

# ARCHITECTURE (ARCH)

## ARCH0100 SUMMER FAB: THINKING & MAKING

This summer fabrication program bridges and connects thinking of architecture with making architecture. Students experience in a short timeframe all phases of a complete architectural project; from initial design concepts through development and refinement and including realization as a full-scale construction site. By intertwining thinking and making a process of design from beginning to end, we convey understanding, crucial for designers, that making is a form of thinking. Project sites typically will be located in Boston, either campus or community based. Projects, typically conceived as temporary, will generally be small in size, scale or both. They might include, for example, installations (as within a gallery setting), furniture (including near-furniture or furniture-like elements), or site-specific interventions (either outdoors or within existing structures). **Prerequisites:** *High School Summer Program (4 credits) Summer*

## ARCH1000 STUDIO 01

This foundation studio focuses on techniques of visualization and representation (freehand drawing skills and model making) as they pertain to beginning design. Students develop fundamental design skills through orthographic drawing (plan, section & elevation), perspective drawing, model making and diagramming. (6 credits) fall

## ARCH1200 ARCHITECTURAL REPRESENTATION

The course serves as an introduction to the means used to produce architecture. It introduces fundamental representation skills and analytical techniques that designers use to understand the built environment and to communicate design intentions. Student engage in sketching from observation, drawing (analog and digital), digital image making, and modeling techniques as tools for documentation, analysis, representation, and visual communication. (4 credits) fall

## ARCH1500 STUDIO 02

This foundation studio studies general concepts of space, form, material and structure by using techniques in architectural representation and visualization, through a series of design problems. **Prerequisite:** *ARCH1000; or INTD1000 and DSGN1100; or INDS1000 and DSGN1100 (6 credits) spring*

## ARCH1700 ARCHITECTURAL MEDIA

This course advances students' fundamental knowledge of various media and fabrication processes used to generate, manipulate, communicate and produce architecture today. Building upon the representational skills and analytical techniques studied in ARCH1200, this course develops student's ability to use a wide range of digital tools for representation, communication, analysis, design visualization and production, and fabrication in an architectural context. Students are introduced to principles of workflow in a digital design environment and learn to think critically about the appropriate choice of analog and/or digital tools. **Prerequisite:** *ARCH1200 or DSGN1000 (4 credits) spring*

## ARCH2000 STUDIO 03

This studio course explores conceptual design through a series of elemental architectural exercises. Topics pertinent to the student's concentration are addressed. **Prerequisite:** *ARCH1500 (6 credits) fall*

## ARCH2100 HISTORY/THEORY 01

This lecture course surveys world architecture, urbanism and landscapes from the ancient world through roughly 1700 CE. Lectures shall discuss architecture as a form of cultural expression and in relation to the artistic, political, religious, scientific, technological, and social developments. (4 credits) fall

## ARCH2200 BUILDING MATTERS: MATERIALS & ELEMENTS OF CONSTRUCTION

This lecture and workshop-based course surveys common construction materials and their properties, as well as their use in simple and hybrid systems of assembly. Particular attention is devoted to wood, steel and masonry systems. This course also introduces students to structural principles guiding vernacular construction, principles of building siting and orientation, and passive environmental building strategies. This course is cross-listed with ARCH7300. **Corequisite:** *ARCH2000 (4 credits) fall*

## ARCH2222 AXP ARCHITECTURE EXPERIENCE PROGRAM

Students entering into the first semester of the junior year are required to register for the Intern Development Program (IDP) of the National Council of Architectural Registration Boards (NCARB) and establish an NCARB file number before the end of the semester. **Prerequisite:** *enrollment in BSA program (0 credits)*

## ARCH2225 PRO-PRACTICE PREP

This non-credit course is intended to prepare architecture students for their first coop experience in a professional design firm. It consists of two online, independent learning components: 1) an introduction to professional contract documents; and 2) an introduction to the Architectural Experience Program (AXP) of the National Council of Architectural Registration Boards (NCARB). Taken together, these two components provide structure and skills for students to compete in the job market and to succeed in the profession of architecture. (0 credit) spring

