Architecture (ARCH)

COURSES

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.

Attribute(s): NUpath Creative Express/Innov

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.

Prerequisite(s): ARCH 1110 (may be taken concurrently) with a minimum grade of D-
Attribute(s): NUpath Creative Express/Innov, NUpath Natural/Designed World

ARCH 1310. Buildings and Cities, A Global History. (4 Hours)
Introduces students to architecture, as understood through buildings, cities, and landscapes from antiquity to the present. Studies important monuments in the global history of architecture, as well as tools for analyzing the built environment. Considers buildings in relation to their political, social, economic, and cultural context, and as expressions of diversity in human societies and cultural perspectives. Topics include the language of architecture, architectural drawings, the classical orders, the problem of ornament, construction techniques, materials, site,and the role of the patron. Develops students' eye for composition in two and three dimensions, aesthetic discrimination of detail, ability to see buildings as part of a larger social and cultural fabric, and critical judgment in speaking and writing.

Corequisite(s): ARCH 1311
Attribute(s): NUpath Difference/Diversity, NUpath Interpreting Culture

ARCH 1311. Recitation for ARCH 1310. (0 Hours)
Offers a small-group discussion format to cover material in ARCH 1310.

ARCH 1450. Understanding Design. (4 Hours)
Introduces undergraduates at all levels to the importance of design thinking as a method of critical inquiry and creative expression. Class meetings include lectures and discussions on the power of design thinking to shape diverse facets of the natural and built environment—from cities and landscapes, to buildings and interiors, to the scale of the human body. In addition to class presentations, hands-on workshops introduce students to a range of tools and tactics for working creatively and iteratively through design and prototyping.

Attribute(s): NUpath Difference/Diversity, NUpath Creative Express/Innov

ARCH 1453. Designing the American City: Civic Aspirations and Urban Form. (4 Hours)
Offers an interpretative look at the characteristic patterns of settlement and attitudes towards cities and urban life that are identified with American urbanization. Fosters a critical understanding of the cultural aspirations, processes, policies, planning, and design actions, which have influenced American urbanization, while introducing visual and analytic skills necessary for its interpretation.

Attribute(s): NUpath Difference/Diversity, NUpath Societies/Institutions

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, 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.

Prerequisite(s): ARCH 1120 with a minimum grade of D-

ARCH 2140. Urban Housing. (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 housing.

Prerequisite(s): ARCH 2130 with a minimum grade of D-

ARCH 2240. Architectonic Systems. (4 Hours)
Introduces construction techniques and precise material realization of buildings as an integral part of architectural design thinking and processes. Uses historical and contemporary architectural precedents to explore the spatial and tectonic interrelationships of the primary constructional systems of wood, masonry, concrete, and steel. Uses a diverse mixture of student learning methods, including in-class lectures and student exercises; group discussions and guest lectures; textbook reading; and the production of construction models, drawings, and diagrams.

Prerequisite(s): ARCH 1110 with a minimum grade of D- or ARCH 2260 with a minimum grade of D- or ARCH 6100 (may be taken concurrently) with a minimum grade of C-
Attribute(s): NUpath Creative Express/Innov, NUpath Natural/Designed World

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.

Attribute(s): NUpath Natural/Designed World

ARCH 2310. History of Chinese Architecture. (4 Hours)
Covers the development of the built environment in China from prehistory to the nineteenth century. Emphasizes technological transformation, structural and stylistic evolvement, cultural exchange, and ideological engagement.

Prerequisite(s): ARCH 1310 with a minimum grade of D- or HIST 1250 with a minimum grade of D- or ASNS 1150 with a minimum grade of D-
Attribute(s): NUpath Difference/Diversity, NUpath Interpreting Culture, NUpath Writing Intensive

ARCH 2320. Modern Chinese Architecture. (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.

