

Architecture (ARCH)

ARCH 1000. Architecture at Northeastern. 1 Hour.

Introduces students pursuing a major in the School of Architecture to the intellectual and extracurricular opportunities within the school and within the College of Arts, Media and Design. Exposes students to the cultural vibrancy of Boston with the goal of building networks to facilitate the creation of a vibrant and supportive learning community.

ARCH 1110. Fundamental Architectural Representation. 4 Hours.

Introduces students to architectural representation as a form of documentation, experimentation, and communication through a series of exercises in orthographic, axonometric, and perspectival projection as well as physical and digital modeling. Supports the development of an iterative design methodology by introducing students to the tools of representation. Includes theoretical lectures and workshops in analog and digital media.

ARCH 1120. Fundamental Architectural Design. 6 Hours.

Introduces architectural design. Examines a number of approaches to spatial organization, massing, and envelope articulation through the analysis of pertinent case studies as well as through a series of fast-paced design exercises. Offers students an opportunity to develop a single design through a series of design studies that deal with issues of site planning, program, user input, and collective negotiation. Requires a portfolio demonstrating the student's representational abilities and iterative design process.

ARCH 1310. Architecture and Global Cultures, Prehistory to 1400. 4 Hours.

Offers a chronological history of civilizations from prehistory to 1400. Global in scope, introduces key themes including housing, the vernacular, materials and techniques, sacred architecture, architecture and power, and urban planning. Emphasizes the relationship between architectural works and the cultures that produce them.

ARCH 1311. Recitation for ARCH 1310. 0 Hours.

Offers a small-group discussion format to cover material in ARCH 1310.

ARCH 1320. Architecture and Global Cultures, 1400 to Present. 4 Hours.

Offers a chronological history of early modern architecture. Focuses on significant moments in Western culture as well as the architecture and planning of Mughal India, Ottoman Empire, and Japan. Continues major themes from ARCH 1310. Also covers ideal cities and urban planning, the relationship between theory and practice, the Enlightenment, the emergence of the professional architect, trade, colonization, and landscape.

ARCH 1321. Recitation for ARCH 1320. 0 Hours.

Offers a small-group discussion format to cover material in ARCH 1320.

ARCH 1350. American Architecture. 4 Hours.

Offers an introduction to the history, theory, and criticism of American architecture and urban planning from the mid-1600s to the 1930s. Explores the social and cultural forces that shape the built environment. Examines European influences as well as uniquely American contributions. Emphasizes the work of Louis Sullivan, H. H. Richardson, and Frank Lloyd Wright.

ARCH 1450. Understanding Design. 4 Hours.

Introduces undergraduates at all levels to the importance of design thinking as a method of inquiry and problem solving. Each class meeting includes a short presentation on a different kind of design problem (houses, furniture, electronics, automobiles, apparel, tools, interiors, cities, typography, information, tall buildings, networks, etc.) and then an interview with a leading practitioner at a roundtable on the stage. Evaluation is based on quizzes and student presentations. Seeks to expose students to the power of design thinking as a tool for multi-variable problem solving.

ARCH 1990. Elective. 1-4 Hours.

Offers elective credit for courses taken at other academic institutions. May be repeated without limit.

ARCH 2130. Site, Space, and Program. 6 Hours.

Studies how to analyze, draw, and model the built environment. Students engage in issues of program, composition, type, and material. Offers students the opportunity to think conceptually about architectural design.

ARCH 2140. Urban Institutions. 6 Hours.

Studies how to analyze, model, and intervene in the city. Offers students an opportunity to engage in urban analysis, urban massing strategies, and architectural design of urban institutions.

ARCH 2170. Urban Research Studio: Context, Sustainability, Development. 6 Hours.

Seeks to develop students' technical skills and critical thinking in the studio environment through a semesterlong research and design project. Offers students an opportunity to investigate an urban site in the Boston area: investigating possible solutions, focusing on strengthening conceptual strategies, and articulating a developed argument through their research and design process.

ARCH 2240. Architectonic Systems. 4 Hours.

Introduces the theory of materials and structures. Examines basic structural elements in masonry and wood construction. Uses historical and current building types to explore the relationship between structure, materials, construction process, and architectural space. Includes lectures, discussions, field trips, and student presentation of structural models and diagrams.

ARCH 2250. Introduction to Sustainable Design in Architecture. 4 Hours.