## ARCH2500 STUDIO 04

This studio course explores architectural design through a series of problems increasing in scale, complexity and length throughout the semester. **Prerequisites:** *ARCH2000 (6 credits) spring*

## ARCH2600 HISTORY/THEORY 02

This lecture course surveys world architecture, urbanism and landscapes from 1700 CE to the 1960's. Lectures discuss architecture as a form of cultural expression and in relation to artistic, political, religious, scientific, technological and social developments. (4 credits) summer

## ARCH2700 ENERGY & RESOURCES IN ARCHITECTURE

This lecture and workshop-based course focuses on architectural methods for achieving visual, thermal and acoustical comfort in buildings using primarily non-mechanical means: climate, form, orientation, materials, and structure. Students will learn to analyze energy phenomena and understand energetic implications of a range of design strategies. Principles of sustainable resource management will be introduced. This course is cross-listed with ARCH7600. **Prerequisite:** *ARCH2200 or CONM1200 (4 credits) spring*

## ARCH3000 STUDIO 05

This studio course explores architectural design through a series of problems increasing in scale, complexity and length throughout the semester. **Prerequisite:** *ARCH2500 and ARCH1700 (6 credits) fall*

## ARCH3200 PASSIVE & ACTIVE SYSTEMS

This lecture and workshop-based course focuses on architectural methods for achieving visual and thermal comfort in buildings using both passive and active systems. Lectures and assignments address lighting, optimization fire safety, water and waste, and envelope systems in buildings. This course emphasizes the integration of spatial, visual and environmental performance aspects of building systems in medium-to-large-scale structures, where such systems may be a determinant of architectural form. Innovative environmental solutions will be illustrated throughout the course. This course is cross-listed with ARCH8250. **Prerequisite:** *ARCH2700 (4 credits) fall*

**ARCH3400 STRUCTURES 01**

In this course students learn how loads are applied and distributed, and how to analyze funicular structures, columns, beams, and trusses. Both the method of joints and the method of sections are used. Basic principles of strength of materials, structural mechanics and structural analysis are presented. **Prerequisites:** *PHYS1000 or PHYS1250 (4 credits) spring*

**ARCH3500 STUDIO 06**

This studio course explores architectural design through a series of problems increasing in scale, complexity and length throughout the semester. **Prerequisite:** *ARCH2200, ARCH2700, ARCH3000, and ARCH3400; Corequisite:* *ARCH3200 and ARCH3900 (6 credits) summer*

**ARCH3600 Sustainable Design: From Concept to Implementation**  
Given the building sector's significant contribution to greenhouse gas emissions, it is imperative to decarbonize our buildings, new and old, and to conserve resources. This paradigm shift will drive creative, sustainable, resilient, and inclusive design in the fields of architecture and urban planning for the foreseeable future. This course explores the overarching context of climate change and the urgency to holistically implement integrated sustainable design, identifying high-impact strategies, illustrated by real world case studies from the practice. The course highlights social inequities exacerbated by climate change, with consequences for the health and welfare of subjected populations. The course consists of a mix of readings, discussions, team research projects, and collaborative design interventions to address designing for a low-carbon future, water conservation, social equity and inclusion, ecology, health and wellness, economy, material resources, adaptive change, innovation and discovery. (4 credits)

**ARCH3700 CONCENTRATION STUDIES 01**

This course addresses introductory topics to the students' chosen concentration (Adaptive Interventions, Emerging Technologies, or Urbanism). Contemporary issues in the field are addressed through readings, discussions, analysis, writing and projects. (4 credits) fall

**ARCH3750 CONCENTRATION STUDIES 02**

This course addresses advanced topics pertinent to the students' chosen concentration (Adaptive Interventions, Emerging Technologies, or Urbanism). Contemporary issues in the field are addressed through readings, discussion, analysis, writing and projects. (4 credits) fall

