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**GRADUATE SCHOOL OF
ARCHITECTURE
PLANNING AND
PRESERVATION**

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Educational Purpose

The Graduate School of Architecture, Planning, and Preservation offers a series of distinctive programs. The educational objectives of these programs deal in different ways with one open-ended field: urban society and its future. The presence of several areas of study within a single school enables a critical understanding of the forces that affect the building of spaces and the making of cities, so as to encourage appropriate formulation of original concepts, designs, and policies.

In each degree program offered, the School aims to develop students' artistic and intellectual abilities and to provide them, as future professionals, with the information and strategies necessary to deal responsibly and inventively with the issues challenging urban society today. These issues are approached in a non-doctrinaire way so as to yield both significant theoretical proposals as well as pertinent solutions that can be effectively implemented in the contemporary city. Each program with its related studios is structured to permit faculty and students to explore a range of approaches in respective fields, while constantly aiming at social relevance and programmatic innovation.

Beyond its specific educational aims, the objectives of the School include basic research in the fields of architecture, planning, and preservation, exchange with other disciplines in the University, and the intensity of experimentation that makes the School part of broader international debates. Historically linked to the University's world-renowned Avery Library, the School takes advantage of its unique location in New York City. It draws vitality from and contributes to the unsurpassed resources available through the city's art and culture, its outstanding practitioners, scholars, and historians.

Bernard Tschumi
Dean

The Graduate School of Architecture, Planning, and Preservation

History

The fourth oldest architecture school in America, Columbia was established in 1881 by William R. Ware. A former student of Richard Morris Hunt (the first American to attend the *École des Beaux-Arts* in Paris), Ware approached architectural education from a humanistic rather than a technical point of view. His appointment capped a distinguished career as a practicing architect, scholar, and teacher; it established the precedent, followed almost exclusively since then at Columbia, of entrusting the School's direction to architects with sustained professional experience.

In its early years, Columbia's was the leading preparatory program for would-be architects intent on studying at the *École des Beaux-Arts* in Paris. But by 1902 it had matured into a full-scale School of Architecture. Ware retired in 1903, to be succeeded by A. D. F. Hamlin. Hamlin stepped down from the position in 1912, when, with an enrollment of 140, the School moved into its new quarters, Avery Hall, designed by McKim, Mead, and White. Hamlin was succeeded by Austin Willard Lord (1912–1915) and William Harry Carpenter (1915–1919).

In 1931, William A. Boring, who had been the School's director since 1919, became the first dean of what was then called the Faculty of Architecture. Under Boring and especially under his successor Joseph Hudnut, who took over in 1933, the curriculum was broadened dramatically. While the pre-World War I era had been dominated by the academic classicism of Ware, Hamlin, and such leading professionals as Charles Follen McKim, Thomas Hastings, and Henry Hornbostel, all of whom taught at the school, Boring and especially Hudnut encouraged the then nascent modernism and incorporated studies in town planning. Important studio critics, including the urbanistically inclined skyscraper architects Harvey Wiley Corbett and Wallace K. Harrison, joined the English town planner Raymond Unwin and the architectural historian Talbot Hamlin to create an environment in tune with the dramatic social and economic changes of the interwar years.

With Hudnut's departure for Harvard in 1935, the School, under the new dean Leopold Arnaud, entered into a gradual decline that only began to reverse itself in the late 1950s when provocative studio critics Percival Goodman and Alexander Kouzmanoff, as well as the historian James Marston Fitch, gave the program new energy. Fitch's courses in architectural history blossomed into a program in historic preservation, established in 1966 as the first at an American university. Despite the vagaries of the postwar curriculum and an ambiguous commitment to graduate-level architectural education, the School continually benefited from New York City's prominence as a world capital and attracted many foreign students, some of whom would grow to professional prominence, including Romaldo Giurgola and Michael McKinnell.

After the short and vital but stormy tenure of Charles Colbert (1960–1963), Kenneth A. Smith, an engineer, was appointed dean, and in 1965 the School was organized along divisional lines, with planning and architecture each having its own chairperson. Charles Abrams was the first planning chair and Romaldo Giurgola the first for architecture. Abrams, with his wide experience in New York real estate and social planning, and his deep humanity, forged a program that balanced statistical analysis with compassion and earthy pragmatism. Giurgola built upon the design strengths of Kouzmanoff and Goodman, bringing into the studios as first-time teachers such bright young architects as Gio Pasanella, Jacquelin Robertson, Robert Kliment, and Ada Karmi Melamede.

The School's students played a central role in the protests that engulfed the University in the spring of 1968. While the tumultuous campuswide demonstrations of that watershed year were triggered by a concern for America's role in international affairs, the architecture students played a particularly strong role in focusing the debate on the University's relationship to its neighbors in the Morningside Heights and Harlem communities. In addition, the students challenged the University's lackluster building program, protesting the construction of Uris Hall and the proposed gymnasium for Morningside Park.

In 1972, James Stewart Polshek became dean. With strong professional connections with designer-architects, preservationists, and planners, Polshek tapped the School's inherent strengths and refined the graduate program while healing the wounds left over from the previous decade. He reshaped the design faculty and enriched the School's offerings in architectural history and theory, which were under the leadership of Kenneth Frampton, who also came to Columbia in 1972. As important, Polshek extended the School's reach both within and beyond the University, establishing a strong program of public lectures featuring leading architects, planners, and politicians; creating special programs for undergraduates in Columbia and Barnard Colleges; and helping establish the Temple Hoyne Buell Center for the Study of American Architecture in 1983. Under Polshek and his faculty, including especially Frampton, Giurgola, and Robert A. M. Stern, Columbia became an important focal point in the postmodernist debate.

In 1988 Bernard Tschumi became dean, and the School's architecture programs, reflecting changing concerns in design, became more theoretical as they began to take on a more international flavor, capitalizing as never before on New York's status as a world city. To stimulate a sense of invention at the School and to use it as a laboratory for ideas, Tschumi gave junior faculty the freedom to be creative, expanding their research in the context of their studios. Sensing the role that computers would play in architectural design today, he fostered one of architecture's most significant forays into the digital age. During his time as dean, Tschumi tenured faculty in architectural theory as well as practice, including Stan Allen, Steven Holl, Laurie Hawkinson, and Mark Wigley, with Frank Gehry as Distinguished Professor. Under Tschumi, the School has also developed a highly successful post-professional program, the degree in Advanced Architectural Design, as well as a Ph.D. in architecture.

Facilities and Resources

The School

The School is located in its own building, Avery Hall; in the adjacent building, Fayerweather Hall; in the Avery Extension, which connects the two; and in Buell Hall, directly south of Avery Hall. This complex houses design studios, classrooms, computer studios and computer labs, lounges, exhibition galleries, a carpentry workshop, audiovisual facilities, a slide library, a photography darkroom, a three-hundred-seat auditorium, and a seventy-seat lecture hall.

Avery Library

The resources of the world's leading architecture library, the Avery Architectural and Fine Arts Library, are located in Avery Hall and the Avery Extension; they are available to the students of the School. Founded by Samuel Putnam Avery in 1890 as a research collection of books on architecture and the related fields, it has since grown into what can be called the national library of the profession. It is ranked by scholars from all over the world as the outstanding international research center on the history of architecture. Its holdings consist of more than 240,000 books and periodicals on architecture, urban planning, art history, historic preservation, archaeology, the decorative arts, and a broad variety of related background material. The contents range from the first published book on architecture, L. B. Alberti's *De Re Aedificatoria* (1485), to a comprehensive collection of books on contemporary architectural movements. In addition, the library has more than 300,000 original architectural drawings, collections of prints, and rare photographic material and archives. Avery Library also houses the *Avery Index to Architectural Periodicals*, the most comprehensive periodical index in the field. It is now available online as well as in print form.

The Ware Memorial Library is designed as a circulating branch of the library for everyday use by the students. It contains more than eight thousand books on architecture and planning from the United States and Europe and is located in the Avery Library.

The Temple Hoyne Buell Center for the Study of American Architecture

The Temple Hoyne Buell Center for the Study of American Architecture, located in Buell Hall, was founded in 1982 to advance the understanding and interpretation of American architecture, landscape, and urbanism. To achieve this goal, the Buell Center has embarked on an ambitious program of fellowships and study programs designed to engage professionals, scholars, and the general public. These rich and varied programs make the Buell Center one of the world's most important focal points for the study of American architecture.

The Center for Preservation Research

The Center for Preservation Research was established in 1983 as a technical research facility of the Historic Preservation Program. Specializing in advanced studies and postgraduate education, it focuses on fundamental technical and theoretical research on the conservation of the built environment.

Columbia Headquarters for Japanese Architectural Studies and Advanced Research

The Columbia Headquarters for Japanese Architectural Studies and Advanced Research, located in Buell Hall, was established in 1989 to advance the cause of serious research in the history and theory of Japanese modern architecture and urbanism. It serves as a center for academics and architects from around the world. The headquarters' plans include the following: (1) courses in Japanese architecture at the advanced level, (2) a special subset of books and periodicals on Japanese architecture organized in Avery Library, (3) fellowships for young scholars, and (4) funds for recognized scholars to reside on campus and pursue advanced research in history and theory.

Computing Activities

The School has embarked on an ambitious campaign to incorporate state-of-the-art digital technologies in the design curriculum. Since the introduction of the first "paperless" design studios on the seventh floor of Avery in the mid-nineties, there has been substantial annual investment and dramatic improvements in the facilities and electronic infrastructure for research, teaching, presentation, computer-aided design, and general computing at the GSAP. Meanwhile, the general computing resources provided by the University have been upgraded as well and include a variety of e-mail and online services as well as a campus-wide wireless network.

The GSAP's groundbreaking "paperless" studio model has evolved as new digital-design environments have been installed, evaluated, and modified in 500 and 600 Avery. As of fall 2002, all students in Avery have immediate access to high-end computing at their individual desks, which also provide space for drafting and model making. There are also computer lab areas within the Historic Preservation and Urban Planning studios as well as a computer classroom in Fayerweather.

A centralized technical and administrative structure has been set up to allow the School to provide a higher level of technical support, standardization of computer hardware and software, and more generous computing resources for all GSAP students. The result is a very wide selection of professional software packages ranging from CAD and GIS to multimedia and video editing, all available at all times from any one of well over 300 workstations in the School, plus vast central data-storage capacity that is measured in terabytes.

The School's Audio/Visual Department lends digital projectors, digital-still and video cameras, and laptop computers for student reviews, classes, and special events. The AV team also maintains a growing number of "electronic theater" and digital classroom spaces that are network connected and equipped with PCs

and ceiling-mounted projectors. The School has a Digital Output Facility on the 600 Avery level with a variety of large-format color plotters, color laser printers, and 3D output devices.

The Computer Course Sequence has grown to over eight specialized seminars besides the basic *Fundamentals of digital design* course that is required for Master of Architecture students. These seminar topics range from *Computer Numerically Controlled (CNC) milling to Multimedia authoring*, from *Algorithmic architecture* (programming) to *Digital filmmaking* (video production and production). The School has expanded its geographic information systems (GIS) initiative with dedicated staff, additional equipment, new GIS seminars, and the acquisition of new GIS software and demographic data sets that are available for analysis by Architecture, Planning, and Urban Design students.

The School's Web archive and online publishing initiative has been accelerated with the creation of the director of electronic publishing position and the expansion of Web-server resources. This has made possible the on-line *Newsline* review as well as larger Web space allocations for all students, studios, courses, seminars, and special projects. The School's Web site can be found at <http://www.arch.columbia.edu/>.

Publications

The School maintains a series of publications to foster the exchange of information and ideas between it and the architecture, planning, preservation, and real estate development communities. *Newsline* is an on-line publication that contains information and essays regarding the School's programs, faculty, and alumni as well as calendars and reviews of New York area events. It acts as a platform for current debates in architecture and urban issues. It is available at <http://newsline.arch.columbia.edu/>. *Abstract* is the yearly journal that documents the School's programs and student work and offers students the opportunity to have their work published for wide distribution. *Abstract* is distributed to students and is available for purchase in bookstores. *D (Documents)* is a documentation of events, lectures, and symposia at the School. It is published twice a year. *Studio Work* covers work and research produced in selected studios in the School. In addition, the School publishes catalogs of exhibitions it organizes as well as a series of books titled *Columbia Books of Architecture (CBA)*, covering a variety of issues of the built environment, theory, and history.