Prerequisite(s): ARCH 1320 with a minimum grade of D- or HIST 1250 with a minimum grade of D- or ASNS 1150 with a minimum grade of D-
Attribute(s): NUpath Interpreting Culture, NUpath Societies/Institutions, NUpath Writing Intensive

ARCH 2330. Architecture and the City in the Nineteenth Century. (4 Hours)
Focuses on the history and theory of architecture and urban design in the nineteenth century. Emphasizes European architecture and urbanism and the ways in which European approaches to design shaped and were shaped by sustained cultural, political, and economic exchange with the Americas, Africa, and Asia. Major topics include the birth of the modern city and urban planning, capitalism and industrialization, new building typologies, infrastructure, urban parks and early suburbs, and new materials and technologies.

Prerequisite(s): ENGL 1111 with a minimum grade of C or ENGL 1102 with a minimum grade of C or ENGW 1111 with a minimum grade of C or ENGW 1102 with a minimum grade of C or graduate program admission
Corequisite(s): ARCH 2331
Attribute(s): NUpath Interpreting Culture, NUpath Societies/Institutions, NUpath Writing Intensive

ARCH 2331. Recitation for ARCH 2330. (0 Hours)
Offers a small-group discussion format to cover material in ARCH 2330.

Corequisite(s): ARCH 2330

ARCH 2335. Architecture and Politics. (4 Hours)
Draws on examples from the late 19th century to the present to study how governments have sought to use buildings and public spaces to advance political ideals. Considers a range of building projects (public buildings, housing, public spaces, infrastructure) advanced by liberal democracies as well as those designed for authoritarian regimes. Focuses on individual projects and the political circumstances tied to their making. Also considers the afterlife of projects associated with discredited regimes—especially those of Nazi Germany and Fascist Italy—as well as the ways in which private individuals, corporations, and other agencies have worked in tandem or in opposition to official narratives.Theoretical and critical texts that explore the dynamic between physical environment and political power help frame class discussion at key moments.

Attribute(s): NUpath Interpreting Culture, NUpath Writing Intensive

ARCH 2340. Modern Architecture. (4 Hours)
Considers the forms and principles—as well as the sources for and development of—architecture and urbanism during the twentieth century. Explores the paradoxes within what has broadly been termed modernism, including the tension between historicism and innovation; between universal principles and regional expressions; between industry and craft; and between the utopian vision of planners and the role of individual will.

Prerequisite(s): ENGL 1111 with a minimum grade of C or ENGL 1102 with a minimum grade of C or ENGW 1111 with a minimum grade of C or ENGW 1102 with a minimum grade of C or graduate program admission
Corequisite(s): ARCH 2341
Attribute(s): NUpath Interpreting Culture, NUpath Societies/Institutions, NUpath Writing Intensive

ARCH 2341. Recitation for ARCH 2340. (0 Hours)
Offers a small-group discussion format to cover material in ARCH 2340.

Corequisite(s): ARCH 2340

ARCH 2345. Contemporary Architecture. (4 Hours)
Exposes students to a range of critical architectural practices and key theoretical frameworks from roughly 1990 through the present. Situates architectural production and discourse within a broader context of technological, cultural, and social processes, emphasizing the reciprocal exchange between architecture and its larger cultural and social context. Investigates the idea of the "contemporary" as both a temporal and conceptual notion, as well as the idea of a "critical" architecture and its relationship to both a historical avant-garde and "mainstream" architectural culture.

Attribute(s): NUpath Interpreting Culture, NUpath Writing Intensive

ARCH 2355. Architecture Conservation: Intervention, Transformation, and Reuse. (4 Hours)
Examines how architecture and urban design respond to the challenges of intervening in already built environments, whether in the form of adaptation, extension, conservation, radical transformation, or sustainable reuse. Discusses cultural, social, as well as energy-efficiency-related topics. Includes a critical introduction to the key concepts of architectural intervention, followed by some exemplary design cases, and a special focus on recent and contemporary practices. Architecture deals with time, duration, change, and resilience. Places, not unlike palimpsests, retain multiple traces of former uses. Architects work with locations that inevitably contain a diversity of references and preexisting conditions. Students work on a "curatorial project," that is, a conceptual proposal for an ephemeral intervention in an existing site.