**ARCH3800 SPECIAL TOPICS IN ARCHITECTURE**

Presents topics that are not covered by existing courses and are likely to change from semester to semester. Refer to the Class Schedule for a specific semester for details of offerings for the semester. (4 credits) fall, spring

**ARCH3850 SPECIAL TOPICS IN ARCHITECTURE**

Presents topics that are not covered by existing courses and are likely to change from semester to semester. Refer to the Class Schedule for a specific semester for details of offerings for the semester. (4 credits) fall, spring

**ARCH3900 STRUCTURES 02**

In this course students learn the structural properties of major construction materials and learn to design beams, slabs, columns and foundations in wood, steel and concrete. Topics include building codes and specifications, loads on structural systems, grids and pattern layouts, and soils and foundations. **Prerequisites:** *ARCH3400 (4 credits) fall*

**ARCH4000 STUDIO 07 (URBANISM)**

This studio course introduces topics of design in the urban realm. Students engage with complex issues and agendas, and develop proposals in response to the physical, cultural, and social contexts that inform design at the urban scale. Topics pertinent to the Urbanism concentration are addressed. **Prerequisites:** *ARCH3500; and Urbanism concentration status (6 credits) fall*

**ARCH4025 STUDIO 07 (EMERGING TECHNOLOGIES)**

This studio course explores the material nature of architecture, the craft of building, and the role of emerging technologies as they inform the design process. Students work with complex issues and agendas and develop proposals in response to physical, cultural, and social contexts that inform design across many scales. Topics pertinent to the Emerging Technologies concentration are addressed. **Prerequisites:** *ARCH3500 (6 credits) fall*

**ARCH4050 STUDIO 07 (ADAPTIVE INTERVENTIONS)**

This studio course focuses on design topics that engage contingent existing conditions. Students work with complex issues and agendas, and develop proposals in response to physical, cultural, and social contexts that inform design at the project's scale. Topics pertinent to the Adaptive Interventions concentration are addressed. **Prerequisites:** *ARCH3500 (6 credits) fall*

**ARCH4075 COLOR RELATIONSHIPS**

This course introduces students to color theory. Through readings and exercises, students develop an understanding of how color relationships affect or perceptions of color. Works and writings by many artists are studied, with particular focus on the work of twentieth-century abstract expressionist painter and teacher Hans Hofmann. Using acrylic paint, students do a series of formal color exercises and painting projects throughout the semester, with a painting as the semester's final project. (4 credits) spring

**ARCH4100 CONTEXT ANALYSIS**

As an integral component of the Berlin Study Abroad program, this course is based on the exploration of a number of contemporary and historic buildings by prior research and on-site study during travels to European cities. Students will explore a range of selected projects in two of more cities traveled to during the term. to understand their design and the culture and context that influence the architects and their work. Projects will be explored and analyzed by online research, on-site observations and documentation. (4 credits) fall, spring

**ARCH5500 STUDIO 08**

This studio course proposes design topics grounded in a research agenda that informs the design process. The range and scale of projects vary; students initiate a single original design project. **Prerequisites:** *ARCH3500 (6 credits) spring*

**ARCH7000 GRADUATE FOUNDATION STUDIO 01**

This studio for students in the three-year Master of Architecture program addresses graduate-level design topics. (6 credits) fall

**ARCH7250 GRADUATE HISTORY THEORY LECTURE**

This lecture course surveys world architecture, urbanism and landscapes from the ancient world through roughly 1600 CE. Lectures shall discuss architecture as a form of cultural expression and be presented in relation to artistic, political, religious, scientific, technological, and social developments. (4 credits) fall

