

ARCHITECTURE (ARCH)

ARCH-00XH Architectural Survey - (0 Credits)

The Architecture Survey course offers the basics architecture students should expect during their freshman year. The course provides an overview of the basic vocabulary and materials used as well as design studio assignments with an exploration of fundamental design principles.

ARCH-101 Design I - (5 Credits)

Design I provides a conceptual framework for the student beginning the architecture curriculum with an exploration of fundamental design principles.

ARCH-102 Design II - (5 Credits)

Design II translates the conceptual framework into small-scale architectural projects in a variety of contexts.

ARCH-111 Representation 1 - (3 Credits)

This is the first course of the required three-semester sequence in architectural representation. The focus of this sequence is to not only begin to understand the representational possibilities that are enabled by architectural drawings, but to also highlight drawing's ability to aid in the understanding and simplification of complex form and idea. The primary goal of this course is an introduction to fundamental architectural drawing skills. The course enriches, extends, and supports two-dimensional drawings as a method of development, communication and exploration; Students learn to construct measured architectural hand drawings in a variety of mediums. Faculty presentations and demonstrations on various drawing techniques and applications and reviews of student drawing projects take place in the studio setting.

ARCH-112 Representation 2 - (3 Credits)

This is the second course of the required three-semester sequence in architectural representation. The primary goal of this course is to introduce the beginning student of architecture to basic 2-D digital software package (i.e. Photoshop, Illustrator and 2-D AutoCAD or their equivalents) essential to explore representation on a contemporary and critical level. The course is intended to highlight a menu of techniques that will prepare the student to use digital software as a primary communication tool throughout their architectural education. This newfound knowledge can be used for highly descriptive as well transformative applications in the context of design and technical coursework. Faculty presentations and demonstrations on various techniques and applications and reviews of student drawing projects take place in the studio setting. Sections of this course are reserved for Architecture majors.

ARCH-131 Technics - (3 Credits)

This course is an intuitive and analytical exploration of the nature of basic processes, material properties and the forms and structures they generate. Emphasis is on geometry of architecture, employing physical modeling in creating such structures and theoretical analysis of basic structural systems.

ARCH-151 History and Theory of Architecture 1 - (3 Credits)

This course is the first of a required four-semester sequence. It covers the history of architecture in non-Western cultures and in the West from the Paleolithic to the Gothic. Instructors' lectures on history will be complemented by presentations on theoretical issues and current works offered by architects teaching in the school.

ARCH-152 History and Theory of Architecture 2 - (3 Credits)

The course covers key non-Western cultures (Pre-Columbian America, India, China and Japan) and the history of architecture in the West from the early Renaissance to the Rococo. Instructors' lectures on history will be complemented by presentations on theoretical issues and current works offered by architects teaching in the school.

ARCH-201 Intermediate Design I - (5 Credits)

This course emphasizes the fundamental role of site, program, material and technology as determinants of architectural projects scaled to address issues of dwelling.

ARCH-202 Intermediate Design II - (5 Credits)

This course expands upon ARCH-201, emphasizing the design of site, program, material and technology as determinants of architectural projects scaled to address issues related to public buildings.

ARCH-211 Representation 3 - (3 Credits)

This is the third course of the required four-semester sequence in architectural representation. This course extends the user of the computer as a tool for architectural representation by engaging in digital three-dimensional modeling

ARCH-231 Statics and Strength of Materials - (3 Credits)

Topics covered include: analysis of co-planar forces, moments and couples in equilibrium; applications to typical structural systems in buildings; trusses; behavior of structural materials in tension, compression, and bending; buckling; design of beams and framing loads.

ARCH-232 Structures: Steel - (3 Credits)

Topics covered include analysis of determinate and continuous structures as well as the design of structural members, connections, and buildings in steel and concrete; analysis of framing simple indeterminate structures and the design and detailing of reinforced concrete members and foundations; and consideration of new materials and structural systems, including aluminum and composites.

ARCH-233 Technics for Non-Architects - (3 Credits)

Technics for Non-Architects is an introduction to the physical properties and structural behavior intrinsic to all full-scale architectural assemblies. The course will highlight for the student a range of performative, dynamic and emergent principles specific to a series of material constructs derived from one week to the next. Working in real-time, students will be exposed to a broad range of material practices as an opportunity to discover the critical correspondence between any specific itinerary of construction and its underlying in dynamic behavior.

