GRADUATE SCHOOL OF
ARCHITECTURE AND PLANNING

Columbia University Bulletin

1980–1982

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Architecture and Planning

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Philosophy and Goals of the School

The Graduate School of Architecture and Planning comprises five distinctive but cooperating programs. The educational disciplines concentrated within each of these programs deal in different ways with one general problem area: man and his environment. The presence of the five areas of study within a single school makes possible a better understanding of the forces entering into the creation of environment and the interdependency of these forces.

In each degree program offered, it is the intention to provide students with the information and strategies to enable them, as professionals, to deal responsibly with the problems that confront man in his environment. All of these problems are approached from points of view that take into account each problem's theoretical base as well as the actual constraints involved in problem solving in the real world. A major concomitant of this attitude is the implicit mandate that no architectural, preservation, or planning problem be undertaken unless a major component of its solution provides the community, in its narrowest as well as its broadest sense, with results permanently useful and beneficial to all.

The following are the general goals of the School and the specific educational aims and activities by which the goals are implemented. It must be emphasized that these activities are not discrete; they interact and reinforce one another. The curriculum is of course the vehicle that concretely expresses and realizes these objectives.

1. In order to provide the atmosphere and opportunity for the intellectual growth and development of all students and faculty, the School offers sequential courses, which correspond to student needs and capabilities, and staffs these offerings with instructors who are committed to the general goals of the School and are capable of rigorous and nondoctrinaire academic leadership.

2. In order to develop new knowledge that will materially add to the vitality both of the professions and of society as a whole, the School promotes basic research in the fields of architecture, preservation, and planning.

3. In order that the School may function as an integral and contributing part of the intellectual community of the University, programs and curricula are formulated that symbiotically relate to other activities in the University—emphasizing the traditionally interdisciplinary nature of the fields of architecture, preservation, and planning.

4. In order to serve broadly defined social purposes, the program of the School focuses on contemporary problems relating to urban and rural man-made and natural environments, toward the solution of which the School utilizes resources outside the University and engages in the dissemination of socially useful information.

The School has a realistic and comprehensive set of programs in order to help students to overcome the restrictions imposed by a narrow conception of their professional role, thereby encouraging them, as graduates, to use their unique talents to bring about positive structural change within our society.

James Stewart Polshek

Dean of the Faculty of Architecture and Planning

The Graduate School of Architecture and Planning

History

A program in architecture was first established at Columbia College in 1881, as an adjunct to the School of Mines. William R. Ware, a disciple of the first American student at the French *Ecole des Beaux-Arts,* was the director of the new four-year curriculum leading to a degree of Bachelor of Philosophy.

The first class consisted of two students and met in a former asylum. In 1902 the School of Architecture finally realized complete independence as an entity in the University organization, and in 1912, with an enrollment of 140, the School moved into its new quarters, Avery Hall, designed by McKim, Mead, and White.

In 1922 William A. Boring became the first dean of the Faculty of Architecture. He foresaw the need for a department of town planning to provide instruction in defining the economic necessities of the community and the safety, health, and other requirements of the individual, and in the devising of plans to satisfy these needs. In this he anticipated the initial offering in 1935 of courses in town planning at the School of Architecture.

The first instance of the School's direct involvement in community service occurred in 1917. When St. Luke's Hospital in New York City proposed to erect an additional building adjacent to its existing facilities, to serve as a war hospital, the School of Architecture at Columbia was requested by the hospital authorities to aid in determining the feasibility of proceeding with the project. The School submitted a group of studies, in the form of eight-day problems, of such excellence that it was designated as architect of the project. This tradition of education and public service continues to this day as the students and faculty of this school continue to participate in a wide range of architecture, planning, and technology programs for the benefit of the community of which it is a part.

In 1966, Professor James Marston Fitch founded the first program in historic preservation in the United States. In 1973, in accord with the decision of the School to offer only graduate degrees, the name of the School was changed to the Graduate School of Architecture and Planning.

Facilities and Resources for Study

The School

The School is located in its own building, Avery Hall; in the adjacent building, Fayerweather; and in the new Avery extension, which connects the two. This complex houses design studios, classrooms, lounges, exhibition galleries, a carpentry workshop, audio-visual facilities, a photography darkroom, and a 300-seat auditorium.

The School and the Avery Architectural Library in Avery Hall have just completed a five-million-dollar expansion and modernization program.

Avery Library

The resources of the world's leading architectural library, the Avery Memorial Library, are located in Avery Hall and the new Avery extension; they are available to the students of the School. Founded by Samuel Putnam Avery in 1890 as a research collection of the important 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 over one hundred and ten thousand books and periodicals on architecture, urban planning,

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 unique collection of books on the contemporary architectural movement. In addition, the library has over twenty thousand original architectural drawings, collections of prints, and rare photographic material. Avery Library also contains the most extensive and up-to-date periodical catalogue in the field of architecture.

Ware Memorial Library

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

Center for Computing Activities

The Columbia University Center for Computing Activities, between Uris and Havemeyer Halls, has available advanced digital computing equipment (at present, principally an IBM System/360 Model 75 and a System/360 Model 91) and related auxiliary equipment for use in academic research projects and in other educational activities requiring computing. Professional programmers are available at the Center to advise and guide persons who use the equipment. Short, noncredit courses are offered by the staff of the Center for qualified students and faculty members.

New York City

The City of New York is a principal resource available to the school. Its endless variety of superb examples of historic and modern buildings provide local laboratories for students and faculty members.

New York's institutions are another significant advantage. Alumni and faculty 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, the South Street Seaport Museum, the Architectural League of New York, the Institute of Architecture and Urban Studies, the Institute for Fine Arts (New York University), the New York City Planning Commission (Urban Design Group), the New York City Landmark Preservation Commission, and the Cooper Hewitt Museum.

