Architecture

Department of Architecture

School of Architecture and Planning
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Overview

The Department of Architecture offers the only accredited professional master of architecture (MArch) degree in the State University of New York system, along with an undergraduate preprofessional bachelor of science in architecture (BS Arch), as well as an undergraduate minor. Founded in 1969, the department offers introductory courses for non-majors, as well as undergraduate preprofessional, graduate professional, and advanced postprofessional training in the field of architecture. Additional degree programs include a dual master of architecture plus master of urban planning (MArch + MUP), a dual master of architecture plus master of business administration (MArch + MBA), a dual master of architecture plus master of fine arts in media arts production (MArch + MFA), and an advanced research-based master of science in architecture (MS Arch) has been approved by SUNY and the New York State Education Department.

Architecture is the study of designing and building structures, and architects are professionals with specialized knowledge about the design of built and natural environments. These projects can be as small as an entrance way and as large as an entire college campus - and everything in between. Architects transform concepts and then develop images, plans, and designs of buildings, communities, and landscapes for construction.

The educational mission of the Department of Architecture is fourfold:

1. To educate and train individuals in the art and science of architecture in preparation for creative leadership within the profession and the discipline of architecture;
2. To encourage a critical understanding of the historical, societal, material, and cultural forces that inform the built environment;
3. To prepare students to explore emerging ideas and technologies that can and will have profound effects on the built environment; and,
4. To provide a comprehensive education through exposure to related disciplines throughout the university and to encourage rigorous interaction across disciplinary boundaries.

Incoming students should prepare themselves in the areas of freehand and figure drawing, manual drafting, , sculpting, studio art, technical drawing, and 2-D and 3-D design. Graphic techniques, model making, ceramics production, metal working, as well as many other visual skills are taught in the preprofessional bachelor of science in architecture program, but students who have some earlier preparation may find it easier to succeed in design studio coursework. In addition, the Association of Collegiate Schools of Architecture recommends introductory courses in urban environments, art, and world history for those interested in architecture.

Architects must be able to graphically communicate their ideas visually to their clients; therefore, design and drawing ability is helpful for such communication. More important is a visual orientation and the ability to conceptualize and understand spatial relationships. Good communication skills, the ability to work independently or as part of a team, and creativity are important qualities for anyone interested in becoming an architect.

Many of the building technology courses and design studios required in the Department of Architecture depend upon prior knowledge of physics and calculus, and physics and calculus are prerequisites for the structures/construction courses in architecture. Architecture students are placed into mathematics, physics, and English courses based upon the following criteria: SAT/ACT scores; Advanced Placement scores; or, college courses completed while in high school. Students may fulfill these prerequisites with successful completion of Advanced Placement high school calculus and Advanced Placement high school physics, or successful completion of introductory college calculus and introductory college physics.

Basic computing skills, including familiarity with personal computers, word processing, online library research, and desktop publishing are prerequisites to beginning the sophomore year. Students who are unable to demonstrate the necessary competence may be required to seek remedial help before continuing in the undergraduate program. In accordance with UB computing policies, it is the responsibility of all architecture students to have access to a computer.

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

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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 a 6-year, 3-year, or 2-year term of accreditation, depending on the extent of its conformance with established educational standards.

Doctor of Architecture and Master of Architecture degree programs may consist of a preprofessional undergraduate degree and a professional graduate degree that, when earned sequentially, constitute an accredited professional education. However, the preprofessional degree is not, by itself, recognized as an accredited degree. The University at Buffalo is the only campus in the State University of New York system to offer the accredited professional master of architecture (MArch) degree. The UB School of Architecture and Planning offers the following NAAB-accredited degree programs:

- M Arch (pre-professional undergraduate degree + 64 graduate credits)
- M Arch (non-pre-professional undergraduate degree + 112 graduate credits)

Next accreditation visit for all programs: 2012.

About our Degrees

About our Courses

Sample Introductory Courses:

- ARC 121 Introduction to Architecture
- ARC 211 American Diversity and Design
- ARC 241 Introduction to Building Technology

The Typical Class Size

Modes of instruction and class size vary according to course content and intended course objectives. Studio work is offered in extended class periods totaling up to 12 hours per week with 15 students per instructor section. In addition to design studio, courses such as Structures 1, Structures 2, Architecture Media, and Construction Technology have strong hands-on components and are taught in workshops and classes containing 25 to 65 students.

In the Department of Architecture, what do graduate teaching assistants do?

They supplement instruction by professors in many courses in the undergraduate program. Often, graduate teaching assistants instruct with professors in studios and conduct recitation or workshop sessions that offer students additional help with their coursework.

For course descriptions, please see Courses.

About our Faculty

The architecture faculty, diverse in their interests and international in their background, are well known and respected in the profession. Both full and part-time clinical faculty are involved in a variety of activities related to research, design, and scholarship. Many part-time clinical faculty are also licensed practicing architects in the Western New York community.

Visit our Web site at www.ap.buffalo.edu/architecture/people/index.asp to learn more about the department's faculty.

See a list of our Undergraduate Faculty.

About our Facilities

The Architecture and Planning Library, located in Hayes Hall, is one of ten libraries within the University at Buffalo. In addition to its book and journal collections, the Architecture and Planning Library collection includes student theses, maps and plans, a vertical file, a collection of CD-ROMs, census materials, and computer-aided design work.

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The Digital Media Laboratories comprise two sets of facilities: a central collection of laboratories and computing classrooms, and a collection of distributed facilities located in the graduate and undergraduate architecture and planning studios. A wide variety of software packages is provided to support the specific needs of architecture and planning students. Input and output resources include a variety of specialized devices, including color scanners, a large-format scanner, a slide scanner, a film recorder, several digital cameras, CD-R/CS-RW writers, and large- and small-format digitizers. Hard-copy output is provided through laser printers, color printers, and a large-format color postscript plotter.

The design studios and workshops, located within the School of Architecture and Planning, have more than 63,000 net square feet of studio and studio support space, including four critique rooms, wet cells for plaster and paint work, a full-service plotting and printing facility, and a total of five educational technology classrooms, including a newly renovated 115-seat educational technology lecture hall. Digital technology is distributed throughout the studios located in Crosby and Hayes Halls, reflecting our belief that digital media should be seamlessly integrated with the making and representation of architecture and urban planning. Studio spaces are networked and outfitted with multiple high-end computers supporting a wide range of CAD, GIS, and graphic software programs.

The Architecture and Planning Materials Shop, located in Parker Hall, is available for schoolwide projects and independent work. This complete machine and assembly shop, one of the finest in any U.S. architecture and planning school, contains 7,000 square feet of high-bay space and is supplied with full woodworking capabilities, welding and milling equipment, lathes, sheet-metal machines, a vacuum-forming machine for molding plastic, and a variety of hand tools.

The Visual Resources Center is a joint School of Architecture and Planning and University Libraries facility. It directly supports the curriculum with its ever-growing collection of 31,500 slides, 250 videotapes, and audiovisual equipment. It is linked to the university's other collections through the University Libraries' online computerized index service.

Publications Intersight is a schoolwide, student-edited scholarly journal published biennially. The founders of the journal set out to create a participatory forum for distinguished colleagues, faculty, graduates, and students to express their views and ideas about architecture and planning. The mission of Intersight is to publish writing, research, and design work that articulates a speculative, theoretical, or pedagogical position, and reflects the intellectual life of the UB School of Architecture and Planning.

Acceptance Information

Transfer Policy

Courses completed at other colleges and universities are not automatically accepted by the Department of Architecture as fulfilling departmental requirements. While select architecture courses taken elsewhere may be accepted, determination is made by an evaluation of the student's transcripts, course content, contact hours, and grades earned. A minimum course grade of B- (2.67 on a 4.0 scale) is required in each course for articulation to courses offered by the School of Architecture and Planning. Student transcript evaluations are conducted by School of Architecture and Planning Academic Services. Design studio placement in the undergraduate preprofessional architecture program is made by the department following this evaluation, in tandem with portfolio review, when applicable. Design studio courses completed at other colleges are accepted as by the Department of Architecture as transfer elective credit only.

Visit http://www.ap.buffalo.edu/architecture/overview/pol_waiver.asp for additional information on transfer policies and procedures. A minimum GPA of 2.70 in architecture and architecture-related courses and a minimum overall GPA of 2.70 is required for admission consideration, with competitive admission on a space available basis. Architecture and architecture-related courses may include introductory collegiate courses in architecture technology; 2-D and 3-D design; studio art; fine art; art history; interior design; urban environments; urban studies; and drafting. Design studio courses completed at other colleges are accepted as by the Department of Architecture as transfer elective credit. Applicants with an earned baccalaureate degree should contact School of Architecture and Planning Academic Services prior to applying to the preprofessional bachelor of science in architecture (BS Arch) for alternative academic advisement and information on the accredited professional 3+ year master of architecture (MArch) degree. The preprofessional bachelor of science in architecture is a fall-only admission program.

