

# COLLEGE OF ARCHITECTURE

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Reed Kroloff  
Dean  
S.R. Crown Hall  
3360 S. State St.  
Chicago, IL 60616  
312.567.3230  
arch@iit.edu  
arch.iit.edu

**Assistant Dean of University and Academic Affairs**  
Kindon Mills

**Director of Academic Affairs**  
Cynthia Torres

**Director of Doctoral Program**  
Michelangelo Sabatino

**Director of Landscape Architecture and Urbanism Program**  
Maria Villalobos

**Director of Master of Architecture Program**  
Martin Felsen

**Director of Master of Science in Architecture Program**  
Vedran Mimica

**Director of Master of Tall Buildings and Vertical Urbanism**  
Antony Wood

## **Faculty with Research Interests**

For more information regarding faculty visit the College of Architecture website.

## **Mission**

The College of Architecture's graduate degree programs emphasize investigations in architectural design and technology, while expanding the significance of such investigations through rigorous, critical thought. The college draws strength from its Mies van der Rohe heritage, its key position in the legacy of Modernism, its location in Chicago, and its connections to progressive practitioners and emerging global architectural practices. Our students, faculty, and alumni are intellectually serious, professional, and international.

Architectural education at Illinois Institute of Technology offers unique combinations, intertwining design and technology to produce advanced architecture. Our commitment includes the needs of our South Side Chicago neighborhood, our city, and its inhabitants. Our perspective is inclusive of architecture's allied disciplines and committed to the highest quality in our students' professional preparation. Our mission relies on certain guiding values: design excellence, technical expertise, advanced professional practice, and respect for the architect in society today as an ethical, thoughtful, and informed producer not only of buildings, but also of all visual and physical environments. The College of Architecture is a force for quality built environments and society's advancement through a humane use of technology, materials, space, and form.

## **Accreditation**

In the United States, most state registration boards require a degree from an accredited professional degree program as a prerequisite for licensure. The National Architectural Accrediting Board (NAAB), which is the sole agency authorized to accredit U.S. professional degree programs in architecture, recognizes three types of degrees: the Bachelor of Architecture, the Master of Architecture, and the Doctor of Architecture. A program may be granted an eight-year, three-year, or two-year term of accreditation, depending on the extent of its conformance with established educational standards. The Landscape Architecture Accreditation Board (LAAB) is the accrediting organization for landscape architectural programs. As such, the LAAB develops standards to objectively evaluate landscape architectural programs and judges whether a school's first professional degree program (Bachelor of Landscape Architecture and/or Master of Landscape Architecture) is in compliance with the accreditation standards.

Master's degree programs may consist of a pre-professional undergraduate degree and a professional graduate degree that, when earned sequentially, constitute an accredited professional education. However, the pre-professional degree is not, by itself, recognized as an accredited degree.

The College of Architecture has two NAAB-accredited degrees: the Bachelor of Architecture and the Master of Architecture professional degree programs. Both hold eight-year terms of accreditation with the NAAB. The Landscape Architectural Accreditation Board (LAAB) evaluates professional landscape architecture programs in the United States to determine whether they meet objective standards of academic quality and properly prepare students for professional work. The Master of Landscape Architecture (M.L.A.) degree program holds a six-year term of accreditation with the LAAB.

## Research Facilities

The College of Architecture is housed in three buildings designed by Mies van der Rohe: S.R. Crown Hall, 3410 S. State St., and the Minerals and Metals Building. With more than 112,000 sq. feet dedicated exclusively to the college, along with seminar and classrooms utilizing many university campus facilities, students have some of the finest instructional spaces in the United States.

The Graham Resource Center (GRC) is the main library for College of Architecture (CoA) students and faculty. Housed in Crown Hall, the GRC houses over 16,000 books, a number of architecture specific databases, and 55 journal subscriptions. The GRC is charged with meeting all library-related needs of the CoA and responsibilities include: acquiring, preserving, and serving materials in myriad media to CoA students, faculty, and staff. The GRC also maintains additional resources, including the Crown Hall darkroom, the CoA archives, the Graham Resource Center web page, and an audio-visual equipment collection. The center provides reference and research assistance to local, national, and international clients about architecture in general, and Illinois Institute of Technology and Mies van der Rohe in particular, and provides bibliographic instruction to all GRC and architecture researchers and users.

The Architecture Materials Lab has 14,000 square feet of shop facilities. The lab contains tools and machinery for working with wood, metal, and plastics and includes a large paint booth. The facility houses four Universal Laser Systems 60W Laser Cutters, a Bridgeport Series I Vertical CNC Machine, a 3D Printer, and a Precix Series 9100 CNC Router for digital fabrication.

The college houses two computer labs outfitted with the latest architectural digital design and fabrication software. All labs and requisite software are listed here: [iit.edu/ots/computer labs.shtml](http://iit.edu/ots/computer%20labs.shtml). The lab PCs are updated every third year to support curriculum initiatives and technology advances, such as BIM (Building Information Modeling), and serve as digital imaging and rendering instruction spaces for the college. When not in use for class, the labs are open to students and offer 24-hour access for several weeks at the end of the semester. The two labs support myriad printing and output media including four plotters for student use. In addition, the Office of Technology Services printing system allows students to print remotely to any printer on campus, including the aforementioned plotters. The campus is a wireless zone serving the university community.