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, including planning and other specialized aspects of architecture, are awarded annually to graduating students. Applications from members of the graduating class will be considered for postgraduate travel and for travel during the summer preceding the final year of study. Specific requirements and guidelines will be announced during the academic year.

Mathews Lecture Series

The Charles T. Mathews Foundation Lectures on Medieval Art and Architecture were begun in 1935 with an endowment from Charles T. Mathews (Class of 1889). The 1979 series marked the forty-second annual presentation. George Collins, professor of art history,

Columbia University, lectured on "The Medieval Revival in Spain." The lectures are held in the Wood Auditorium of the new Avery Design Conference Center.

Among the lecturers who have participated in the Mathews Series are Professor Joseph Hudnut (1935); Mr. Grant LaFarge (1936); Professor Leopold Arnaud (1937); Professor Talbot Hamlin (1939); Mr. Everard Upjohn (1942); Professor Meyer Schapiro (1946); Professor Sumner Mck. Crosby (1948); Professor Kenneth Conant with Professor Emerson Swift (1952); Dr. John Mundy (1965); Professor Whitney Stoddard (1967); Professor Henry R. Hitchcock (1971); Sir Nikolaus Pevsner (1972); Professors Collins, Millon, and Ackerman (1973); and Alfred Knox Fraser (1974). In the spring of 1976, Paul Mylonas (National Academy of Fine Arts, Athens) presented a series on Middle, Late, and Post-Byzantine Architecture in Greece; and Spiro Kostof of the University of California (Berkeley) presented "The Seat of Peter: The Mediaevelizing of Rome," in the autumn of that year. In 1977, Professor Vincent Scully of Yale University lectured on "Suger to Fouquet: The Structure of French Art."

Programs and Degrees

Master of Architecture

Master of Science in Architectural Technology

Master of Science in Architecture and Urban Design
Section I: Building Design
Section II: Urban Design

Master of Science in Historic Preservation

Master of Science in Urban Planning

Through the Graduate School of Arts and Sciences

Doctor of Philosophy in Urban Planning

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 Historic Preservation—Master of Science in Urban Planning (under consideration)

Master of Science in Urban Planning—Master of Business Administration (in conjunction with the Graduate School of Business)

Master of Science in Urban Planning—Master of International Affairs (in conjunction with the School of International 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 School of Public Health)

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

Statement of Nondiscriminatory Policies

The University is required by certain Federal statutes and administrative regulations to publish the following statements:

Consistent with the requirements of Title IX of the Education Amendments of 1972, as amended, and Part 86 of 45 C.F.R., the University does not discriminate on the basis of sex in the conduct or operation of its education programs or activities (including employment therein and admission thereto). Inquiries concerning the application of Title IX and Part 86 of 45 C.F.R. may be referred to the University's Equal Opportunity Office (402 Low Memorial Library, New York, N.Y. 10027, telephone 212-280-3554), or to the Director, Office for Civil Rights (Region II), 26 Federal Plaza, New York, N.Y. 10007.

Columbia University admits students of any race, color, national and ethnic origin to all the rights, privileges, programs, and activities generally accorded or made available to students at the University. It does not discriminate on the basis of race, color, national and ethnic origin in administration of its educational policies, admissions policies, scholarship and loan programs, and athletic and other University-administered programs.

Consistent with the requirements of Section 504 of the Rehabilitation Act of 1973, as amended, and Part 84 of 45 C.F.R., the University does not discriminate on the basis of handicap in admission or access to, or employment in, its programs and activities. Section 503 of the Rehabilitation Act of 1973 requires affirmative action to employ and advance in employment qualified handicapped workers.

The University in addition desires to call attention to other laws and regulations that protect employees, students, and applicants.

Title VI of the Civil Rights Act of 1964, as amended, prohibits discrimination on the basis of race, color, or national origin in programs or activities receiving Federal financial assistance. Title VII of the Civil Rights Act of 1964, as amended, prohibits employment discrimination because of race, color, religion, sex or national origin. Executive Order 11246, as amended, prohibits discrimination in employment because of race, color, religion, sex or national origin and requires affirmative action to ensure equality of opportunity in all aspects of employment.

The Equal Pay Act of 1963 prohibits discrimination on the basis of sex in rates of pay. The Age Discrimination in Employment Act of 1967, as amended, prohibits discrimination in employment on the basis of age.

The Columbia University Senate on December 1, 1978, passed a resolution announcing its general educational policy on discrimination which reaffirms the University's commitment to nondiscriminatory policies in the above-mentioned categories, as well as its policy not to discriminate on the basis of sexual orientation.

Section 402 of the Vietnam Era Veterans' Readjustment Assistance Act of 1974, as amended, prohibits job discrimination and requires affirmative action to employ and advance in employment (1) qualified Vietnam era veterans during the first four years after their discharge and (2) qualified disabled veterans throughout their working life if they have a 30 percent or more disability.

The University's Equal Opportunity Office has also been designated to coordinate the University's compliance activities under each of the programs referred to above.

Reservation of University Rights

This bulletin is intended for the guidance of persons applying for or considering application for admission to Columbia University and for the guidance of Columbia students and faculty. The bulletin sets forth in general the manner in which the University intends to proceed with respect to the matters set forth herein, but the University reserves the right to depart without notice from the terms of this bulletin. The bulletin is not intended to be and should not be regarded as a contract between the University and any student or other person.

Faculty of Architecture and Planning

MICHAEL I. SOVERN, LL.B. *President of the University*

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B.A., Harvard, 1955; M.Arch., 1958. Fulbright Fellow, France, 1958-1959. Member, American Institute of Architects. Registered architect.

CHRISTINE BOYER. *Associate Professor of Urban Planning (Historic Preservation Program)*
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ROBB BURLAGE. *Assistant Professor of Urban Planning*
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B.Arch.Eng., Pennsylvania State, 1965; M.Arch., Pennsylvania, 1968. Principal urban designer, City of New York. Registered architect. N.C.A.R.B. certificate.