Lectures and Exhibitions

The School offers an array of lectures, exhibitions, and events that reflect the diversity and interests of its programs. The Wednesday Evening Lecture Series brings inter-nationally prominent practitioners, historians, and theorists to speak on issues of architecture, planning, development, and urbanism. In addition, the Architecture, Planning, Preservation, and Real Estate Programs maintain their own special lecture series that are open to the School community. Speakers in the programs have recently included: Tadao Ando, Shigeru Ban, Benjamin Barber, Jean Baudrillard, Andrew Benjamin, Ben van Berkel, Marshall Berman, Mario Botta, Santiago Calatrava, Robert Caro, Manuel Castells, Jean-Louis Cohen, Nigel Coates, Beatriz Colomina, Peter Cook, Jacques Derrida, Rosalind Deutsche, Elizabeth Diller, Peter Eisenman,

Sverre Fehn, Foreign Office Architects, Frank Gehry, Zaha Hadid, John Hejduk, Coop Himmelblau, Hans Hollein, Denis Hollier, Arata Isozaki, Toyo Ito, Eva Jiricna, Philip Johnson, Fay Jones, Jeffrey Kipnis, Rem Koolhaas, Barbara Kruger, Sanford Kwinter, Sylvia Lavin, Daniel Libeskind, Bruce Mau, Richard Meier, Rafael Moneo, Toshiko Mori, Glenn Murcutt, Jean Nouvel, Gaetano Pesce, Renzo Piano, Carme Pinós, Christian de Portzamparc, Wolf Prix, Richard Rogers, Aldo Rossi, Alvaro Siza, Michael Sorkin, Gayatri Spivak, Philippe Starck, Anthony Vidler, Mark Wigley, and Todd Williams/Billie Tsien.

In addition, the School and its programs sponsor special symposia and conferences that draw together faculty, prominent guests, and students to discuss issues of timely and historical importance. Recent conferences and symposia include: two major forums on the destruction of the World Trade Center and its urban implications, “Robert Moses’ New York,” “Currents in Contemporary Architectural Theory,” “The City and the Edge,” “Cyberspace, Hyperghetto,” “Light Construction,” “Conceptual Art and Architecture,” “Visualizing Architecture,” and “The New Times Square: Global, Local.”

Exhibitions occur frequently at the School each term. With the opening of the Arthur Ross Architectural Gallery in Buell Hall, the School will become a focus for exhibitions concerning design. Recent and planned exhibitions include: “The Works of Santiago Calatrava,” “The Architecture of Albert Frey,” “The Filter of Reason—Paul Nelson,” “The History of History,” “The Drawings of Iacov Chernikhov,” “Kazuo Shinohara,” “The International Style (MoMA 1932),” “Alvaro Siza,” “The Oblique Function: A Collaboration between Claude Parent and Paul Virilio,” “Archigram 1961–74,” “The Presence of Objects: Gaetano Pesce,” “Sverre Fehn, Architect of Norway,” “Sendai Mediatheque: A Project by Toyo Ho,” and “Industrial Alchemy: Radical Pragmatism in the Work of Jean Prouvé.”

New York City

The City of New York is in itself a principal resource for the student, who benefits from its urbanism and endless variety of excellent examples of historic and modern buildings.

New York’s institutions are another significant advantage. Alumni and faculty members of the School are in positions of major responsibility in various organizations. This has helped the School to open up unique opportunities for students. A partial list of these organizations includes the Museum of Modern Art (Department of Architecture and Design), the Metropolitan Museum of Art, the Cooper-Hewitt Museum, the South Street Seaport Museum, the Architectural League of New York, the Institute for Fine Arts (New York University), the New York City Planning Commission, the New York City Landmarks Preservation Commission, the Parks Council, and the Municipal Art Society.

William F. Kinne Fellows Traveling Fellowships

The School is the beneficiary of a considerable bequest in honor of William F. Kinne Fellows that has as its purpose the enrichment of the student’s education through travel. A number of fellowships for the study of architecture and related

fields are awarded annually to graduating students. Applications from members of the graduating class are considered for postgraduate travel and for travel during the summer preceding the final year of study. Specific requirements and guidelines are announced during the academic year. Students apply in the spring term of each year.

The Paul Milstein Professorship of Urban Development

In 1983 Mr. and Mrs. Seymour Milstein endowed the Graduate School of Architecture, Planning, and Preservation with a professorship named in honor of their brother Paul Milstein. The Paul Milstein Professorship of Urban Development provides the opportunity to focus in depth on issues of interest by inviting senior professionals or scholars to teach for one or two terms each year in the Master of Science in Real Estate Development Program. It is the intention of the professorship to encourage a deepening interest in the forces that have and will shape urban development in America.

Mathews Lecture Series

The Mathews Lectures began in 1935 with an endowment from Charles T. Mathews (Class of 1889). Among the lecturers who have participated in the series are

Professor Joseph Hudnut (1935)	Professor Spiro Kostoff (1976)
Professor Leopold Arnaud (1937)	Professor Vincent Scully (1977)
Professor Talbot Hamlin (1939)	Professor George Collins (1979)
Professor Meyer Schapiro (1946)	Professor Neil Levine (1981)
Professor John Mundy (1965)	Professor Helen Searing (1983)
Professor Henry R. Hitchcock (1971)	Professor Georges Duby (1985)
Sir Nikolaus Pevsner (1972)	Professor Stephen Murray (1990)
Professor Alfred K. Frazer (1974)	

Programs and Degrees

Master of Architecture

Master of Science in Advanced Architectural Design

Master of Science in Architecture and Urban Design

The Ph.D. in Architecture

Master of Science in Urban Planning

The Ph.D. in Urban Planning

Master of Science in Historic Preservation

Certificate in Conservation of Historical Buildings and Archaeological Sites

Master of Science in Real Estate Development

The Shape of Two Cities: New York/Paris (special undergraduate program)

Columbia/Barnard Undergraduate Architecture Major

Joint Degree Programs

Master of Architecture–Master of Science in Historic Preservation

Master of Architecture–Master of Science in Urban Planning

Master of Science in Urban Planning–Master of Science in Historic Preservation

Master of Science in Urban Planning–Master of Business Administration (in conjunction with the Columbia Business School)

Master of Science in Urban Planning–Master of International Affairs (in conjunction with the School of International and Public Affairs)

Master of Science in Urban Planning–Juris Doctor (in conjunction with the School of Law)

Master of Science in Urban Planning–Master of Public Health (in conjunction with the Mailman School of Public Health)

Master of Science in Urban Planning–Master of Science in Social Work (in conjunction with the School of Social Work)

Programs

Master of Architecture Degree Program

CORE STUDIOS CO-DIRECTORS: Ms. Laurie Hawkinson and Mr. Michael Bell

ADVANCED STUDIOS DIRECTOR: Mr. Mark Wigley

The Master of Architecture Program is a three-year first professional degree program that examines the importance of architectural design concepts in relation to historic and contemporary issues in an evolving culture.

Being part of a great university located in a major metropolis has determined much of what is unique about the Architecture Program. The School is not only able to attract excellent faculty members, but it is also able to draw upon the large and diverse community of architects, theorists, practitioners, and scholars in New York. Thus the program is able to expose student architects to architecture as a complex and pluralistic cultural endeavor.

At the same time that it explores the richness of architecture culture, the program seeks to provide an orderly system for integrating the various aspects of architectural study. Therefore, the curriculum is broadly divided into the study of history and theory, technology, methods, visual studies, and design. Learning about architecture involves, on the one hand, examining those historical, social, cultural, technical, and economic forces that shape buildings; on the other hand, it means mastering these forces with means traditionally available to the architect. The design studio is the main focus of the curriculum in that it offers the opportunity to integrate and synthesize what is being studied.

In general, the program seeks to impart basic principles and knowledge, to develop visual and analytical skills, and to relate creativity to given cultural situations. It is hoped that architects, thus trained, will be able to use their knowledge and insight by responding to and improving the built environment.

Admissions

Eligibility

The M.Arch. at Columbia is the first professional degree in architecture; therefore, students who already hold a professional degree (such as the five-year B.Arch. degree) are not eligible to apply to the program. Students who have studied architecture in nonprofessional programs (such as a four-year program in architecture) may apply, with the possibility of obtaining advanced standing for some course work. Prior architectural study is not a requirement. Regardless of prior experience, all students fill out the same application forms and send supporting materials (as described below). Applications and all supporting materials are due on January 15. Students are admitted to the M.Arch. Program for the fall term only.

Academic Preparation

1. All applicants must have, at the time of first registration, an undergraduate degree from an accredited college or university. Applicants are required to take the Aptitude Test of the Graduate Record Examination. Information may be obtained from the Graduate Record Examination, Educational Testing Service, Box 955, Princeton, NJ 08540 (Web site: www.gre.org/atglance.html).
2. Applicants who have no prior background in architecture must complete a course in architectural graphic presentation as a prerequisite for the Core Studio Sequence, before first registering in the M.Arch. Program.
3. To fulfill the prerequisite for the History/Theory Course Sequence, all applicants must have completed a 3-point survey course in architectural history dealing with any of the following periods: classical to Renaissance, Renaissance to modern, or modern.
4. To fulfill the prerequisites for the Building Technologies Course Sequence, all applicants must have completed a 3-point course in general physics or two 3-point calculus courses.

Applicants are required to complete the following course work: one term of studio in the visual arts (drawing, painting, or sculpture). In addition, a reading knowledge of a modern foreign language and a survey course in architectural history are required.

Portfolio

In addition to the application form and supporting documents, applicants must submit a portfolio showing evidence of their visual acuity and graphic abilities: paintings, drawings, prints, graphic designs, or architectural drawings. It is recommended that evidence of freehand drawing skills be included. Submitted materials, either original work or reproductions of the originals, should not exceed 8½ by 11 inches and should not measure more than ½ inch in thickness. Portfolios exceeding these specifications will be returned before the reviewing period. The pages should not be placed in a ring binder, and each page must be clearly marked with the applicant's name. Please do not send slides.

After April 1 portfolios will be returned by mail only if sufficient postage is included and the return address clearly indicated.

Placement into Studio Sequence

Students who are admitted into the M.Arch. Program are informed in their letters of admission of the level at which they will enter the Core Studio Sequence. Based on the evidence submitted in the portfolio, the student's status in relation to the prerequisites and requirements of the studio sequence is determined. Placement into a more advanced studio is not done by application or petition, but is determined by a faculty committee during the admissions process. A limited number of students may receive advanced standing points for *Architecture A4001* and *A4002—Core studio, I and II*, thereby reducing the required studio sequence to two years. After the student's status has been determined by the

M.Arch. Committee on Admission, it is not subject to further review by the Graduate School of Architecture, Planning, and Preservation. No subsequent petitions for advanced standing in design studio courses are considered. Students who are placed into advanced studios should consult with the admissions office about their curriculum.

Transferring Academic Credit

Students who have completed acceptable architecture course work prior to entering the M.Arch. Program may apply for advanced standing credit or course waivers in nonstudio courses. No requests for advanced standing credit are considered until official copies of relevant transcripts have been submitted to the Office of Architecture Admissions.

There are two situations in which one may receive *advanced standing* in the M.Arch. Program: (1) a student who is admitted into the second year of the M.Arch. Program may receive advanced standing for the first-year courses including the two design studios (potentially 36 points); (2) a student admitted into the first year with an undergraduate degree in architecture may receive credit for some courses; credit will be evaluated on an individual basis (maximum 9 points).

Information regarding the procedure for students who wish to petition for advanced standing or course waiver is available at the time of first registration in September. Students may receive the approvals from faculty or directors at any time after enrollment. Official transfer of credit by the Columbia University registrar, however, cannot be entered on the transcript until one year of full-time enrollment in the M.Arch. Program has been completed. Advanced standing forms are available in the Office of the Dean of Admissions and should be returned there for review.

Petitions for advanced standing credit in nonstudio courses are normally reviewed by a faculty member teaching the equivalent course within the Graduate School of Architecture, Planning, and Preservation. Advanced standing credit is awarded only for courses in which students have received a grade of C or better. In some cases, faculty members may ask to see examples of previous course work. Students are advised to have course descriptions and previous course work on hand at September registration to facilitate planning an academic program with an adviser.