Attribute(s): NUpath Interpreting Culture, NUpath Writing Intensive

ARCH 2370. Topics in Architectural History. (4 Hours)
Covers a variety of topics in architectural history and theory. Taught by faculty according to their interests and expertise. May be repeated twice.

Attribute(s): NUpath Writing Intensive

ARCH 2990. Elective. (1-4 Hours)
Offers elective credit for courses taken at consortium institutions. May be repeated without limit.

ARCH 2991. Research in Architecture. (1-4 Hours)
Offers an opportunity to conduct introductory-level research or creative endeavors under faculty supervision.

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.

Prerequisite(s): ARCH 2140 with a minimum grade of D-

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.

Prerequisite(s): ARCH 2240 with a minimum grade of D- or CIVE 2260 with a minimum grade of D-
Corequisite(s): ARCH 3211
Attribute(s): NUpath Analyzing/Using Data, NUpath Natural/Designed World

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.

Corequisite(s): ARCH 3210

ARCH 3351. Architecture Topics Abroad: Theory. (1-4 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 up to three times for up to 16 semester hours.

Attribute(s): NUpath Interpreting Culture

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.

Attribute(s): NUpath Creative Express/Innov

ARCH 3370. Advanced Topics in Architectural History. (4 Hours)
Covers a variety of topics in architectural history and theory in depth. Requires students to develop a research project. Topics complement the mission of the department, the college, and the university. Taught by faculty according to their interests and expertise. Please consult department for current offerings.

Attribute(s): NUpath Writing Intensive

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.

Prerequisite(s): (ARCH 1110 with a minimum grade of D- ; ARCH 1120 with a minimum grade of D- ; ARCH 2130 with a minimum grade of D-) or graduate program admission
Attribute(s): NUpath Analyzing/Using Data, NUpath Natural/Designed World

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.

Attribute(s): NUpath Interpreting Culture

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.

Attribute(s): NUpath Capstone Experience

ARCH 4970. Junior/Senior Honors Project 1. (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 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.

Attribute(s): NUpath Integration Experience

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. May be repeated twice for credit.

Prerequisite(s): ARCH 3170 with a minimum grade of D- or graduate program admission

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.

Prerequisite(s): ARCH 5110 with a minimum grade of C- or ARCH 5110 with a minimum grade of D- or ARCH 5115 with a minimum grade of C- or ARCH 5115 with a minimum grade of D-
Attribute(s): NUpath Capstone Experience

ARCH 5140. Capstone Studio. (6 Hours)
Offers students an opportunity to propose design contributions to the built environment that are responsive to social, cultural, and environmental contexts at multiple scales, drawing on a student's full architectural education experience. The topic of the studio is determined by the studio professor each semester and is organized around consistent and essential studio parameters and outcomes.

Attribute(s): NUpath Capstone Experience

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.

Corequisite(s): ARCH 5211
Attribute(s): NUpath Analyzing/Using Data, NUpath Natural/Designed World

ARCH 5211. Recitation for ARCH 5210. (0 Hours)
Offers a small-group discussion format to cover material in ARCH 5210.

Corequisite(s): 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.

Prerequisite(s): ARCH 3210 with a minimum grade of D- or ARCH 5210 with a minimum grade of D- or ARCH 5210 with a minimum grade of C- (Graduate)

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.

Prerequisite(s): ((PHYS 1151 with a minimum grade of D- or PHYS 1141 with a minimum grade of D-); (MATH 1341 with a minimum grade of D- or MATH 1241 with a minimum grade of D-); ARCH 2240 with a minimum grade of D-) or graduate program admission
Corequisite(s): ARCH 5231
Attribute(s): NUpath Formal/Quant Reasoning, NUpath Natural/Designed World

ARCH 5231. Recitation for ARCH 5230. (0 Hours)
Provides a small-group discussion format to cover examples from the material in ARCH 5230.