Academic Requirements

Architecture students are placed into mathematics, physics, and English courses based upon the following criteria: SAT/ACT scores; Advanced Placement scores; or, completed college courses.

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Students are reviewed on their progress in the undergraduate preprofessional bachelor of science in architecture by the Department of Architecture on an annual basis. This review determines the student's eligibility to continue onto the next level in the undergraduate preprofessional architecture program. A minimum cumulative GPA of 2.5 in required architecture curricular courses and minimum cumulative UB GPA of 2.0 is compulsory for satisfactory academic program requirements. In addition to all minimum GPA levels, all undergraduate students are expected to make satisfactory progress in design studios and architecture media courses. All students must earn no less than a C- in design studio and media course, and any student who receives a grade lower than C- must repeat the studio and media course before taking the next studio and media sequence. Grades lower than C- in any design studio and media course will not count toward the preprofessional bachelor of science in architecture degree requirements, and a grade of F in any design studio and media course may result in immediate dismissal from the Department of Architecture . Supplemental department academic policies, including semester by semester academic standards, can be located online at http://www.ap.buffalo.edu/architecture/admissions/general.asp.

Statement on Continuous Studio Enrollment. Students admitted to the preprofessional bachelor of science in architecture (BS Arch) must complete the appropriate design studio (ARC 101-ARC 102, ARC 201-ARC 202, ARC 301-ARC 302, ARC 403-ARC 404, ARC 406) each semester to maintain continuous enrollment in the academic program, unless a student is approved for a studio leave of absence by School of Architecture and Planning Academic Services. Studio leaves of absence are often approved for students with medical, legal, military, or other extenuating circumstances as reviewed by School of Architecture and Planning Academic Services. Students must be in good academic standing with the Department of Architecture and the University at Buffalo to be eligible for a studio leave of absence. Design studios are open to admitted architecture majors only.

A student who resigns design studio with an "R" (resign) grade without prior approval for a studio leave of absence will be disqualified from the preprofessional bachelor of science in architecture. Disqualification shall mean that the student is prohibited from taking additional design studios offered by the Department of Architecture. Disqualification will not occur if a student is on an approved studio leave of absence for medical, legal, military, or other extenuating circumstances.

A student who has been disqualified may apply for re-entry through the Undergraduate Transfer and Re-Entry Application Form available online at http://wings.buffalo.edu/ap/. The student ought to supply evidence of experience and academic coursework during the break in studio enrollment that will better prepare the student for additional design studio studies. Contact School of Architecture and Planning Academic Services for additional admission and advisement information.

School of Architecture and Planning Academic Services also reviews undergraduate student requests for exceptions to registration: late registration, administrative registration, adding or withdrawing from courses after the University at Buffalo's prescribed deadlines [available online at http://registrar.buffalo.edu/calendars], and exceeding the University at Buffalo's 19-credit hour limit.

Student Passport Requirement. All domestic U.S. students entering the ARC 201-202 studio sequence must have a passport, passport card, or other approved documents (including a valid NEXUS card, government-issued photo ID {e.g. Driver's License} and proof of U.S. citizenship such as a U.S. birth certificate, naturalization certificate, or expired U.S. passport) for required studio excursions into Canada. Domestic U.S. students may contact the Canadian Consulate, located at One HSBC Center, Buffalo, NY, 14203 or visit http://travel.state.gov/travel/cis_pa_tw/cis/cis_1082.html for further information and guidelines on Canadian entry and re-entering the United States. International students should contact International Student Services, 210 Talbert Hall, North Campus, and visit http://wings.buffalo.edu/intlservices/traveltocanada.html for information on guidelines for traveling to Canada and re-entering the United States. For additional information, contact School of Architecture and Planning Academic Services.

Studio Culture Policy Statement. The Department of Architecture in the School of Architecture and Planning at the University at Buffalo acts in accordance with the NAAB studio policy requirement. Therefore, all studio faculty and/or departmental administrators agree to:
- Provide students with a syllabus that complies with the University at Buffalo syllabus guidelines, and includes a studio description, objectives, evaluation methods, and grading policies.
- Encourage students to lead balanced lives. This includes regular sleep and exercise, healthy eating habits, and breaks for non-architecture related endeavors.
- Assist students in developing effective time management strategies.
- Integrate knowledge and information acquired in other architecture courses in studio, when possible.
- Integrate knowledge and information acquired in other disciplines in studio, when possible.
- Encourage collaboration both within the studio, and, when appropriate, outside of the studio.
- Provide guidance to new instructors on studio curriculum development.
- In addition to existing guidance and grievance procedures, the department will establish an ombudsman group, comprised of UB architecture alumni, to act on behalf of students who are having difficulty with studio culture. All concerns expressed to this group will be kept in confidence unless otherwise expressed by the student.
- Foster a constructive atmosphere in design reviews that promotes critical dialogue between students and reviewers.
- Promote theories, research, and experiences that increase students' awareness of multi-cultural issues.

Approved by the voting faculty of the University at Buffalo Department of Architecture: 4/2005.

Extracurricular Activities

The Department of Architecture sponsors a chapter of the American Institute of Architecture Students (AIAS), as well as the Graduate Student Association (GSA/Architecture), and the Architecture and Planning Student Association (APSA). These student groups sponsor a variety of

events, such as field trips to cities of architectural interest, films and lectures, an annual Beaux-Arts Ball, Lunchtime Lecture Series, GSA Architecture Student Exhibit, Graduate Student Reception, Graduation Brunch, exhibits at local galleries, and annual design and building competitions. GSA also supports funding for scholarly publications, grants for thesis work and conference attendance.

See the UB Student Association.

Practical Experience and Special Academic Opportunities

Notable Program Features

Studio Orientation to Architecture (SOAr) Program. The Studio Orientation to Architecture (SOAr) Program is a series of mandatory pre-architecture studio workshops for all first year students admitted to the preprofessional bachelor of science in architecture, and is an integral educational component of the first year design studios. Enrolled first year studio students receive information on the required SOAr program during summer academic orientation. For more information on the SOAr program, contact UB School of Architecture and Planning Academic Services.

Study Abroad. Traveling can enhance architecture students' awareness of the world, bringing them closer to understanding global diversity and appreciating what is universal and unique to a culture. Undergraduate students may participate in the following study abroad programs offered by the Department of Architecture:

Aarhus, Denmark. The University at Buffalo School of Architecture and Planning, and the School of Architecture (Arkitektskolen i Aarhus) in Aarhus, Denmark, have a formal agreement outlining an exchange program for students and faculty. Students may attend classes and studio for one semester or one year abroad in Aarhus while continuing to pay tuition at UB. Aarhus provides housing at no cost to visiting UB students. Individual courses of study are developed by faculty advisors at both institutions. Students participate in the daily activities of one of the ongoing studios in Aarhus. Up to four full-time exchange positions are open each year (eight semester slots). Fluency in Danish is not required.

Antwerp, Belgium. This is an exchange program between the Department of Architecture at UB and the Henry Van de Velde Instituut in Antwerp, Belgium. Selected students spend between one semester and one year studying in Belgium, with an equal number of students attending here at UB. Intensive lessons in Dutch are provided.

Barcelona, Spain. This program offers a summer semester in two months of residence in Barcelona, Spain. The city of Barcelona is used as a design laboratory. Classes, lectures, pin-ups, reviews, and seminars are conducted in the city's parks, squares, streets, cafes, museums, and monuments. Strong ties have been developed to both the Architecture School of the University of Barcelona and the Center for Contemporary Culture, which offer the use of their facilities for studio work, seminars, and presentations. Studio projects and seminar topics and assignments relate directly to the city, its culture, its way of doing architecture, and the messages of which its physical environment speaks. This ten-week graduate program, conducted on site in Barcelona, Spain, begins in late May. Fluency in Spanish is helpful but not required.

Darmstadt, Germany. This official exchange program between the University at Buffalo and the Technische - Hochschule at the University of Darmstadt, Germany, provides opportunities for advanced undergraduate students to continue their studies through coursework, tutorials, supervised independent study, or research though affiliation with an academic program in Darmstadt. Students may apply for one semester (fall or spring) or the full academic year. Darmstadt will provide partially subsidized living accommodations in a university residence hall. Fluency in German is required.