ARCH-251 History and Theory of Architecture 3 - (3 Credits)

This course is an introduction to the unique character of the modern architectural discourse. It maps the different ways in which architectural theory was developed and transformed from the late Eighteenth Century to the Modernist movements of the first half of the Twentieth Century. Instructors' lectures will be complemented by presentations on theoretical issues and current works offered by architects teaching in the school.

ARCH-252 History and Theory of Architecture 4 - (3 Credits)

This course is an introduction to the architectural discourse in the world from 1945 to the present. It will explore the strategic role of architectural theory in relation to the political and social conditions, the technical and technological transformations, and construction techniques. Instructors' lectures will be complemented by presentations on theoretical issues and current works offered by architects teaching in the school.

ARCH-261 Architectural Materials - (3 Credits)

This course reviews basic building materials in the context of fundamental building issues. Materials studied include wood, masonry, and concrete. Each major material is examined in the context of its chemical structure, historical evolution, relevance to contemporary practice, and utilization in new and future products. This course will examine the relationship between materials and issues of sustainability. The course format consists of weekly lectures followed by discussion seminars. Slide lectures introduce each building material and its major contextual issues and provide a survey of visual information related to that material. Seminar sections provide students with the opportunity to ask questions and clarify the content of the lecture.

ARCH-262 Architectural Assembly Systems - (3 Credits)

This course reviews assemblage of materials in the context of fundamental building issues. Materials studied include steel and concrete systems, and selection criteria for non-structural materials such as glass, plastics, and other building components. This course brings together issues of fire, water, movement, sound and temperature control. The course format consists of weekly lectures followed by discussion seminars.

ARCH-301 Comprehensive Design I - (5 Credits)

This course emphasizes the comprehensive nature of architectural design. One project of moderate program complexity on a visit able site allows students to engage in many design issues and carry concepts to a level of high solution.

ARCH-302 Comprehensive Design II - (5 Credits)

This studio class expands the comprehensive development of ARCH-301's architectural design. One project of high complexity on a challenging visit able site allows students to further develop comprehensive strategies and to carry concepts to a level of higher resolution than in the 301 Design studio.

ARCH-331 Concrete Structures - (3 Credits)

This is an applied science course in which advanced applications of scientific technology in structures, materials and energy are developed. The lecture format is supplemented by exercises and individual research projects pertinent to the technology of design and construction.

ARCH-361 Building Environment - (3 Credits)

This course focuses on the interior environment of buildings, and how comfort is designed and maintained. Topics include site, solar orientation, heating, cooling, ventilation, lighting and acoustics. Special emphasis will be placed on natural systems, energy efficiency, LEED and other issues of sustainability.

ARCH-362 Building Services - (3 Credits)

This course examines the service systems employed in contemporary buildings: electricity, communications, alarms, movement, water, waste and other services are covered. In addition, there will be an emphasis on LEED, energy efficiency and other sustainability issues.

ARCH-363 Professional Practice - (3 Credits)

This course covers all aspects of the profession of architecture. Issues include a conceptual understanding of architectural practice, its definition and historical and theoretical models, and methods of managing and delivering a complete architectural project. The course also clarifies the contractual and ethical responsibilities of an architect and collaborative business practices for maintaining an architectural office.

ARCH-364 Construction Documents - (3 Credits)

The purpose of this course is to achieve a level of understanding and competence in the preparation of construction documents for the construction of a medium sized steel structure. Students will build upon and apply principles through the phases of a project's development. Schematic Design defines the design intent of a project and site conditions. Design Development continues the exploration by adding specificity of systems and defining building components. Construction Documents further develops the project through the buildings' details. The student will examine all the phases of a projects evolution and understand the efforts necessary to representationally communicate the construction of a building.

ARCH-400 Advanced Design - (5 Credits)

Advanced Design expands upon the knowledge and skills acquired in the core design curriculum. Emphasis is on development of individualized approaches to the design process through the investigation of specific architectural topics in the areas of site, program, and technology.

ARCH-400I Advanced Design (Rome) - (5 Credits)

The studio focuses initially on an analysis of historic models to reveal distinct architectural patterns within Rome. The design process explores the transformation of Roman conditions and prototypes. Critical issues include understanding urban form as an accommodation of the city's growth and accretive intervention within a fragmented historic context. Studies conclude with formal propositions within the context of the city fabric.

