennis Parker, Stuart Romm

Whereas the vital core of architectural education, the design studio, inherently prioritizes the forms of architecture, this course examines the transition to practice through the processes of architecture. Akin to the accelerating speed of contemporary change itself, this course takes you on a fast ride through the rapidly evolving environment in which architects now practice: viewing the long-wave lifecycle of our broad profession through its short-wave cycles at the scales of career paths, project trajectories, and ultimately the fine grain of daily routines.

[Traditions of Architectural Practice](#)

ARCH 4316/6313

George Johnston

We will consider architectural practice from a historical perspective: first reviewing the framework of world traditions then giving particular emphasis to the establishment of the U.S. profession beginning in the middle of the 19th century. We will critically consider how tools of practice evolved and functioned as mediators between

and among clients, architects, and builders. Finally, we will speculate about emergent trajectories of architectural practice in light of digital tools and methods.

[Drawing on Nature](#)

ARCH 4411/8833

Lane Duncan, Jeannette Yen, and Marc Weissburg

It is the intention of this course to creatively explore the design principles inherent in the makeup of the natural world through the art of drawing. Since the beginning of recorded history, the theories and the techniques of drawing have been of primary importance to our understanding of that world. The ancient concept of linear circumscription or outline, tone, value and color has been the basis upon which we visually describe our perceptions and define our intentions.

[Bioconstructivisms: Tinkers vs. Engineering](#)

Theory of Architecture II

ARCH 4803/6352/8803

Lars Spuybroek

This elective discusses the main protagonists of such ideas. We will be looking into early concepts of biomimetics such as Fechner's and Francé's research into plant morphology; the analogue computing techniques of Antoni Gaudi and Frei Otto; the work of Ernst Haeckel who discovered the complexity of Radiolaria; as well as how digital design techniques can both generate and use such complex structures for architectural and engineering solutions. We will see how two worlds that have been separated since ages, art and engineering (Beaux-Arts and Polytechnique), can be brought together by contemporary forms of biomimetics and digital morphogenesis.

[Fee and Profits, Making Money in Architecture](#)

ARCH 4803

James P. Cramer

This course is focused on business and entrepreneurialism in the ever-changing profession of architecture. The lessons begin with learning strategic planning as a core competency designed to aid lifelong success in architecture practice. We will focus on new and relevant case studies about making money in the profession of architecture.

[The Stadium](#)

ARCH 4803/8803

Benjamin Flowers This course offers students an opportunity to engage in an in-depth analysis of significant stadium projects, both contemporary and historical. Each student will pick several projects to research and generate a comprehensive visual analysis.

[Green Construction](#)

ARCH 4833/6226

Jason Brown

The course emphasizes technical aspects of building design, materials selection, construction processes, and building operations. The use of objective criteria for assessing building 'green-ness', from meta issues such as building location and site to operational details such as the selection of building technologies and systems is stressed throughout the course. The course will provide detailed information of the use of assessment methods in design.

[SIZA/SANAA: Recent Architecture in Portugal and Japan](#)

ARCH 4833/8833**Mark Cottle**

In this seminar we will seek to understand representative examples of their work primarily through making: diagrams, sketches, and models. The material produced in the seminar will form an important part of the exhibition in the Stubbins Gallery that opens in January.

[Design Portfolio Design](#)**ARCH 4833/8833****W. Jude LeBlanc**

The goal of this portfolio workshop is to explore strategies of description, representation, and presentation (and other art-related ideas) in order to communicate design work and design speculation effectively. Deliverables will include a digital and hard copy version of a comprehensive portfolio.

[Revit](#)**ARCH 4833/8833****Geoffrey Maulion**

Revit is not just a 3D modeling tool or a documentation tool. This course will demonstrate how Revit can facilitate the conception of a design from various points of genesis. This will then be contextualized in its applications in both the academic and the professional environment. Revit will be presented in relation to architectural concepts to understand why and how BIM can be used rather than just the functionality of the tool. Analytical, formal, and experimental processes will be integrated directly into the Revit learning tutorials. Case study “Show and Tells” will demonstrate real world applications of each subject in order to understand the reach of each exercise. Team projects will be assigned to understand the collaborative nature of Revit and BIM.

[Theories of Urban Design/Theory 2](#)**ARCH 6151/6352****Ellen Dunham-Jones**

The course equips students with an understanding of the foundational ideas and strategies that we confront and debate in the practice of urban design and in the interface between buildings and cities. Bracketed by discussions of historical and contemporary theories and issues, the bulk of the course is organized around four perennial urban design themes. Each theme will be the focus for two weeks with lectures, assigned “classic” texts and class discussions.

[Analytical Investigations in Urban Design: Urban Space as a Generator](#)**ARCH 46228****John Peponis**

This course researches measures of urban and spatial form, analyses of street connectivity, models space use and spatial cognition, and compares and evaluates design alternatives.

[Building Physics Modeling](#)**ARCH 6242****Jason Brown**

This course is a survey of basic thermo-fluid energy and mass flows in buildings (and building occupants!), the interrelations between these flows, and their implications for building performance goals such as occupant comfort and energy consumption.

[Urban Design: Policy and Implementation](#)

ARCH 6303/ CP 6834

Michael Dobbins

The course will explore the roles that citizens, professionals, developers, and public officials play in crafting urban design policy and what it takes to get good urban design done. We will focus particularly on the latter- the rules, the tools, the techniques, and the strategies that shape policy and account for our civic environment. The goal is to introduce pre professionals to the integration and synthesis of planning, design, and development in response to the physical and spatial needs and desires for the broad and diverse everyday public.