## Research Areas

Faculty and doctoral candidates conduct research on a wide range of important topics related to the theory and practice of architecture and landscape architecture. Thesis students investigate projects involving the design, planning, and structure of high-rise buildings; urban agriculture; the research, planning, and design of large-scale projects such as stadiums, institutional buildings, and commercial facilities; technological applications such as new materials, composites, prefabricated applications, systems of building enclosure, and other methods of construction; emerging urbanisms, including global practices of architecture, landscape architecture, and new urban cultures; the influence of climate and environment upon building and landscape form, sustainable design and energy efficiency; biophilic design; advanced critical analysis and architectural and landscape architectural history/theory; computer applications such as 3-D modeling, multimedia and graphic image presentations, concepts of animation, and 3-D modeling techniques and approaches; and housing, including high-density, low-density, and affordable housing.

## Advanced Studio

“Advanced Studio” is a college-wide, innovative, design-based research course focused on investigating the complex forces that shape the built environment and proposing new strategies for urban development. The aim of the studio is to build a commentary and transformative agenda toward the future metropolis, and to drive urban and architectural design solutions with the most advanced technologies and critical thought. The studio production is oriented toward the development of new strategies and future urban models with the aim of advancing the knowledge of relationships between urban thinking and materiality, technology, energy, ecology, emerging media and socio-political and cultural concerns. Strong emphasis is put toward engagement with external parties and agencies, to connect the academic environment with the professional practice, and to promote cross-disciplinary collaboration.

“Advanced Studio” is a vertical studio accommodating advanced professional students (B.Arch., M.Arch., and M.L.A.) with those in the post-professional programs (M.S. and Ph.D.).

## Admission Requirements

Completed online application form  
Application fee of \$60  
Portfolio  
Two letters of recommendation  
Statement of intent  
Official transcripts

### Minimum Cumulative Undergraduate GPA

3.0/4.0

### Minimum GRE Scores

292 (quantitative + verbal), 2.5 analytical writing

### Minimum TOEFL Scores

90/600 (internet-based/paper-based test scores)

Applicants must submit a portfolio of previous academic or professional work in a portable and professionally acceptable format (8.5 by 11 inches or smaller), two letters of recommendation from individuals able to appraise the applicant's achievement and potential, a statement of intent describing academic and professional objectives as well as why they would like to study at the university, and GRE scores, which are less than five years old.

International applicants from non-English speaking countries are required to submit TOEFL scores of 80/550 (internet-based/paper-based test score scale) or above. Admitted international students with TOEFL scores between 80/550 and 90/600 will be required to take an English proficiency exam upon arrival at the university; in addition, they may be required to take additional courses to develop their language skills. English language courses required for international students do not apply to program credit hours. Admitted international students must submit an affidavit of financial support confirming adequate funding for their first year of study and a copy of their passport. Visa documents cannot be issued unless both the financial affidavit and passport are on file with the College of Architecture.

Although we encourage early submission, completed applications and all supporting documents must be received by the deadline for each program. Late applicants will be reviewed only if space is available.

For the graduate programs to achieve their objectives, it is necessary to restrict the number of students admitted. Admission to the graduate programs is limited by college requirements. All applicants are considered on a competitive basis, with every effort being made to select outstanding candidates.

## Degrees Offered

- Master of Architecture (M. Arch.), Professional Degree
- Master of High Performance Buildings
- Master of Landscape Architecture (M.L.A.), Professional Degree
- Master of Tall Buildings and Vertical Urbanism
- Master of Architecture/Master of Landscape Architecture (dual degree)
- Master of Science in Architecture
- Doctor of Philosophy in Architecture
- Doctor of Philosophy in Architecture with Specialization in History and Theory of Architecture
- Doctor of Philosophy in Architecture with Specialization in Technologies of the Built Environment

## Course Descriptions

### ARCH 500

#### Global Modernism

During the last one hundred years a number of cultural, economic, and social changes have moved architectural discourse and practice into a global network. This survey course focuses on the rise of new educational, financial, geo-political, professional, and technological scenarios that transformed architecture and urbanism from the end of World War One to the present. Canonical buildings and sites are discussed within the context of global modernism.

**Lecture: 3 Lab: 0 Credits: 3**

### ARCH 501

#### Contemporary Architecture

This course investigates the state of contemporary architecture as represented by significant practices, buildings, theories, and criticisms. Themes to be considered include globalization, the role of digital design media, the ethics and aesthetics of sustainability, contemporary urbanism, new approaches to materials and structure, and recent interests in ornament and pattern-making. Current conditions will be related historically to postwar reactions to modernism and contextually to the social and technological shifts of recent decades. With a focus on primary readings and building documentation, the course places an emphasis on the great complexity of social, political, intellectual, and technological forces affecting design. Critical reading and writing skills will be emphasized.

**Lecture: 3 Lab: 0 Credits: 3**

### ARCH 502

#### Advanced Topics in History and Theory I

Intended to build on the knowledge and abilities gained in the foundational architectural history and theory courses. This seminar focuses on advanced topics in history, theory, and criticism. Students select from varying and diverse topics such as urbanism, sustainability, design methodology, aesthetics, ethics and law, history of technology, and architecture in relation to other arts. Seminar may also offer intense focus on particular architects, periods, regions, or movements. Critical reading and writing skills will be emphasized. In addition, the advanced seminar will teach research skills, will expect the students to formulate and pursue original research topics, and will expect oral presentations of these projects. These abilities will be evaluated through in-class presentations and research papers.

**Lecture: 3 Lab: 0 Credits: 3**

### ARCH 503

#### Advanced Topics in History and Theory II

Intended to build on the knowledge and abilities gained in the foundational architectural history and theory courses. This seminar focuses on advanced topics in history, theory, and criticism. Students select from varying and diverse topics such as urbanism, sustainability, design methodology, aesthetics, ethics and law, history of technology, and architecture in relation to other arts. Seminar may also offer intense focus on particular architects, periods, regions, or movements. Critical reading and writing skills will be emphasized. In addition, the advanced seminar will teach research skills, will expect the students to formulate and pursue original research topics, and will expect oral presentations of these projects. These abilities will be evaluated through in-class presentations and research papers.