**ARCH7300 BUILDING MATTERS**

This lecture-and workshop-based course surveys common construction materials and their properties, as well as their use in simple and hybrid systems of assembly. Particular attention is devoted to wood, steel, and masonry systems. This course also introduces students to structural principles guiding vernacular construction, principles of building siting and orientation, and passive environmental building strategies. This course is cross-listed with ARCH2200. **Corequisite:** ARCH7000 (4 credits) fall

**ARCH7325 SPACE, SKIN, AND SURFACE**

This history and theory-based seminar examines the operational principles of displaying objects and actions through architecture, with a focus on the framework of space, skin, and surface. Mechanisms of display are not only relevant for sharing cultural production (exhibiting artwork, housing performances, and installations), but are essential for commerce (displaying goods and services), marketing, and politics. The seminar analyzes the tensions between all three elements (space, skin, and surface), concentrating on displaying actions, objects, meaning, and the elements' real and virtual conditions. It also explores changing characteristics of "the architecture of display" through relevant texts, projects, and sites, examining and expanding contemporary discourse. (4 credits) spring

**ARCH7350 2D + 3D MEDIA & PROCESSES**

Requirement for incoming 3 year graduate students. The course introduces and applies fundamental manual drawing techniques and logics essential to the development of spatial and critical thinking skill sets and practice as well as digital 2D and 3D translations. (4 credits) fall

**ARCH7375 AFFORDABLE HOUSING | SUSTAINABLE COMMUNITIES**

This seminar focuses on the political, financial, social, and design forces that influence the production of affordable housing, as well as the community agendas and development strategies that shape the outcome. Through readings and discussion, precedent studies, site visits, and guest speakers, students develop a detailed understanding of the principles of affordable housing development. Students also participate in the Affordable Housing Development Competition (AHDC), sponsored by the Federal Home Loan Bank of Boston, as an integral part of this elective. (4 credits)

**ARCH7500 GRADUATE FOUNDATIONS STUDIO 02**

This studio focuses on techniques of visualization and representation (freehand drawing skills and model-making) as they pertain to beginning design. Students continue to develop fundamental design skills through orthographic drawing (plan, section and elevation), perspective drawing, model-making and diagramming. Fundamental digital skills are explored. General concepts of space, form, material and structure are investigated by using techniques in architectural representation and visualization in a series of design problems. **Prerequisite:** ARCH7000 (6 credits) spring

**ARCH7550 GRADUATE HISTORY THEORY SEMINAR**

This seminar builds on core themes and topics introduced in the Graduate History Theory Lecture, surveying world architecture, urbanism and landscapes from roughly 1600 CE to present. Graduate students concentrate on focused research and themes, critical writing and research at the graduate level is emphasized. Required for three year graduate students. **Prerequisite:** ARCH7250; for two year students: previous relevant history theory course work

**ARCH7600 ENERGY AND RESOURCES IN ARCHITECTURE**

This lecture and workshop-based course focuses on architectural methods for achieving visual, thermal and acoustical comfort in buildings using primarily non-mechanical means: climate, form, orientation, materials, and structure. Students will learn to analyze energy phenomena and understand energetic implications of a range of design strategies. Principles of sustainable resource management will be introduced. This course is cross-listed with ARCH2700. **Prerequisite:** ARCH7300 or ARCH8000 (4 credits) spring

**ARCH7650 Race, Segregation, and Urban Development**

This urban history-theory seminar examines critical topics in the social analysis of American urban sites by exploring methods from historical and social theories and interrogating the construction of race and ethnicity in American cities. Course assignments encourage students to form their own theoretical, historical, or critical inquiry, and to question its applications in a spatial design or urbanist context. (4 credits)

**ARCH7675 THE CLIMATE - RESPONSIVE BUILDING**

Global climate change is an increasingly pressing concern for engineers and designers. Buildings are responsible for a large percentage of global greenhouse gas emissions and other toxins that pollute our environment and create ecological crises of increasing severity. The effects of buildings are greater than transportation, agriculture, and other well-known impacts. This course is an exploration of climate-responsive design strategies, ecologically sensitive material choices, advanced building envelope design, equipment efficiencies, and renewable resources that will ameliorate those environmental impacts. (3 credits) summer