[Theory of Architecture I](#)

ARCH 6350

Sonit Bafna

The course will cover major movements and design approaches active in architecture through the twentieth century. Students will also be given an introduction to some broader cultural ideas that directly informed these approaches; these are drawn largely from continental philosophy and from its then intellectually cognate disciplines: linguistics, literary theory, anthropology, history, and philosophy of science.

[Advanced Design Scripting](#)

ARCH 6502

Dennis Shelden, Sinisa Kolaric

The course is based on developing theoretical knowledge and practical solutions by asking the following three questions: 1. How are building systems, requirements and processes represented in building models and databases? 2. How can data regarding systems, requirements and processes be linked? 3. How can we use scripting and coding tools to bridge these disparate data sets?

[Construction Materials, Systems, and Fabrications](#)

ARCH 6506

Jacob Tompkins

The course focuses on material properties and material creation for four major classes of construction materials: wood, metals, organic polymers, and concrete. The semester is divided into segments where each material is discussed in detail along with methods of fabrication with these materials and along with an introduction to the machines that are used in their material creation and fabrication. The course will introduce the use of automated production machines, their internal operation, and the information used to drive the machines. As a final project students will complete an independent project that ties materials to fabrication to the use of both manual and automated machines.

[Shape Grammars](#)

ARCH 6508

Thanos Economou

A course on the formal (visual / mathematical) analysis and composition in design. Students explore fundamentals of spatial and visual composition through the Shape Machine, a new software/plugin for Rhino developed at the Shape Computation Lab at the School of Architecture. The class and the tutorials are based on the shape grammar formalism, one of the most powerful formal systems for the generative description of designs. Significantly, the software implementation of visual computations rather than symbolic (scripting) computations promises an entirely new approach for the automation of visual recognition and doing in design,

strongly suggesting new links between art, design, mathematics, psychology, neuroscience and more, not previously explored

[Building Systems and Data](#)

BC 4803/8814

Russell Gentry, Dennis Shelden

Building Systems and Data focuses on the overlay between AEC (Architecture, Engineering, Construction) processes and the building models and data that support them.

[Advanced Topics in Building Performance Assessment](#)

ARCH 8803 AB

Godfried Augenbroe

The goal of the course is to deepen the students' knowledge and skills in building (energy) performance assessment via real life projects done in a project based learning setting. Projects may originate from external parties (AE firm) that will then actively contribute as problem owner in the course. The selected projects differ every year based on demands of the market and relevant developments in the research and tool domain.

[Material Diversions: Off-The-Shelf](#)

ARCH 8803

Debora Mesa

MATERIAL DIVERSIONS is a space for experimentation. A space for Action Design. A testing ground that seeks to connect our head with our hands and our hands with the materials that build architecture. It is through this intimate encounter that we can understand, learn and unlearn, maybe then innovate. As part of Material Diversions, OFF-THE-SHELF places the focus at the intersection between regimentation and freedom, critical dichotomy of our contemporary culture and life. Standardization enables a shared technical language, the simplification (order) of complex worlds, interchangeability of services and parts, affordability of products through economies of scale... but the downside effect is sometimes flattening repetition, automatic application, the perpetuation of mediocre or obsolete practices, or the disappearance of the local and the arbitrary. Standards -whether inherited, enforced or agreed- can be at times liberating and at times suffocating, but despite their normative condition, standards are there to be updated, challenged and reimaged. A flexible space for customization, experimentation and reinvention that can inform the next generation of standards is very much needed.

[Urban Design Workshop | Smart Commons: A Campus Concept Plan for GT Shenzhen](#)

ARCH 8803

Perry Yang

The workshop uses the approach urban systems design to demonstrate how a smart campus is planned, designed, evaluated, and implemented. It engages students and faculty inside Georgia Tech community in Atlanta, experts and stakeholders in Shenzhen and China for moving decision makings of the international initiatives. The GT Shenzhen campus is also seen as a living laboratory for research.

[Advanced Productions](#)

ARCH 8833

Keith Kaseman

Advanced integrations of digital design and production technologies are currently defining the core of future trends in architecture and construction. ADVANCED PRODUCTIONS is a research seminar geared to teach architects and designers to effectively interweave technical exploration, design agility, collaborative ingenuity

and strategic operations in preparation to become leaders in these developing trends. A key objective for ADVANCED PRODUCTIONS is to practice how to both learn and utilize advanced digital design and production techniques, tools and insights in preparation for work to be executed as a final project.

[Special Topics: Visual Arts and Geometry](#)

CEE 8813

Francesco Fedele

We will introduce students to the geometry of space and manifolds and how these concepts influenced modern arts and sciences, i.e. Cubism and Einstein's relativity. The realization of geometry is visualization. Students will learn how to draw/sketch by hand in order to stimulate/enhance their visual memory, imagination and practice abstraction of geometric concepts. Fluidity in drawing implies fluidity in thinking.

[Universal Design and Community Health](#)

ID 4210/6800

Jon Sanford, Sarah Melgen, and Kate Whitney

Universal Design in the Built Environment is a project-based, 3-credit course that explores the implications of human ability on the usability of places, products, interfaces and systems for all individuals. Course projects will engage students in solving real world problems through community-driven partnerships with the Georgia Farmers Markets Association and local markets. Using a universal design approach, students will learn how to design for social impact and community health through a focus on local farmer's markets as a locus for social engagement, activity and good nutrition.

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