Explores the issues and practices of architectural design as it relates to natural systems, using critical readings of seminal and current texts, lectures, films, field trips, and projects that use both design and analysis as means of inquiry. Examines varied approaches to sustainable design, including using nature and wilderness as models; biophilia; biomimicry; material sources and reuse; accounting systems such as LEED, Zero Net Carbon, and the 2030 Challenge; and the Living Building Challenge. Course work couples these thematic explorations with projects that investigate the application of the ideas in built form. Designed to offer both a broad understanding of sustainable design and a deep understanding of the varied ways one might approach green as a design professional.

ARCH 2260. Introduction to Building Systems. 4 Hours.

Introduces fundamentals of building technology and explores technology as means and manifestation of architecture in the world. Using a systems approach, studies the interactions among natural forces, material properties, technological capabilities, and human cultural values and the ways these relationships give rise to architecture. Considers a series of physical principles—including gravity, moisture, heat, light, and air—to reveal specific architectural possibilities and material responses. Explores the ways design shapes the interaction of materials and forces to provide for human safety, shelter, comfort, and delight through a combination of hands-on workshops, seminal readings, and design exercises.

ARCH 2320. Chinese Architecture 2: Modern. 4 Hours.

Covers the development of the built environment in China from 1840 to the present. Emphasizes educational and professional shifts in architectural practice, political engagement in the design process, structural and technological transformation, conceptual background, and global impact.

ARCH 2330. Architecture, Modernity, and the City, 1800 to 1910. 4 Hours.

Focuses on architecture and urban design in the United States and Europe from 1800 to 1910. Major topics include the birth of the modern city and urban planning, capitalism and industrialization, modern typologies, infrastructure, urban parks and early suburbs, materials and technology, Western architecture in colonial India and Asia, architectural education, and modern architectural theory.

ARCH 2331. Recitation for ARCH 2330. 0 Hours.

Offers a small-group discussion format to cover material in ARCH 2330.

ARCH 2340. Architecture, Modernity, and the City, 1910 to 1980. 4 Hours.

Examines the forms and principles of European and American architecture of the twentieth century in the context of society's changing conditions. Major topics include craft vs. industry, avant-garde and "other" modernisms, the architect and critical positions, suburbs, new concepts of space, modernism and its critique, and global extensions of modernism.

ARCH 2341. Recitation for ARCH 2340. 0 Hours.

Offers a small-group discussion format to cover material in ARCH 2340.

ARCH 2360. Design Thinking and Architecture. 4 Hours.

Exposes students to the key principles of design thinking, focusing in particular on its relationship to architecture and how the specific skills of the architects are integral to its definition. At its core, design thinking offers a specific framework for innovation. By exposing students to the ways in which design thinking has been theorized and defined, offers students an opportunity to develop a more detailed understanding.

ARCH 2550. Real Estate Development and Design. 4 Hours.

Introduces the challenges and opportunities in real estate development for design professionals. Offers students an opportunity to obtain the knowledge and skills necessary to engage meaningfully in real estate development, which is exercised through application to real-life problems. Reviews the property types, terminology, and core concepts in the real estate industry; introduces a set of analytical tools and techniques for evaluating real estate investment and development; and explores innovation and entrepreneurship in real estate development practice models.

ARCH 2990. Elective. 1-4 Hours.

Offers elective credit for courses taken at consortium institutions. May be repeated without limit.

ARCH 3155. Studio Abroad. 6 Hours.

Offers students an opportunity to understand the challenges of designing contemporary building types in parallel situations—the dense historic fabric of a city with ancient origins that has been manipulated over centuries and the more diffused, diverse, and irregular landscape typically found on the edge of the modern city. Offered only abroad.

ARCH 3165. Suburban Types. 6 Hours.

Explores the important differences in designing for dense cities vs. more automotive suburbs in a studio format. Offers students an opportunity to study existing urban and suburban building types and then design for similar use in the two different settings.

ARCH 3170. Architecture, Infrastructure, and the City. 6 Hours.

Offers a studio course addressing the architectural and urbanistic consequences at the intersection of large-scale infrastructure and the contemporary city. Focuses on how to integrate buildings and neighborhoods with highways, rail lines, storm water management, bus, bike, parking, rivers, watersheds, and industrial networks.

ARCH 3210. Environmental Systems. 4 Hours.