Required documentation for advanced placement normally includes official course transcripts, catalog course descriptions, and at least one of the following: a course syllabus, complete course notes, or a complete set of tests, homework, and course-project documentation.

There are three circumstances under which courses can be *waived*: (1) the student presents evidence of professional experience in related subject matter; (2) the student passes a formal examination on the subject (with the approval of the course instructor); or (3) the student presents evidence of having passed relevant courses at the undergraduate or graduate level. Because waivers do not carry point or course credit, elective courses *must* be taken to fulfill the point requirements for the M.Arch. degree. (Students waived from *Structures, II; Enclosures and environments, II; Building systems, I; or Building systems, II* must take a Building Technologies elective for each course waived.)

The Three-Year M.Arch. Curriculum

The Master of Architecture Program attempts to distinguish itself from similar programs elsewhere by stressing the importance of developing an understanding of, and an ability to apply, architectural concepts in relation to broader historic and contemporary issues. The objective of the program is to assist the student in developing a theoretical basis for decision making in design, while maintaining intense exposure to a broad spectrum of philosophical and cultural attitudes. The faculty believes that a variety of pedagogical approaches delivered with clearly defined objectives best suits the needs of the heterogeneous graduate student population.

The program comprises four major components, together forming the educational matrix that is the core of the Columbia experience:

1. A student body with interest in the profession of architecture and with diverse backgrounds in many areas of intellectual endeavor, all contributing to the richness of the program.
2. A faculty of experienced teachers, both practitioners and researchers, all of whom are expected to relate their extracurricular work to their teaching responsibilities.
3. A program of study consisting of lectures, seminars, and studios, whose objectives are definable but whose form is malleable in response to changing cultural attitudes and social needs.
4. A setting of the most effective physical facilities, including classrooms, studios, auditoriums, shops, and libraries. In addition, the cultural milieu of New York City is an ever-present advantage that gives the program its unique qualities.

The focus of the entire program is the Architecture Design Studio. It is a carefully structured three-year course of study that prepares the student for roles related to the design of buildings and other environmental artifacts. This design activity is augmented by five other areas of study. The History/Theory Sequence broadens the student's perceptions of his or her design activity, through the historical and theoretical examination of the cultural role of design activity. The Building Technologies Sequence prepares the student to understand the structural, constructional, and material consequences and constraints on design decisions. The Visual Studies Sequence provides specialized investigation that complements the normal studio work, including both manual and computer-aided drawing courses. The Methods/Practice Sequence prepares the student to undertake management and professional practice activities. The Elective Sequence, which permits the student to pursue individual interests in architectural and environmental topics, may become, in certain cases, the basis for pursuing advanced study in specialized areas beyond the M.Arch. degree.

Summary of the Master of Architecture Program

To graduate with a Master of Architecture degree, a student is required to complete 108 graduate-level course points that are approved by the Graduate

School of Architecture, Planning, and Preservation. These course points are a combination of required courses, a certain number of points of distribution course requirements, and elective course points. The courses are divided into the following categories: Studio, History/Theory, Building Technologies, Visual Studies, Methods/Practice, and Elective. Each category (except Elective) has requirements that must be fulfilled. The School reserves the right to institute changes in the curriculum before the expiration date of this bulletin.

I. STUDIO COURSE SEQUENCE

The Studio Sequence is the focus of the M.Arch. Program. During the three-year, six-term program each student may study with as many as six different critics. All studio work is subject to formal public design review, and design juries include visiting architects, historians, artists, critics, and engineers, as well as faculty members from the Architecture, Building Design, Urban Design, Planning, and Historic Preservation Programs of the School.

The Core Studios are composed of a carefully structured three-term sequence involving a series of interrelated projects that begin with an examination and utilization of fundamental space-making elements (line, plane, volume) and that are directed toward the ordering of hierarchical spatial sequences, the engagement of the phenomena involved in the act of making or constructing, and the occupation of space. Studio projects involve the issues of public and private, urban and suburban, context and program, analysis and invention, among others, and progressively increase in length from two weeks to twelve weeks.

In the Advanced Studios, themes and programs are defined by the individual critics. These themes and programs both carry an educational objective and present an opportunity for the critic to develop with his or her students a specific area of work or research. The Advanced Studios are intended to build upon the ideas and skills developed in the Core Studios. The range of faculty and studio projects in studio sections allows the student to work with those instructors on projects that will allow specialized design study. In contradistinction to the Core Studios, the Advanced Studios are open to M.Arch. students as well as to second professional degree students.

Requirements for M.Arch. Program

Six sequential studios starting in fall term, first year:

A4001	Core studio, I	9 pts
A4002	Core studio, II	9 pts
A4003	Core studio, III	9 pts
A4004	Advanced studio, IV	9 pts
A4005	Advanced studio, V	9 pts
A4006	Advanced studio, VI	9 pts

9 pts
Total: 54 pts

II. HISTORY/THEORY COURSE SEQUENCE

DIRECTOR: Mr. Kenneth Frampton

The History/Theory curriculum stresses a broad social and cultural approach to architecture history. Architecture history is not seen primarily as stylistic evolution, but rather in terms of a rich matrix of parameters—political, economic, artistic, technological, and theoretical—that have had a role in shaping the discipline. Most instructors of architecture history at GSAP have both professional and academic degrees. A shared intention is to understand the relations between practice and a historical perspective.

The course offerings are structured to provide each student with an opportunity to gain both a broad general background in architecture history and a degree of specialized knowledge in areas of his or her selection. The architecture history classes within the School are supplemented by classes in the Department of Art History and Archaeology, and students are especially encouraged to take art history courses examining pre-1750 and non-Western topics. Students may also take courses in other departments of the University, such as history and philosophy, providing they meet basic distribution requirements.

Prerequisite for Entry into M.Arch. Program

Any 3-point survey course in the history of architecture. A broad survey of world architecture is especially recommended.

Requirements for M.Arch. Program

Two sequential courses:

A4348	History of architecture, I: 1700–1850	3 pts
A4349	History of architecture, II: 1850–1930	3 pts
		<hr/> Total: 6 pts

If a student has taken a similar class or classes, he or she may petition the professor of the class to waive the requirement.

Distributional Requirements for M.Arch. Program

Four courses Total: 12 pts

The four courses must be chosen from five categories: (1) Pre-1750, (2) Modern: 1750 to the Present, (3) Urban Society, (4) American, and (5) Non-Western. Students are expected to combine breadth in those fields they have not previously studied with in-depth seminars in at least one of these categories. At least one of the distribution areas must be Pre-1750 and one in Non-Western architecture, unless waivers are granted. Each term's course schedule will identify those courses fulfilling the distribution requirements.

History/Theory courses are listed on pages 62–69. Other courses may be found in the Art History Department's course listings.

M.Arch. Program

Course Sequence	Fall Term 1	Spring Term 2	Fall Term 3	Spring Term 4	Fall Term 5	Spring Term 6
Design Studio Total: 6x9=54 pts	Core studio, I	Core studio, II	Core studio, III	Advanced studio, IV	Advanced studio, V	Advanced studio, VI
Building Technologies Total: 6x3=18 pts	Structures, I	Structures, II Enclosures and environments, I History of architecture, II: 1850–1930	Enclosures and environments, II Distribution 1	Building systems, I Distribution 2	Building systems, II Distribution 3	Distribution 4
History/Theory Total: 6x3=18 pts	History of architecture, I: 1750–1850					
Visual Studies Total: 2x3=6 pts	Architectural drawing: basic			Architectural drawing: advanced* or Advanced CAD		
Methods/Practice Total: 2x3=6 pts			Computer-aided design in architecture*		Professional practice	
Electives Total: 2x3=6 pts					Elective	Elective
Totals 108 pts	Studio+3 classes, 18 pts	Studio+3 classes, 18 pts	Studio+3 classes, 18 pts	Studio+3 classes, 18 pts	Studio+3 classes, 18 pts	Studio+3 classes, 18 pts

*Offered in either fall or spring or both semesters.

III. BUILDING TECHNOLOGIES COURSE SEQUENCE

DIRECTOR: Mr. Anthony Webster

The Building Technologies curriculum is based on the belief that architects benefit by using a basic knowledge of technical systems to help generate a building's spaces, forms, and expression. Accordingly, the curriculum develops an understanding of contemporary technical-utilitarian systems and explores their resolution in relation to programmatic development and spatial design.

The six-course, required sequence begins by outlining the environmental conditions that habitable spaces respond to and by describing the physical characteristics of building components. Next, individual building systems—including (primarily) structure, building enclosure, environmental conditioning, and information management—are described in depth. For each system studied, various design strategies, materials, fabrication techniques, and didactic built works are explored. Field trips, laboratory demonstrations, and short design problems augment class study. As both qualitative and basic quantitative concepts are mastered, the curriculum shifts its focus to increasingly complex systems serving entire buildings. The sequence's last two courses (*Building systems, I and II*) concentrate on how these systems are detailed, interact with each other, and inform a building's spaces and formal expression—first through in-depth case studies of entire buildings, and then by the preliminary design of an industrial-loft block. In both courses, students work in teams with structural, mechanical, and building-envelope experts.

Throughout the required sequence, students are encouraged to apply their growing technological knowledge to design problems posed in studio. Occasionally, studios focusing on various relationships between technology, utility, program, and form are offered for third-year students.

Prerequisite for Entry into M.Arch. Program

Any 3-point course in general physics or two 3-point courses in calculus.

Requirements for M.Arch. Program

Six sequential courses are required:

A4111	Structures, I	3 pts
A4123	Structures, II	3 pts
A4220	Enclosures and environments, I	3 pts
A4221	Enclosures and environments, II	3 pts
A4125	Building systems, I	3 pts
A4610	Building systems, II	3 pts
		<hr/>
		Total: 18 pts

Electives for M.Arch. Program

Advanced electives supplement the required curriculum and provide the basis of study for those students entering the school with a strong technical background. The electives focus on recent technological developments and their impact on design, and the historical relationships between technology, philosophy, politics, and architecture. These courses take advantage of New York's professional practitioners working with the technological "state of the art." The diverse views of architectural technology held by both the School's design and technology instructors are reflected in, and thereby strengthen, the elective offerings.

Electives are open to all students in the School, subject to the prerequisites listed in the course descriptions. Students waived out of *Structures, II*; *Enclosures and environments, II*; *Building systems, I*; or *Building systems, II*, must take a course from the following list for each waived course. Some courses are not offered every year. Additional technology electives are taught occasionally.

A4626	Architectural detailing	3 pts
A4627	Materials and methods in architecture	3 pts
A4629	Architectural acoustics and lighting	3 pts
A4633	The architecture of glass	3 pts
A4634	Advanced curtain walls	3 pts
A4659	The philosophy of materials and structures	3 pts
A4684	Sustainable design	3 pts
A4675	Theories of self-organization and the development of cities	3 pts
A4695	CNC milling	3 pts
A6710	Building systems integration	3 pts
A6738	Investigative techniques for historic structures	3 pts

IV. VISUAL STUDIES COURSE SEQUENCE

The Visual Studies Sequence is intended to develop and improve the student's capacity for graphic representation of three-dimensional architectural form and space. It is intended as a corollary to *Architecture A4001* and *A4002—Core studio, I and II*, and involves the presentation and utilization of increasingly sophisticated and precise drawing techniques, both drafted and freehand.

Requirements for M.Arch. Program

A4509	Architectural drawing: basic	3 pts
A4511	Architectural drawing: advanced <i>or</i>	
A4534	Advanced computer-aided design in architecture	<u>3 pts</u>
		Total: 6 pts

V. METHODS/PRACTICE COURSE SEQUENCE

The Methods/Practice Sequence introduces the student to various aspects of professional practice including computer-aided design, project and office management, developmental processes, legal and planning regulation, etc. These serve as an introduction to areas to be further developed during the three-year apprenticeship period (following completion of the M.Arch. Program) required for professional licensing.

Requirements for M.Arch. Program

A4535	Fundamentals of digital design	3 pts
A4560	Professional practice	3 pts

Electives for M.Arch. Program

A4513	Internet protocols	3 pts
A4527	Architecture and information: multimedia and interface design	3 pts
A4534	Advanced computer-aided design in architecture	3 pts
A4564	Digital habitat	3 pts
A4586	Digital filmmaking	3 pts
A4636	Introduction to geographic information systems	3 pts
A4667	Algorithmic architecture	3 pts
A4695	CNC milling	3 pts

VI. ELECTIVES

In addition to those courses listed above in categories II–V, any of which may be taken as an elective, courses offered by the Urban Planning and Historic Preservation Programs when taken as electives may be applied toward completion of the M.Arch. degree.