Monteverde, Costa Rica. This eight-week summer course of study offers students the opportunity to live and work on ecological and social projects in a rural, but rapidly developing, region in Costa Rica. This is a multidisciplinary program designed for students from various disciplines, including architecture, planning, landscape architecture, resource management, and international development. Students participate in a seminar on sustainable development, enroll in Spanish language classes, and take an intensive 6-credit studio/internship with one of the many organizations in the Monteverde zone working toward sustainability. There is a final report, plans or a design scheme, or actual environment intervention, depending on the nature of the work. In addition, there is a series of lectures and field trips to local cooperatives, ecologically managed farms, and various forest reserves. This is a semester's worth of credits (12) in a small rural community next to the Monteverde Cloud Forest Preserve in Costa Rica. Students work with community residents on various jointly defined projects . The program is sponsored jointly by the UB School of Architecture and Planning, the SUNY College of Environmental Science and Forestry at Syracuse, and the University of Maryland at College Park Department of Natural Resource Sciences and Landscape Architecture. Fluency in Spanish is encouraged but not required.

Other in-house study abroad programs, including Ireland, Italy, China, France, and Japan, may be offered on an ad-hoc basis by the Department of Architecture and the UB Office of Study Abroad based upon faculty and student interest. Visit http://www.ap.buffalo.edu/architecture/opportunities/index.asp for additional information.

Undergraduate Research and Practical Experience
Research Centers. As a member of the prestigious Association of American Universities (AAU), the University at Buffalo considers advanced research integral and fundamental to its mission. Consequently, the School of Architecture and Planning faculty are actively involved in the creation of new knowledge through sponsored research, creative design work, and text-based scholarship. This research activity is intertwined with the departmental curricula, allowing students to take full advantage of the faculty's expertise. The Department of Architecture is affiliated with the following centers that afford students opportunities for applied research activities:

The Center for Inclusive Design and Environmental Access, South Campus, is dedicated to improving the design of environments and products

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by making them more usable, safe, and appealing to people with a wide range of abilities through their life spans. The center is active in basic and applied research, design development, community service, and education. Current programs focus on home modifications, functional assessment, and universal design. Since 1999, the center has been the home of the Rehabilitation Engineering Research Center on Universal Design and the Built Environment; awarded a grant by the National Institute for Disability and Rehabilitation Research, it is the only federally sponsored research and development center in this field. The IDEA Center receives additional funding from state and local governments and private sources; it runs an active educational program in the university, sponsors continuing education activities for professionals, completes basic and applied research, and offers technical services to the community.

The Center for Architecture and Situated Technologies,South Campus, is dedicated to the examination of new technologies and their relation to the study of architecture. This intention is pursued through analytical, historical, theoretical, and design research methodologies. The Center for Architecture and Situated Technologies' research is located at the intersection of architecture, new media, and computational technologies. CAST investigates possibilities offered by computational systems for rethinking human interaction with (and within) the built environment. Focus areas include learning environments, design environments, responsive architecture, and locative media.

The Urban Design Project, South Campus, is a university center devoted to research, teaching and scholarship in the pursuit of a critical practice of urban design. Founded in 1990, it focuses on issues of community development and urban revitalization while fostering the intellectual exploration of architecture and planning. From 1994 through 1999, the project led the five-year public visioning process for downtown Buffalo and all its council districts. The project also oversaw the master planning and conceptual design development for the facilities supporting the Bosque Eterno de los Ninos and the Instituto de Monteverde in Costa Rica. More recently, it has led the effort to develop the City of Buffalo's Downtown Strategic Plan. The work of the Urban Design Project has encompassed faculty consultations, student internships, studio projects, and supervised thesis investigations dealing with New York sites that range from Niagara Falls to Buffalo to Jamestown and engaging such institutional partners as Buffalo Place, the City of Buffalo, the Waterfront Regeneration Trust, the City of Niagara Falls, and the Chautauqua County government, as well as several regional and national architectural and planning firms. Students participate in the UDP through urban design studios, community design internships, and work opportunities related to major research and professional projects.

Honors, Awards, and Scholarships

Matthew W. Del Gaudio Award. The New York Society of Architects presents this award to a graduating student who has demonstrated 'Total Design' excellence, defined by: 'an imaginative solution of an architectural problem that is functionally ideal, structurally feasible, suitably sited, and employing available materials in a practical and aesthetically sound manner.'

Henry Adams Medal. The AIA awards an engraved medal and certificate of merit to the top-ranking graduating student in each architecture program accredited by NAAB. A certificate of merit is awarded to the second-ranking student.

R. Buckminster Fuller Award. Awarded to the graduating senior who is continuing on for graduate studies within the UB School of Architecture and Planning and exemplifies attributes of creativity, inventiveness, and intellectual excellence.

Design Excellence Award. Awarded to students with outstanding studio work.

Academic Achievement Award. Awarded to students with the highest overall GPA.

ARC/King Student Medal for Excellence in Architectural + Environmental Design Research. Awarded to one student based on criteria that acknowledges innovation, integrity, and scholarship in architecture and/or environmental research.

Departmental Honors. Awarded to graduating undergraduate architecture students who achieve a high level of academic excellence, creativity, and distinction within the Department of Architecture.

Career Information and Further Study

Opportunities open to students graduating with a preprofessional bachelor of science in architecture degree (not requiring state architecture licensure) include facilities planning and design; property management; graphic, interior, or industrial design; urban planning and design; historic preservation; real estate development; engineering technology; construction management; and computer-aided design. Students have also obtained positions with public agencies and development firms, and have worked as paraprofessionals with both small and large architectural offices. Many of these alternatives do not require architectural licensure, but may require additional training or certification.

Most students completing the accredited first professional master of architecture degree become licensed architects who practice in architectural firms, pubic/governmental agencies, or corporations. Common practice roles within an architectural team include design, project management, facilities planning, site planning and design, structural design, technical research and specifications, document production, contract administration, urban planning and design, interior design, marketing, and project finance.

The architecture profession offers the flexibility to practice in either a broad or narrow range of expertise. For example, some architects focus on residential work, designing new houses or planning the renovation of older ones. Others focus on design and construction of factories and laboratories, retail stores or schools. Still others pursue careers as project managers or structural designers. Architects often design products other than buildings; many design commercial and/or consumer products.

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Employment of architects is strongly tied to the activity of the construction industry. Strong growth is expected to come from nonresidential construction as demand for commercial space increases. Current demographic trends also support an increase in demand for architects. As the population continues to live longer and baby-boomers begin to retire there will be a need for more healthcare facilities, nursing homes, and retirement communities. In education, buildings at all levels are getting older and class sizes are getting larger. This will require many school districts and universities to build new facilities and renovate existing ones.

Skills gained in this program include:

- Researching, analyzing, and interpreting information (which is often highly technical) during project work
- Verbal and written communication skills, including the ability to give presentations to clients
- Ability to conceptualize and understand spatial relationships
- Project management, focusing on knowledge of materials, resources, personnel, and logistics
- The ability to define and address complex problems
- An awareness of the multifaceted circumstances surrounding a project, including cultural influences, environmental, social, and political concerns
- Understanding the importance of combining aesthetics with utility
- Assessment of a wide variety of facilities
- Knowledge and awareness of the construction industry
- Negotiation with vendors and clients
- Design skills, including the ability to visually communicate ideas to others
- Creativity when addressing complex problems
- Computer skills, most specifically computer-aided design (CAD), word processing, spreadsheets, and project management software

Architectural Licensing and Registration.
To become a registered architect, an individual is required to sit for a state-licensing architecture exam. The current licensure policy in the State of New York is based, in combination, on the accumulation of credits earned from:

a. Academic education; and,
b. Professional/intern development experience.

Licensing evaluations are conducted in New York by the State Education Department's Office of the Professions. Licensing information related to architecture is also available on the New York State Education Department's Web site at http://www.ncarb.org/ or the American Institute of Architects Web site at http://www.aia.org/.

After completing the on-the-job training period, intern architects are eligible to sit for the state-licensing architecture exam. The examination tests candidates' knowledge, skills, and ability to provide the various services required in the design and construction of structures. Licensing examinations are offered in New York by the State Education Department's Office of the Professions.

At present, a candidate can sit for the New York State licensing exam with:

1. The accredited first professional degree in architecture (UB's master of architecture) and a minimum of three years of professional intern development experience; or,
2. A preprofessional architecture degree (UB's bachelor of science in architecture) and a minimum of five years of professional intern development experience.