**Lecture: 3 Lab: 0 Credits: 3**

### ARCH 505

#### Urban Ecology

Students will develop a sensitivity to the environment in which architecture is created. Emphasis will be placed on an in-depth exposure to the integration of natural features of site, sustainable components of both natural and man-made systems, and the synergy of ecological design.

**Prerequisite(s):** ARCH 506 with min. grade of C and ARCH 542 with min. grade of C and ARCH 541 with min. grade of C and ARCH 507 with min. grade of C

**Lecture: 3 Lab: 0 Credits: 3**

### ARCH 506

#### Design Communications I: Units and Order

A comparative study of physical and digital media from the immediacy of the hand to the logical rigor of algorithmic design. Organizational systems and mapping strategies explored as craft is developed across a broad toolkit. Instruction in object-oriented thinking begins an introduction to computer science.

**Lecture: 1 Lab: 2 Credits: 3**

### ARCH 507

#### Design Communications II: Systems and Assemblages

The full design communication process, from contextual and programmatic analysis to the digital fabrication of a system of parts, will be introduced through a series of related studies. Computationally associative design methodologies will be utilized and continue the computer science introduction.

**Prerequisite(s):** ARCH 506 with min. grade of C

**Lecture: 1 Lab: 2 Credits: 3**

### ARCH 508

#### Design Communications III

Introduction to geospatial mapping, data modeling, and data visualization processes for research, analytics, and generative design. Basic data structures, algorithms, and design patterns advance students ability to construct digital tools and communicate complexity.

**Prerequisite(s):** ARCH 506 with min. grade of C

**Lecture: 1 Lab: 2 Credits: 3**

**ARCH 509****Topics in Advanced Technology**

This research seminar examines advances in the technologies that affect the practice of architecture. The course examines leading technologies, processes, and applications, and their role in building design and production. The course will navigate the broad and varied materials related to advanced technologies in architecture by focusing on specific applications for specific projects. Students may select between varying and diverse topics offered by the faculty that may include building envelopes, architectural materials, building and environmental systems, advanced structural design, energy and sustainability, architectural acoustics and lighting, fabrication, and computer-aided design technologies.

**Lecture: 3 Lab: 0 Credits: 3**

**ARCH 513****Environment and Building Systems I**

Selection and design of building support systems: heating, ventilating, air conditioning, water supply, sanitary and storm drainage, power distribution, lighting, communications, and vertical transportation. Systems are analyzed for their effect on building form, construction cost, and operating efficiency.

**Lecture: 3 Lab: 0 Credits: 3**

**ARCH 514****Environment and Building Systems II**

Selection and design of building support systems: heating, ventilating, air conditioning, water supply, sanitary and storm drainage, power distribution, lighting, communications, and vertical transportation. Systems are analyzed for their effect on building form, construction cost, and operating efficiency.

**Prerequisite(s):** ARCH 513 with min. grade of C

**Lecture: 3 Lab: 0 Credits: 3**

**ARCH 520****Introduction to Urbanism**

An immersion in the history, discourse, and culture of cities in the modern era with an emphasis on Chicago and a focus on the needs and influences surrounding urban growth, development, and culture. Readings, lectures, case studies, film screenings, field trips, and discussions will provide a basic set of conceptual and theoretical resources for understanding the origins and development of cities. This course will develop a context for understanding the role of design in shaping the urban environment.

**Lecture: 3 Lab: 0 Credits: 3**

**ARCH 541****Architecture Studio I: Elements**

The design studio focuses on the tools, techniques, methods, and methodologies of architectural design. The studio investigates the articulation of space, tectonic assembly, and human behavior as critical foundations of the making of the built environment. The studio focuses on developing core drawing, making, thinking, and communication skills via a series of discrete projects that aggregate into a comprehensive body of work. Analytical investigation of the techniques and methods of architectural design and representation are interwoven with an analytical investigation of site, place, inhabitation, and elemental spatial archetypes. The studio is largely comprised of two primary projects (Composite City and Inhabited Archetypes), with specific internal phases and deliverables, structured to operate as a complementary whole. Composite City comprises a series of studies in drawing, modeling and making that dissect the layers, components and phenomena of the built environment, via questions of narrative, memory, space, tectonics, systems and compositions. Inhabited Archetypes comprises a series of spatial explorations that employ the preceding analyses as sites of operation. Four archetypes (bridge, tower, wall, stair) prompt fundamental questions of architectural space (tectonics and inhabitation) and design processes. Working iteratively and comparatively, each archetype will be a medium to investigate issues of structure, skin, thickness, thinness, material, assembly, inhabitation and narrative. The semester culminates with the process of assembling student portfolios.

**Lecture: 0 Lab: 12 Credits: 6**

**ARCH 542****Architecture Studio II: Architecture in the City**

The second semester of the Master of Architecture focuses on the development of the fundamental aspects of form, space, structure, and materiality explored through the design of a small neighborhood library, which is an essential building-block of the city. The design-based investigation focuses on the study of spatial organization, public space, user experiences and basic tectonic principles, as well as examining the arrangement of and relations between the parts and elements of the urban environment. Through a series of assignments, students are guided step by step through the design process. The first part of the semester focuses on understanding the project's context through the careful investigation of current issues, historical and contemporary precedents, and an in-depth analysis and documentation of a particular site within a specific neighborhood in Chicago. This process is followed by forecasting, conceptual framing, and schematic explorations, and culminates with the strategic development and conceptual detailing of a building and its environs. Design projects are developed individually with the support of team research. A strong emphasis is placed on craft, making, the communication of ideas, and documentation of process. The semester culminates by assembling student portfolios of design work.