Electives in Other Schools and Departments

Students may choose courses from other schools and departments of the University for M.Arch. elective credit. These courses should be directly related to the student's professional program within the School, and these courses must be at the graduate level (course numbers 4000 and above). Exceptions may be granted only by the dean or course sequence directors. Approval for these courses must be obtained during the registration period for the semester during which they are to be taken and provided to the Office of Admissions.

VII. SUMMER COURSES

Summer Programs Abroad

The School occasionally offers summer programs abroad. These programs are open to Columbia students and others registered in professional programs. They generally involve lectures, seminars, tutorials, and tours and are held for five weeks during June and July.

Summer Studio

See page 58 for description.

After full-time matriculation into the M.Arch. Program, a student may credit no more than 6 points toward his or her degree from courses being taken simultaneously at institutions other than Columbia University and must obtain prior approval from the dean. M.Arch. degree candidates must be matriculated in the program for at least two years (72 points). A maximum of two research courses may be taken toward the M.Arch. degree. A total of 108 points are required for the M.Arch. degree.

Example of Three-Year M.Arch. Curriculum

Term 1 (Fall)

A4001	Core studio, I	9 pts
A4111	Structures, I	3 pts
A4348	History of architecture, I	3 pts
A4509	Architectural drawing: basic	3 pts
		<u>18 pts</u>

Term 2 (Spring)

A4002	Core studio, II	9 pts
A4123	Structures, II	3 pts
A4220	Enclosures and environments, I	3 pts
A4349	History of architecture, II	3 pts
		<u>18 pts</u>

Term 3 (Fall)

A4003	Core studio, III	9 pts
A4221	Enclosures and environments, II	3 pts
A4535	Computer-aided design in architecture	3 pts
	History/theory distribution course	3 pts
		<u>18 pts</u>

Term 4 (Spring)

A4004	Advanced studio, IV	9 pts
A4125	Building systems, I	3 pts
	History/theory distribution course	3 pts
A4511	Architectural drawing: advanced <i>or</i>	3 pts
A4534	Advanced CAD in architecture	
		<hr/>
		18 pts

Term 5 (Fall)

A4005	Advanced studio, V	9 pts
A4610	Building systems, II	3 pts
A4560	Professional practice	3 pts
	History/theory distribution course	3 pts
		<hr/>
		18 pts

Term 6 (Spring)

A4006	Advanced studio, VI	9 pts
	History/theory distribution course	3 pts
	Electives	6 pts
		<hr/>
		18 pts

Total for M.Arch. degree: 108 pts minimum

Joint Degrees

For joint degree options in the Master of Architecture Program, please consult the Joint Degree Programs section of this bulletin.

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 Association Board (NAAB), which is the sole agency authorized to accredit U.S. professional degree programs in architecture, recognizes two types of degrees: the Bachelor of Architecture and the Master of Architecture. A program may be granted a six-year, three-year, or two-year term of accreditation, depending on its degree of conformance with established educational standards.

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

Master of Science Degree in Advanced Architectural Design

DIRECTOR: Mr. Reinhold Martin

The Program

The Master of Science degree in Advanced Architectural Design (formerly Architecture and Building Design) is a three-term program consisting of summer, fall, and spring terms.

The objective of the program is to provide outstanding young professionals who hold B.Arch. or M.Arch. degrees the opportunity to enter into an intensive postgraduate study of architectural design that simultaneously enhances their architectural abilities and encourages critical thought. The research and design work produced in the studios draws to a large extent on the unique possibility of utilizing New York City as a “design laboratory.” The intention of the program may be articulated as follows:

1. To engage the mind in a complex definition of architecture: from the questioning of the program to the elaboration of design.
2. To engage the student in the production of the objects—drawings, models, etc.—that may give the subject of architecture tangible, visible, and measured presence.
3. To encourage the student to confront culture, knowledge, and intuition in the making of an architecture that goes beyond stylistic issues to satisfy larger conceptual, social, and human values.

Admissions

Applications are due February 15. All applicants for admission to the program must have a B.Arch. or M.Arch. degree or the equivalent. In addition to the application form and required supporting documents, applicants must submit a portfolio containing examples of their architectural designs, particularly from the last two years of undergraduate training. The portfolio should not exceed 8½ by 11 inches, should not measure more than ½ inch in thickness, and should be submitted with the application. The portfolio will be returned by mail only if sufficient postage and packaging are included and if the return address is indicated on the portfolio. The Graduate Record Examination (GRE) is recommended but *not* required.

Applicants for this program enter in the summer term; they must attend on a full-time basis for three consecutive semesters.

Organization of the Program

The program is viewed as a framework in which both academic and professional concerns are explored. A set of required studios and courses is enhanced by limited and open electives that are shared with other programs in the School and that promote intellectual cross-fertilization among disciplines. A required lecture course on the twentieth-century city and contemporary theory, exclu-

sive to the program, provides grounding for architectural exploration in the studio. "Limited electives" are those School offerings designated as appropriate by the director. "Open electives" are graduate-level courses of the student's choice. Fall and spring studios are shared with final-year Master of Architecture students. In order to encourage the practical and conceptual integration of the computer in design work, AAD studios will take full advantage of the School's computer facilities.

Program Requirements

The M.S. degree in Architecture and Advanced Architectural Design requires 45 points in the following curriculum. (A minimum of 12 points must be taken each semester.)

Summer Term

A6853	Design studio, I	9 pts
	Limited elective	3 pts
A4402	Metropolis	<u>3 pts</u>
		15 pts

Fall Term

A4005	Design studio, II	9 pts
	2 limited electives	<u>6 pts</u>
		15 pts

Spring Term

A4006	Design studio, III	9 pts
	Limited elective	3 pts
	Open elective	<u>3 pts</u>
		15 pts

Note: Students are strongly advised to take one additional 3- or 4-point elective during each term. No extra tuition is charged between 15 and 19 points. Courses may be dropped until the tenth week into the semester for fall and spring terms. Summer courses may be dropped until two-thirds of the class meetings have been held.

Master of Science Degree in Architecture and Urban Design

DIRECTOR: Mr. Richard Plunz

The Program

The Master of Science degree in Architecture and Urban Design is oriented toward architects who have already received a professional degree and who wish to concentrate further on the study of design considerations related to urban form.

Urban Design introduces a way of thinking about the city that is more complex and inclusive than architectural design, yet more form oriented than the discipline of urban planning. The course work explores that ill-defined realm between architecture and planning, as well as such areas as cultural theory, sociology, urban geography, economics, and real estate. The base endeavor, however, is architectural design, which serves as a catalyst for incorporation of wide-ranging perspectives from other disciplines. In this sense, the program is considered experimental, exploratory, and unorthodox in comparison to the established canons of the traditional architectural design studio. The faculty are committed to the architectural investigation of urban phenomena on all scales. In one sense, the curriculum attempts to further the role of urban design as a form of critical inquiry. The theoretical base originates with the 1960s, when the present critique of “modernist” urbanism first developed. Crucial to this foundation are such diverse tendencies as the Situationist International in Europe, the “Collage City” adherents in the United States, and the so-called “systems approach” that emerged universally out of the beginnings of the cybernetic age.

The curriculum engages the state of the late twentieth-century urbanism, especially of those cities that have come of age in the modern industrial era and now face the transition to new forms and meanings. A dialogue is woven between New York City, which is the primary focus of the program, and other world capitals with analogous contemporary conditions. It also moves between the recent theoretical debate on future urbanism and applied projects that directly engage the realities of the transformation of the post-industrial city. In this way, the program attempts to engage both the daily reality of our urban condition and the theoretical abstraction of current academic debate—not one to the exclusion of the other.

The Urban Design Program embraces a special relationship between the design studio and the New York City region through collaboration with government agencies and other public interest constituencies. This collaboration interjects a heightened degree of reality and immediacy within the academic program; and in return it gives public institutions a valuable resource for exploration of critical issues. In the final semester the focus shifts to one or two other world cities comprising a similar collaboration with the appropriate local agencies and constituencies. Recent studios have worked in Antwerp, Belgrade, Brussels, Caracas, Istanbul, London, Mexico City, Mostar, Naples, and Prague. In general the problematics raised by all of the studios connect to concrete urban situations from which inquiry proceeds to a particular balance of “real”

and “theoretical,” depending on specific circumstances. Graduates gain the conceptual tools with which to manage the complexities of design intervention as a catalyst for urban development.

Admissions

Applications are due February 15. All applicants for admission to the program leading to the M.S. degree in Architecture and Urban Design must have a B.Arch. or M.Arch. degree or the equivalent. In addition to the application form and required supporting documents, applicants must submit a portfolio containing examples of their architectural designs, particularly from the last two years of undergraduate training. The portfolio should not exceed 8½ by 11 inches, should not measure more than ½ inch in thickness, and should be submitted with the application. The portfolio will be returned by mail only if sufficient postage and packaging are included and the return address is indicated on the portfolio. The Graduate Record Examination (GRE) is *not* required.

Applicants for this program enter in the summer term; they must attend on a full-time basis.

Organization of the Program

The core of the Urban Design curriculum is the three-semester sequence of related studios and seminars. In summary, the material of the first-semester studio represents an introduction to the morphology of New York, from center to inner periphery to edge city. The first-semester seminar provides an overview of the contemporary literature on the question of postindustrial urbanism. The second-semester studio is focused in detail on the singular issue of rebuilding older urban areas within the New York region. Its seminars investigate the question of anonymous urban fabric with comparative study of New York and other world cities. The topic of the third-semester studio moves to another city for comparative purposes and is primarily engaged with the issue of restructuring and rebuilding the nineteenth- and twentieth-century fabrics. The seminars continue to explore recent theoretical debate, focused on the problematic of public space.

Program Requirements

The M.S. degree in Architecture and Urban Design requires 45 points in the following curriculum:

Summer Term

A6849	Urban design studio, I	9 pts
A6836	Urban design seminar, I	3 pts
A6824	Reading New York urbanism	3 pts
		<hr/> 15 pts

Fall Term

A6850	Studio, II	9 pts
A6837	Urban design seminar, IIA <i>or</i>	3 pts
A6832	Urban design seminar, IIB	
	Open elective	<u>3 pts</u>
		15 pts

Spring Term

A6851	Studio, III	9 pts
A6838	Urban design seminar, IIIA <i>or</i>	3 pts
A4688	Urban design seminar, IIIB	
	Open elective	<u>3 pts</u>
		15 pts

Note: Students are advised to take one additional 3- or 4-point elective during each term. No extra tuition is charged between 15 and 19 points.

Students requiring an introduction to computer modeling and multimedia techniques will be required to register for *Architecture A4528—Digital modeling for urban design* in the summer term.

The Ph.D. Program in Architecture (History and Theory)

DIRECTOR: Mr. Kenneth Frampton

Ph.D. Committee: Mr. Barry Bergdoll (Art History)
Mr. Kenneth Frampton
Ms. Mary McLeod
Ms. Robin Middleton (Art History)
Ms. Gwendolyn Wright

Associated Faculty: Mr. Reinhold Martin
Ms. Joan Ockman
Mr. Mark Wigley

The Program

The doctoral program addresses the development of modern architectural form and ideas as they have been affected by social, economic, and technological change. In broad terms it encompasses the relations between the profession, practice, civil institutions, and the society at large.

The main focus of the program is the history and theory of modern architecture and urbanism from 1850 to the present. We are especially seeking students interested in avant-garde and post-avant-garde developments, the history of American architecture and urbanism, the evolution of colonial and postcolonial architecture, and the cultural impact of modernization in Europe. The program concentrates on architectural production of the past fifty years and, in particular, on the evolution of contemporary architectural theory and practice.

The program is administered by a committee of faculty from the Graduate School of Architecture, Planning, and Preservation (GSAP) and the Department of Art History and Archaeology.

Admissions

This program has been designed to meet the needs of academically trained M.Arch. graduates. Under exceptional circumstances candidates who hold a five-year professional degree or a master's degree in other fields are considered for admission. The acceptance of non-architecture candidates is contingent, however, upon completion of a design studio in architecture.