ARCH-401 Advanced Design I - (5 Credits)

ARCH-401 Advanced Design Studio I expands upon the knowledge and skills acquired in the core design curriculum. Emphasis is on the development of individual approaches to the design process through the investigation of specific architectural topics in the areas on site, program and technology. Focuses on the research and design of architectural proposal, carried to a level of advanced conceptual programmatic technical inquiry and resolution at various scales of project development.

ARCH-402 Advanced Design II - (5 Credits)

ARCH-402 Advanced Design Studio II expands upon the knowledge and skills acquired in ARCH-401 Advanced Design Studio. Broader development of individualized approaches to the design process. Topics in the areas of site, program and technology presents the student with the broad range of concerns of architectural design in anticipation of arch 403 design and the degree project year. One semester long project focuses on the research and design of an architectural proposal carried to a highly advanced level of conceptual, programmatic and technical inquiry & resolution of various scales of project development.

ARCH-403 Advanced Design III - (5 Credits)

This course completes the sequence of advanced option studios and presents the board range of issues & concerns of architectural design in anticipation of the degree project year. Expanded development of individualized approaches to the design process refines the student's ability to work independently. Investigation into the architectural issues relative to site, program and technology prepares the student to define specific topics of investigation. Emphasis is on the research & design of an architectural proposal carried to the most advanced pre-professional level of conceptual, programmatic & technical inquiry & resolution at various scales if project development.

ARCH-448B International Studies - (3 Credits)

This course is intended for students who wish to do independent research at an undergraduate level in a subject of their choice and acceptable to the undergraduate faculty and the chairperson.

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This course is intended for students who wish to do independent research at an undergraduate level in a subject of their choice and acceptable to the undergraduate faculty and the chairperson.

ARCH-451 Urban Studies (Rome) - (2 Credits)

This course gathers together the ancillary visits and site work that supplement the design studio. Beginning with a survey of Rome (from its foundation through the thirteenth century), sites of architectural, archaeological, and historical significance are examined. It includes three organized field trips intended to maximize the students' exposure to critical sites and buildings encompassing diverse historic periods. Northern Trip: Palladio and the Veneto (one week) Spoleto, Assisi, Urbino, Rimini, Modena, Mantua, Verona and Vicenza. Includes private tours of the work of Palladio (Villa Rotunda, Teatro Olimpico, Villa Emo) and Carlo Scarpa (Castle Vecchio, Brion Cemetery, Canova Museum). Florence Trip: Italian Renaissance (four days). Southern Trip: Naples and Puglia (one week) - Naples, Pompeii, Paestum, Matera, Villa Franca and Bari. In conjunction with the field trips, there will be required reading, research, on-site analysis, observation and presentation to the faculty and students by smaller groups.

ARCH-452 Italian Modern Architecture (Rome) Modern Architecture - (2 Credits)

This course surveys the history and theory of Italian modern architecture covering the period that begins with G.B. Piranesi through to the present.

ARCH-453 Rome as Spectacle - (3 Credits)

This course is an investigation that focuses on the great eras of Renaissance and Baroque Rome. Art and architecture as well as the performing arts are studied within the broader context of social, political and religious history.

ARCH-454 Urban Genealogies: History & Theories Of Urbanism: Forms, texts, context - (3 Credits)

This course presents an overview of city planning and urban design by focusing on the history and theories of urbanism across history and geography. In addition to the lectures on urbanism, the course focuses on New York as a laboratory for studying urban form and design. Throughout the semester, students study selected examples of urban projects from New York and relate them to the texts and case studies discussed in class.

ARCH-461 Urban Genealogies - (3 Credits)

The course will focus on four of the historical, socio-cultural and milestones which affects economic forces that are the definitive architectural shape of the urban fabric and the plans for the city: Renaissance to viability of communities and the Baroque Plan of Rome, and the 19th neighborhoods. The roles of Century Plan of Paris, the 20th Century Plan of La Cite Industrielle, and the World War Period Plan of the Radiant City. The course will study the projects sequentially and discuss the links and relationships among these plans. The sequence will demonstrate how the city form responded to the innovations realized by each of these plans. Each of the ideal urban plans were enacted through singular buildings designed by a singular architect. These projects were embodied in plans that address the structure and spatial attributes of the entire city. The progression of singular works that one by one were the models that impacted the entire city plan is presented: from the Renaissance to the 20th Century.