**Prerequisite(s):** ARCH 541 with min. grade of C

**Lecture: 0 Lab: 12 Credits: 6**

**ARCH 543****Architecture Studio III: Living in the City**

The design studio focuses on the design and structural engineering of high-volume residential buildings, or “housing.” The design of housing in cities such as Chicago is a story of bold experimentation and innovation, but also contradictions and controversy. Chicago has been at the forefront of developing new types of public and private housing and design strategies to improve and maintain public health since the city’s founding in the mid 19th century. Students are exposed to a variety of housing and hybrid buildings, and undertake research projects in select cities around the world to compare and contrast a variety of issues such as: density, dwelling unit types, mixed use programming, materiality, development models, cultural norms, and relationships between functionality and luxury. The studio is structured around three primary assignments beginning with research and drawing assignments of housing types in Chicago, followed by analyses of dense, urban housing projects in global cities, to the final design project. The studio’s principle concern is giving form, shape, and character to collectively inhabited high-rise buildings, and to the streets and public spaces that surround them. Several lectures, presentations and field trips throughout the semester highlight discernable and meaningful connections between people and places, movement and morphology, natural resources and the artificial fabric of the city. A particular focus is on place-making, environmental stewardship, social equity, and economic vitality of urban neighborhoods. The studio operates as a laboratory in which to explore new possibilities for urban living in Chicago, specifically within a selected neighborhood and project site.

**Prerequisite(s):** ARCH 542 with min. grade of C

**Lecture: 0 Lab: 12 Credits: 6**

**ARCH 544****Architecture Studio IV: Working in the City**

The design studio focuses on the design of urban industrial architecture. Industrial buildings house large number of workers operating complex, high-tech machinery and equipment. Industrial buildings have gradually become a vital part of the architecture of the 21st century. Thanks to the constant advancement of non-polluting micro-technologies, industrial buildings are emerging in the center of service-oriented cities around the globe. The first part of the semester focuses on understanding the typology of industrial buildings through the careful investigation of current workplace issues, historical and contemporary precedents, and an in-depth analysis and documentation of a particular site within a specific neighborhood in the city of Chicago. The second part of the studio focuses on aesthetic qualities of industrial architecture, and design issues related to: building facades and layered skins; proportioning and division of large volumes of enclosed space; harmony of structural and internal spatial elements; orderly placement of people, machinery and equipment; and, systematic arrangement of logistical operations to and from the project site. Emphasis is placed on the environmental sustainability of the building design approach and execution. Special attention is given to material/spatial efficiency, mechanical system selection and envelope design. Students are encouraged to evaluate and provide proof-of-concept data for decisions pertaining to energy use and efficiency, recycling and the reuse of natural resources.

**Prerequisite(s):** ARCH 543 with min. grade of C

**Lecture: 0 Lab: 12 Credits: 6**

**ARCH 545****Architecture Studio V: Advanced**

Advanced Studios engage both IIT architecture faculty and a select group of visiting studio professors noted for their outstanding professional experience in contemporary practice. The focus of each studio is strong design experimentation that is implemented in highly resolved, complex architectural design projects. Studios work on sites within Chicago, explore urban areas around the globe, and/or focus on hypothetical or technological challenges that shape the built environment. Students design structural and material systems that recognize issues of ecology as well as the broader, integrated concerns of climate, energy and natural resource use, and sustainability. Uniting the diverse strands of urban place making, economic diversity, social equity and environmental stewardship, Advanced Studios promote the design of places that reflect the values of their inhabitants, and create a lasting sense of community with meaningful identity. The studios are formed in thematic clusters that complement each other or serve as dialectical opposites. Each studio explores a variety of techniques from parametric design, digital fabrication, model making, and advanced geospatial software to cultural and theoretical explorations. Students will be able to select from a variety of studio topics. The vertical studio integrates advanced BArch, MArch, MS, and PHD students. Open only to Architecture majors.

**Prerequisite(s):** ARCH 544 with min. grade of C

**Lecture: 0 Lab: 12 Credits: 6**

**ARCH 546****Architecture Studio VI: Advanced**

The aim of the design studio is to develop formal solutions which address the complexities of modern metropolis and advance disciplinary knowledge at large. The Advanced Studio program provides the intellectual climate as well as material infrastructure to explore the larger forces that influence the growth of cities. In the contemporary world, developing alternative models of design are necessary to make a transformative impact on the built environment. Design work in Advanced Studios at IIT directly engages real-life challenges and design-based solutions. As they seek to synthesize and impart principles and knowledge, to advance aesthetic and analytical skills, and to creatively expand upon given cultural norms, the Advanced Studios offer students the means to leverage their intuitions and insights to find better ways to enhance the built environment. The studios are formed in thematic clusters that complement each other or serve as dialectical opposites. Each studio explores a variety of techniques from parametric design, digital fabrication, model making, and advanced geospatial software to cultural and theoretical explorations. The vertical studio integrates advanced BArch, MArch, MS, and PHD students. Open only to Architecture majors.

**Prerequisite(s):** ARCH 545 with min. grade of C

**Lecture: 0 Lab: 12 Credits: 6**

**ARCH 551****Design of Energy-Efficient Buildings I**

Design criteria for achieving human performance goals in energy-efficient buildings, criteria for the exterior/interior environment, and criteria for architectural, mechanical, electrical and building system components. Building upon the fall course, various energy-conserving strategies shall be evaluated for achieving cost effective, energy-efficient design of a specific building type.

**Lecture: 3 Lab: 0 Credits: 3**

**ARCH 552****Design of Energy-Efficient Buildings II**

Design criteria for achieving human performance goals in energy-efficient buildings, criteria for the exterior/interior environment, and criteria for architectural, mechanical, electrical and building system components. Building upon the fall course, various energy-conserving strategies shall be evaluated for achieving cost effective, energy-efficient design of a specific building type.