The New York State architect license, in combination with the preprofessional bachelor of science in architecture, will not transfer to most other states. Without the accredited first professional master of architecture degree, an individual may not be permitted to sit for the licensure exam or practice in other states. In addition, the National Council of Architectural Registration Boards (NCARB) requires an accredited professional master of architecture degree for membership certification and license reciprocity. A growing number of architects voluntarily seek certification by NCARB, which can facilitate an individual's licensing to practice in additional states. According to 2007 US Department of Labor data, approximately one-third of all licensed architects had NCARB certification. Architects find it increasingly necessary for NCARB certification to gain license reciprocity in order to compete for the best jobs and projects in other States. Certification is awarded after independent verification of the candidate's educational transcripts, employment record, and professional references. NCARB certification is the primary requirement for reciprocity of licensing among State Boards that are NCARB members. Nationally, the preferred method for licensure is to complete an accredited professional master of architecture degree program. For licensing information related to architecture, visit the New York State Education Department Web site at www.op.nysed.gov/arch.htm. For information on the National Council of Architectural Registration Boards (NCARB), visit www.ncarb.org/. For membership information on the American Institute of Architects (AIA), visit www.aia.org/.

After becoming licensed and gaining experience, architects take on increasingly responsible duties, eventually managing entire projects. In large firms, architects may advance to supervisory or managerial positions. Some architects become partners in established firms, while others set up their own practices. Graduates with degrees in architecture also enter related fields, such as graphic, interior, or industrial design; urban planning and design; real estate development; engineering technology; and construction management.

Career Choices

- Acoustical designer

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- Architect
- CAD operator
- Construction manager
- Construction sales
- Consultant
- Contract administrator
- Curator
- Designer
- Drafter
- Engineering technology
- Environmental design
- Environmental researcher
- Facility manager
- Historian
- Interior designer
- Landscape architect
- Lighting designer
- Lobbyist
- Materials manager
- Museum technician
- Preservationist
- Professor
- Project designer
- Project or site manager
- Real estate developer
- Set designer
- Site planner/designer
- Urban/community planner
- Writer/critic

Work settings include:

- Building material manufacturers
- Colleges and universities
- Computer representation/modeling firms
- Contractors
- Corporations
- Design firms
- Engineering firms
- Facility management
- Historical/preservation associations
- Law Firms
- Museums and art galleries
- Property management firms
- Public and private architecture practice
- Real estate companies
- Research institutions
- Stadiums/performance halls
- Urban/community planning agencies

Salary Information

Salaries range greatly from one occupation, position, and work setting to another. Upon completing an accredited professional master of architecture degree, individuals are required to work full time as a professional intern architect for a minimum three years before earning eligibility to take the Architect Registration Examination (ARE). A 2005 study by the American Institute of Architects found the median compensation, including bonuses, for intern architects in architectural firms was $36,530. Those just starting as intern architects may earn considerably less. According to the U.S. Department of Labor's 2007 Occupational Outlook Handbook, the median annual earnings of wage and salary architects were $60,300. The middle 50 percent earned between $46,690 and $79,230. The lowest 10 percent earned less than $38,060, and the highest 10 percent earned more than $99,800. Earnings of partners in established architectural firms may fluctuate because of changing business and market conditions. Visit the U.S. Department of Labor's Web site at http://www.bls.gov/oco/ocos038.htm for additional career information related to Architecture.

Postbaccalaureate Opportunities

While the Department of Architecture does not formally track students, over 60% of students at the undergraduate level continue to pursue architecture at the graduate level. Of those students attending accredited professional master's programs, over 80% pursue a career in architecture or a design-related profession.

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Postbaccalaureate educational options at UB include the opportunity for application to the accredited professional Master of Architecture (M.Arch.) or the accredited professional Master of Urban Planning (M.U.P.) degrees. Additional postbaccalaureate programs include a dual Master of Architecture plus Master of Urban Planning (M.Arch. + M.U.P.), a dual Master of Architecture plus Master of Business Administration (M.Arch. + M.B.A.), and a dual Master of Architecture plus Master of Fine Arts in Media Arts Production (M.Arch. + M.F.A.). Contact the School of Architecture and Planning for graduate application information.

Additional Resources

- American Institute of Architects; 1735 New York Ave., NW, Washington, DC 20006
- Association of Collegiate Schools of Architecture; 1735 New York Avenue, NW, Washington, DC 20006
- American Institute of Certified Planners; 1776 Massachusetts Ave., NW, Washington, DC 20036
- American Planning Association; 1776 Massachusetts Ave., NW, Washington, DC 20036
- American Society of Landscape Architects; 4401 Connecticut Ave., NW, Washington, DC 20002
- Society of Architectural Historians; 1365 N. Astor Street, Chicago, IL 60610
- National Architectural Accreditation Board; 1735 New York Avenue, NW, Washington, DC 20006
- National Council on Architecture Registration Boards; 1801 K Street, NW, Suite 1100-K, Washington, DC 20006

Degree Options

Bachelor of Science in Architecture. The bachelor of science in architecture (BS Arch) is a preprofessional baccalaureate degree designed to instill concepts and skills upon which professional architecture studies at the graduate level are based. It allows students to complete all prerequisites for eligibility to enter a two-year accredited professional master of architecture (MArch) degree program. In 1994, the department expanded the undergraduate program into a four-year, preprofessional undergraduate degree. This format provides candidates for the bachelor of science in architecture with a liberal exposure to the applied arts, humanities, social sciences, technologies, and aesthetic expression. The goal is to convey architecture as a field of study and a way of viewing the world. A minimum of 128 semester credit hours is required for the preprofessional bachelor of science in architecture and is a fall-only admission program.

The four-year, preprofessional bachelor of science in architecture, without the accredited first professional master of architecture degree, is not accredited by NAAB. The preprofessional bachelor of science in architecture, as recognized by NAAB, NCARB, and the New York State Education Department, is useful for those who desire a foundation in the field of architecture as preparation for either continued education in an accredited professional master of architecture (MArch) degree program or employment options in architecture-related professions. For additional information on the National Architectural Accrediting Board (NAAB), visit http://www.naab.org/. For further information on the National Council of Architectural Registration Boards (NCARB), visit http://www.ncarb.org/.

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 a 6-year, 3-year, or 2-year term of accreditation, depending on the extent of its conformance with established educational standards.

Doctor of Architecture and Master of Architecture degree programs may consist of a preprofessional undergraduate degree and a professional graduate degree that, when earned sequentially, constitute an accredited professional education. However, the preprofessional degree is not, by itself, recognized as an accredited degree. The University at Buffalo is the only campus in the State University of New York system to offer the accredited professional master of architecture (MArch) degree. The UB School of Architecture and Planning offers the following NAAB-accredited degree programs:

- MArch (pre-professional undergraduate degree + 64 graduate credits)
- MArch (non-pre-professional undergraduate degree + 112 graduate credits).

Minor in Architecture. The minor in architecture, a non-studio based track offered by the Department of Architecture, provides students with a liberal exposure to the humanities, technology, social sciences, and aesthetic expression through the lenses of the built and the natural environments. The study of architecture offers an indispensable background for students in most fields of study in that it develops skills in critical thinking and making as well as furnishing tools for interpreting and understanding the ways in which we inhabit and shape the material world. In addition, the minor in architecture may enhance and provide additional knowledge for students interested in pursuing a 3+ year accredited professional master of architecture (MArch) degree upon completion of their baccalaureate studies. The minor in architecture is typically completed within five to six semesters.

Architectural Licensing and Registration. To become a registered architect, an individual is required to sit for a state-licensing architecture exam. The current licensure policy in the State of New York is based, in combination, on the accumulation of credits earned from:

a. Academic education; and,
b. Professional/intern development experience.

Licensing evaluations are conducted in New York by the State Education Department's Office of the Professions. Licensing information related

Architecture

to architecture is also available on the New York State Education Department's Web site at http://www.op.nysed.gov/prof/arch/archlic.htm

All States and the District of Columbia require individuals to be licensed (registered) before they may call themselves architects and contract to provide architectural services. During this time between graduation and becoming licensed, architecture school graduates generally work in the profession as an intern architect under supervision of a licensed architect who takes legal responsibility for all work. Licensing requirements include a professional degree in architecture, a period of practical training or internship, and a passing score on all divisions of the Architect Registration Examination (ARE).