At the time of registration, all students are expected to have graduate-level fluency in English, both in terms of writing and general discourse. Any necessary remediation should be undertaken prior to enrollment.

Because much of the textual material is in languages other than English, candidates must also have reading ability in one of the following foreign languages: French, German, Italian, or Spanish. Similar competency must be attained in a second foreign language drawn either from the above group or in relation to the student's area of specialization. It is recommended this language requirement be fulfilled within the first year of the M.Phil. course.

The Ph.D. program is part of the Graduate School of Arts and Sciences. Application forms should be requested from the Office of Admissions, Graduate School of Arts and Sciences, Columbia University, 107 Low Memorial Library, Mail Code 4304, 535 West 116th Street, New York, NY 10027. Applications are due January 1.

Organization of the Program

Students are required to spend four semesters in residence during which time they are expected to take thirteen courses (39 credit points), of which eight must be taken for a letter grade. The required academic course work breaks down into the three sections described below. In addition to the doctoral colloquia, five classes should be seminars. It is assumed that these courses will be spread out evenly over the first four semesters of study.

For any course in which a student receives an incomplete, he or she must complete all outstanding course work before the beginning of the next academic year. Those who do not meet these terms will be required to take a leave of absence at their own expense to finish all necessary course work.

At least once each semester students should meet individually with the director of the program and with their adviser. Students are free to change their advisers during the course of their studies.

Section 1: Doctoral Colloquia

All students are required to take four doctoral colloquia over the four-semester sequence. Three of these must be taken for a letter grade.

Section 2: Architectural History/Theory

Students will be required to take at least one course from the following areas of study:

1. Pre-1750 (Western or non-Western)
2. Eighteenth-Century Architecture and Theory
3. Nineteenth-Century Architecture and Theory

These requirements may be modified for students who have had graduate-level courses.

Section 3: Social and Critical Studies

Students should take at least one course outside of Architecture and Art History. Representative departments in the Graduate School of Arts and Sciences with an emphasis on comparative historical and critical studies include: English and Comparative Literature, Germanic Language and Literature, Philosophy, History, Political Science, Anthropology, and Urban Planning. The specific topic and the choice of faculty will be decided in consultation with the student's adviser.

M.Phil. Examination

The four-semester program has been designed to give doctoral candidates sufficient training for the M.Phil. examination, with a special emphasis on the ability to teach classes in modern architectural and urban development and its relationship to parallel developments in material history and contemporary thought.

The M.Phil. qualifying examination is divided into three interrelated sections:

1. three revised course work papers;
2. three essays written in response to specific questions formulated by the examining committee, two pertaining to the major field and one to the minor field;
3. the oral examination.

The qualifying exam will be divided into major and minor fields. These fields are to be determined in consultation with the program faculty. The major field should be fairly broad and involve cross-cultural comparisons and/or cover at least a century in time, for instance:

France, Germany, Italy 1900–1945

American Architecture and European Parallels 1850–present

Twentieth Century Japanese Architecture and International Modernism

The minor field should focus on another topic, historical or theoretical in character, distinct from the major field.

The examining committee will typically be comprised of three members, two covering the major field and one covering the minor field. In general, at least two members of the examining committee should be drawn from the Ph.D. committee or from the associated faculty. Each student prepares bibliographies in consultation with these faculty. The first part of the exam consists of three essay questions based on these bibliographies. Each member of the committee will be responsible for one question. The papers are to be completed in a three-week period and submitted at least two weeks prior to the oral examination.

Ph.D. Dissertation

After successfully completing the qualifying examination, each student defends his or her dissertation proposal before a faculty committee, typically composed of the student's thesis adviser and two other readers, at least one of whom should be from the Ph.D. committee or associated faculty.

The student will then be free to pursue his or her research topic independently, in ongoing consultation with the thesis adviser. It is expected that the dissertation be completed approximately two years after the approval of the topic.

The dissertation must be submitted four weeks before the dissertation defense. A copy is to be provided for each member of the examining committee. This committee ordinarily consists of five people, at least three of whom are drawn from the Ph.D. committee or the associated faculty. One member of the committee must be from outside the GSAP.

Master of Science Degree in Urban Planning

DIRECTOR: Mr. Elliott D. Sclar

The Program

The new millennium begins with over 6 billion people inhabiting the earth. Between 4.5 and 5 billion of them live in urban settings. The speed with which the global population is growing and urbanizing presents serious problems in terms of adequate resources and environmental sustainability. Urban planners will be called upon to address these challenges. Columbia University's Graduate Program in Urban Planning prepares planners to help solve the social, physical, and spatial problems of life in an urban world.

Columbia's planning faculty consists of leading international experts in urban planning, supplemented by a core of highly regarded practicing professionals. Our students have access to experts in related fields of architecture, business, historic preservation, international affairs, law, public administration, public health, social work, and urban design. The Urban Planning Program has a balanced emphasis on the physical, economic, and social sides of planning. Our curriculum is focused upon the challenges of large-scale urbanism and social justice. Large-scale urbanism requires planning for regions where multiple millions of people live, regions that increasingly characterize much of the United States and our planet. The Columbia program strives to combine that education with an appreciation of the importance of integrating social equity and sustainable environmental concerns into the practice of urban planning.

Our location in New York City is of particular advantage for our mission. Nowhere are the international pressures engendered by rapidly spreading urbanism more pronounced than here. The city and the surrounding metropolitan region, with their jarring juxtapositions of wealth and poverty, industrial decline and office expansion, high-density living and sprawled land use, provide an ideal laboratory for all of our inquiries. New York, because of its position as a global center, is often the first to experience new urban phenomena and public policy responses. The experiences learned here are applicable in urban areas nationwide and internationally. Moreover, the city is also the locus of the greatest concentration of institutions, organizations, and individuals dealing with issues of global development and their urban implications. We make extensive use of the opportunities that this presents for our work.

A well-educated planner draws upon a knowledge base consisting of social sciences, humanities, history, technology, and urban design. The program meets this challenge through a curriculum that provides students with a thorough understanding of the basic processes that produce built environments, as well as the techniques necessary to intervene effectively in these processes.

Admissions

Applications are due February 15. The master's program prepares students from diverse academic backgrounds for careers as professional planners. Applicants typically, but not exclusively, have majored in architecture, engineering, soci-

ology, political science, geography, economics, or urban studies; many also come from backgrounds in the humanities and pure sciences. The admissions committee reviews all applicants comprehensively, considering their undergraduate academic achievements, personal statement, and related experiences. All applicants are required to take the Aptitude Test of the Graduate Record Examination (GRE). Information may be obtained from the Graduate Record Examination, Educational Testing Service, Box 955, Princeton, NJ 08540 (Web site: www.gre.org/atglance.html). Admissions decisions are made blind of the need for financial assistance.

Program Organization and Requirements

The faculty shares a core pedagogic belief that the best professional education takes place in an environment of learning by doing, reinforced by classroom work and group projects. Planners must have a thorough understanding of the economic, social, political, and physical forces that shape the built environment. These beliefs are implemented through program offerings that include familiarity with the range of analytic and research techniques used by planners, a semester-long studio project, and courses in planning history and theory. Formal education is supplemented with varied extracurricular activities, which students are encouraged to attend. Evening guest lectures, faculty-led walking tours, the student newsletter *URBAN*, and student government meetings are some of the activities that enrich the graduate school experience and create a dynamic educational setting.

Students are required to complete 60 points for the M.S. in Urban Planning: 33 points in ten required courses and 27 points between courses in a sector specialization and electives of their own choosing. Students select a sector of specialization during their first year of study. A minimum of three courses must be taken within a sector to fulfill the sector specialization requirement. A student interested in concentrating in a sector not listed below may construct his or her own specialization, subject to the approval of the planning faculty. Four sectors are regularly offered in the Urban Planning Program: Housing; International Comparative Planning; Physical Planning and Infrastructure Development; and Urban Economic Development. The courses fulfilling the sector requirement are marked: H—Housing; I—International; E—Urban Economic Development; and P—Physical Planning, in the following course descriptions. Students may take courses offered elsewhere in the University to fulfill some or all of their sector and elective requirements. The program maintains and continually updates listings of courses throughout the University that might be of interest to our students. Each student is required to write a master's thesis during his or her second year of study.

Joint Degree Programs

For joint degree options in the Urban Planning Program, please consult the Joint Degree Programs section of this bulletin.

A Typical Two-Year Program

Term 1 (Fall)

Pl A4208	Quantitative techniques	3 pts
Pl A6290	Workshop in planning techniques	3 pts
Pl A4151	Foundations of urban economic analysis	3 pts
Pl A4112	History of urbanization and physical structure of cities	3 pts
	One elective or sector specialization	<u>3 pts</u>
		15 pts

Term 2 (Spring)

Pl A6001	Urban planning theory	3 pts
Pl A6911	Planning studio	6 pts
	Two electives or sector specializations	<u>6 pts</u>
		15 pts

Term 3 (Fall)

Pl A6850	Thesis research design and methods (prerequisite for <i>Pl A6918</i>)	3 pts
	One sector specialization	3 pts
	Three electives	<u>9 pts</u>
		15 pts

Term 4 (Spring)

Pl A6052	Planning law	3 pts
Pl A6225	Planning policy implementation	3 pts
Pl A6918	Thesis	3 pts
	Two electives or sector specializations	<u>6 pts</u>
		15 pts

The Ph.D. Program in Urban Planning

DIRECTOR: Mr. Elliott D. Sclar

The Program

The Ph.D. Program prepares students for careers in teaching, research, and advanced practice in the fields of urban theory, policy, and planning. The program has as its specific field of inquiry the articulation of space (understood as material form, not mere geographic territory) and social and physical urban processes in their various embodiments in the built environment. Organizing this inquiry are questions related to the efficiency and equity of planning practices and, on a more theoretical level, questions of urban form.

Admissions

Applications are due January 1. An applicant is expected to hold a master's degree in urban planning or in a related discipline and have excellent academic credentials, with a grade average of B+ or better. In addition, an applicant is required to have completed at least 90 points of undergraduate liberal arts courses in the social sciences, humanities, or natural sciences, and the core courses provided in the master's level curriculum in the Urban Planning Program at the School.

Students without a master's degree may be admitted to the Master's Program in Urban Planning with a "Notation of Intent" to apply for the Ph.D. Program. Upon completing the master's degree, their application for admission to the doctoral program will be considered. Please note: Admission to the Master of Science Program does not guarantee admission to the Ph.D. Program.

The Ph.D. Program is part of the Graduate School of Arts and Sciences. Application forms should be requested from the director or directly from the Office of Admissions, Graduate School of Arts and Sciences, Columbia University, 107 Low Memorial Library, Mail Code 4304, 535 West 116th Street, New York, NY 10027.

Organization of the Program

Each student is expected to acquire advanced knowledge in the following areas:

1. Urban Theory
2. History and Theory of Planning
3. Research Methods in Planning
4. Sector Specialization
5. Related Discipline or Field

At the center of the Ph.D. curriculum are the two seminars on planning theory and planning history (*Planning A8931* and *Planning A8930*). Planning theory provides students with advanced knowledge of theories that inform planning practice and theory. There are three broad areas from which planning theory draws and upon which the seminar must rest: (1) theories of urban form, (2) theories of the state and of collective decision making, and (3) theories of planning action. The first area of theory draws from architectural and social scientific theories of built

form and space. The second area draws almost exclusively from the social sciences, in particular political science, sociology, and economics. It seeks to explore the ways in which collective decisions evolve in complex urban societies and the role of public action at the urban level. The final field draws heavily on the planning literature and literature about planning in related disciplines. The Planning History seminar focuses on major works in planning history and major themes and issues in the history of planning. These two courses, in addition to the Ph.D. research colloquium (*Planning A8900-A8901*), are taught by senior faculty in planning.

Students are required to take two courses in advanced methods. One of them should be taken in the Urban Planning Department. The other may be taken in another department in the Graduate School of Arts and Sciences.

Finally, students are expected to take one or two advanced seminars in specialized planning fields, such as housing, urban land markets, comparative urbanization, or comparative physical planning. Students are encouraged to take courses in their field of specialization or related fields in other departments of the University.