ARCH-501 Degree Project: Research - (3 Credits)

Thesis research is a preparatory course for a design thesis and/or a senior degree project. Students review and write short essays on selected subjects and produce an illustrated manifesto, documentation and bibliography for their design thesis. The final project includes two credits of research followed by five credits of design. Proposals, portfolios and choice of designs are reviewed the semester before the research begins and require the approval of the chairperson of undergraduate architecture. Submission of written proposals for the degree project must be submitted to the chair's office in the previous semester, prior to the completion of all requirements for entering the ninth semester of design. Completion of all required architectural history, technology, methods and practice courses are required.

ARCH-503 Degree Project: Design Studio - (5 Credits)

The required studio is an investigation of a specifically researched topic developed into an architectural proposition. The degree project should represent a synthesis of the student's understanding of architecture, in addition to research in the potential of architecture. Prior to undertaking the Degree Project Studio, students must have satisfactorily completed the Degree Project Research course, ARCH-484P. All students who are candidates for a bachelor's degree in architecture are required to satisfactorily complete three credits of project research and five credits of Degree Project Design Studio.

ARCH-511A Representation: From Perception - (3 Credits)

This course focuses on analog/traditional forms of representation. Students are introduced to various two-dimensional representations in black-and-white and in color.

ARCH-511B Representation: Freehand Drawing Rome - (3 Credits)

This course explores freehand drawing as a means of investigating and comprehending Rome's urban space. Various techniques and media are introduced including: figure and ground, shade and shadow, multiple perspective, collage, pen and ink, pastel, and charcoal.

ARCH-511C Freehand Drawing Now - (3 Credits)

This course explores freehand drawing and its digital manipulation as a means of investigating, comprehending and representing urban space. Various techniques will be introduced including: overlapping perspectives, contrasting shadow, negative space, figure ground, contouring, and line versus surface. Various media will be explored including: charcoal, ink wash, pastel, conte, marker and collage. All of the work of the hand will be altered by its transfer and reconsideration in the digital format.

ARCH-513B Portfolio Development - (3 Credits)

This course examines the mechanics of portfolio preparation. The individual is encouraged to organize a comprehensive assemblage of architectural work through the intensive study of presentation principles and representational techniques.

ARCH-521A Introduction to BIM Visualization - (3 Credits)

This course introduces students to Building Information Modeling (BIM), both as a revolution in architecture profession and design, as well as covering the basic skill sets to utilize Revit, the BIM software. Students will be introduced to modeling and design, the creation of parametric families, sunlight studies, and the documentation and presentation of their semester long project.

ARCH-521B Introduction to 4D BIM - (3 Credits)

This class is intended to simulate the real-life design and construction process, using Building Information Modeling (BIM) tools as the nave for all exchanges of information. It's a collaborative class where Construction Management (CM) and Undergraduate Architecture design students work on a small sustainable project that will be developed throughout the semester. Architecture students will generate the BIM model, produce whole building analysis, and coordinate and exchange data with CM students. On the CM side, the students will quantify and provide a cost estimate of the whole building as well as simulate the assembly of the building.

ARCH-523B Advanced Architectural Imaging - (3 Credits)

This class is intended for students who want to develop an intense engagement with the theory and the craft of architectural imaging. "Imaging" is defined to include both images made by physical cameras and those made by virtual cameras (ie. computer renderings). Topics covered include: Theory and Practice of Available Light in Digital Photography, Image Processing in Adobe Lightroom and Adobe Photoshop, Render Setup in Autodesk Maya (including uv mapping, texture creation, and flythrough animation). Rendering with Advanced Engines (Maxwell Render and VRAY for Maya), and Basic Motion Graphics and Compositing Techniques in Adobe AfterEffects.

ARCH-527A Digital Fabrication - (3 Credits)

This seminar will investigate the design and fabrication of architectural components as a function of digital modeling and fabrication practices. Via an immersive environment of 3-dimensional scanning, computational modeling, and CNC (computer numerically controlled) fabrication, we will explore the generative relationship between design and fabrication. Undergirding this instrumental process will be an investigation and conceptualizing of the ornamental and material effects of applied wood molding. Over the course of the semester, students will be responsible for the ongoing research and development of digital models and prototypes. The seminar will culminate in a series of class-wide scaled mock-ups.

ARCH-527C Digital Crafting - (3 Credits)

This course introduces students to the history, theory, and application of procedural design methods. The course pedagogy centers on an association between practices of craft production and computational techniques, whereby students will develop research using scripted interfaces and digital fabrication technology. The course will make extensive use of the 3-Axis CNC router at the School of Architecture.