**Lecture: 3 Lab: 0 Credits: 3**

**ARCH 553****High-Rise Building Technology I**

The course consists of presentations by specialists in the various technologies of high rise buildings including planning, financing, code reinforcement, materials, architecture, engineering, project management, construction, building management services, safety, and maintenance.

**Lecture: 3 Lab: 0 Credits: 3**

**ARCH 554****High-Rise Building Technology II**

The course consists of presentations by specialists in the various technologies of high rise buildings including planning, financing, code reinforcement, materials, architecture, engineering, project management, construction, building management services, safety, and maintenance.

**Lecture: 3 Lab: 0 Credits: 3**

**ARCH 560****Integrated Building Delivery Practice/BIM**

Architecture has always been a complex interdisciplinary business, where the management of allied professions and industry affiliates is critical to the success of any endeavor of significant scale. The introduction of BIM (Building Information Modeling) is an advance in project delivery tools which should be viewed as a multi-dimensional expansion of the mechanisms of management and accommodation of an ever-broadening range of participants in the organization of a project, allowing the development of a new delivery protocol, IBPD (Integrated Building Project Delivery). BIM is currently recognized as consolidating the basis for a range of functions including drawing, modeling, document management, clash detection, interdisciplinary coordination, estimating, scheduling, constructability review, production modularization, fabrication protocols, and for the analysis of myriad physical and proscriptive demands such as energy consumption, daylighting, code compliance, egress, circulation, and operation scenarios. The breadth of information embedded in a BIM model will require the emergence of facilitating professionals to an extent previously unknown in the practice and the industry. This course explores the state of the profession and the anticipated ramifications.

**Lecture: 3 Lab: 0 Credits: 3**

**ARCH 561****Entrepreneurship and Innovation in Architecture**

The course teaches future architects the practical aspects of entrepreneurial small business management, to develop a comprehensive opportunity assessment and to develop the skills necessary to improve the odds of success. The course will consider strategies to leverage limited resources for maximum effect. The course will also cover small organization and group behavior, performance, leadership, and motivation in small business settings and will focus on the owner/manager as the principal success factor in the context of a small organization. Emphasis is placed on the circumstances and opportunities of the professional practice of architecture: practice as profession, process, organization, business, and evolving models of practice are covered. The course also provides a series of concepts, frameworks, and heuristics that enable the entrepreneur to anticipate and deal with the challenges that accompany growth of an existing business. Cases, exercises, lectures, and speakers are used to focus on choosing opportunities, allocating resources, motivating employees, and maintaining control while not stifling innovation. A key component of the course is how to sustain entrepreneurial thinking in mid-sized ventures as they continue to grow.

**Lecture: 3 Lab: 0 Credits: 3**

**ARCH 562****Planning Law and Land Policy**

Since the introduction of basic zoning laws to the numbers and complexity of ordinances attached to any land parcel have proliferated to include those addressing land use, development, density, environmental concerns both on and off site, aesthetic mandates, energy use, quality of life concerns, and infrastructure development, the growing understanding that comprehensive and integrated systems must be managed across property lines to effect sustainable planning and communities will accelerate the number of prescriptive and policy ordinances enforced at the development of a parcel. Many agencies have further created extra-legal linkages between approvals for land development and the provision of social and ideological benefits to the community. The impact on the profession of architecture of the panoply of planning options and governmental goals is the result that the navigation of the system of mandated design determinates is one of the initial and potentially most creative acts in the process of project delivery. Project designers must understand the ramifications and trade-offs inherent in the system, especially in any attempt to achieve the best use of any parcel of land and position the most appropriate built environment.

**Lecture: 3 Lab: 0 Credits: 3**

**ARCH 563****Introduction to Real Estate Finance Fundamentals**

The Art of the Deal, with the emphasis on Art, is a term best positioning the financial structuring behind any project. The ability of the project team leader in integrated practice to understand and appreciate the motivations and opportunities inherent in the initiation of the project will be essential in guiding team decisions and maintaining a leadership position. The understanding of the financial underpinnings of a project is of paramount importance to those intending to actually engage the process of initiating and effecting a construction activity. The sources, costs, and sequence of funding, budgeting, cash flow, incentives options, and tax ramifications regarding a project are to be addressed as component knowledge to an understanding of integrated project management.

**Lecture: 3 Lab: 0 Credits: 3**

**ARCH 564****Comprehensive Opportunity Assessment and Entrepreneurship Development Project/Practicum**

Two options are available to the student for the acquisition and assimilation of the breadth of knowledge required to bring project ideas to fruition. The Comprehensive Development Project is a capstone effort which will demonstrate project concept, planning resolution, land acquisition strategies, estimating, scheduling, financial pro-forma, and value capture intents. The practicum would entail employment at a vetted office engaged in the actual process of project assembly. A position requiring a minimum of 20 hours per week, prior review and approval of the work plan, and submittal of documentation of the work undertaken would be required for this scenario. The ultimate objective is to provide a roadmap of the interaction between the architect-entrepreneur, market opportunities, and integrated building delivery practices which facilitate the development of student skills necessary to compete in a rapidly changing socio-economic environment. This course is designed to help students learn and use tools and frameworks to create, implement, and update a strategic plan to shape the future and guide an entrepreneurial organization on its path to success. This course will entail collaboration with real world organizations including city agencies, community development corporations, IIT Department of Community Affairs, or private developers.