M.Phil. Examination Requirement

There are comprehensive examinations in history and theory of planning and in the sector specialization. These are written exams read by a committee of the Doctoral Program Subcommittee in Urban Planning. Students must pass these exams satisfactorily before they can present and defend their dissertation proposal. The exams are normally taken at the end of the spring term or in the summer. Any student who has satisfactorily passed the comprehensive examination and has had a Ph.D. dissertation proposal accepted will be awarded the M.Phil. degree.

Dissertation proposals must be approved by the main adviser and are presented and defended in front of at least three members of the Ph.D. Program Steering Committee, including or in addition to the adviser. Completed dissertations must be approved by the main adviser before they can be defended in front of a dissertation committee.

Program Requirements

History and Theory of Planning

Each student is required to complete a minimum of two courses in the history and theory of planning, the advanced seminars in planning history and theory. Among the topics covered are the genesis and structure of planning thought and methods; economic, political, and social factors influencing the development of planning theories and policies; the theory and development of urban structures; and the history of cities.

Doctoral Research Colloquium

This is a required two-semester course. It focuses on new developments in the social science and planning literature.

Research Methods in Planning

Each doctoral student is expected to demonstrate competence in statistical research methods as well as in research methods relevant to the topic of his or her dissertation. This requirement is intended to develop the social science, planning, and evaluation skills expected of a planning scholar. At least two courses in advanced methods are needed to fulfill this requirement.

Sector Specialization

Sector specializations provide students with the substantive backgrounds for their individual scholarly interests. The following list of typical fields is intended to be suggestive, not exclusive:

- Planning History and Theory
- Urban Spatial Theory
- Economic Development
- Physical Planning
- Transportation
- Housing
- Community Development
- Comparative Planning

Related Discipline or Outside Field

This requirement helps students relate their urban planning interests to a broader field of intellectual inquiry. It is normally met by the completion of a minimum of three courses in the area chosen or by previous work. In either case, a letter from a University faculty member expert in that area attesting to the completion of the requirement is needed. The following are examples of related disciplines and outside fields: anthropology, art history, economics, geography, history, law, political science, public health, social work, sociology, historic preservation, urban design, and international affairs.

Degree Requirements

Examinations

Required examinations typically will be offered at the end or the beginning of the fall or spring term. They will be graded (Pass with Distinction/Pass/Fail) by the Ph.D. Examination Committee. No examination can be taken while Incompletes in that area are outstanding.

The Examination Committee will comment in writing to the student on his or her written responses after each examination, and those comments will be included in the student's file. If the committee determines that the student has not satisfactorily passed, the student will be eligible for reexamination, but not more than once for each examination.

Course Credits and Grades

Students may earn either Examination Credit (E credit) or Registration Credit (R credit). E credit is granted after regular evaluation of a student's work in a course and is expressed as a letter grade: A (excellent), B (good), C (fair), D (poor), F (failure), or INC (incomplete). A student has one year to make up an Incomplete. After that time, the grade will automatically be changed to an R, except in the case of seminars.

R credit is earned when the student attends a course without any obligation to take examinations or do other assigned work. Once awarded, the grade is not subject to change, nor may a course taken for R credit be repeated for Examination Credit. Both E and R credits are entered on a student's permanent record and are counted toward residence requirements. A student may also audit courses, with the approval of the instructor, but without receiving any credit.

The Graduate School of Architecture, Planning, and Preservation uses a Pass/Fail/Incomplete grading system. Ph.D. students, however, must receive letter grades.

Note: No more than 15 of the 75 points of required work can be taken for R credit—or 9 out of 45 points if 30 points of advanced standing have been granted, or 12 out of 60 points if 15 points of advanced standing have been granted.

Languages

No general language requirement is imposed on students in the Ph.D. Program. The literature in the field relevant to the work of planning students concentrating on areas within the United States today is, by and large, available in English; knowledge of additional languages is professionally necessary only for students in certain areas of specialization. At the time of the first meeting of the student's Ph.D. Committee, and again at the committee meeting with the student to review the Ph.D. dissertation proposal, a determination will be made whether such a requirement is appropriate. For example, it is anticipated that a student taking as a sectoral specialization urban planning in less-developed countries, or one writing a comparative international study of planning, will require a mastery of foreign languages appropriate to the particular interest. Where such knowledge is required, proficiency must be established to the satisfaction of the director of the doctoral program.

Master of Philosophy Degree

Any student who has satisfactorily passed the comprehensive examinations and has had a Ph.D. dissertation proposal accepted will be awarded the M.Phil. degree.

Any student who receives fewer than two Residence Units of advanced standing must complete the work for the M.Phil. degree within *four years*. If a student receives two Residence Units of advanced standing, all degree requirements must be completed within *three years*.

Time Limit and Extended Residence

A student must complete all requirements for the Ph.D. degree within seven

years after initial registration, or within six years if awarded advanced standing of two Residence Units. Rare exceptions to this rule are recommended by the program and granted by the dean of the Graduate School of Arts and Sciences.

A student who has satisfied the minimum residence requirements is eligible to enroll for Extended Residence at a reduced fee. This applies to *any term* in which a student has yet to complete either course work, language requirement, qualifying examinations, or the defense of the dissertation. Exception is made for students defending a dissertation if they were registered for either a Residence Unit or Extended Residence in the term immediately preceding the defense, in which case they pay the Matriculation and Facilities fee.

Students who are *not* completing degree requirements as described above, and who are *not* required to register for a Residence Unit or Extended Residence as a condition of their fellowship or University appointment, can satisfy the requirement for continuous registration and maintain their status by paying the Matriculation and Facilities fee, which allows them to make use of various University facilities.

Master of Science Degree in Historic Preservation

DIRECTOR: Paul Spencer Byard, Esq., F.A.I.A.

The Program

The Columbia Master of Science Degree in Historic Preservation is the oldest degree of its kind in the United States. The program is comprehensive, providing professional training for those who wish to be leaders in any aspect of the field. The fundamental concerns of the program are for (1) the accurate understanding of the vital contributions of surviving architecture, cityscape, and landscape to human identity, self-knowledge, and well-being; and (2) the protection of these contributions of the past through the conservation of the meanings of old structures and artifacts in their particular, inescapable contexts of change.

The Columbia program is as diverse as preservation itself. It offers training in the identification and protection of the widest range of works of design, from interiors and furnishings to entire urban and rural regions. It considers not only physical acts of protection, but also the development and application of economic and legal structures to support them. It takes a broad view of the kinds of meaning eligible for protection, with a special focus on the meanings of cultural resources and techniques for their management. Whatever the protected structure or artifact, it seeks to devise means to manage the particular effects of change by appropriate acts of conservation, addition, or adaptive use.

Columbia believes that training for the professional practice of preservation must underpin specialization with a sound footing in basic techniques and a firm grasp of theory. The program includes a core curriculum that introduces the broad range of preservation issues and techniques before students move on to a concentration in one of four sectors: design, history, conservation, and preservation planning. Design focuses on the analysis of protected architecture, townscapes and landscapes, to understand their meanings and how they are communicated, and on the development of a capacity to recognize or propose appropriate new design work. History focuses on the understanding, documentation, and communication of the facts that give meaning to significant surviving structures. Conservation explores resources and techniques for the analysis and stabilization of specific materials and assemblies. Preservation planning focuses on the analysis and development of legal and economic protective mechanisms for a wide range of structures, districts, and landscapes. Studio work is an important component of the curriculum in the first year. The Columbia Master's Program requires the preparation and defense of an original thesis in the second year, exploring and arguing for a proposition of importance for preservation generally based on work in the student's sector of specialization.

Course work: 60 points are required. During the first year, all degree candidates study methods of documentation and building conservation, American architectural and environmental history, and the theory and practice of historic preservation planning, and participate in two design studios, one of which focuses on preservation planning policy. Before beginning their second term, students are required to select the sector that represents their area of concentration or focus. Submission of a thesis topic is a requirement for registration in the fall of the second year. Research for the

thesis in the fall of the second year culminates in a report to the thesis adviser; the completed thesis is presented in the spring term.

The remainder of the work consists of lectures, seminars, preservation studios, and laboratory courses in conservation.

Registration: Students must attend the program on a full-time basis, registering for at least 12 credit points per semester. In unusual circumstances the director will consider petitions for leaves of absence.

Related activities: Local community involvement is encouraged whenever appropriate. Special ties are maintained with New York City institutions such as the Metropolitan Museum of Art, the Landmarks Preservation Commission, the Landmarks Conservancy, the Municipal Art Society, Architectural League of New York, the Temple Hoyne Buell Center for the Study of American Architecture, and the Center for Preservation Research and its laboratory. These ties provide additional educational opportunities and further enrich the program.

Field trips: Second-year students are eligible for a grant from the William Kinne Fellows Traveling Fellowship Fund. These grants are to support travel that will advance a student's knowledge of architectural history and preservation.

Internships: All students are required to complete an internship before receiving the degree. Students are individually responsible for securing internships but are assisted in this by a special committee within the program. Internships should be approved in advance by the director and are recognized as completed upon receipt of a letter of evaluation from the internship supervisor sent to the director and a brief report from the student summarizing the work. In certain cases, work done before entering the program is accepted in lieu of an internship.

Preparation: The program is interdisciplinary and expects all students to engage preservation in depth from the perspectives of all its sectors. Students will develop an ability to read buildings through drawing and in that connection will be helped if they have taken a drawing or drafting course. For students who do not hold an architectural degree, one basic drafting or drawing course is required. A working knowledge of a computer-based graphic design/visual media program is highly recommended. Courses in CAD or other graphic programs are generally available at a vocational or community college. They do not carry credit toward the M.S. degree.

Students in the conservation sector will be aided by prior experience in chemistry, biology, and earth sciences. Design sector students will generally be expected to have a professional or other degree in architecture. Work will require basic computer proficiency (Word, Excel, Photoshop, PowerPoint). Studio work may be enriched by experience with Mac- or PC-based graphic programs.

All students should have had an undergraduate survey in architectural history.

Admissions

Applications are due February 15. Applicants for admission to the M.S. degree in the Historic Preservation Program must first hold a professional degree in architecture or a bachelor's degree in art history, American studies, urban studies, history, or another related field. All applicants are required to take the Aptitude Test of the Graduate Record Examination (GRE). Information may be obtained from the Graduate Record Examination, Educational Testing Service, Box 955, Princeton, NJ 08540 (Web site: www.gre.org/atglance.html). Applicants may enter only in the fall term.

Program Requirements

The course requirements in the Historic Preservation Program are divided into three categories: *core*, *sector*, and *electives*. All first-year students share a required ten-course core curriculum. Three of these courses, *Studio, I: understanding historic architecture; Documentation*; and *Studio, II: planning for preservation*, focus the work of the core on a common site within the metropolitan region. In the second semester, program specialization begins with enrollment in one course beyond the core sequence. This will consist of a specialized seminar or course in history, design, planning, or conservation. For students concentrating in the conservation sector, this advanced seminar will consist of a required 3-point laboratory section connected with the core conservation science course. The second year is primarily committed to specialized course and thesis work within the student's chosen sector of concentration. Beyond a fourth-semester preservation case study colloquium and the two-semester thesis project, students will enroll in courses totaling a minimum of 12 credit points within their sector during the second year. The courses that meet this threshold requirement for sector concentration must be approved by a member of the full-time faculty. In order to ensure the timely and successful completion of thesis projects, students are encouraged to minimize course work in the fourth semester, taking only one elective course beyond the courses listed below.

First Semester

A4210	Basic principles of traditional construction	3 pts
A4510	Studio, I: understanding historic architecture	4 pts
A6740	Theory and practice of historic preservation	3 pts
A6745	Documentation	3 pts
A6767	Preservation planning	3 pts
A4339	American architecture and urbanism before 1876	3 pts

Second Semester

A4341	American architecture: 1876–1976	3 pts
A6750	Studio, II: planning for preservation	4 pts
A6738	Investigative techniques for historic structures	3 pts
A6764	Conservation science	3 pts
A6734	The classical language and literature of architecture (required for history, planning, and design sectors)	3 pts

A6727	Architecture of additions: design and regulation (required for history, planning, and design sectors)	3 pts
A6777	Conservation science laboratory (required for conservation sector)	3 pts

Third Semester

A6751	Thesis, I	1 pt
A6762	Building pathology (required for conservation and design sectors)	3 pts
A6795	Preservation law (required for history and planning sectors)	3 pts
A6305	Historic building design workshop (required for design sector)	3 pts
A6727	Planning workshop	3 pts
A6741	Conservation workshop*	3 pts
AXXXX	Courses in sector of specialization and electives	6–15 pts

*All students are required to take at least one third-semester workshop

Fourth Semester

A6753	Thesis, II	6 pts
A6790	Preservation case study colloquium	3 pts
A6710	Building systems integration (required for design sector)	3 pts
AXXXX	Courses in sector of specialization and electives (for design sector)	6–9 pts 3–6 pts

Design Sector

This sector provides training in the analysis and appreciation of architectural expression so that students can grasp the meanings old buildings convey and use them as tools to manage change. It engages expression in a wide variety of forms and uses it to help resolve problems of conservation, restoration, adaptive use, and the design of additions at all scales.