ARCH-551A Alvar Aalto - (3 Credits)

This comprehensive survey examines the wide range of work - architecture, furniture, writing, and interior design - by the 20th century Finnish architect, Alvar Aalto. The course explores his unique formulation of a contemporary architecture that, using 20th century aesthetic theory, synthesizes the conflicts of the modern and traditional, the rational and natural, the classical and vernacular, the technological and human, and the pragmatic and poetic.

ARCH-551B Frank Lloyd Wright Lloyd Wright - (3 Credits)

A survey course of the buildings and writings of Wright looks at influences on Wright from Sullivan, Emerson, and Eastern spiritual thought. It also examines Wright's influences and his relevance to us today.

ARCH-551C Kahn and Venturi - (3 Credits)

The work and philosophies of Louis Kahn and Robert Venturi are presented as a detailed study of two major trends in modern architecture: organic or "integrated" architecture, typical of Wright, Mies and Corbu and exemplified by Kahn; and "decorated construction," typical of the 19th century eclectics and the post-modernists and exemplified by Venturi. Besides slide-illustrated lectures and reading, there will be in-class and take-home drawing assignments to give students graphic familiarity with the material.

ARCH-551D Scarpa + Piccnik - (3 Credits)

An in-depth course on the relationship among the works of two major figures of XXth Century architecture: Carlo Scarpa, Italian, a unique voice in modern architecture after WWI, and Joze Plecnik, Slovenian, also a unique voice, particularly between the two world wars but appearing to be a late classicist on the surface yet a true modernist at core.

ARCH-553A Legacy of Roman Form - (3 Credits)

This course is a prerequisite for students enrolling in the undergraduate architecture spring Rome program and is offered to all interested upper-level students. It examines the value of history to architectural invention and introduces the lasting achievement of Roman culture, as demonstrated by its architecture, and reflects on the way in which that culture has influenced and continues to influence ideas.

ARCH-555A Islamic Architecture - (3 Credits)

This course is a historical survey of Islamic architectures within the context of Mohammedan tradition and its re-emergence in the modern world. Topics covered include the environmental, cultural and artistic influences of design in the Middle East, Spain, North Africa, China and India to new developments and the renewals of towns drawn from on-site research by the instructor. There is a continuing emphasis on the underlying geometry of architectural examples, which students choose to draw and analyze.

ARCH-555B Pre-Columbian Architecture - (3 Credits)

This architectural history course provides an important area of discourse of architecture in South and Central America. Students will explore the pre-Columbian cultures of the Aztecs, the Maya and the Incas as well as other Native American groups which can be compared in a broader civilization context. As European nations settled or influenced the Native American cultures, changes would occur which have repercussions in modern day life and architecture. Students will examine the environment in which indigenous architecture arose in the Americas and how the architectural forms have changed or found re-expression today.

ARCH-557A Architectural Creativity - (3 Credits)

Through interviews, readings, and invited lecturers, this course explores a cross-section of contemporary understanding of what the creative process is and how it can be applied to architectural practice. Through research papers and projects, students document original material contributing to the knowledge of creative architectural problem-solving. (Open to undergraduate students in their 3rd year or above and to graduate students.)

ARCH-557C 12 Dialogical & Poetic Strategies - (3 Credits)

This seminar is based on the phenomenological; analysis as a theoretical frame. The course will also teach and demonstrate the application of the Phenomenological in Architecture and Art. This seminar will introduce key critical concepts through weekly lectures which will tie together theoretical readings and illustrated references to contemporary architecture, art and literature.

ARCH-557D Genealogies of Program - (3 Credits)

This seminar will investigate contemporary theories of the architectural program as a complex and paradoxical set of ideas. Beginning as a reaction to early modernist functionalist doctrines where form was thought of as a direct expression of a building's use, a culture of inquiry beginning in the 1960s sought to reposition program through theories of indeterminacy and excess. The seminar establishes a field of complementary and competing theories of program-from the narrative and diagrammatic to the organizational and informational-that is by no means complete or exhausted. Replete with a rich and enigmatic catalogue of projects, each week will explore a different thread of programmatic thought through the lens of architectural production.

ARCH-557E Digital Tracery - (3 Credits)

This seminar will interrogate digital prototyping as a working method and form of research that differs from classical "iconic" models of representation. Working within two parallel forms of inquiry-the design/fabrication of laser cut wood models and the analysis of selective readings-the seminar will expose the potentials of contemporary digital modeling as a speculative practice that embraces iterative making as "design intelligence". Critical to this method is the scalability of the prototyping process-each consecutively scaled model is a rehearsal for the realities of one-to-one construction.