All State architectural registration boards require a professional training period before candidates may sit for the state-licensing architecture exam and become licensed. Most States have adopted the training standards established by the Intern Development Program, a branch of the American Institute of Architects (AIA) and the National Council of Architectural Registration Boards (NCARB). These standards stipulate broad and diversified training under the supervision of a licensed architect over a three- to five-year period. New graduates usually begin as intern architects in architectural firms, where they assist in preparing architectural documents or drawings. Intern architects may research building codes and materials or write specifications for building materials, installation criteria, the quality of finishes, and other, related details. For information on the professional intern architecture requirements, visit the National Council of Architectural registration Boards Web site at www.ncarb.org/ or the American Institute of Architects Web site at www.aia.org/. After completing the on-the-job training period, intern architects are eligible to sit for the state-licensing architecture exam. The examination tests candidates' knowledge, skills, and ability to provide the various services required in the design and construction of structures. Licensing examinations are offered in New York by the State Education Department's Office of the Professions.

At present, a candidate can sit for the New York State licensing exam with:

1. The accredited first professional degree in architecture (UB's master of architecture) and a minimum of three years of professional intern development experience; or,
2. A preprofessional architecture degree (UB's bachelor of science in architecture) and a minimum of five years of professional intern development experience.

The New York State architect license, in combination with the preprofessional bachelor of science in architecture, will not transfer to most other states. Without the accredited first professional master of architecture degree, an individual may not be permitted to sit for the licensure exam or practice in other states. In addition, the National Council of Architectural Registration Boards (NCARB) requires an accredited professional master of architecture degree for membership certification and license reciprocity. A growing number of architects voluntarily seek certification by NCARB, which can facilitate an individual's licensing to practice in additional states. According to 2007 US Department of Labor data, approximately one-third of all licensed architects had NCARB certification. Architects find it increasingly necessary for NCARB certification to gain license reciprocity in order to compete for the best jobs and projects in other States. Certification is awarded after independent verification of the candidate's educational transcripts, employment record, and professional references. NCARB certification is the primary requirement for reciprocity of licensing among State Boards that are NCARB members. Nationally, the preferred method for licensure is to complete an accredited professional master of architecture degree program. For licensing information related to architecture, visit the New York State Education Department Web site at http://www.op.nysed.gov/prof/arch/archlic.htm. For information on the National Council of Architectural Registration Boards (NCARB), visit www.ncarb.org/. For membership information on the American Institute of Architects (AIA), visit www.aia.org/.

After becoming licensed and gaining experience, architects take on increasingly responsible duties, eventually managing entire projects. In large firms, architects may advance to supervisory or managerial positions. Some architects become partners in established firms, while others set up their own practices. Graduates with degrees in architecture also enter related fields such as graphic, interior, or industrial design; urban planning and design; real estate development; engineering technology; and construction management.

Degrees Offered

Undergraduate: BS, Minor
Graduate: MArch, MS
Combined Graduate:: MArch+MUP, MArch+MBA, MArch+MFA

Links to Further Information About this Program

- Undergraduate Catalog
- Undergraduate Admissions
- Graduate Admissions
- Department of Architecture
- School of Architecture and Planning

Architecture - B.S.

Acceptance Criteria

Architecture

Minimum GPA of 2.70 overall.
Minimum GPA of 2.70 in architecture and architecture-related courses.
Competitive admission on a space available basis.

Advising Notes

Transfer students must first apply to the University at Buffalo by February 15 and meet its transfer admission requirements. Transfer students must then complete a departmental application (available by contacting the Department of Architecture or UB's School of Architecture and Planning Academic Services) upon submission of the university's transfer admission application. Transfer admission applications received after February 28 will be reviewed on a space-only available basis until May 31, as guided by the School of Architecture and Planning's admission statement. No additional supplemental transfer application material will be reviewed after May 31. Students with a baccalaureate degree should contact advising prior to applying. The preprofessional bachelor of science in architecture is a fall-only admission program.

Architecture design studios (ARC 101-ARC 102, ARC 201-ARC 202, ARC 301-ARC 302, ARC 403-ARC 404, ARC 406) are majors-only design studios. Concurrent enrollment in multiple design studios is prohibited.

All students entering the ARC 201-ARC 202 studio sequence must have a passport or other approved documents for required studio excursions into Canada (see the Academic Requirements section for more information).

Students are reviewed on their progress within the preprofessional bachelor of science in architecture by the Department of Architecture on an annual basis. This review determines the student's eligibility to continue onto the next level in the undergraduate preprofessional program. A minimum GPA of 2.5 in major courses is required for satisfactory academic progress.

A minimum of 42 ARC-prefixed credit hours must be completed at the University at Buffalo to satisfy the Department of Architecture's bachelor of science in architecture academic residency requirement. A minimum of 128 semester credit hours and minimum GPA of 2.5 in major courses is required to graduate with the preprofessional bachelor of science in architecture. Grades of lower than C- in any design studio and architecture media course will not count toward degree requirements.

Declared pre-architecture and admitted architecture majors and minors should go directly to the Department of Architecture for advisement.

Required Courses

ARC 101 Design Studio 1
ARC 102 Design Studio 2
ARC 111 Architecture Media 1
ARC 112 Architecture Media 2
ARC 121 Introduction to Architecture
ARC 201 Design Studio 3
ARC 202 Design Studio 4
ARC 211 American Diversity and Design
ARC 231 Architecture History 1: Ancient - 1450
ARC 234 Architecture History 2: 1450 - Present
ARC 241 Introduction to Building Technology
ARC 301 Design Studio 5
ARC 302 Design Studio 6
ARC 311 Architecture Media 3
ARC 312 Architecture Media 4
ARC 352 Structures 1
ARC 362 Performance Programming
ARC 403 Design Studio 7
ARC 404 Design Studio 8
ARC 411 Architecture Media 5
ARC 412 Architecture Media 6
ARC 442 Construction Technology
ARC 453 Structures 2
ARC 473 Environmental Controls 1
MTH 121 Survey of Calculus and Its Applications 1 or MTH 131 Calculus Analysis for Management
PHY 101 or AP 101 College Physics I*
Minimum of 3 credits of ARC electives
Minimum of 18 credits of non-ARC electives

Summary
Total required credit hour for the major: 98

See Baccalaureate Degree Requirements for general education and remaining university requirements

Recommended Sequence of Program Requirements

Architecture

FIRST YEAR
Fall ARC 101, ARC 111, ARC 121, MTH 121/MTH 131
Spring ARC 102, ARC 112, ARC 211, PHY 101/AP 101*

SECOND YEAR
Fall ARC 201, ARC 231, ARC 241, ARC 311
Spring ARC 202, ARC 234, ARC 352, ARC 312

THIRD YEAR
Fall ARC 301, ARC 411, ARC 453
Spring ARC 302, ARC 412, ARC 442, ARC 473

FOURTH YEAR
Note: The fourth year spring semester is the best possible time for architecture study abroad opportunities.

Fall ARC 403, ARC 362, one ARC elective
Spring ARC 404

*PHY 151 is optional for architecture students needing PHY 101/AP 101, as approved by the Department of Architecture and the Department of Physics.

Electives and Course Groupings

The following is a sample, but not all-inclusive, list of possible electives offered by the Department of Architecture:

ARC 318 Design Methods
ARC 422 Introduction To Building Reuse
ARC 427 Building Types
ARC 354 Experimental Structures
ARC 457 Fabric Structures
ARC 419 Contemporary Theory
ARC 440 Computer Applications
ARC 448 Building Projects
ARC 449 Architectural Materials
ARC 455 Structures 3
ARC 467 Research Practice
ARC 470 Climate and Architecture
ARC 472 Energy and Shelter
ARC 475 Environmental Controls 2
ARC 476 Landscape Design
ARC 479 Sustainable Design
ARC 481 Cost Control and Analysis
ARC 482 Professional Practice
ARC 488 Special Topics: Seminar in Design Theory
ARC 496 Community Design Service
ARC 499 Independent Study

Architecture - Minor

Acceptance Criteria

Minimum GPA of 2.0 overall.
Minimum GPA of 2.5 in prerequisite courses.

Advising Notes

Upon admission to the minor in architecture, it is strongly recommended that students complete the Architecture Shop Safety Workshop. For more information on the Safety Workshop, contact the Architecture Materials Shop, 2 Parker Hall, South Campus.

All students must complete a minimum of 9 credit hours and three courses in the lower division and a minimum of 12 credit hours and four courses in the upper division. Students devise a plan of study in consultation with their faculty mentors.

No more than 3 credits of ARC 467 (Research Practice), 3 credits of ARC 496 (Community Design Service), and 3 credits of ARC 499 (Independent Study) may be applied toward minor requirements. In addition, no more than six credits of architecture transfer coursework

Architecture

may be applied toward minor requirements.

Other relevant courses (such as Special Topics courses) in the undergraduate curriculum from the Department of Architecture may be approved for the minor, with qualified special permission, from the course instructor and UB's School of Architecture and Planning Academic Services.