JAMES MARSTON FITCH. *Special Lecturer in Architecture; Professor Emeritus of Architecture (Historic Preservation Program)*
Alabama, 1926; Tulane, 1928. Director, American Society of Architectural Historians; Municipal Art Society; Victorian Society in America. Member, National Committee, International Commission of Monuments and Sites; Advisory Council on Historic Preservation. Associate member, American Institute of Architects.

WILLIAM G. FOULKS. *Assistant Professor of Architecture (Historic Preservation Program)*
B.Arch., Michigan, 1968; M.A., Columbia, 1972.

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Dipl. Arch., Dipl. Trop., Architectural Association (London), 1956; A.R.I.B.A., 1957. Fellow, The Institute for Architecture and Urban Studies, New York. AIA/ACSA Teachers' Seminar Planning Committee, 1969-1970. Member, Conference of Architects for the Study of the Environment; Society of Architectural Historians, Loeb Fellow in Advanced Environmental Studies, 1973.

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Architect, Rome, 1948; M.S., Columbia, 1951. Member, American Institute of Architects; Italian Order of Architects. Registered architect. N.C.A.R.B. certificate.

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B.S.Arch., Cincinnati, 1967; M.S., Columbia, 1968. Member, American Institute of Architects. Registered architect. N.C.A.R.B. certificate.

WILLIAM MEYER. *Adjunct Associate Professor in Architecture*
B.Arch., Minnesota, 1967; M.Arch., M.I.T., 1968; M.S., 1974. Member, American Institute of Architects. Vice president, Ehrenkrantz Group; Project Fellowship, N.E.A., 1980. Excellence in Design Award for a passive solar house competition, NYSERDA. Registered architect.

W. BROWN MORTON III. *Adjunct Professor of Architecture*
B.A., Virginia, 1961. Chairman, U.S. ICOMOS, 1975–1979. UNESCO expert, Nepal, Indonesia, Viet Nam.

DANIEL S. PERRY. *Adjunct Assistant Professor in Architecture*
B.A., Princeton, 1962; M.F.A., 1964. Member, American Institute of Architects; Construction Specifications Institute. Registered architect. N.C.A.R.B. certificate.

T. MERRILL PRENTICE, JR. *Adjunct Associate Professor of Architecture*
B.A., Yale, 1953; M.Arch., 1960. Past president, Municipal Art Society of New York.

THEODORE H. M. PRUDON. *Senior Research Associate and Lecturer in Architecture (Historic Preservation Program)*
M.A., Delft University of Technology, 1969; M.S., Columbia, 1972. William F. Kinne Fellows Traveling Fellow, 1972. Member, Dutch Society of Architects.

BERT SALWEN. *Adjunct Professor of Architecture*
B.S., Columbia, 1941; Ph.D., 1964. Currently professor, acting chairman, anthropology, N.Y.U. President-elect, Society for Historical Archaeology, 1980. Archeologist, part-time, Interagency Archeological Services, Division of Heritage Conservation and Recreation Service, U.S. Department of the Interior.

FRANK EMILE SANCHIS. *Adjunct Assistant Professor of Architecture (Historic Preservation Program)*
B.Arch., Pratt Institute, 1967; M.S., Columbia, 1969. Member, American Institute of Architects; National Trust for Historical Preservation; Society of Architectural Historians; Victorian Society in America, New York Chapter. Registered architect. N.C.A.R.B. certificate.

WILLIAM SEALE. *Adjunct Professor of Architecture*
B.A., Southwestern, 1961; M.A., Duke, 1963; Ph.D., 1965. Editor, *19th Century.* Consultant, White House Historical Association, Washington, D.C.; Florida State Capitol restoration, Tallahassee. Author, *Temples of Democracy, Tasteful Interludes,* and *Recreating the Historic House Interior.*

MEREDITH SYKES. *Adjunct Assistant Professor of Architecture*
B.A., New York University, 1961; M.A., 1964. Director of survey, Urban Cultural Resources Surveys, Landmarks Preservation Commission of New York City.

GEORGE TATUM. *Adjunct Professor of Architecture*
B.A., Princeton, 1940; M.F.A., 1947; Ph.D., 1950. Former chairman and vice dean, University of Pennsylvania. H. Rodney Sharp Professor of Art History Emeritus, University of Delaware. Affiliated with Winterthur. Honorary member, American Institute of Architects. Commissioner and chairman, National Collection of Fine Arts, Washington, D.C.

SUSANA TORRE. *Adjunct Associate Professor of Architecture*
Diploma Architecture, Buenos Aires, 1967. Edgar Kaufman Foundation Scholar, 1967. New York State Council of the Arts grant, 1969. Fellow, Noble Foundation, 1970; Fellow in environmental arts, Institute for Art and Urban Resources, J. Clawson Mils Award. Project

director, Architectural League of New York, grant awarded by the National Endowment for the Arts, 1973; individual project grant, 1979.

THOMAS VIETORISZ. *Adjunct Professor of Urban Planning*
Absolutorium, Technical University (Budapest), 1946; M.S., Massachusetts Institute of Technology, 1948; Ph.D., 1956.

STUART WREDE. *Adjunct Assistant Professor of Architecture*
B.A., Yale, 1965; M.Arch., 1970.