**Lecture: 6 Lab: 0 Credits: 6**

**ARCH 565****Construction and Project Management**

The organization of deliverables from the multiple participants in a project plan, including estimating, quality control, value engineering, scheduling of work, conflict resolution, pay schedules, and project close-out and commissioning are essential to managing a building project. Many of these areas of endeavor are those most directly impacted by the developments addressed in Integrated Building Delivery Practice. This course will solidify the underpinnings and will amplify, where needed, the requisite understanding in these areas of the practice. The development of managerial skills requisite to the practice of this coordination and the basis of developing inter-professional relationships will be stressed throughout the incorporation of the technical methodologies.

**Lecture: 3 Lab: 0 Credits: 3**

**ARCH 566****Entrepreneurial Design: Sector Studies/Case Studies**

This course will be advanced as an independent study format. Each student will work independently to research a project option, or building type, and document the particular attributes of that case study which require specialized address. Case studies might be a particular business niche, such as land sub-divisions, condo conversions, change of use conversions, or build-to-suit options. The studies might pursue particular building types, social initiatives, historic restoration strategies, or even unique construction typologies.

**Lecture: 3 Lab: 0 Credits: 3**

**ARCH 568****Architectural Practice**

Lectures and practical problems dealing with specifications, specification writing, administration of construction, contracts, building law, and professional practice.

**Lecture: 3 Lab: 0 Credits: 3**

**ARCH 569****Good Design and Good Business**

From our very own experience, architects with ambitious design agendas have a tendency to focus on design at the expense of paying attention to and designing their businesses. Awareness of a more integrated and balanced approach is essential for young architects as they navigate a rapidly changing world and will help them develop tools and skills to implement, at varying scales, their ideas of a better metropolis. Specifically, the seminar will touch upon such topics as decision making, communication and presentation skills, multidisciplinary collaboration, persuasion and negotiation, and professional advocacy. Pedagogically, the seminar will consist of lectures, case studies, readings, and practice assignments.

**Lecture: 3 Lab: 0 Credits: 3**

**ARCH 570****Talking TALL I**

Talking TALL I will fully examine the physical, environmental, and social sustainability implications of tall buildings at human, architectural, and urban scales in order to offer students extensive and in-depth knowledge and resources to investigate tall buildings and future cities. The aspects of TALL buildings covered in this course include their design principles, technologies, appropriateness to context, energy consumption, life-cycle considerations, natural ventilation, vertical greenery, facades, new typologies, and more. The aspects of TALL cities covered include an analysis of vertical urbanism vs. suburban sprawl, transportation and infrastructure implications, quality of life for residents in tall urban environments, etc., – all ultimately with a view to a discourse on what should constitute a holistic vision of "sustainable vertical urbanism."

**Lecture: 3 Lab: 0 Credits: 3**

**ARCH 571****Talking TALL II**

Talking TALL II will fully examine the physical, environmental, and social sustainability implications of tall buildings at human, architectural, and urban scales in order to offer students extensive and in-depth knowledge and resources to investigate tall buildings and future cities. The aspects of TALL buildings covered in this course include their design principles, technologies, appropriateness to context, energy consumption, life-cycle considerations, natural ventilation, vertical greenery, facades, new typologies, and more. The aspects of TALL cities covered include an analysis of vertical urbanism vs. suburban sprawl, transportation and infrastructure implications, quality of life for residents in tall urban environments, etc., – all ultimately with a view to a discourse on what should constitute a holistic vision of "sustainable vertical urbanism." While Talking TALL I focuses mostly at the urban scale, Talking TALL II focuses more on the detailed building/technological scale.

**Prerequisite(s):** ARCH 570

**Lecture:** 3 **Lab:** 0 **Credits:** 3

**ARCH 572****Tall Building Technologies I**

This course aims to provide students with an understanding of the technologies that enable tall buildings and dense future cities, especially cutting-edge current and emerging technologies. The technologies examined will embrace both the building and urban (infrastructure) scales. Sub-topics include; Building Automation Control Systems; Building Maintenance; Construction; Energy Conservation and Generation, Environmental Engineering; Environmental Protection; Façade Engineering & Systems; Fire & Life Safety Engineering; Geo-technical / Foundations; MEP Engineering; Project and Property Management; Security; Seismic Engineering; Structural Engineering; Transportation; Urban Infrastructure; Vertical Transportation; Wind Engineering.

**Lecture:** 3 **Lab:** 0 **Credits:** 3

**ARCH 573****Tall Building Technologies II**

This course aims to provide students with an understanding of the technologies that enable tall buildings and dense future cities, especially cutting-edge current and emerging technologies. The course continues the investigation initiated in ARCH 572: Tall Building Technologies I. The technologies examined will embrace both the building and urban (infrastructure) scales. Sub-topics include; Building Automation Control Systems; Building Maintenance; Construction; Energy Conservation and Generation, Environmental Engineering; Environmental Protection; Façade Engineering & Systems; Fire & Life Safety Engineering; Geo-technical / Foundations; MEP Engineering; Project Management; Property Management; Security; Seismic Engineering; Structural Engineering; Transportation; Urban Infrastructure; Vertical Transportation; Wind Engineering.

**Prerequisite(s):** ARCH 572 with min. grade of C

**Lecture:** 3 **Lab:** 0 **Credits:** 3

**ARCH 590****Specialized Research**

The Master of Science program seeks to be synthetic and interdisciplinary in its approach. Specialized research is designed to demonstrate an intellectual objective for an in-depth study that will contribute to the practice of architecture. The seminar is focused on the general development of the research problem, its structure, and objectives. Specialized research leads toward the final acceptance of the Masters Project that may take the form of a written document of publishable quality, or an exhibition and accompanying catalog. (Credit: Variable)

**Credit:** Variable

**ARCH 591****Research and Thesis M.S.**

Marking the transition between the academic and professional worlds, the thesis work is an opportunity for each student to define an individual position with regard to a specific aspect of architectural practice. It is intended that the thesis project investigates architectural and urban designs as formal and theoretical elaborations of the design-based research as well as the collective outcome of socio-political forces analyzed during thesis research.