ARCH-559A Re-Definitions - (3 Credits)

This research seminar is intended to provide each student an environment to develop their own re-Definitions of the course topics and to communicate them imaginatively. The seminar is also meant to allow students to engage in stimulating dialogue related to the predetermined topics with the instructor and invited guests.

ARCH-559C Critical Thinking: The Evolution of Form - (3 Credits)

This class explores the evolution or making of form as a process of change; in art and architecture, in nature, and in the social and cultural forms that are the context of our lives and work. It reveals the "hidden likeness in diversity" providing a fresh perception and organization of the subjective processes of the creative process; clarifying relationships between separate fields of study and "forms" existing and new. Specific examples in art and architecture, illustrated in lectures, clarify the broad subject matter of the seminars. The "art of crafting" a project in order to fulfill a concept is examined and is essential to its formal realization. Understanding the process of "creating" can illuminate obstacles hindering the success of aesthetic goals. The course is open to students from Art & Design and Architecture in order to engage in collaborative research. Both groups of students contribute respective technical, visual and conceptual perspectives to the learning environment.

ARCH-561A Independent Study - Undergrad - (3 Credits)

Students pursuing advanced projects not available in regular course offerings may apply for independent study if they have a minimum GPA of 3.0 and have at least sophomore status. Students must submit a written description of the project and its relationship to their curriculum. The application must be approved by the faculty member directing the work, chairperson, and dean.

ARCH-561B Independent Study - Undergrad - (2 Credits)

Students pursuing advanced projects not available in regular course offerings may apply for independent study if they have a minimum GPA of 3.0 and have at least sophomore status. Students must submit a written description of the project and its relationship to their curriculum. The application must be approved by the faculty member directing the work, chairperson, and dean.

ARCH-561C Independent Study - Undergrad - (1 Credit)

Students pursuing advanced projects not available in regular course offerings may apply for independent study if they have a minimum GPA of 3.0 and have at least sophomore status. Students must submit a written description of the project and its relationship to their curriculum. The application must be approved by the faculty member directing the work, chairperson, and dean.

ARCH-561D Pedagogy of Architectural Design - (3 Credits)

After having gone through the fundamentals of architectural design in the first and second year as a design student, this elective seminar is offering the examination of the history and theories of architectural design teaching. Pedagogy of Architectural Design examines the history of architectural design teaching and learning, focusing on the writings of the modern movement of architectural teaching, the construction of the US American Architecture School starting in the 19th Century and the cultural challenges that were posed on architectural design teaching through the cultural and political upheaval of the 1960s to the current times.

ARCH-563A Research Topics(R) - (3 Credits)

Research Topics is a learning experience at a field-related faculty supported research site. It provides students with an opportunity to extend academic knowledge and skills in a research setting and obtain additional knowledge and skills in preparation for research development or graduate school. Students experience the real-life context and application of their course work, thus enriching their educational experience. They deepen their knowledge about important aspects of their field, enhance their research skills in a real-world context, build their research network, and inform their career choices in this area of academic architectural research. Additional faculty supervised activities provide the opportunity for an in-depth reflection on the directed research experience. It is highly suggested that students take this course for a minimum of 2 consecutive semesters.

ARCH-563B Lighting Lab - (3 Credits)

Lighting Lab course and facilities provide an introduction to basic natural and artificial lighting systems. Lighting simulation of architectural models at all stages of design and site planning is conducted in sunlight or in various electrical lighting setups in the lab. Each semester there is an emphasis on a particular timely topic such as "photovoltaic within window glass" as a group workshop within the course while each individual student concentrates on lighting of all types which relates to a current or past design project

ARCH-563C Organic Approach to Design - (3 Credits)

This course investigates the evolution of architectural space via a vis technological advances and how the material performance and construction methods affect a building's complexity in form and function. Exemplary projects will be used as catalysts to reveal the relationship between built-form/architecture and cultural, formal, tectonic tendencies especially involving environmental concerns and the ecology.

ARCH-565A Materials and Methods - (3 Credits)

This course introduces joinery techniques of connecting wood and metal. The primary goal of this course is to understand and fabricate basic-to-complex types of wood joints, including metal as a mechanical method of fastening wood. Using hand and power tools, students investigate and learn to select joints to suit different design conditions as well as the critical role of joinery in the making of architecture.