Administrative Officers

JAMES STEWART POLSHEK. *Dean of the Faculty of Architecture and Planning; Special Adviser to the President of the University for Physical Development and Planning; Director, Center for Advanced Research in Urban and Environmental Affairs*

ARLENE P. JACOBS. *Assistant Dean for Administration; Executive Assistant to the Dean*

LOES SCHILLER. *Assistant Dean for Admissions, Financial Aid, and Student Affairs*

ARVERNA ADAMS. *Assistant Dean for Minority Affairs and Project Research*

J. MAX BOND, JR. *Chairman of the Division of Architecture*

CYRIL M. HARRIS. *Chairman of the Division of Architectural Technology*

ELLIOTT D. SCLAR. *Chairman of the Division of Urban Planning*

EDWARD MERKLE. *Associate Registrar*

JANE H. BOBBE. *Administrative Assistant*

HELEN ECKELMAN. *Administrative Assistant, Admissions and Student Affairs*

ANN L. BUTTENWIESER. *Assistant to the Chairman of Urban Planning for Project Research*

SIMAH KRAUS. *Administrative Assistant, Architecture Division*

DAVID HINKLE. *Secretary to the Dean*

NANCY SUTULA. *Planning Division Secretary*

DORRINE VECA. *Historic Preservation Program Secretary*

JOSEPH SMITH. *Receptionist*

Avery Library

ADOLF K. PLACZEK. *Avery Librarian*

WILLIAM P. O'MALLEY. *Reference Librarian*

HERBERT MITCHELL. *Bibliographer*

CHARLING C. FAGAN. *Head, Access and Support Services*

CAROL FALCIONE. *City Planning and Housing Librarian*

CHRISTINA HUEMER. *Fine Arts Librarian*

Emeriti and Retired Officers

LEOPOLD ARNAUD. *Ware Professor Emeritus of Architecture; Dean Emeritus of the Faculty of Architecture*

JAMES MARSTON FITCH. *Professor Emeritus of Architecture*

ERNEST M. FISHER. *Professor Emeritus of Urban Land Economics*

PERCIVAL GOODMAN. *Professor Emeritus of Architecture*

CHARLES J. RIEGER. *Professor of Architecture, Retired*

MARIO G. SALVADORI. *James Renwick Professor Emeritus of Civil Engineering and Architecture*

KENNETH A. SMITH. *Professor Emeritus of Architecture; Dean Emeritus of the Faculty of Architecture*

Participating Visitors to the Graduate School of Architecture and Planning

The following visitors participated in seminars, reviews, or lectures held at the Graduate School of Architecture and Planning during the academic year 1979-1980:

Bruce Abbey
Diana Agrest
Steve Anderson
Leslie Armstrong
Simon Atkinson
Edward Barnes
Tosun Bayrak
Malcolm Bell
Lynn Bensen
Hobart Betts
Christine Bevington
Jack Beyen
Mario Botta
Andre Bruyere
Mario Campi
Elliot Canoe
Gil Cass
Alan Chimacoff
Chris and John Chimera
Miles and Mark Cigolle
Bill Conklin
Lee Copland
Wittaker Craig
Thomas Dahlquist
Lewis Davis
Judy Edelman
Nold Egenter
Ulrich Franzen
Harold Fredenberg
James Freed
Antoine Grumbach
David Handlin
Christopher Harding
William Harris
Ann Henry
Peter Hoppner
Anthony Hunt
John Johansen
Beyhan Karanan
O. P. King
Stephan Klein
Etel Kramer
Lucien Kroll
Florence Ladd
Peter Land
Lars Larup
Megan Lawrence
Conrad Levinson
Karl Linn
Helen Lippstadt
Harold A. McDougall
Garrison McNeil
Robert Maxwell
Robert Meadows
Richard Meier
Gerard Murtagh
Sandy Pei
Otto Pierce
Stefanos Polyzoides
Harry Portnoy
Steven Potter
Tim Prentice
Alex Purves
Michael Pyatok
Yacov Rechter
Peter Richards
Charles Rogers, II
Peter Rolland
Michael Rubin
Joseph Rykwert
Frederick St. Florian
Colin Scharp
Goran Schildt
Werner Seligman
John Shiff
Jane Siris
Henry Smith-Miller
Walter South
Dan Toan
Herbert Tonkin
Susanna Torres
Carlus Vallharvat
Anthony Vidler
Peter Waldman
Kajimir and Hanna Wejchert
Tod Williams
George White

Division of Architecture

CHAIRMAN: J. Max Bond, Jr.

The curriculum of the Division of Architecture includes two kinds of study: (*a*) the professionally accredited program in architecture which leads to the M.Arch. degree and (*b*) specialized areas of study which lead to the M.S. degree. There are two M.S. programs: in urban design and in historic preservation. These three programs of the Division of Architecture are organized independently, with separate directors and admissions criteria. However, faculty and course work are organized jointly whenever desirable.

The programs of the Division of Architecture are intended to explore diverse architectural issues. The curriculum seeks to reveal the impact of historical, cultural, social, technological, and economic determinants of form through a concentration on three primary areas—the perceptual, the cultural, and the constructional. Some of the goals and procedures implicit in these concerns are set forth below. These broad frames of reference are interdependent. Interacting continually, they redefine specific areas of inquiry, responding to the shifting needs of an evolving society. While each frame of reference is important, the perceptual remains the central concern of the curriculum and the area of major concentration. The constructional and cultural concerns serve to modify and to reinforce the perceptual.

Perceptual Concerns

—to positively affect and influence intellectual and physical growth by the creation of physical situations that satisfy the need for amenity, harmony, and beauty.

—to give order to the individual and collective elements that comprise the man-made environment by

1. discovering the relationships between disparate natural and man-made phenomena; by
2. formulating these relationships into particular areas of inquiry in a communicable and verifiable manner; and by
3. communicating these findings to others in a way that encourages interdisciplinary syntheses based on an understanding of the underlying principles that govern our physical world.

Cultural Concerns

—to comprehend and rationalize the chaotic aspects of society so that these can be constructively integrated into the fabric of our lives by the creation of conditions that satisfy social and psychological needs.