The Department of Architecture guarantees that some of these courses will be offered within a six semester period so students can complete their minor in a timely manner. Select courses approved for the minor in architecture may only be offered on an intermittent basis.

For additional information, or for an admission application to the minor in architecture, contact School of Architecture and Planning Academic Services.

Prerequisite Courses

Two 100/200-level architecture courses.

Required Courses

Required Courses
LOWER-DIVISION COURSES
ARC 121 Introduction to Architecture
ARC 211 American Diversity and Design
ARC 231 Architecture History 1: Ancient - 1450
ARC 234 Architecture History 2: 1450 - Present
ARC 241 Introduction to Building Technology (Suggested)

UPPER-DIVISION COURSES
ARC 422 Introduction to Building Reuse
ARC 425 History of Design
ARC 343 Building Systems Technology I
ARC 344 Building Systems Technology II
ARC 352 Structures 1
ARC 354 Experimental Structures
ARC 457 Fabric Structures
ARC 362 Performance Programming
ARC 435 American Architecture
ARC 448 Building Projects
ARC 453 Structures 2
ARC 455 Structures 3
ARC 464 Behavior and Space
ARC 467 Research Practice
ARC 473 Environmental Controls 1
ARC 475 Environmental Controls 2
ARC 481 Cost Control and Analysis
ARC 482 Professional Practice
ARC 488 Seminar in Design Theory
ARC 496 Community Design Service
ARC 499 Independent Study
PD 312 Design of Cities

Total minimum required credit hours: 21

AP 100: College Physics

Credits: 4
Semester(s): Spring
Type: LEC/REC

A structures/construction prerequisite course.

Cross-listed with PHY 101 College Physics. Students must complete MTH 121 Survey of Calculus I prior to enrollment in AP 100. Open to School of Architecture and Planning students only.

AP 496: Architecture and Urban Planning Practicum

Credits: 1-6
Semester(s): Fall, Spring, Summer
Type: TUT

A practicum course.

The content of this course is variable and therefore it is repeatable for credit. The University Grade Repeat Policy *does not apply.*

Architecture

Allows students to gain exposure and experience with a host agency as well as increase their understanding in particular areas of architecture, environmental design, and urban planning. Advanced permission, agreement with the host agency, and a required final written report must be approved by School of Architecture and Planning Advisement.

AP 499: Independent Study

Credits: 1-8
Type: TUT

An independent study course.

Designed to add depth and breadth to a student's understanding of architecture or environmental design and urban planning. Students electing this course must be accepted for work on a specific topic by a member of the School of Architecture and Planning's faculty, and must have the approval of School of Architecture and Planning Advisement.

ARC 101: Architectural Design Studio 1

Credits: 5
Semester(s): Fall
Pre-requisites: Architecture majors only.
Co-requisites: ARC 111LEC. Student must register for ARC 101LAB & ARC 111LEC concurrently.
Type: LAB

A majors-only course.

Theme is visual communications and critical processes. Introduces two-dimensional and three-dimensional representation techniques for developing and presenting design concepts. Develops creative thinking and critical awareness in design. Cognitive understanding for spatial relationships present in structural, proportional, and site systems are introduced, combining geometry and graphics. Freehand drawings, 2-D and 3-D projections, shades, shadows, perspective, and reproduction techniques. Development of model-making skills utilizing various design media. Studio projects introduce a range of assignments for the making of both 2-D and 3-D environments. Introduces drawing and making as a mode of seeing and thinking.

ARC 102: Architectural Design Studio 2

Credits: 5
Semester(s): Spring
Pre-requisites: ARC 101LAB and Architecture majors only
Co-requisites: ARC 112LEC. Students must register for both ARC 102LAB and ARC 112LEC concurrently.
Type: LAB

A majors-only course.

Theme is techniques plus materiality and visual communications. Provides a working forum for developing creative thinking and critical awareness in design. Further examines two-dimensional and three-dimensional representation techniques for developing and presenting design concepts. Cognition for spatial relationships present in structural, proportional, and site systems are acquired via freehand drawings, 2-D and 3-D projections, shades, shadows, perspective, and design techniques. Further enhancement of model-making skills utilizing various design media. Advanced emphasis of 2-D and 3-D projections, shades, shadows, perspectives, and reproduction techniques. Studio projects introduce a range of assignments for the making of both 2-D and 3-D environments.

ARC 121: Introduction to Architecture 1

Credits: 3
Semester(s): Fall
Type: LEC

An introductory course and approved arts general education course.

Provides a view and understanding of the profession and the discipline of architecture. Introduces architectural education and practice in the United States. Architecture responds to the past, embodied in the stones of the built environment, and is a fundamental aspect of the present. Connects architecture history and theory in an effort to show why architecture has been called 'the handwriting of humankind.' Examines architecture as a way of viewing the constructed world in the context of a liberal arts education as a study of aesthetic, technological, behavioral, social, environmental, physical, and legal forces determining architectural forms, landscapes, and urban patterns. Open to non-majors

ARC 201: Architectural Design Studio 3

Credits: 6
Semester(s): Fall
Pre-requisites: ARC 102LAB and Architecture majors only.
Co-requisites: ARC 311LEC. Students must register for ARC 201LAB and ARC 311LEC concurrently.
Type: LAB

A majors-only studio course.

Theme is ancient architectural history and precedent. Emphasizes conceptualization, critical thinking, planning, and making. Analyzes the basic materials, methods, tools, and conventions of architectural design. Examines the connections between design precedent and the physical and visual environments. Project themes include transformation, connection, threshold, movement/storage, surface/structure, accessibility, and transition.

ARC 202: Architectural Design Studio 4

Credits: 6
Semester(s): Spring
Pre-requisites: ARC 201LAB
Co-requisites: ARC 312LEC. Students must register for both ARC 202LAB and ARC 312LEC concurrently.
Type: LAB

A majors-only studio course.

Theme is modern architectural history and precedent. Emphasizes conceptualization, critical thinking, planning, and making. Analyzes the basic materials, methods, tools, and conventions of architectural design. Examines the connections between design precedent and the physical and visual environments. Project themes include transformation, connection, threshold, movement/storage, surface/structure, accessibility, and transition.

ARC 211: American Diversity and Design

Architecture

Credits: 3
Semester(s): Spring
Type: LEC

An introductory course and approved American general education course.

Examines the history and diversity of cultural experiences within the United States and their attendant environmental issues. Specifically, the course concentrates on the ways in which our physical and media environments affect various populations in the U.S. and, in turn, the ways these populations have affected our environments. It introduces students to eight issues of U.S. diversity: race, ethnicity, gender, class, age, physical ability, cognitive ability, and religion. Writings, films, products, graphics, electronic media, buildings, and environments by and about diverse U.S. individuals and groups are examined. The U.S. history of our diverse physical and media environments are analyzed using theories and principles related to inclusive design. Open to non-majors.

ARC 234: Architecture History II: 1450- Present

Credits: 4
Semester(s): Spring
Type: LEC/REC

A history/theory course; renaissance to modern.

Introduces the fundamentals of architectural design from the theory and practice of the 1450's to the built and written manifestos of modern times. Situates the evolution of the architectural discipline within the context of social, cognitive and technological transformation.

ARC 241: Introduction to Building Technology

Credits: 3
Semester(s): Fall
Type: LEC

A structures/construction course.

Overview on interrelationship of environment and building, specifically examining site design, structure/tectonics, and environmental systems, as they relate to building design.

ARC 280: Buffalo Niagara By Design

Credits: 3
Type: LEC

An introductory urban design course.

Cross-listed with PD 279 Buffalo Niagara by Design. Explores the planning and design history of the Buffalo Niagara region in relation to the future. Examines proposals aimed at revitalizing the economy, improving the quality of life, and protecting the environment of Buffalo Niagara for future generations. Involves historical plus current plans and designs accompanied with lectures, discussions, films, and readings. Introduces urban design and regional development theory and practice . Provides an opportunity to understand community design, the full scope of small to large scale regional work, and comprehend location of place in relationship to the Buffalo Niagara region. Researches the history of Buffalo Niagara communities, examine the place as planned, and critically interpret its history, plans, and designs. Open to non-majors.

ARC 301: Architectural Design Studio 5

Credits: 6
Semester(s): Fall
Pre-requisites: ARC 202LAB and Architecture majors only.
Co-requisites: ARC 411LEC. Students must register for ARC 301LAB and ARC 411LEC concurrently.
Type: LAB

A majors-only studio course.

Theme is systems and subjectivity. Synthesizes design fundamentals with architectural design. Includes the theme of transformation to convert various aspects of architectural design-form, spatiality, materiality, structure, construction, use, site conditions, context, aesthetics, zoning, codes, accessibility, and cultural conditions.