Explores the interaction of environmental, physical, and energy systems in architecture. Offers students an opportunity to learn the fundamentals of building science as design opportunities to create particular conditions of light and shadow; provide shelter from heat, cold, and rain; and incorporate systems that provide for water, electricity, and sanitation. Course revolves around a series of workshops, labs, and design exercises.

ARCH 3211. Recitation for ARCH 3210. 0 Hours.

Offers a small-group discussion format to cover material in ARCH 3210 and provide opportunities for hands-on and creative work, both individually and in teams.

ARCH 3351. Architecture Topics Abroad: Theory. 4 Hours.

Explores, defines, and analyzes the embodied time within urban artifacts (ruins, buildings, urban landscape and space, infrastructure) of a historic context. Focuses on the architecture and urban artifacts that are the consequence of the evolutionary forces of urban civilization over long durations of time rather than focusing on iconographic examples of architecture and urbanism produced within a specific moment in history. Students engage in theoretical readings, group discussions, site visits, analyses of evolutionary urban artifacts, writing, and drawings. Assigned readings cover a broad range of theories about analyzing and interpreting the urban context and its history. These readings are complemented by both required writing assignments and site visits to many urban artifacts, buildings, and spaces. May be repeated without limit.

ARCH 3352. Architecture Topics Abroad: Drawing. 4 Hours.

Examines and engages historic architecture and urbanism through freehand drawing. Offers students an opportunity to learn how to draw in freehand like an architect—drawing in a creative, interpretive, precise, and analytical manner—as well as to learn about the history and cultural context of the great architectural monuments and urban spaces that they are analyzing and drawing, including major architectural monuments. Studies new skills of drawing, the conventions of architectural representation, and the cultural history of the built environment. May be repeated without limit.

ARCH 3361. Architecture and Urbanism Abroad. 4 Hours.

Covers the detailed history of architecture and urban development in the host city, from its founding to the present. Offered only abroad.

ARCH 3362. Seminar Abroad. 4 Hours.

Offers students an opportunity to learn and discuss historical and contemporary European theory and criticism, from Vitruvius and Alberti to contemporary figures. Raises and addresses architectural questions of composition, society, politics, and environment. Offered only abroad.

ARCH 3370. Topics in Architectural History. 4 Hours.

Covers a variety of topics in architectural history and theory with the aim of offering students a greater degree of choice in shaping their curriculum and the opportunity to study subjects that interest them in greater detail. Course topics encompass a wide range of themes and complement the mission of the department, the college, and the university. Taught by a number of different faculty members according to their interests and expertise.

ARCH 3440. Workshop Topics Abroad. 1.5 Hour.

Offers students an opportunity to develop their analytical, artistic, and craft abilities, dealing with topics and methods outside the confines of the architectural disciplines such as site-specific installations, graphic novels, and short films, among others.

ARCH 3450. Advanced Architectural Communication. 4 Hours.

Builds on CAD (computer-aided design) skills to develop ability to model in three dimensions and develop surfaces and lighting. Also addresses strategies in design communication for effective presentation of digital material.

ARCH 3990. Elective. 1-4 Hours.

Offers elective credit for courses taken at consortium institutions. May be repeated without limit.

ARCH 4850. Urban and Architectural History Abroad. 4 Hours.

Offers an on-site study of architecture and urban history conducted abroad. Instructors accompany students to visit and lecture about the most significant sites in the history of architecture, art, and urban development of a specific country. In comparison to a traditional on-campus course, the number of examples covered is smaller; however, each example is discussed in much greater detail. Encourages students to discover problems and aspects in art, architecture, and urbanism that have not been raised before, something only possible through direct survey and observation. Offers students an opportunity to obtain a real sense of architectural research without neglecting the basics of the field. Interactions with practicing architects, city planners, policymakers, preservationists, museum professionals, and artists are integral parts of this course. May be repeated without limit.

ARCH 4960. Architectural Studies Capstone. 4 Hours.

Offers students an opportunity to deeply explore topics related to architecture and the built environment. Students complete a semester-long intensive research and writing capstone project. Offered in the final year of the BS in Architectural Studies program.

ARCH 4970. Junior/Senior Honors Project 1. 4 Hours.

Focuses on in-depth project in which a student conducts research or produces a product related to the student's major field. Combined with Junior/Senior Project 2 or college-defined equivalent for 8 credit honors project. May be repeated without limit.