—to broaden our perception of the social, political, and economic world by

1. intensifying our sensitivity to the specific needs and cultural imperatives of the diverse groups that are involved in environmental decision making, and expanding our understanding of the ways in which these groups perceive and integrate environmental stimuli; and by
2. developing an understanding of the internal dynamics and external consequences of policy and decision making in the bureaucracies and technocracies that have responsibility for the generation and implementation of socially effective changes in the physical environment.

Constructional Concerns

—to understand the links between design and the socioeconomic aspects of building.

—to understand the physical complexities and constraints as well as the functional interdependencies and opportunities that determine so many aspects of our lives and to create and maintain conditions that promote survival and satisfy the need for security.

—to understand science and mathematics sufficiently to be able to explain and direct the use of various pertinent technologies in a responsible manner, including their orderly integration into the fabric of the physical environment.

Master of Architecture Degree

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 principles in relation to broader historic and contemporary issues in a changing culture. 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 attitudes. The faculty believes that a variety of pedagogical approaches delivered within 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 graduate-level interests 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—programs that respond to changing student attitudes and evolving societal 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 Comprehensive 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 conceptual analysis of the cultural role of design activity in general. The Technology Sequence and Methods/Practice Sequence prepare the student to understand the structural, constructural, and management consequences of design decisions. The Visual Studies Sequence provides specialized investigation that complements the normal studio work. The Elective Sequence, which permits the student to pursue individual interests in architectural and environmental topics, may become 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 have 108 graduate-level course points that are approved by the Graduate School of Architecture and Planning. 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 (S), History/Theory (H/T), Technology (T), Visual Studies (VS), Methods/Practice (M/P), and Elective. Each category (except Elective) has requirements that must be fulfilled.

I. STUDIO COURSE SEQUENCE (S)

A. S Prerequisite for Entry into M.Arch. Program
A 3-point course in architectural representation offered by the Graduate School of Architecture and Planning for entering students with a deficiency in graphic ability. The following course offered in the Summer Session fulfills the requirement:
Architecture S1020R Architectural representation: introduction 3 pts

B. S Requirements for M.Arch. Program
Six sequential studios starting in autumn term, first year:

A4001	Comprehensive studio I	7 pts
A4002	Comprehensive studio II	7 pts
A4003	Comprehensive studio III	7 pts
A4004	Comprehensive studio IV	7 pts
A4005	Comprehensive studio V	7 pts
A4006	Comprehensive studio VI	7 pts

Total: 42 pts

C. S Distributional Requirements for M.Arch. Program:
None

II. HISTORY/THEORY COURSE SEQUENCE (H/T)

A. H/T Prerequisite for Entry into M.Arch. Program
Any 3-point survey course in the history of architecture but with strong recommendation for a course in either the evolution of classical architecture from the Renaissance to the modern period or modern architecture.
The following course is offered in the University Summer Session:
Art History S3660D Modern architecture 3 pts

B. H/T Requirements for M.Arch. Program
Three sequential H/T courses:

A4348	Thresholds in the history of Western architecture I	3 pts
A4349	Thresholds in the history of Western architecture II	3 pts
A4400	Formal principles of architectural design	3 pts

Total: 9 pts

C. H/T Distributional Requirements for M. Arch. Program
The following two courses are prerequisites for all H/T distributional requirements:
A4348 Thresholds in the history of Western architecture I
A4349 Thresholds in the history of Western architecture II

Four H/T courses out of seven offered: Total: 12 pts

A4357	Renaissance seminar	3 pts
A4407	Landscape, urbanism, and the garden	3 pts
A4410	Design attitudes in European and American urbanism, 1750-1930	3 pts
A4421	Twentieth-century architecture I	3 pts
A4456	Twentieth-century architecture II	3 pts
A6731	American architecture after 1860	3 pts
A6734	The classical language and literature of architecture	3 pts

III. TECHNOLOGY COURSE SEQUENCE (T)

A. T Prerequisite for Entry into M.Arch. Program
A 3-point course in elementary calculus. The following course is offered in the

Columbia Summer Session:

Mathematics S1100J	Brief calculus	3 pts
Mathematics S1101D or S1101J	Calculus I	3 pts

B. T Requirements for M.Arch. Program

Eight sequential T-required courses:

A4110	Building of buildings	2 pts
A4111	Statics and strengths of structures	3 pts
A4123	Wood and steel	2 pts
A4125	Concrete	2 pts
A4220	Construction technology I	3 pts
A4221	Construction technology II	3 pts
A4610	Environmental control systems	3 pts
A4611	Advanced environmental control systems	3 pts
		Total: 21 pts

C. T Distributional Requirements for M.Arch. Program

Two T courses out of six offered: Total: 5 pts (minimum)

A4134	Experimental structures	2 pts
A4626	Architectural detailing	3 pts
A4628	Architectural acoustics	3 pts
A4637	Lighting and buildings	3 pts
A4653	Workshop on climate and building design	3 pts
A6134	Architectural consequences of structural decisions	3 pts

IV. VISUAL STUDIES COURSE SEQUENCE (VS)

A. VS Prerequisite for Entry into M.Arch. Program:
None

B. VS Requirements for M.Arch. Program:
None

C. VS Distributional Requirements for M.Arch. Program

One VS course out of two offered: Total: 3 pts

A4500	Architectural representation: studio	3 pts
A4526	Architectural representation: seminar	3 pts

V. METHODS/PRACTICES COURSE SEQUENCE (M/P)

A. M/P Prerequisite for Entry into M.Arch. Program:
None

B. M/P Requirements for M.Arch. Program:
None

C. M/P Distributional Requirements for M.Arch. Program

One M/P course out of three offered: Total: 2 pts

A4246	Construction management and cost control	2 pts
A4538	Development and finance	3 pts
A4560	Architectural practice and legal aspects of construction	3 pts

VI. ELECTIVES

The following are elective courses offered by the Division of Architecture and the Division of Urban Planning and from other schools and colleges that may be applied toward completion of the M.Arch. degree:

A. Division of Architecture

History/Theory

C3301	The beginnings of architecture	3 pts
C3302	Architecture in the Western world	3 pts
A4350	Eclecticism: the function of memory in Anglo-American domestic architecture, 1876–1929	3 pts
A4355	Frank Lloyd Wright	3 pts
A4356	Classical seminar	3 pts
A4359	Renaissance to Baroque	3 pts
A4366	Historical evolution of housing in New York City	3 pts
A4380	Architectural field study	4 pts
A4450	Modern architecture and cultural identity: Asplund, Aalto, and Saarinen	3 pts
A6732	American decorative arts before the American Crystal Palace Exhibition	3 pts
A6733	American decorative arts after the American Crystal Palace Exhibition	3 pts
A6739	Evolution of American city plans	3 pts
A8790	Research in history of architecture	2 or 3 pts

Methods/Practice

A4405	Principles of urban design	3 pts
A4530	Computers in architecture	3 pts
A4539	Advanced development and finance	3 pts
A4545	Economics in urban design	3 pts
A4623	Economic analysis of current housing technologies	3 pts
A4624	Economic infrastructure of building as an activity	3 pts
A6710	Practical problems in architectural preservation	3 pts
A6712	Conservation seminar: color technology	3 pts
A6740-A6741	Seminar in restoration and preservation	3 pts
A6742-A6743	Historical interiors	3 pts
A6747	Introduction to archaeology in preservation	2 pts
A6748	Advanced archaeology in preservation	2 pts
A6759	Politics of preservation	2 pts
A6763	Advanced conservation science	3 pts
A6764	Conservation science	3 pts
A6767	Planning for neighborhood preservation	3 pts

Technology

A4154	Structures review	1 pt
A4225	Construction technology review	1 pt
A4626	Architectural detailing	3 pts
A6760	American building technology	3 pts

B. Division of Urban Planning

PI A4010	Issues in the city	3 pts
PI A4112	The city as a physical system	3 pts
PI A4120	Public intervention in the urban physical system	3 pts
PI A4304	Housing and community development	3 pts
PI A4312	Analytic techniques for housing, planning, and programming	3 pts
PI A4412	The location of housing	3 pts
PI A4510	Planning in socialist countries	3 pts
PI A6001	Introduction to the planning profession	3 pts

C. Electives in Other Schools

The following are additional courses, which are approved for M.Arch. elective credit, offered at Barnard College and Columbia College, and the School of the

Arts, the Graduate School of Arts and Sciences, the Graduate School of Business, the School of Engineering and Applied Science, and the School of Law. An updated list of all elective courses is published each term.

Art History 61 (Barnard)	European architecture from the Renaissance to 1700	3 pts
Art History 69 (Barnard)	French architecture 1500–1800	3 pts
Art History 70 (Barnard)	European and American architecture from the 18th century to 1900	3 pts
Art History 93 (Barnard)	Seminar in fantasy architecture	3 pts
B6013	Managerial accounting	3 pts
C3833	Twentieth-century architecture	3 pts
C.E. E3121	Structural analysis I	3 pts
C.E. E3122	Elements of structural design	3 pts
C.E. E3123	Structural analysis II	3 pts
C.E. E3131	Related concrete theory	3 pts
C.E. E4129	Construction management	3 pts
G4047	Urban sociology and social policy	3 pts
G4060	Primitive architecture and planning	3 pts
G4083	Mesoamerican architecture	3 pts
G4261	Roman imperial architecture	3 pts
G4663	Modern architecture: early 20th century	3 pts
G4664	Modern architecture: later 20th century	3 pts
G8005	Colloquium on the history of architecture	3 pts
G8637	German Expressionist art and architecture	3 pts
Geography (Barnard)	New York metropolitan region	3 pts
L6242	Environmental law	3 pts
R1021	Clay modeling I	3 pts
R1022	Clay modeling II	3 pts
V3100	Urban societies	3 pts
V3203	Arts of Japan	3 pts
V3248	Greek art and architecture	3 pts
V3250	Roman art and architecture	3 pts
V3801	Aesthetics	3 pts
W1019	Spatial organization of society	3 pts
W1310	Perception and the visual arts	3 pts
W3100	Urban societies	3 pts
W4041	Urban geography	3 pts
W4203	The medieval town: layout, planning, and society	3 pts

VII. SUMMER COURSES

A. Summer Programs Abroad

The School offers summer programs abroad that can be taken for elective credit. 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. For further information about the following programs consult the Graduate School of Architecture and Planning:

Architecture S4051Q	Paris and urban form	3 pts

B. Summer Session Courses

The following are other architecture-related elective courses offered at Columbia during the summer. For further information about these courses consult the bulletin of the Columbia Summer Session.

Architecture S1020R	Architectural representation: introduction	3 pts
Architecture S4030D	Architectural design studio	3 pts
Architecture S4111D	Statics and strengths of structures	3 pts

Architecture S4528D Architectural photography	3 pts
Architecture S6900Z or S6901Z Research, I or II	2 or 3 pts
Art History S3660D Modern architecture	3 pts
Mathematics S1100J Brief calculus	3 pts
Mathematics S1101D or S1101J Calculus I	3 pts
Planning S4007J Urban design theory	3 pts

Students enrolled in the M.Arch. Program may count only those elective courses toward the M.Arch. degree that are considered to be directly related to architectural theory and practice. All courses which have not been preapproved for elective credit may be credited only with permission of the chairperson. Undergraduate-level courses will be credited only with sufficient evidence that the subject matter was unavailable to the student as a graduate course.

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. Exceptions will be granted by the chairperson only through petition for a leave of absence. M.Arch. degree candidates must be matriculated in the program for at least two years (72 points) and must spend the last term in residence. A maximum of two research courses may be taken toward the M.Arch. degree.