ARC 302: Architectural Design Studio 6

Credits: 6
Semester(s): Spring
Pre-requisites: ARC 301LAB and Architecture majors only.
Co-requisites: ARC 412LEC. Students must register for ARC 412LEC and ARC 302LAB concurrently.
Type: LAB

A majors-only studio course.

Theme is models, organizations, and environments. Synthesizes design fundamentals with architectural design. Uses organization and environment to convert various aspects of architectural design-form, precedent, spatiality, systems, preparation, use, context, aesthetics, construction, collaboration, and human behavior.

ARC 311: Architecture Media 3

Credits: 1
Pre-requisites: ARC 112LEC and Architecture majors only.
Co-requisites: ARC 201LAB. Students must register for ARC 311LEC and ARC 201LAB concurrently.
Type:

A major-only technics course.

Introduces students to techniques of representation with emphases on the description of part/whole relationships: objects and their contexts. Course assignments will develop a range of skills including: use of diagrams to describe, generate, and manipulate relationships between objects and contexts; proficiency in the description plus manipulation of surfaces through contour line drawings; laser cutting; AutoCad; and, basic modeling. Digital media skills introduced will be coordinated with course material from ARC 201: Architecture Design Studio 3.

ARC 312: Architecture Media 4

Credits: 1
Pre-requisites: ARC 311LEC and Architecture majors only.
Co-requisites: ARC 202LAB. Students must register for ARC 202LAB and ARC 312LEC concurrently.

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Type: LEC/LAB

A majors-only technics course.

Introduces students to techniques of representation with emphases on the description of part/whole relationships: (proto)types and their variations. Course assignments will develop a range of skills including: understanding of formal organizations as systems of interrelated parts; Rhinoceros (advanced modeling); 3D printing. Digital media skills introduced will be coordinated with course material from ARC 202: Architecture Design Studio 4.

ARC 318: Design Methods

Credits: 3
Type: LEC

A majors-only technics course.

Topics vary annually. Past topics addressed issues in architecture, design, and graphic production, using drawing and making as a mode of seeing and thinking. May be offered on an intermittent basis.

ARC 322: Introduction to Building Reuse

Credits: 3
Type: SEM

A structures/construction course.

Topics vary annually. Past topics examined case studies of past uses, present conditions, and future functional and structural possibilities of older buildings. Analyzes opportunities for adaptive reuse. Discusses development of design concepts and space-use programs, including renovation, restoration, and reconditioning, as well as preservation. May be offered on an intermittent basis.

ARC 328: Historic Preservation

Credits: 3
Type: LEC

A history/theory course.

Historic preservation theory as related to architectural design, emphasizing preservation practice, including tools of effective preservation, legislation, community roles, economics, adaptive reuse, and project management. May be offered on an intermittent basis.

ARC 343: Building Systems Technology I

Credits: 3
Type: LEC/LAB

A landscape/environment course.

Topics vary annually. Past topics detailed studies of design/build and existing systems available to meet needs of the built environment. Studied future possibilities of systems that meet the demands of a rapidly changing environment. Surveyed historical evolution of building systems, while emphasizing methodology of development and implementation. May be offered on an intermittent basis.

ARC 344: Building Systems Technology II

Credits: 3
Type: LEC/LAB

A landscape/environment course.

Topics vary annually. Past topics investigated current design/build practices, especially those of practitioners in the northern US and Canada. Examined building system research, first hand case study investigation, materials exploration, system prototyping, planning and design, project administration, and construction. May be offered on an intermittent basis.

ARC 352: Structures I

Credits: 1
Semester(s): Spring
Pre-requisites: ARC 241LEC and PHY 101LR or AP101LR.
Co-requisites: ARC 352LEC. Students must register for ARC 352LEC and ARC 352LAB concurrently.
Type: LAB

A structures/construction course.

Introduces the fundamentals of statics and strength of materials. Provides a theoretical and scientific basis for understanding how various structural systems and structural materials work and withstand loading. Investigates the concepts introduced during the course with qualitative methods, as well as quantitative analysis. The course's scope is limited to examining simple structural elements, such as trusses, beams, and columns.

ARC 354: Experimental Structures

Credits: 3
Type: SEM/LAB

A technics course.

Topics vary annually. Past topics included dimensional analysis, intersections of urban structure and metropolitan infrastructures, models, design prototypes, systems of forces and mass, structural materials, and contemporary theories. Reviewed experimental elements within three-dimensional structural systems for constructed environments. Discussed physical and immaterial structure, and studied stability of structural system elements within urban and built environments. May be offered on an intermittent basis.

ARC 362: Architectural Programming

Credits: 2
Type: LEC

A technics course.

Overview of architectural space programming process and approaches. Examines the performance concept applied to building design, using human factors as a basis for developing building programs. Introduces research methods used in pre-design activities and post-occupancy evaluation.

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ARC 403: Architectural Design Studio 7

Credits: 6
Semester(s): Fall
Type: LAB

A majors-only senior capstone studio course.

Theme is comprehensive design. Uses comprehensive architectural projects to address the complexity of the discipline-site conditions, construction technology, programming, research methods, life safety and accessibility, codes and standards, building systems, representation, documentation, and comprehensive design. Examines the values and ideologies architects bring forward in their work.

ARC 404: Architecture Proseminar

Credits: 3
Semester(s): Spring
Type: LEC/LAB

A majors-only senior undergraduate research and creative activity studio course.

ARC 406: Architectural Design Studio Abroad

Credits: 6
Semester(s): Spring, Summer
Type: LAB

A majors-only undergraduate research and creative activity studio course.

The content of this course is variable and therefore it is repeatable for credit. The University Grade Repeat Policy *does not apply.*

An undergraduate research and creative activity studio. Locations vary annually.In the past, undergraduate students have participated in architecture design studios taught in Belgium, Costa Rica, Denmark, Germany, Ireland, Japan, and other international locations as organized by the Department of Architecture. Other in-house study abroad programs will be offered on an ad-hoc basis by the Department of Architecture, based upon faculty and student interest. May be offered on an intermittent basis.

ARC 411: CAAD 1: Introduction to Computer Aided Architectural Design

Credits: 3
Semester(s): Fall
Type: LAB

A technics course.

Introduces students to fundamental theoretical concepts and current research themes in computing and design, as well as their practical application in electronic publishing, drafting, modeling, and design.

ARC 412: Architecture Media 6

Credits: 1
Pre-requisites: ARC 411LEC and Architecture majors only.
Co-requisites: ARC 302LAB. Students must register for ARC 302LAB and ARC 412LEC concurrently.
Type: LEC/LAB

A technics course.

Introduces students to techniques for generating formal organizations through computational means and representing movement in architecture. Course assignments will develop a range of skills including: Parametric modeling through Grasshopper/Rhinoscript; Processing/other intro programming platform; animation; 2D/3D/4D diagramming methods. Digital media skills introduced will be coordinated with course material from ARC 302: Architecture Design Studio 6.

ARC 419: Contemporary Theory

Credits: 3
Type: SEM

A history/theory course.

Examines trends in design, contemporary theory, and criticism in art and architecture. May be offered on an intermittent basis.

ARC 426: Color Culture Theory

Credits: 3
Type: LEC

A society/culture course.

Examines recent approaches to the study of color in relation to space, surface, and representation through the lenses of expanding and overlapping practices. Students study color in painting, literature, film, consumer media, installation and architecture to develop an understanding of its cultural impact. May be offered on an intermittent basis.

ARC 435: American Architecture and Urbanism

Credits: 3
Type: LEC

A history/theory course.

Topics vary annually. An introduction to the history of American architecture with emphasis on American design topics. Historical and contemporary review for exploring the under-pinnings of American architecture in past and present situations. May be offered on an intermittent basis.

ARC 439: Computer Modeling

Credits: 2
Type: LAB

A technics course.

Topics vary annually. Past topics examined theoretical and practical approaches of computing technologies in the design process through CAAD systems, drafting, graphic modeling, and rendering, with particular emphasis on architecture. May be offered on an intermittent basis.

ARC 440: Computer Applications

Architecture

Credits: 3
Type: LEC

A technics course.

Topics vary annually. Past topics introduced students to theoretical computing applications used for design, including theory of design evaluation, prediction, and generation. Investigated emerging techniques related to computer assisted design environments. Explored computing relational geometries in spatial and constructional systems. May be offered on an intermittent basis.

ARC 442: Construction Technology

Credits: 3
Semester(s): Spring
Pre-requisites: ARC 301LAB and ARC 411LEC, and Architecture majors only.
Co-requisites: ARC 442LAB. Students must register for ARC 442LAB and ARC 442LEC concurrently.
Type: LEC

A structures/construction course.