Design theses may be analytic, proposing and discussing readings of historic architecture and their meanings, or may be creative, proposing designs or directions for design of new architecture appropriate to the preservation of historic buildings, artifacts, or landscapes. Recent theses have included an analysis of cladding in the history of twentieth-century architecture, proposals for increases to the density of housing in Chandigarh, the conversion of a Hudson River power station into a summer home for the New York Philharmonic, and the conversion of a very large crude carrier into the “Think Tanker,” a mobile global conference venue.

History Sector

The history sector relates academic studies in architectural and urban history to preservation practice. The sector aims to complement the dominant focus of architectural history, which is generally upon the relations among *original*

clients, architects, and forms and their meanings, by investigating the ways in which later generations assign meaning and value to older structures. The School offers a full range of graduate courses and seminars on the history and theory of architecture and on decorative arts, urbanism, and related developments. Courses on the history of architecture and urbanism are also available in the related departments of the University, including, but not limited to, the Departments of Art History and Archaeology, and History. The thesis allows students to pursue original research in the history of architecture and urbanism, the history and theory of preservation, and the interrelation between history and preservation practice.

Conservation Sector

This sector provides students with the technical and theoretical knowledge required for the examination, documentation, and analysis of historic structures and materials. It also establishes a background for the diagnosis and treatment of building pathology. These issues are addressed through a synthesis of lectures, laboratory work, field studies, and the trade techniques workshop designed to combine a range of special architectural and scientific skills. These skills, which are required for maintaining the integrity and quality of the built environment, include the history of architecture and building technology, graphic and written documentation, materials science, and analytical laboratory and field techniques.

Planning Sector

The preservation planning sector combines two strategies. The first stresses the historical and planning analyses, contextual evaluation, and physical design of the built environment. The second focuses on regulatory, legislative, economic, and planning methods used to conserve historic neighborhoods, rural landscapes, or recycled structures. These two strategies are intended to link a historical understanding of land development patterns with the analysis of interventionary methods and also with economic and political contexts where these forms have been determined. Both studio and the thesis emphasize preservation planning issues and allow the student an in-depth opportunity to explore, develop, and criticize preservation strategies.

Theses

A thesis prepared in satisfaction of the degree requirements for the Master of Science in Historic Preservation must address a topic with a clear relationship to the field of historic preservation and building conservation. A thesis topic must also clearly identify the polemical nature of the research and analysis you will conduct. It will expand “knowledge” in the field either by modifying conventional thinking on a subject or by introducing new ideas into the preservation discourse. Topics in each of the sectors are normally differentiated by their subject matter. Interdisciplinary work that bridges over sector limits is strongly encouraged.

Students select a topic and work with an adviser and a reader or readers starting

in the second semester. Two presentations proposing and testing the thesis are made to the faculty in the third semester, with a final presentation and defense in the final semester. The defense is scheduled so that revisions can be made if necessary to qualify for graduation.

Electives

Electives are subject to approval by each student's adviser and may be chosen from other offerings in historic preservation, from other programs in the School, from the Department of Art History and Archaeology, or from graduate courses offered by other departments of the University.

Advanced Standing

Any student who has already received a master's degree in architecture may apply for up to 24 points of advanced standing toward a master's degree in historic preservation, provided the student chooses the design sector.

Waivers: Students with extensive experience and prequalification in areas covered in particular courses may seek waivers from instructors and the director in order to enroll in other courses relevant to their course of study.

Joint Degree Programs

For joint degree options in the Master of Science in the Historic Preservation Program, please consult the Joint Degree Programs section of this bulletin.

Certificate in Conservation of Historic Buildings and Archaeological Sites

With the increase in field work at significant archaeological sites and growth of cultural tourism, a new set of problems related to the maintenance and administration of sensitive cultural resources has emerged that experts in the field of archaeology are sometimes unprepared to deal with. Building conservators working in the field of historic preservation have, by training, the expertise to respond to the challenges presented by the deterioration of environmentally sensitive and fragile building materials. They lack, however, the training in fields such as archaeology and management by which evaluations of the significance of archaeological sites and buildings can be made. Conversely, archaeologists and managers lack training in materials science and preservation theory. Preservationists working in the fields of history, planning, or design may also lack materials science training.

In an effort to fill this gap, Columbia University's Graduate Program in Historic Preservation is offering a Certificate in Conservation of Historic Buildings and Archaeological Sites to individuals holding master's degrees in historic preservation who seek further training in the conservation of archaeological sites and historic structures. Students will be able to pursue one of two tracks, focusing on the conservation of either individual historic buildings or archaeological sites. The curriculum of the certificate draws on courses already offered through the Departments of Historic Preservation, Art History and Archaeology, Anthropology, Civil Engineering, and Geological Sciences.

The Certificate in Conservation of Historic Buildings and Archaeological Sites serves two types of students. It offers students who have earned the Master of Science in Historic Preservation in the Columbia Program the opportunity to further specialize in the field of cultural resource management. It is also available to applicants who have earned the M.S. in Historic Preservation from other institutions or who have a master's degree (or higher) in a related field (building conservation, engineering, archaeology, geology, architecture, anthropology, etc.) and substantial postgraduate experience in preservation, preferably including significant fieldwork.

The number of credits required for completion of the certificate is 20 for students who have earned their Master of Science in Historic Preservation from Columbia or 24 points for the other students enrolled for the certificate. Students who have earned their Master of Science in Historic Preservation from Columbia will be able to use one course taken toward that master's degree's requirements to satisfy the requirements of the certificate. Other students enrolled for the certificate will be required to be in residence for two semesters under normal circumstances.

Program Requirements

ARCHAEOLOGICAL SITES (24 POINTS)

Required:

- A6318 Cultural site management
- A6309 Archaeological sites: conservation and maintenance
- A8790 Research problems

Electives:

- A6764 Conservation science
- A6777 Conservation science laboratory
- A6740 Theory and practice of historic preservation
- A6761 Conservation seminar: masonry
- A6782 Conservation seminar: wood
- A6768 Conservation seminar: metals
- (GSAS) G8550 Inca art and architecture
- (GSAS) G4085 Ancient Peruvian art and architecture
- (GSAS) W4254 Archaeology of the American Southwest
- (GSAS) G6103 Method and theory in archaeology
- (GSAS) W4083 Mesoamerican architecture
- (GSAS) G4158 Survey of South American archaeology
- (GSAS) W4113 Introduction to mineralogy
- (GSAS) W4001 Advanced general geology
- (GSAS) W4223 Introduction to sedimentary geology
- (EAS) E4241x Geotechnical engineering fundamentals
- (EAS) E3141 Soil mechanics and foundations

BUILDING CONSERVATION (24 POINTS)

Required:

- A6318 Cultural site management
- A6738 Investigative techniques for historic structures
- A8790 Research problems

Electives:

- A6764 Conservation science
- A6777 Conservation science laboratory
- A6740 Theory and practice of historic preservation
- A6761 Conservation seminar: masonry
- A6782 Conservation seminar: wood
- A6768 Conservation seminar: metals
- A4210 Basic principles of traditional construction
- A6712 Architectural finishes in America from 1650 to 1930
- A4358 Renaissance architecture and urbanism
- A4344 Traditional Japanese architecture
- A4573 Encounters with Islam in architecture
- (GSAS) G4355 Gothic architecture
- (GSAS) W4418 Italian baroque architecture
- (GSAS) G4544 French architecture

Master of Science Degree in Real Estate Development

DIRECTOR: Mr. Michael P. Buckley, F.A.I.A.

The Program

With continued business consolidation, sustained transformations in capital markets, swiftly changing demographics, and powerful new conflicts between the fast-expanding suburbs and traditional urban city centers, tomorrow's real estate developer must be capable of balancing multiple objectives with new solution methodologies. To address these challenges, the Master of Science program in Real Estate Development (REDP) at Columbia focuses on a process-oriented course format:

Concept development—including the creation of new real estate products and repositioning of underperforming real estate assets

Financial analysis—project feasibility and finance, market support, and demographic analysis

Public policy—the politics of development approvals and the evolution of public/private partnering

Enterprise management—best practices for creative management of project teams and the development process

We believe Columbia REDP is at the front edge with this process-oriented focus for real estate development, and further, that our presence in New York City offers extraordinary access to:

- Specialized faculty with real world experience
- Capital markets principals and institutional investors
- Nationally recognized developers, owners, and architects
- Exposure to Wall Street, including investment research disciplines
- Variety of building types and new product prototypes

Columbia REDP believes the next generation developer must have command of a specific development skill spectrum. Columbia REDP is committed to a differentiated curriculum, with an emphasis on the acquisition of both theoretical frameworks and practical core competencies.

The School offers an intensive one-year Master of Science degree in Real Estate Development that prepares students to enter the real estate industry. The real estate industry plays a critical role in shaping the built environment through the construction of housing, offices, commercial retail centers, and industrial sites. In addition to private wealth, real estate creates employment, tax revenues, public spaces, cultural symbols, and social environments of lasting significance. At Columbia REDP, the increasingly critical roles of government agencies, public benefit corporations, and nonprofit groups are also studied and analyzed.

The program of study provides an interdisciplinary and coordinated exposure to the major skill sets of the development process, including real estate finance, market analysis, public policy, law, construction, concept design, and asset repositioning. Students are trained for responsible positions in both the public and private sectors of the real estate industry, with particular emphasis on the skills and sensitivities necessary to develop real estate successfully in major urban areas.

Admissions

Applications for admission to the program leading to the M.S. degree in Real Estate Development are due February 15 for first round admissions. Thereafter, later applications may be accepted based on merit and individual circumstances. Applicants may hold degrees in a wide range of fields. While academic preparation in development-related disciplines such as economics, business, law, engineering, historic preservation, architecture, construction, and urban planning is highly desirable, it is not essential for admission to the program. Students are required to take the Aptitude Test of the Graduate Record Examination (GRE) if their undergraduate degree was awarded within three years of application to the Real Estate Program. Information may be obtained from the Graduate Record Examination, Educational Testing Service, Box 955, Princeton, NJ 08540 (Web site: <http://www.gre.org/atglance.html>).

Program Requirements

The Master of Science degree in Real Estate Development is a one-year, 36-point degree. Students attend full time during the fall and spring terms, complete their final real estate development thesis immediately following the spring term, and are awarded degrees in October. In Columbia REDP courses, theory, quantitative techniques, industry best practices, and extensive case study materials are combined. Students must take 30 credits of required core courses from the Real Estate Development Program, with the rest constituting electives chosen from elsewhere within Columbia. Upon special application the electives may be increased and certain core courses waived, based on prior experience.

The final real estate development thesis project is begun during the spring term under the supervision of a faculty adviser. Final thesis projects are detailed development proposals, evaluations of important completed projects, or analyses of major public laws or private sector initiatives in real estate development. The thesis project is due before graduation in October.

Fall Term

Pl A4312	Real estate finance, I	3 pts
Pl A4538	Real estate opportunities/development process	3 pts
Pl A6348	Architectural design for non-architects	3 pts
Pl A6350	Asset repositioning and concept development	3 pts
Pl A6352	Development market analysis	3 pts
Pl A6568	Real estate development in the public sector	3 pts

Spring Term

Pl A4314	Real estate finance, II	3 pts
Pl A6330	Site planning and support systems	3 pts
Pl A6333	Real estate law	3 pts
Pl A6340	Real estate development thesis	1 pt
Pl A6354	Political environment of development	3 pts
Pl A6356	Construction technology and management	3 pts
Pl A6357	Current topics in real estate/Roundtable Series	2 pts
Pl A8792	Research methods/field studies/Internship Program	3 pts

Internship Program

During the spring semester, REDP students have the opportunity to register in *PL A8792—Research methods/field studies* structured as an internship. Now in the ninth year at Columbia, the Internship Program allows REDP students to select from a group of private developers, financial institutions, public agencies, consulting firms, and nonprofit organizations, actively involved in real estate. The course is designed to provide participants hands-on experience working with real estate and real estate-related issues. Internship responsibilities can include development feasibility, financial analysis, market research, project management, asset management, policy review, and industry studies.