Corequisite(s): 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 5312. Mapping and Building Health. (4 Hours)
Introduces students to historical and contemporary frameworks linking the built and natural environment to health outcomes. Examines analog (field documentation) and digital (GIS) spatial mapping techniques for identifying risks and opportunities for health. Offers students an opportunity to engage in interdisciplinary creative problem solving for real-world scenarios and to write essays on selected topics.

ARCH 5330. Theories of Architecture and Urbanism. (4 Hours)
Exposes students to a range of critical practices and key theoretical frameworks within modern and contemporary architecture and urbanism. Studies architectural production and discourse within a broader context of technological, cultural, and social processes. Emphasizes the reciprocal exchange between architecture and its larger cultural and social context.

ARCH 5340. Architectural and Urban Histories. (4 Hours)
Explores key buildings, figures, and concepts in architectural history. Designed to familiarize students with a range of materials related to the built environment, with a particular emphasis on approaches and frameworks for analyzing such material. Focusing on the local built environment, students visit buildings and landscapes in person to develop visual analytical skills. Materials and in-class discussions provide additional context and frameworks for the study of the buildings and spaces that are the primary focus of the course.

ARCH 5430. Introduction to Professional Practice in Architecture. (4 Hours)
Focuses on how architectural practice occurs and must be understood within a larger social context, and seeks to make sense of this broader social contract from the perspective of professional design practice. Investigates normative and critical professional practices through selected readings and individual field research. Discusses the dynamic, diverse, and complex interests and objectives from the constellation of participants that bring a building to completion, especially in an urban environment. Develops project case studies that provide examples of excellent design results achieved through the application of expert professional practices.

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.

Attribute(s): NUpath Capstone Experience

ARCH 5850. Architecture Topics Abroad: History. (4 Hours)
Studies the city as a site of creativity and innovation, with a special focus on particular cases of study. Introduces the contemporary city from a historical, social, and economic perspective, followed by presentations on examples of creativity and innovation in the fields of architecture and urban design.

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 6115. Urban Architecture Studio. (6 Hours)
Engages students with a series of design interventions to improve our public realm. Touches on decarbonization and adaptive reuse topics at the scale of the human, material, building, and urban networks. Explores these ideas by offering students projects in small, underutilized city-owned land to test collaborative programming and microinfrastructure shaped by communities' needs and desires.

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.

Prerequisite(s): ARCH 6430 with a minimum grade of C-

ARCH 6962. Elective. (1-4 Hours)
Offers elective credit for courses taken at other academic institutions. May be repeated without limit.

ARCH 7120. Integration Studio. (6 Hours)
Focuses on building systems, their detailing, assembly, and integration to achieve architectural expression and measurable performance over time. Offers students an opportunity to draw on the full range of their prior architectural education to produce a design that synthesizes specific criteria to build sustainable and culturally valuable environments for generations of human use.

Corequisite(s): ARCH 7220

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 7220. Integrated Building Systems. (4 Hours)
Explores the theories and practices of integrating building systems to create high-performing, long-lasting, and humane architecture. Uses readings and case studies to critically examine how the architectural order and logics derived from ecosystems, materials, and human uses express the systemic nature of buildings. Offers students an opportunity to synthesize their prior knowledge of construction systems, environmental systems, and structural systems to consider buildings as an integrated system of systems. Engages students with multiple forms of modeling, representation, and specification through which the speculative process of design anticipates the physical processes of construction, occupancy, and change.

ARCH 7430. Topics In Research Methods in Architectural Design. (4 Hours)
Focuses on contemporary research strategies and ethics in architecture, landscape, and urbanism. Presents an overview of social science, public engagement, and spatial analytics methods for design with an eye toward developing integrated analysis, visualization, and conceptualization skills for collaborative and individual project development. Themes include ecological, economic, and social resiliency in urban environments. Offers students an opportunity to formulate original approaches to design thinking and research. May be repeated five times for a maximum of 24 semester hours.

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.