ARCH-565B Construction Failures - (3 Credits)

This course is an in-depth look at famous (and infamous) structural collapses, with an eye toward analyzing them and taking away lessons that can be learned. This is most relevant to the application of new ideas in the design process, seen by examining common errors that led to failure.

ARCH-565C Technical Discipline & Detailing Detailing - (3 Credits)

This course covers technical discipline and performance requirements in the detailing of the exterior and interior of structures.

ARCH-567A Healthcare Facilities I Detailing - (3 Credits)

Introduction to Healthcare Facilities will provide an overview of healthcare project development, including terminology, project initiation, programming, planning, design, and construction-related issues. Healthcare reform legislation and our aging population will impact the growth of the healthcare facilities market in a variety of ways. This course will serve as a primer for professionals requiring basic knowledge to evaluate pursuing a career in this challenging and robust specialty area.

ARCH-569A Tall Building Research and Design - (3 Credits)

The seminar provides the background material for the design of a high rise building in terms of structure, life safety issues, mechanical integration and building skin. The criteria will focus on building within an urban context

ARCH-571A Form and Space:analog (research) - (3 Credits)

Exploration of space structures through geometry and topology leads to new ways of shaping form and space. The studio explores their generation, visualization and construction for potential architectural applications. Fall semester focuses on analog methods and technologies for these explorations.

ARCH-571B Form and Space: Digital (Research) - (3 Credits)

Exploration of space structures through geometry and topology leads to new ways of shaping form and space. The studio explores their generation, visualization and construction for potential architectural applications. Spring semester focuses on digital methods and technologies for these explorations.

ARCH-571C Form and Force:Analog (Research) - (3 Credits)

Experimental technologies for architecture are combined with concepts from mathematics and science to explore new ways of shaping form and space. As part of the Center for Experimental Structures, this course explores visualization of structural morphologies as a basis for experimental architecture. Fall semester focuses on analog modes of thinking as well as construction to explore the fundamental relation between Form and Force.

ARCH-571D Form and Force:Digital (Research) - (3 Credits)

Experimental technologies for architecture are combined with concepts from mathematics and science to explore new ways of shaping form and space. As part of the Center for experimental Structures, this course explores visualization of structural morphologies as a basis for experimental architecture. Spring semester focuses on digital modes of thinking as well as construction to explore the fundamental relation between Form and Force.

ARCH-571E Form and Time:Analog (Research) - (3 Credits)

Morphological methods of changing form combined with appropriate construction and fabrication technologies lead to new ways of realizing dynamic architecture. Principles and precedents in architecture, nature and geometry provide a starting point. Fall semester focuses on analog modes of thinking as well as construction.

ARCH-571F Form and Time:Digital (Research) - (3 Credits)

Morphological methods of changing form combined with appropriate construction and fabrication technologies lead to new ways of realizing dynamic architecture. Principles and precedents in architecture, nature and geometry provide a starting point. Spring semester focuses on digital modes of thinking as well as construction.

ARCH-575A Nanotectonica - (3 Credits)

This course examines the relationship between natural and architectural systems in the context of emerging technologies. It is a research and production seminar, which studies structures and organizations as they occur in nature at multiple scales, and it, utilizes generative design and fabrication techniques to arrive at intricate architectural assemblies. The exploration is based on the study of recent architectural history and a lineage of naturalists, engineers and designers who pioneered ecological thinking and building.

ARCH-575B Sensation Tectonics - (3 Credits)

Sensation Tectonics immerses students into the sensual space of digital 3D design. In the same way that our fingers, hands, arms and mind tectonically engage the pencil and the page, we can use virtual environments for dynamic form and system design. We will explore many powerful 3D modeling, animation and visualization techniques with software packages including: Autodesk Maya, Rhinoceros, Adobe Illustrator, Photoshop and Aftereffects. These fundamental tools enable us to enter a sensual digital world of tectonic simulation.

ARCH-581A Special Topics - (3 Credits)

The basic premise underlying this seminar is that to better define what architecture can be and do in a hyper-mediated world, we must turn, not to computer paradigms, but to narrative film. To this end, this seminar examines films as if they were works of architecture and imagines architecture as film. Architecture is anything but certain, and the fiction of films, as opposed to the insistent actuality of buildings, frees us from the pretense of knowing with certainty. Also, in the tradition of architecture theory at its best, looking at films through architecture reveals them in ways not possible through literature or theater.