Current Topics in Real Estate—The Roundtable Series

Each spring semester, Columbia REDP students participate in a series of topically oriented roundtable discussions with invited industry experts, developers, and financiers. The Roundtable Series also serves to explore specific development and financial issues and career opportunities in selected areas including:

- Capital markets trends and issues
- Health care and assisted living
- Trends in high-density residential development
- Historic tax credits and adaptive reuse
- The commercial broker's perspective
- Under the radar screen—techniques for small-scale developers
- Trends in architectural design
- Lodging industry trends—niche products and boutique hotels
- Corporate real estate—opportunities and challenges
- Globalization and international investment trends
- Pension fund investments in real estate
- Merging retail and entertainment
- Information technology and E building trends
- Career tracks and strategies
- Enterprise management and new solution methodologies
- Mixed-use development trends
- Asset management trend
- Affordable community
- Mortgage market trends

Joint Degree Programs

To utilize more fully the facilities and resources of the University and to provide opportunities for students to pursue studies in related fields, the School, in conjunction with other departments and faculties, has established several joint degree programs. Each program leads to the award of two professional degrees. Students who wish to enter one of the programs described below must apply to each of the participating schools and be admitted to both. They should consult the respective school's admissions office for further information.

Historic Preservation and Architecture/Historic Preservation and Urban Planning

Requirements are completed in four years rather than the five required for the three-year M.Arch. and two-year M.S. in Historic Preservation degrees and in three years for the urban planning/preservation degrees. The full requirements for each degree are met in this shortened time by allowing certain courses to count toward both degrees and by using electives from one program to meet requirements in the other.

Admission requirements for all programs must be met. Students may apply to both programs before matriculation by checking both of the appropriate boxes on the application form, or they may apply for the Master of Architecture or Master of Science in Urban Planning after entering the Historic Preservation Program or vice-versa. Upon entering the Historic Preservation Program, those students who indicate to their adviser an interest in applying to either joint degree program are directed to take a special program of courses that allows them to fulfill appropriate historic preservation requirements.

At any time during the four years, students may elect to withdraw from one program and complete requirements for one degree only. Students in the School initially enrolled in one program may apply during their first year for admission to the other, and in normal circumstances can complete joint program requirements within three or four years. Because of the complexities of point sharing and scheduling, students applying after the first year must be prepared to spend additional time to complete requirements for both degrees.

Urban Planning and Architecture

The Graduate School of Architecture, Planning, and Preservation offers a joint program leading to the degree of Master of Architecture and the degree of Master of Science in Urban Planning. A student must enroll for 138 points of credit, which may be earned in eight terms in residence in the School.

Urban Planning and Business

The Columbia Business School and the Graduate School of Architecture, Planning, and Preservation offer a joint program leading to the degree of Master of Business Administration and the degree of Master of Science in Urban Planning. A student must enroll for 90 points of credit, which may be earned in six terms in residence—three terms in the Business School and three terms in the Graduate School of Architecture, Planning, and Preservation.

Urban Planning and International Affairs

The School of International and Public Affairs and the Graduate School of Architecture, Planning, and Preservation offer a joint program leading to the degree of Master of International Affairs and the degree of Master of Science in Urban Planning. A student must enroll for 90 points of credit, which may be earned in five terms in residence—at least two terms in the School of International and Public Affairs and three terms in the Graduate School of Architecture, Planning, and Preservation.

Urban Planning and Law

The School of Law and the Graduate School of Architecture, Planning, and Preservation offer a joint program leading to the degree of Juris Doctor and the degree of Master of Science in Urban Planning. A student must enroll for 120 points of credit, which may be earned in eight terms in residence—six terms in the School of Law and two terms in the Graduate School of Architecture, Planning, and Preservation.

Urban Planning and Public Health

The Mailman School of Public Health and the Graduate School of Architecture, Planning, and Preservation offer a joint program leading to the degree of Master of Public Health and the degree of Master of Science in Urban Planning. A student must enroll for 80 points of credit, which may be earned in five terms in residence—two terms in the Mailman School of Public Health and three terms in the Graduate School of Architecture, Planning, and Preservation.

Urban Planning and Social Work

The School of Social Work and the Graduate School of Architecture, Planning, and Preservation offer a joint program leading to the degrees of Master of Science in Social Work and Master of Science in Urban Planning. A student must enroll for 90 points of credit, which may be earned in six terms in residence—three terms in the School of Social Work and three terms in the Graduate School of Architecture, Planning, and Preservation.

Columbia-Dillard Joint Degree Program in Liberal Arts and Urban Planning

A five-year joint degree program was established in 1985 with Dillard University in New Orleans, leading to a Bachelor of Arts degree from Dillard and a Master of Science degree in Urban Planning from Columbia. It is the first joint degree program in urban planning in the nation between a historic black university and a graduate program in urban planning. Students spend three years as undergraduates at Dillard and two years as graduate students at Columbia.

The Shape of Two Cities: New York/Paris (Special Undergraduate Program)

DIRECTORS: Ms. Danielle Smoller, New York
Ms. Karla Britton, Paris

The Shape of Two Cities: New York/Paris Program is the School's program for undergraduate students from colleges and universities around the country. The program's goals are to introduce the fields of architecture, planning, and preservation; encourage their exploration in the contexts of history, theory, and practice; and identify and analyze their interrelationships, especially in regard to the making of cities. The in-depth course of study is suited to students without previous academic experience in design who are interested in architecture, planning, or preservation as a career, students in the liberal arts who are interested in approaching urban and historical issues from an architectural and urban planning perspective, and students with previous design experience who would like to develop additional studio skills in preparation for application to graduate school. All classes are conducted in English.

The program offers a two-semester curriculum that immerses participants in the rich physical and intellectual urban environments of New York and Paris. Instruction draws on the resources of Columbia University and its faculty, and the architectural communities of New York and Paris. During the first semester, students live and study in New York and enjoy the resources of Columbia University and the Graduate School of Architecture, Planning, and Preservation. The second semester is spent in Paris at Reid Hall, Columbia University's center for French cultural studies, located in the center of the Montparnasse district.

Students in the program enroll in either the Architecture Option or the Urban Studies Option and share in a core of courses while embarking on their specializations. In the first term the core courses are A6769—*History of the American city*, A4028—*Building New York*, and A4027—*Architecture, planning, and preservation: New York*. In the second term, the core courses are A4030—*The development of Paris*, A4031—*History of European cities*, and A4029—*Architecture, planning, and preservation: Paris*. These courses ground the program in the rigorous review of urban history and urban form, provide the academic structure for the students' comparative analysis of New York and Paris, and complement the liberal arts curricula of participating colleges.

The Architecture Option combines class and studio work to introduce design, architectural theory, and structural concepts. Through a series of increasingly complex projects that are focused on New York and Paris, design studios emphasize form and space-making and the formulation of public and private spaces as they relate to urban morphology. Representational and analytical drawings and model-making are woven into studio projects as a means of developing and criticizing design concepts.

The Urban Studies Option emphasizes workshop and seminar work to introduce its fields, which are placed in the contexts of urban and architecture history, historic and contemporary approaches to planning and preservation, and analysis of the social and cultural development of New York and Paris. The first term prepares students to embark on a major independent research project in Paris around a theme developed through discussion with the faculty. This option emphasizes the combination of research and field analysis as a means for devel-

oping historic preservation and urban planning strategies.

Admissions

The program is designed for students who have completed their sophomore year at an accredited college or university. Previous study in architecture, planning, or preservation is not required. Applicants must have the written support of their home institution.

To apply for admission, the student should submit the following materials to the Office of Admissions: application form, official transcript of academic record, letter of recommendation from the major adviser or an academic dean supporting the application to the program and attesting to the student's ability to live and study abroad, and a \$50 nonrefundable application fee in a check or money order payable to Columbia University.

Admissions decisions are mailed out shortly after all application materials are received.

Program Requirements

All students applying to the program must choose either the Architecture Option or the Urban Studies Option. Each option provides 32 points of course work to be completed in two terms. Courses are taught by faculty members of the Graduate School of Architecture, Planning, and Preservation, and by professional architects, planners, and preservationists in both cities.

Core Courses

TERM I (FALL): NEW YORK

A4027	Architecture, planning, and preservation: New York	3 pts
A4028	Building New York	3 pts
A6769	History of the American city	3 pts
	Elective	3 pts

TERM II (SPRING): PARIS

A4029	Architecture, planning, and preservation: Paris	3 pts
A4030	The development of Paris	3 pts
A4031	History of European cities	3 pts
A4051	French seminar	3 pts

Architecture Option Courses

TERM I (FALL): NEW YORK

A4000	Design studio	4 pts
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TERM II (SPRING): PARIS

A4010	Design studio	4 pts
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Urban Studies Option Courses

TERM I (FALL): NEW YORK

A4043	Workshop in urban studies	4 pts
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TERM II (SPRING): PARIS

A4044	Seminar in comparative planning and preservation	4 pts
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Introduction to Architecture: The Summer Studio Program at Columbia

DIRECTOR: Ms. Danielle Smoller

Introduction to architecture is a preprofessional program for those who are interested in architecture and may be considering it as a career, and for those students who have prior educational experience in design and may wish to complete an additional studio to prepare for application to graduate school. Students should request a Summer Session application from the Office of Admissions and return it with the \$35 application fee. An official transcript of the applicant's most recent work and a resume are required. Submission of examples of graphic, photographic, or other design work is encouraged but not required. Applicants should indicate on their application their preference for afternoon or evening studio. When the application is complete, the Office of Admissions will notify the applicant of the admission decision.

Architecture A1003 Introduction to architecture. 3 pts
Ms. Smoller and staff.

A course comprising studio and lecture formats, presenting a comprehensive experience in architectural design. The course meets five days or evenings a week for five weeks. Utilizing New York City as a laboratory, the morning sessions develop an awareness of the relationships between the history, theory, practice, and design of architecture. Seminars, workshops, and field trips to the offices of prominent professionals, to museums, and to buildings focus on these issues. The afternoon or evening sessions take place in the architecture studio, the basic environment in which architectural education takes place. Students work with studio critics on a series of projects presented by the studio director, presenting their individual designs to juries comprised of faculty and practitioners. Although the studio is structured to allow the development of design skills for those with no prior education in architecture, it also presents the opportunity for students with some background to improve their skills and gain further studio experience. In addition to the seminar and studio portions of the course, there are weekly lectures given by prominent architects from the New York metropolitan area.

Columbia/Barnard Undergraduate Architecture Major

CHAIR: Ms. Karen Fairbanks

Columbia and Barnard Colleges of Columbia University offer an undergraduate architecture major leading to the Bachelor of Arts degree. Students generally begin the architecture major in their sophomore year after being admitted to one of the colleges, whose admissions criteria are detailed by their respective admissions offices and bulletins.

For information, bulletin, and application materials, applicants for Columbia College should call (212) 854-2521; for Barnard College, (212) 854-2014. **APPLICANTS SHOULD NOT USE THIS BULLETIN OR APPLICATION FOR ADMISSION TO COLUMBIA AND BARNARD COLLEGES.**

The undergraduate major maintains its own studio and academic requirements that are related to Columbia and Barnard Colleges' respective liberal arts curricula. Students are given the background to pursue architecture at the graduate level or move to other fields with a well-balanced preparation in the humanities and social sciences. While taking academic courses in architecture and related fields such as anthropology, art history, economics, history, mathematics, philosophy, political science, and sociology, etc., students take 17 points of drawing and studio courses that are developed around the themes of two- and three-dimensional representation and analysis of architecture and of space- and form-making. Design projects investigate a combination of abstracted, yet potentially quite real, situations of human habitation, place-making, and cultural interaction. Architecture, as both a discipline and a way of understanding experience, is examined through historical and contemporary relationships between physical, intellectual, and cultural forms and environmental contexts. In its combination of academic and studio work, the undergraduate major encourages students to consider the multiple relationships one may have with architecture: as architect, historian, theorist, and critic.