**ARCH7700 DESIGN IN THE CONTEXT OF MIGRATION**

Global migration trends coupled with rapid urbanization are creating stresses to urban environments in the western world while hampering the progress of Sustainable Development Goals set by the United Nations for cities in the developing world. This seminar explores the drivers of migration and the resulting inequities faced by migrants due to the loss of cultural and social infrastructure and examines the role that design professionals play in addressing social justice. Students analyze and evaluate existing and new strategies for providing housing and community hubs (e.g., green space, libraries, community spaces that support youths at risk) for migrant populations, employing urban and architectural design solutions to bridge between established communities and refugees and asylum-seekers. (4 credits)

**ARCH7800 GRADUATE SPECIAL TOPICS IN ARCHITECTURE**

Presents topics that are not covered by existing courses and are likely to change from semester to semester. Refer to the Class Schedule for a specific semester for details of special topics course offerings. (1 - 4 Credits)

**ARCH7900 PARTICIPATORY PRACTICE**

Architecture and design are tools to reimagine the ways in which we occupy the built urban environment. Design processes and decision-making, however, frequently leave out the needs and aspirations of real communities. This course is a project-based seminar workshop that examines design mechanisms for a diverse collection of needs, experiences, beliefs, values, and desires. Applied research methodologies promote different degrees of participation, ranging from basic consultation to community empowerment. While discussing the role of architecture and design in social practices, the course provides practical tools for integrating community voices into design processes, with the goal of collaboratively envisioning and creating new places. (4 credits) fall

**ARCH7910 PRINCIPLES OF PASSIVE HOUSE DESIGN**

This course introduces students to the principles of passive house design. Students learn these low-energy building design principles through designing a single-family house following the Passive House Institute of US (Phius) design protocols. Students are introduced to the energy-modeling software used for passive house evaluation. At the end of the course, students take final exams that, when passed, give them Certified Passive House Consultant (CPHC) accreditation from Phius. (4 credits)

**ARCH8000 ADVANCED GRADUATE DESIGN STUDIO 01**

This design course focuses on the development of highly detailed design proposals, integrating knowledge of building materials and systems within the framework of well-articulated and advanced design intentions. (6 credits) fall

**ARCH8250 PASSIVE AND ACTIVE SYSTEMS**

This lecture and workshop-based course focuses on architectural methods for achieving visual and thermal comfort in buildings using both passive and active systems. Lectures and assignments address lighting, thermal optimization, fire safety, water and waste, and envelope systems in buildings. This course emphasizes the integration of spatial, visual, and environmental performance aspects of building systems in medium-to-large-scale structures, where such systems may be a determinant of architectural form. Innovative environmental solutions will be illustrated throughout the course. This course is cross-listed with ARCH3200.

**Corequisite:** ARCH8000 (4 credits) fall

**ARCH8300 APPLIED RESEARCH & DESIGN 01**

Focus on advanced studies Research & Design methodologies through a series of explorative projects & presentations. Methodologies & Strategies are explored so as to instill a clear understanding of advanced research at the graduate level. (4 credits) fall

**ARCH8400 STRUCTURES 01**

In this course students learn how loads are applied and distributed, and how to analyze funicular structures, columns, beams and trusses. Both the method of joints and the method of sections are used, Basic principles of strength of materials, structural mechanics, and structural analysis are presented. (4 credits) fall

**ARCH8500 ADVANCED GRADUATE DESIGN STUDIO 02**

This design course focuses on the development of highly detailed design proposals, integrating knowledge of building materials and systems within the framework of well-articulated and advanced design intentions.