**Credit:** Variable

**ARCH 592****Master Project**

The Masters Project is the synthesis of architectural study into an independent project. The Project most commonly embraces either the design of a tall building, or in-depth research about a specific aspect of tall buildings or cities. Students work one-on-one with their supervisor on the project and outputs might include traditional forms such as a design project or written thesis, but also non-traditional forms such as a website, video or exhibition. The area of focus for the Masters project is often an extension of a previous study undertaken through other classes.

**Credit:** Variable

**ARCH 595****Research in Progress Forum**

Research in Progress Forum presents students with opportunities (lectures and reading discussions) to engage with other researchers in the fields of architectural history/theory and technologies of the built environment. Students will be required to produce weekly writing assignments based on publications provided ahead of time by guest speakers. Must be taken four times by PhD students to fulfill course credit requirements.

**Lecture:** 1 **Lab:** 0 **Credits:** 1

**ARCH 597****Special Problems**

**Credit:** Variable

**ARCH 600****Continuance of Residence**

**Lecture:** 0 **Lab:** 1 **Credits:** 1

**ARCH 601****Research Methodologies**

This course provides a foundation for advanced students in the diversity of research paradigms in architecture. The first component is an introduction to philosophy of knowledge with an emphasis on architecture. The second component entails a critical review and evaluation of diverse research methodologies in current architectural research. It is intended to provide substantial information on advanced research methodologies. In this course students will write a series of papers that critically review the course readings and discussions.

**Lecture: 3 Lab: 0 Credits: 3**

**ARCH 602****Crafting a Dissertation**

This course provides a context in which doctoral students can formulate their dissertation proposals. Through reading and discussion of model research projects and methodological studies, students will examine the challenges and potentials of locating a dissertation topic, shaping a hypothesis, selecting methods and interpretive frameworks, conducting research, and articulating a compelling argument. The course addresses both pragmatic and intellectual aspects of research. A primary goal is the writing of a draft dissertation proposal as the basis for the Ph.D. comprehensive exam. The course will follow a seminar format requiring significant reading, writing, and class participation.

**Prerequisite(s):** ARCH 601 with min. grade of C

**Lecture: 3 Lab: 0 Credits: 3**

**ARCH 691****Doctoral Research**

**Credit:** Variable

**ARCH 801****Introduction to Architecture: Graduate Architectural Studio Preparatory**

The emphasis of the course is on the fluid integration of manual and digital modes of representation into a cohesive process – a skill set essential for navigating the architectural studio. Concepts and techniques covered will be the foundational skills of the architect; the various modes of freehand drawing, imaging, descriptive and analytic orthographic projection, and architectural model-making.

**Lecture: 0 Lab: 0 Credits: 0**

**ARCH 999****Architecture Elective(s)**

**Credit:** Variable

**LA 501****History, Theory, and Criticism I: Landscape Architecture Theory**

Inquiry of natural factors and ecology (soil formations, geological features, hydrological patterns, catastrophic events, etc.) in the settlement and development of cities. The work of the seminar will include an inventory of these factors in selected global cities, including Chicago, and their influence on urban design and site-specific landscape architecture projects.

**Lecture: 3 Lab: 0 Credits: 3**

**LA 502****History, Theory, and Criticism II: Landscape Architectural History**

The chronological history of designed landscapes with an emphasis on the emergence of the profession of landscape architecture in North America in the nineteenth and twentieth centuries.

**Lecture: 3 Lab: 0 Credits: 3**

**LA 503****History, Theory, and Criticism IV: Advanced Contemporary Theory -- Case Studies**

Twentieth century and contemporary landscape architecture is investigated through case studies including site visits to projects in the Chicago region.

**Lecture: 3 Lab: 0 Credits: 3**

**LA 504****History, Theory, and Criticism III: Landscape Architecture Research Seminar**

Advanced study of landscape architecture topics with emphasis on research methods, description, analysis, and criticism.

**Lecture: 3 Lab: 0 Credits: 3**

**LA 514****Professional Practice of Landscape Architecture I: Entrepreneurship and Practice**

Develop expertise in professional practice. Lectures, research assignments, and case studies will investigate practice models, proposals and contracts, schedules and budgets, project phases, project and client types, project team structure, the role of competitions, professional development, and licensure. In addition, the role of landscape architects, urban planners, real estate trusts, government agencies, developers, and others in directing the economic, professional, political, and socio-cultural concerns and responsibilities to initiate and manage landscapes will be investigated.

**Lecture: 3 Lab: 0 Credits: 3**

**LA 516****Professional Practice of Landscape Architecture II: Landscape Architecture and Time**

Investigations of gardens, landscapes, infrastructure, and cities as they are conceived, mature, and change over time. Study of landscapes designed for successional processes, weathering, biological growth and decay, seasonality, preservation and conservation of historic landscapes, and other topics.

**Lecture: 3 Lab: 0 Credits: 3**

**LA 525****Design Media I: Drawing and Modeling the Landscape**

Drawings (manual and digital) and models (physical and digital) will be employed to explore and interrogate landscape processes and envision ideas particular to landscape architecture such as mapping, time, movement, line, contour, texture, and materials, among others, while also developing a mastery of drawing conventions and media.

**Lecture: 3 Lab: 0 Credits: 3**

**LA 526****Design Media II: Digital Media**

Using digital tools to clarify, conceptualize, represent, and communicate designed and engineered environments. A fluidity between critical, visual, and quantifiable digital techniques will be cultivated and will ground the management of information across software platforms.