ARCH 4990. Elective. 1-4 Hours.

Offers elective credit for courses taken at consortium institutions. May be repeated without limit.

ARCH 4993. Independent Study. 1-4 Hours.

Offers independent work under the direction of members of the department on a chosen topic. Course content depends on instructor. May be repeated without limit.

ARCH 4996. Experiential Education Directed Study. 4 Hours.

Draws upon the student's approved experiential activity and integrates it with study in the academic major. Restricted to those students who are using the course to fulfill their experiential education requirement. May be repeated without limit.

ARCH 5110. Housing and Aggregation. 6 Hours.

Provides an understanding of multiunit housing in the United States and Europe. Working in teams, students develop new patterns of housing for Boston-area sites and develop those sites with their own individual interventions.

ARCH 5115. Option Studio. 6 Hours.

Offers an upper-level design studio that covers new studio topics, content, and studio instructors each semester. The studio instructors offer topical content that best aligns with their research and practice expertise, which provides students with the latest concepts in architectural design, theory, and research on a consistently updated and rotating basis. Students select their top choices of studio topics and instructors, giving them more flexibility in the areas for which they would like to focus their education.

ARCH 5120. Comprehensive Design Studio. 6 Hours.

Focuses on the materials and making of architecture. Considers architectural connections at all scales, from the nut and bolt to the scale of a door or window to the scale of the whole building and the city. Grounds design proposals upon a tectonic strategy, unlike traditional design studios that produce a schematic design before considering constructional ideas.

ARCH 5210. Environmental Systems. 4 Hours.

Explores the ways in which architectural form can create particular conditions of light and shadow; provide shelter from heat, cold, and rain; and incorporate systems that provide for water, electricity, and sanitation. Provides a series of simple and straightforward small-scale design projects.

ARCH 5211. Recitation for ARCH 5210. 0 Hours.

Offers a small-group discussion format to cover material in ARCH 5210.

ARCH 5220. Integrated Building Systems. 4 Hours.

Studies how to integrate into students' building designs all the environmental and tectonic systems that they have covered in previous architecture courses.

ARCH 5230. Structural Systems. 4 Hours.

Introduces the fundamental concepts of structural analysis and design for architecture. Examines the nature of forces and their effects on different types of structural elements; the structural properties of shapes and materials; and the selection, analysis, and design of efficient structural systems that resist the loads acting upon them. Uses historical and contemporary examples to illustrate how the changing context of architectural ideas drives structural form and the selection of structural systems. Includes field trips and student presentations of structural models and diagrams. Restricted to students in the architecture BS program and to students in the three-year MArch program.

ARCH 5231. Recitation for ARCH 5230. 0 Hours.

Provides a small-group discussion format to cover examples from the material in ARCH 5230.

ARCH 5310. Design Tactics and Operations. 4 Hours.

Encourages students to develop the connections between critical attitudes and techniques in design, through important historical texts. Offers a kind of "great books" approach to the integration of design and history, introducing the writings and seminal designs of Alberti, Palladio, Wright, Le Corbusier, Semper, Sitte, Rowe, Colquhoun, Moneo, Koolhaas, Rossi, Frampton, Venturi and Scott Brown, Scarpa, and Lynch.

ARCH 5320. Applications of Architectural Design Methods. 4 Hours.

Explores the different means through which we analyze, interpret, and ultimately understand the built environment and how, in turn, the built environment contributes to our understanding of the world itself. Offers students an opportunity to learn how to think critically themselves, to learn to ask questions, and to develop their own perspectives on the production of architecture and design. Students who do not meet course prerequisites may seek permission of instructor.

ARCH 5530. Innovative Models in Real Estate Development and Design. 4 Hours.

Addresses advanced topics in real estate development and finance and examines innovative models of practice in real estate development available to design professionals. Studies a set of advanced analytical tools and techniques for evaluating the cash flows and economic returns of real estate investment and development. Introduces advanced methods of financing real estate and the structure of capital markets involved in property assets. Uses the case instruction method and includes active, discussion-oriented learning.

ARCH 6100. Graduate Skills Studio. 6 Hours.

Presents students new to architecture with the fundamentals of three-dimensional thinking and spatial representation with a series of increasingly complex assignments. Offers students an opportunity to learn a wide variety of graphical software tools and then use these tools to complete their assignments. Covers freehand sketching and physical model building skills. This intensive course is taught as a hands-on design studio (with ample studio access outside class meetings).