A structures/construction course. Emphasizes details of construction. Examines interfaces of materials and systems: foundation/wall, wall/window, wall/roof, floor/wall, etc. Investigates the effect of materials and processes on appearance and life of building components. Studies interior and exterior finishes, joints, fire protection, and specification.

ARC 448: Building Projects

Credits: 3
Type: SEM

A structures/construction course.

Topics vary annually. Past topics examined design/build projects as a complex system of enterprises producing built facilities and altering environments. Included field trips, hands-on steel fabrication and erection, concrete demolition, concrete pours, pattern making, painting, landscaping, stone setting, as well as shop drawings. May be offered on an intermittent basis.

ARC 449: Architectural Materials

Credits: 3
Type: LAB

A technics course.

Topics vary annually. In the past, observed and quantitatively and/or qualitatively predicted the behavior of materials: metals, polymers, ceramics, glass, wood, composites, paints, and preservatives. Explored and challenged the properties, social context, and methods of fabrication for the most common materials found in architecture. May be offered on an intermittent basis.

ARC 453: Structures 2

Credits: 3
Semester(s): Fall
Type: LEC/LAB

A structures/construction course.

Concentrates on the study and investigation of various structural materials, connections and details. Students study various design criteria for specific materials, such as timber, steel, and concrete, and are introduced to the proper use of various building codes in the structural design process.

ARC 455: Structures 3

Credits: 3
Semester(s): Fall
Type: LEC

A structures/construction course.

Begins by emphasizing the investigation of reinforced concrete structures and continues by studying various types of foundation systems, such as footings, and retaining and bearing walls. Also includes a general overview of indeterminate structures and the behavior of continuous beams. Concludes with the study of lateral forces and dynamic loading, and their impact on the design of seismic and wind-resistant structures. May be offered on an intermittent basis.

ARC 456: Structures 4

Credits: 3
Type: SEM

A structures/construction course.

Topics vary annually. Past topics examined systems in large and/or tall structures affecting decisions of architecture in relation to lightweight systems, physical constraints of the materials, manufacture of the material, and geometry in the material distribution. Reviewed stability considerations of structural systems and individual elements, as well as reserve strength and redundancy concepts. May be offered on an intermittent basis.

ARC 457: Fabric Structures

Credits: 3
Type: SEM

Topics vary annually. Past topics reviewed theory and practice of building with stressed fabric membranes, and explored principles of cable structures, nets, tension membranes, and air-supported and inflated membranes. Also examined minimal surfaces, curved surfaces, materials, joints, and details along with design development, production, erection, and performance in use. May be offered on an intermittent basis.

ARC 463: Design for the Life Span

Credits: 3
Type: SEM

A society/culture course.

Overview of major goals and approaches for design and planning for life-span needs, with special attention to older and disabled individuals. Students pursue selected research projects or work together on a class project. May be offered on an intermittent basis.

Architecture

ARC 464: Behavior and Space

Credits: 3
Type: SEM

A society/culture course.

Topics vary annually. Role of social and cultural theory in understanding design and physical environments. Impact of buildings and designed environments on human behavior, and behavioral issues within the design process. Effects of social and cultural factors on development, implementation, and use of research information in design. Explores contributions architects, urban planners, and landscape architects make to the design discourse. May be offered on an intermittent basis.

ARC 465: Urban Planning and Design 1

Credits: 3
Semester(s): Fall
Type: LEC

An urban design course.

Explores the current practice of urban design in the context of the United States. Examines new opportunities and constraints in environmental assessment, and management structure in local government; mechanisms for land-use controls or incentives; public investment strategy; and case studies assessing major development strategies used in today's practice. May be offered on an intermittent basis.

ARC 467: Research Practice

Credits: 1-3
Type: LAB

A society/culture course.

The content of this course is variable and therefore it is repeatable for credit. The University Grade Repeat Policy does not apply.

Past activities involved analysis and development of real problems accepted from various sponsors. The student's specific contribution to the research findings must be documented and filed with the department and sponsor. May be offered on an intermittent basis.

ARC 470: Climate and Architecture

Credits: 3
Type: LEC

A landscape/environment course.

Introduces issues, awareness, and understanding of climate as a determinant of urban design, site design, site/building interface, and building. Studies global scale climatic zones to general/regional zones. May be offered on an intermittent basis.

ARC 472: Energy and Shelter

Credits: 3
Type: SEM

A landscape/environment course.

Investigates current techniques and strategies centered around climate-responsive, energy-conscious design. Emphasizes manual, handbook, and computer techniques to determine comfort conditions and performance of small, passively heated, cooled, daylit buildings. Provides usable information applicable to various stages of the design process.

ARC 473: Environmental Controls 1

Credits: 3
Semester(s): Spring
Type: LEC

A landscape/environment course.

Active systems of climate control in buildings and their relation to energy management. Evaluation and selection of mechanical equipment systems, their cost implications, and effectiveness. Design considerations in integrating various systems. Introduces sanitation, fire protection, and vertical transportation systems.

ARC 475: Environmental Controls 2

Credits: 3
Semester(s): Fall
Pre-requisites: ARC 241 and Architecture major or minor
Type: LEC

A landscape/environment course.

Acoustics and lighting impact on building design, including form, structure, and material. Qualitative and quantitative issues in the lighting of space, integration of natural and artificial light, fundamental nature of sound transmission and absorption, and principles of design for an effective acoustic environment.

ARC 476: Landscape Design

Credits: 3
Type: LEC

A landscape/environment course.

Introduces the discipline and criteria of landscape design. The art of site planning, including analysis in relation to physical factors, such as topography, soil structure, climate, and behavior. The ecological basis for site planning and use of vegetation. May be offered on an intermittent basis.

ARC 479: Sustainable Design

Credits: 3
Type: SEM

A landscape/environment course.

Offers a working understanding of the issues inherent in the discourse of sustainability as it occurs in planning and design professions. Students explore the practical and theoretical relationships among urban form, democratic ideals, and ecological imaginations. May be offered on an intermittent basis.

ARC 481: Cost Analysis and Control

Architecture

Credits: 3
Type: LEC

A management/finance course.

Topics vary annually. Past topics examined the financial framework within which the building industry operates, and its impact on design decisions. Course developed analytical skills necessary to evaluate financial and economic viability of project proposals. Taught estimation of project development and operating costs, methods of finance, and market forces as components of feasibility studies. May be offered on an intermittent basis.

ARC 482: Professional Practice

Credits: 3
Semester(s): Spring
Type: LEC

A management/finance course.

Phases of management involving architects from project inception to its realization. Office organization, contractor and owner management of projects, construction-cost analysis, organization and preparation of construction documents, review of related legal papers and standardized forms, alternative patterns of construction management relations. Emerging patterns of architectural practice.

ARC 488: Special Topics: Seminar in Design Theory

Credits: 3
Type: SEM

A history/theory course.

Topics vary annually. Past topics addressed issues in architecture and design theory. May be offered on an intermittent basis.

ARC 489: Special Topics

Credits: 3
Type: LEC/SEM

The content of this course is variable and therefore it is repeatable for credit. The University Grade Repeat Policy does not apply.

Topics vary annually. Past topics addressed issues in architecture, planning, and design. May be offered on an intermittent basis.

ARC 490: Special Topics

Credits: 1-7
Type: LEC/TUT

Topics vary annually. Past topics addressed issues in architecture, planning, and design. May be offered on an intermittent basis.

ARC 492: Special Topics

Credits: 1-3
Type: LEC

Topics vary annually. Past topics addressed issues in architecture, planning, and design. May be offered on an intermittent basis.

ARC 493: Special Topics

Credits: 3
Type: LAB

Topics vary annually. In the past this course addressed issues in architecture history and design. May be offered on an intermittent basis.

ARC 496: Community Design Service

Credits: 1-7
Type: TUT

An practicum course.

Matches students with community organizations in need of architecture-related services. Students do hands-on work serving community needs and pursue learning experiences with faculty. May be offered on an intermittent basis.

ARC 498: Undergraduate Research in Architecture

Credits: 3
Type: LAB

Topics vary annually. In the past this course addressed research and creative issues in architecture and design.

ARC 499: Independent Study

Credits: 1-7
Type: TUT

An independent study course.

The content of this course is variable and therefore it is repeatable for credit. The University Grade Repeat Policy does not apply.

Designed to add depth and breadth to a student's formal degree program. Students electing this course must be accepted for work on a specific topic by a member of the architectural faculty, and must have the approval of the department chair. May be offered on an intermittent basis.