**Prerequisite:** ARCH8000 (6 credits) spring

**ARCH8650 FABRICATION METHODS**

With a focus on making as a means of applied research, graduate students work with both manual + digital fabrication tools, techniques and fabrication methodologies. Design and Applied Research will range in scale and scope from the making of artifacts to prototyping to one to one scale manufacturing. (4 credits) spring

**ARCH8700 APPLIED RESEARCH & DESIGN 02**

Applied Research & Design 02 focuses on visual methodologies through a series of explorative projects & presentations. Visual research methodologies & strategies are introduced through a series of case studies and precedents. Graduate level criteria & expectation are to be met. **Prerequisite:** ARCH8300 (4 credits) spring

**ARCH8750 CONCENTRATION STUDIES**

Concentration Studies offers topics pertinent to Urbanism, Emerging Technologies or Adaptive Interventions with an emphasis on relevant models of research within the selected discipline of the concentration. Contemporary issues in the field are addressed through readings, discussions, analysis, writing and projects. **Prerequisite:** ARCH7000 (4 credits) fall, spring

**ARCH8800 STRUCTURES 02**

In this course students learn the structural properties of major construction materials and learn to design beams, slabs, columns, and foundations in wood, steel and concrete. Topics include building codes and specifications, loads on structural systems, grids and pattern layouts and soils and foundations. **Prerequisite:** ARCH8400 (4 credits) spring

**ARCH8820 THEORIES OF PRACTICE**

Over the past decades, architects have engaged a wide range of approaches to conceiving and making buildings, or more aptly, to forming the theories behind their practice of architecture. The seminar will study and critique architects whose work illustrates a broad spectrum of contemporary outlooks. Themes will be introduced relating to the transformation of the discipline of architecture—from drawing to materials to site strategies and other philosophical approaches. These themes will be investigated through case studies of modernist, postmodern, and contemporary architects in comparison to historically important architectural texts and treatises. The seminar will emphasize critical thinking and analytical skills through extensive readings, in-depth seminar discussions, and student presentations. It will help students formulate and critique methods—graphic, verbal, and written—to present theories of their own as they embark on their own careers in practice.

**Prerequisites:** ARCH9600 (4 credits)

**ARCH9000 GLOBAL RESEARCH STUDIO**

The studio addresses research topics and sites from a global perspective. Students frame an issue within a faculty-directed research and design agenda. During a ten-day travel period, students conduct site research and engage with on-site organizations and/or communities. Upon return, students generate design criteria and conduct design tests through an iterative process. (6 credits) fall

**ARCH9200 METHODS OF HISTORY, THEORY & CRITICISM**

This course examines the theoretical underpinnings and methodologies pertinent to research in architecture. Students come to understand how researchers conduct architectural research, with the goal of preparing their own thesis agendas. **Corequisite:** ARCH9300 (4 credits) fall

**ARCH9300 DESIGN AS RESEARCH**

Students prepare the groundwork for their thesis project through research and development of an architectural program, site analysis, and design methods that support an original design project in ARCH9500 **Corequisite:** ARCH9200 (4 credits) fall

**ARCH9500 THESIS STUDIO**

Students pursue a final thesis design of a project of their own definition, as developed during the fall semester in ARCH9200 and ARCH9300. **Prerequisite:** ARCH9200 & ARCH9300 (6 credits) spring

**ARCH9600 PROFESSIONAL PERSPECTIVES**

A comprehensive study of architectural practice, including project management, financial planning, organizational structure, scheduling, marketing, legal issues, and the roles and responsibilities of design professionals. **Prerequisite:** M.Arch or senior status in the B.S. Architecture program (4 credits)

**ARCH9700** THESIS SEMINAR

This course provides a supportive context within which a student establishes the foundational understandings, develops the methodological frameworks, and tests the conceptual directions with the greatest promise of advancing the work of the graduate design thesis. This course expands the design research curriculum of prior semesters and supports the ongoing development and production of a thesis publication in coordination with the work of the Thesis Studio.

**Prerequisites:** ARCH9300 and **Corequisite** ARCH9500. (4 credits) spring