ARCH 6200. Graduate Studio 1: Architectural Design. 6 Hours.

Focuses on a series of increasingly complex assignments that emphasize the fundamentals of architectural design. Offers students an opportunity to propose and test proposals through an iterative process using a wide variety of tools and media, including design software, physical models, and freehand sketches. Explores spatial definition, the orchestration of a spatial sequence, modulation of natural light, and responsiveness to existing conditions (whether natural or man-made). Taught as a hands-on design studio (with ample studio access outside class meetings).

ARCH 6330. Seminar in Modern Architecture. 4 Hours.

Examines the state of architecture and urbanism in the two decades leading up to 2000. Explores contemporary issues in architectural theory and urban design. Examines a broad range of ideas affecting contemporary developments in architectural practice. Engages cultural and historical forces as well as contemporary criticism to define the nature of modernism, late modernism, postmodernism, and deconstruction. Case studies, analysis of theoretical models, and application of methods of history provide students with support for their own design work in studio and co-op experiences.

ARCH 6340. Graduate Topics in Architecture. 4 Hours.

Explores focused research topics relevant to the graduate program curriculum. The professor presents his or her research related to a particular urban, architectural, or technical topic. This exposes the students to methods of research and topics in current and ongoing research in the field. The students have an opportunity to engage in related and parallel research projects during the course of the semester. May be repeated without limit.

ARCH 6430. Case Studies 1. 4 Hours.

Focuses on how architectural practice occurs and must be understood within a larger social context. The cultures-interests and objectives-of the constellation of participants in the bringing of a building to completion are dynamic, diverse, and complex, especially in an urban environment. Seeks to make sense of this broader social contract from within the perspective of professional design practice. As one of many participants in the process of bringing a building to completion, students review the roles, responsibilities, and interests of each contributor. Our task is to understand the obligations and constraints that constitute these relationships. Examines the products of design as manifestations of these relationships and situates them within a discourse of value-determined actions. Investigates normative and critical professional practices through selected readings and individual field research. Develops project case studies that provide examples of excellent design results achieved through the application of expert professional practices.

ARCH 6440. Case Studies 2. 4 Hours.

Continues ARCH 6430. Builds on the understanding of professional practice developed in the previous course and investigates the array of "artful ways in which some practitioners deal competently with the indeterminacies and value conflicts of practice." These indeterminacies, uncertainties, and value conflicts are part of a rapidly changing, dynamic world. There is an unprecedented need for flexible and responsive practices that can bridge the gap between traditional professional techniques and these situations. Requires core competencies that are not mismatched with the changing situations of practice. Requires new skills as well as traditional analytic techniques to respond adequately to these unique conditions of work. Through a closer examination and development of an in-depth project case study, students speculate on possible approaches to a revised and restructured model of professional knowledge and guidelines for reflective practice that can sustain a culture of design excellence.

ARCH 6962. Elective. 1-4 Hours.

Offers elective credit for courses taken at other academic institutions. May be repeated without limit.

ARCH 7130. Master's Research Studio. 6 Hours.

Offers the research portion of a two-part graduate project focused on the complex issues facing the postindustrial landscape of the contemporary city. Examines in detail the design elements of everyday building types, such as office buildings, labs, parking garages, and retail spaces, with an eye toward creating new prototypes for urban architecture that are informed by the realities of contemporary market forces. Provides the foundation for the more speculative design proposals of ARCH 7140. May be repeated without limit.

ARCH 7140. Master's Degree Project. 6 Hours.

Offers the second of a two-part degree project focused on manipulating contemporary market-driven building types. Seeks to invent new variations and hybrids from the existing store of urban building types to address new challenges, such as irregular sites, new adjacencies, and other unmet demands in cities. Based on research, analysis, and modeling of different types done in the first semester, offers students an opportunity to propose synthetic solutions to the complex problems of postindustrial development, housing, and identity facing the contemporary city. May be repeated without limit.

ARCH 7962. Elective. 1-4 Hours.

Offers elective credit for courses taken at consortium institutions. May be repeated without limit.

ARCH 7976. Directed Study. 1-4 Hours.

Offers independent work under the direction of members of the department on chosen topics. May be repeated without limit.