**Prerequisite(s):** LA 525 with min. grade of C

**Lecture: 3 Lab: 0 Credits: 3**

**LA 527****Design Media III: Advanced Modeling and Fabrication-Dynamic Processes**

Investigate advanced digital fabrication and modeling techniques necessary to understand complex three-dimensional surfaces, objects, and space, as well as dynamic landscape and urban processes. Modeling, rendering, scripting, and animation skills are used to conduct, generate, and communicate research.

**Prerequisite(s):** LA 525 with min. grade of C and LA 526 with min. grade of C

**Lecture: 3 Lab: 0 Credits: 3**

**LA 541****Landscape Architecture Studio I: Processes**

Understanding the fundamental relationships of dynamic processes with an emphasis on representing time, movement, space, light, rhythms, shifting boundaries and enclosures, and physical materials of landscape.

**Lecture: 0 Lab: 12 Credits: 6**

**LA 542****Landscape Architecture Studio II: Site and City**

Continued development of the core tools of the discipline of landscape architecture focusing on the 21st century city. Rigorous site analysis will include emphasis on material, cultural, and ecological expression of city-scale networks and flows at the site scale. Design investigations will explore the site itself, its adjacent conditions, and the larger neighborhood or civic milieu.

**Lecture: 0 Lab: 12 Credits: 6**

**LA 543****Landscape Architecture Studio III: Comprehensive Landscape Architecture**

The integration of local ecologies, projected use, and the performance of ephemeral, semi-permanent, and permanent site interventions into cohesive and resilient design proposals for varied urban sites. Introduction to a wide range of site-specific professional design standards including the Americans with Disabilities Act and barrier-free regulations.

**Prerequisite(s):** LA 542 with min. grade of C

**Lecture: 0 Lab: 12 Credits: 6**

**LA 544****Professional Independent Studio IV**

Development of landscape architecture as a multi-scalar framework for designing dynamic urban processes and sites. Emphasis on research and design strategies that focus on the region as an analytical lens for site-specific design.

**Prerequisite(s):** LA 541 with min. grade of C or LA 543 with min. grade of C

**Lecture: 0 Lab: 24 Credits: 6**

**LA 545****Landscape Architecture Studio V: Metropolis**

The cloud studio is a research-based design studio focused on investigating the complex forces that shape the built environment and proposing new strategies for urban development. The aim of the studio is to build a commentary and transformative agenda toward the future metropolis and to drive urban, architectural and landscape design solutions with the most advanced technologies and critical thought. The studio production is oriented toward the development of new strategies and future urban models with the aim of advancing the knowledge of relationships between urban thinking and materiality, technology, energy, ecology, emerging media, and socio-political and cultural concerns. Strong emphasis is put toward engagement with external parties and agencies to connect the academic environment with the professional practice and to promote cross-disciplinary collaboration. Students will be able to select from a variety of studio topics. Vertical studio integrating advanced BArch, MArch, MS, MLA, and PHD students.

**Prerequisite(s):** LA 544 with min. grade of C

**Lecture: 0 Lab: 12 Credits: 6**

**LA 546****Landscape Architecture Studio VI: Metropolis**

The design-based research studio is a continuation of the LA 545 research-based design studio. It is focused on the development of the specific proposals based on the critical findings of LA 545. The aim of the studio is to develop formal solutions which address the complexities of modern metropolis and advance disciplinary knowledge at large. The studio production is oriented toward the development of projects in a variety of scales from large-scale master plans, urban designs, and landscape designs to new urban typologies and singular buildings, all of which can address a variety of the issues pertinent to the modern metropolis. The studios are formed in few thematic clusters which complement each other or serve as dialectical opposites. Each studio explores variety of techniques from parametric design, digital fabrication, model making, and advanced geospatial software to cultural and theoretical discourses. Vertical studio integrating advanced BArch, MArch, MLA, MS, and PHD students. Students will be able to select from varied studio topics.

**Prerequisite(s):** LA 545 with min. grade of C

**Lecture: 0 Lab: 12 Credits: 6**

**LA 565****Ecology and Materials Workshop I: Plants and Planting**

The plants of the Western Great Lakes Basin, emphasizing both prominent native and commercially available species. Understanding and identifying species as found within typical plant communities. Familiarization with plant physiology as determined by climate, geology, topography, hydrology, soils, wildlife, and disturbances.

**Lecture: 2 Lab: 2 Credits: 3**

**LA 566**

**Ecology and Materials Workshop II: Earthworks and Infrastructures**

The qualities and characteristics of landscape materials with emphasis on a quantitative and interrelated understanding of the design of landform (grading) and water. Covers the influence of climate, geology, soils, hydrology, and disturbances on the design of a site's constituent elements including paths and streets, infrastructure, plants, and water.

**Lecture: 2 Lab: 2 Credits: 3**

**LA 567**

**Ecology and Materials Workshop III: Planting Design and Construction**

Advanced understanding of planting typologies, the history of plants in design, and the preparation of planting construction documentation augmented by frequent investigations and analysis of built landscapes in the Chicago region.

**Lecture: 2 Lab: 2 Credits: 3**

**LA 568**

**Ecology and Materials Workshop IV: Constructing the Urban Environment**

Techniques and technologies to analyze, construct, remediate and/or restore urban sites including those that have been subjected to complex human disturbances such as landfills and brownfields. Includes special needs construction practices such as structured soils, phytoremediation, green roofs, and rooftop gardens.

**Lecture: 2 Lab: 2 Credits: 3**

**LA 597**

**Special Problems**

Special problems in landscape architecture. For students in the master program in landscape architecture only.

**Credit: Variable**

**LA 999**

**Landscape Arch Elective(s)**

**Credit: Variable**