Example of Three-Year M.Arch. Curriculum

First Year

Autumn Term		POINTS
A4001	Comprehensive studio I	7
A4110	Building of buildings	2
A4220	Construction technology I	3
A4348	Thresholds in the history of architecture I	3
A4400	Formal principles of architectural design	3
		18

Spring Term		POINTS
A4002	Comprehensive studio II	7
A4111	Statics and strengths of structures	3
A4221	Construction technology II	3
A4349	Thresholds in the history of architecture II	3
	VS distribution requirement	3
		19
		Year Total: 37

Second Year

Autumn Term		POINTS
A4003	Comprehensive studio III	7
A4123	Wood and steel	2
A4610	Environmental control systems	3
	H/T distribution requirement (1)	3
	H/T distribution requirement (2)	3
		18

Spring Term

		POINTS
A4004	Comprehensive studio IV	7
A4125	Concrete	2
A4611	Advanced environmental control systems	3
	H/T distribution requirement (3)	3
	H/T distribution requirement (4)	3
		18

Year Total: 36

Third Year

Autumn Term

		POINTS
A4005	Comprehensive studio V	7
	T distribution requirement (1)	2
	Elective (1)	3
	Elective (2)	3
	Elective (3)	3
		18

Spring Term

		POINTS
A4006	Comprehensive studio VI	7
	T distribution requirement (2)	3
	M/P distribution requirement (1)	2
	Elective (4)	3
	Elective (5)	2
		17

Year Total: 35

Total for M.Arch. Degree: 108 minimum

Master of Science Degree in Architecture and Urban Design

Section I: Building Design

DIRECTOR: Mr. Romaldo Giurgola

Objectives of the Program

Building design is an intensive one-year program carried out under the supervision and instruction of experienced professional architects and teachers. The main aims of the program are as follows:

1. To provide an opportunity for young professionals with a bachelor's or master's degree and two years work experience in an architectural office to enter into an intensive course of postgraduate study in architectural design.
2. To enable both faculty and students to return to certain salient issues in the practice of architecture, including the determination of an appropriate building typology suitable for the accomodation of a number of specific institutions and the procedures according to which a consistent architectural language may be developed for the representation of such institutions.
3. To afford an opportunity for studying the ways in which the actual conditions of building production limit and determine the constituent elements of architectural form.

The Organization and Content of the Program

The new program is a one year sequence. During the year either a single studio topic is examined under two consecutive studio masters with attention given to different scales or forms, or a separate topic is introduced in each of the two terms of the program. In general the subject matter is restricted to the medium-scaled public institution. Each term is directed by a studio master who is either a full-time faculty member of the Graduate School of Architecture and Planning or a visiting professor and practising architect of international stature. Studio masters give lectures on their own practices, including site visits where feasible and are assisted by eminent design critics and seminar speakers who actively participate in the curriculum. The emphasis of the studio work is on precise and detailed architectonic solutions to specific problems that require a high standard of presentation and the development of detailed elements on a large scale. The construction of a three-dimensional large scale model of a section of the material under consideration is a requirement of the program. An advanced seminar on the critical analysis of built form focuses on either the work of a single master architect or compares the works of various renowned practitioners. As far as possible this analysis addresses itself to the work of living architects.

The program is comprised of related seminars and studios that account for 24 points of credit (12 per term). The additional 12 points of the 36 required are met by electives selected from any one of the sixteen schools of the University, as well as from course offerings from the Graduate School of Architecture and Planning.

Faculty

The studio masters for 1980–1981 are Romaldo Giurgola, autumn term, and Charles Gwathmey, spring term. The advanced theory seminar is taught by Kenneth Frampton.

Admissions Criteria

A Bachelor of Architecture or a Master of Architecture degree is required, plus two years work experience in an architectural office.

Section II: Urban Design

DIRECTOR: Mr. Stanton Eckstut

The Program

The urban design program is a one-year program offering a Master of Science degree in architecture and urban design. A student's perspective is broadened to design cities, not buildings through introducing new disciplines and interests other than single clients, teaching tools to manipulate change, and providing mechanisms to carry out design proposals with the broadest support. In offering this program, it is the University's objective to develop and elaborate a consistent set of proposals and guidelines for the practice of urban design and to form a core of urban design professionals for both public and private sectors.

Policy Statement

It is necessary to consider urban design as a profession distinct from both architecture and urban planning and to define it according to the following policy statement:

1. The *scope* of urban design is any action that shapes the physical environment of cities. That action may be a building, a piece of legislation, or a budget allocation.
2. The *purpose* of urban design is to maximize public benefits and minimize the adverse impacts imposed by such actions.
3. The *commitment* of urban design is to a "sense of place." Place is determined not only by the physical character, but also by the operating social, economic, political, and natural systems.
4. The *process* of urban design is comprehensive. It requires the participation of many professional disciplines and active community support to suggest actions that reinforce rather than disrupt existing patterns.
5. The *result* of urban design is that the most desirable physical solution typically generates an acceptable political response.
6. In *conclusion,* urban design is a profession dedicated to the public, through the means of a highly articulated and compatible architecture.

The above set of policies recognize the importance of government regulation in shaping the physical environment. Either by incentive legislation, environmental review, or capital budget allocation, the process of building cities has become irretrievably linked with government action. Government is a primary force in urban development. Legitimate urban design is primarily accountable to the public at large rather than to private interests.

Studios

The design studio, the traditional core of architectural education, continues to be the primary focus of the urban design program. Urban designers, above all, design. One third of the required points in each term are earned in the studio where one does urban design.