ARCH-581B Impact of Technology - (3 Credits)

This course is a sequence of lectures (mostly slide-illustrated) in the philosophical foundations of science and technology and their relation to creative architectural and engineering design. The course correlates specific construction techniques, building studies, and environmental design with questions of aesthetics, perception, performance, and understanding.

ARCH-591A Elements of Landscape Architecture - (3 Credits)

This course introduces the elements, which comprise the design palette of landscape architecture. The use of plant materials is explored by examining plant forms, general and specific characteristics and physical requirements. Examples of planting design include: roof tops, urban sites, public places, interiors and residential projects. Other elements of landscape are illustrated to reveal the kinesthetic experience, including water as ornament, the ground plane, lighting, seating, follies and other structures. For all elements, both aesthetic and construction considerations will be highlighted.

ARCH-593B Urban Planning - (3 Credits)

This is an introduction to the field of planning: how planning is both shaped by and shapes the historical, socio-cultural, environmental and economic forces affecting the urban fabric and the viability of communities and neighborhoods. The roles of government policies and programs, developers, community groups, designers, and advocacy planners are investigated through readings, discussion and a hands-on community-based planning studio project.

ARCH-9400 Undergraduate 0-CREDIT Internship - (0 Credits)

The internship is a learning experience at a discipline-related professional site. It provides students with an opportunity to apply academic knowledge and skills in a practical setting, while obtaining new knowledge and skills in preparation for professional work or graduate school. Students experience the application of coursework lessons into a real-life context, thus enriching their education. They deepen their knowledge about important applied aspects of their discipline, enhance their professional skills in a real-world context, build their professional network, and inform their career choices. Additional faculty-supervised activities provide the opportunity for an in-depth reflection on the internship experience. Fourth and Fifth year Undergraduate Architecture students may participate in full-time, architectural-office summer internships in selected architectural firms after a formal selection process. An internship is intended to include all phases of office experience under the supervision of senior members of the firm. Internships may be applied to elective credits depending on the nature of each work assignment and the length of the internship period.

ARCH-9401 Undergraduate 1-Credit Internship - (1 Credit)

The internship is a learning experience at a discipline-related professional site. It provides students with an opportunity to apply academic knowledge and skills in a practical setting, while obtaining new knowledge and skills in preparation for professional work or graduate school. Students experience the application of coursework lessons into a real-life context, thus enriching their education. They deepen their knowledge about important applied aspects of their discipline, enhance their professional skills in a real-world context, build their professional network, and inform their career choices. Additional faculty-supervised activities provide the opportunity for an in-depth reflection on the internship experience. Fourth and Fifth year Undergraduate Architecture students may participate in full-time, architectural-office summer internships in selected architectural firms after a formal selection process. An internship is intended to include all phases of office experience under the supervision of senior members of the firm. Internships may be applied to elective credits depending on the nature of each work assignment and the length of the internship period.

ARCH-9402 Undergraduate 2-CREDIT Internship - (2 Credits)

The internship is a learning experience at a discipline-related professional site. It provides students with an opportunity to apply academic knowledge and skills in a practical setting, while obtaining new knowledge and skills in preparation for professional work or graduate school. Students experience the application of coursework lessons into a real-life context, thus enriching their education. They deepen their knowledge about important applied aspects of their discipline, enhance their professional skills in a real-world context, build their professional network, and inform their career choices. Additional faculty-supervised activities provide the opportunity for an in-depth reflection on the internship experience. Fourth and Fifth year Undergraduate Architecture students may participate in full-time, architectural-office summer internships in selected architectural firms after a formal selection process. An internship is intended to include all phases of office experience under the supervision of senior members of the firm. Internships may be applied to elective credits depending on the nature of each work assignment and the length of the internship period.

ARCH-9403 Undergraduate 3-CREDIT Internship - (3 Credits)

The internship is a learning experience at a discipline-related professional site. It provides students with an opportunity to apply academic knowledge and skills in a practical setting, while obtaining new knowledge and skills in preparation for professional work or graduate school. Students experience the application of coursework lessons into a real-life context, thus enriching their education. They deepen their knowledge about important applied aspects of their discipline, enhance their professional skills in a real-world context, build their professional network, and inform their career choices. Additional faculty-supervised activities provide the opportunity for an in-depth reflection on the internship experience. Fourth and Fifth year Undergraduate Architecture students may participate in full-time, architectural-office summer internships in selected architectural firms after a formal selection process. An internship is intended to include all phases of office experience under the supervision of senior members of the firm. Internships may be applied to elective credits depending on the nature of each work assignment and the length of the internship period.