The autumn term studio is intended to reveal that physical form is not an accident. The combination of natural features and man-made policies determines the course of development. This studio also introduces the tools, techniques, and methods that emphasize the creative aspects of exploration and description. Through a series of successive problems, each at a different scale, the students improve their understanding of how a city functions, become better acquainted with the fairly regular patterns and forms of an urban area, expand their vocabularly for describing the physical parts and systems of a city, and understand why each place in the city has to be considered unique and treated accordingly. Finally, once the urban designer is able to understand what exists, he or she is asked to suggest how future growth is to be accomodated and how new is to be added to the old.

Consistent with Columbia's priority for professionalism, the spring term studio is converted into an urban design office and the urban designer produces solutions to real projects in the New York City region. Projects are selected to complement ongoing activities and to explore opportunities that would otherwise not come to light. The spring studio, therefore, is conducted as a private office in which the faculty members act as associates and consultants. The students function as project directors, organizing the work program, developing client contacts, scheduling the tasks, and assuming responsibility for the quality of the final product. Presentations are made at the end of the year to client groups and public officials. The products of the office are professional documents having a greater sense of reality than is normally expected from students.

Support Courses

The urban designer does not work alone. Consequently, exposure to other disciplines is fundamental to the program. Courses in law, urban policy and management, real estate, economics, and politics are mandatory. At Columbia an emphasis is placed upon the practical rather than theoretical aspects of urban design. The program is committed to improving the student's ability to achieve his or her designs. In order to integrate the curriculum and relate as much as possible to the studio, the support courses stress the following issues:

1. *Land use and physical development* including density, design controls, infrastructure systems, and open space networks.
2. *Large scale development* including phasing, timing, budgeting, and governmental coordination.
3. *Circulation systems* including pedestrian, automobile, truck, and transit.
4. *Implementation strategies* including property acquisition techniques, incentive zoning, capital sources, taxation, and private finance.
5. *Public benefits*—the overall objective of any urban design effort.

The Faculty

Each member of the faculty is currently involved in some aspect of the practice of urban design. Each member strongly believes in the public concept of urban design and, with few exceptions, each member has served extensively in the public sector.

Master of Science Degree in Historic Preservation

DIRECTOR: Mr. William J. Murtagh

Background of the Program

Started over a decade ago, the program in historic preservation in the Graduate School of Architecture and Planning is the largest and oldest training program of its kind in the United States. The need for specialized training in this complex field is an outgrowth of the search to maintain a built environment threatened by the explosive changes stimulated during the post-World War II era by government and private funding.

Historic preservation initially reflected a concern with saving landmarks intellectually isolated from their environments. This interest has progressed from a concern for structures preserved as outdoor museums for pedagological purposes to a concern for entire historic neighborhoods or districts such as Georgetown in Washington, D.C. and Beacon Hill in Boston. Traditionally preoccupied with the architecture of such environments, preservation interest now encompasses the sociological aspects of selectively zoned areas. Since 1966 government grants and legislation has broadened the application of the preservation ethic. Further, the 1976 Tax Reform Act gave economic incentives, which had not previously existed, to recycling the built environment. Preservation activity is currently effecting a strong impact on the aesthetic, historical, political, and economic interests of American society. Concurrent to this development has been the growth of more sophisticated scientific solutions to the technical questions of preservation.

Objectives of the Program

1. To imbue the student with the basic philosophical attributes and capabilities that will enable him or her to verbalize and deliver preservation value judgements of a highly informed nature.
2. To recognize, appreciate, and implement the cross-disciplinary nature of the subject through synoptic exposure to as many peer groups and interests as time permits during the course of the study.
3. To expose the student, through visiting lecturers, to the multifarious practical applications of the theory of preservation.
4. To draw upon the expertise of the architect, planner, historian, and other professionals with which preservation interacts.
5. To train a core of preservation professionals for work in the public and private sectors.

Areas of Concentration

1. *History:* a concern with the traditional basics of physical cultural identification, documentation, chain of title, and surveying.

2. *Design:* a concern for traditional and contemporary visual architectural quality as it relates to in-fill, compatibility, and site specific and ambiental.

3. *Conservation:* a concern for the illnesses of the physical fabric of buildings, the chemistry of building materials, deterioration causes, remedial measures, and intervention.

4. *Planning:* a concern for the administrative, legal, political, social, and economic aspects of preservation as they relate to neighborhoods recognized as old and historic districts, but also to site specific.

Program of Study

The two-year program leads to a Master of Science degree. For the degree 60 points are required of which 50 are from preservation courses (required areas/preservation electives) and 10 are from general electives. Individual programs of study are determined in consultation with faculty. Core courses and activities in the required area include:

1. *Seminar in historic preservation:* students are introduced the first year to the basic philosophies of preservation through a synoptic overview of theoretical and practical problems of the field. Visiting lecturers participate. Two terms.

2. *Studios I and II:* students are introduced to the basic tools of preservation work in Studio I. Studio II gives the student the opportunity to use the tools learned in Studio I, in team format, applied to real life situations. Two terms.

3. *Thesis:* an individual project chosen by the student from among four topic areas—historical research; preservation planning studies; design for restoration, rehabilitation, or adaptive use; materials research; or any combination of the above. Thesis must be completed within three years of completion of required course work for degree.

4. *Internship:* a three-month requirement of the program, which can take place before, during, or after the program of study. The student is expected to find and select an internship position. A service is provided by the program to help facilitate this search. A written description of the projected activities is submitted in advance to the director of the program for approval. A short written report describing the experience, as well as a letter of evaluation from the internship supervisor, is submitted at the completion of the three-month period.

As might be expected of a program within a school of architecture, this program is "artifact-centered," that is, its central concern is the wise and civilized management of the actual physical environment, which is a mix of old and new, natural and man-made, monumental and vernacular. This task involves the integration of many skills and kinds of expertise; hence the emphasis upon developing inclusive and broad parameters for judgment and decision making.

Students holding a professional architecture degree may be eligible for advanced standing in certain courses. Incoming students are requested to make up any existing deficiencies deemed necessary by faculty advisors at registration.

It is anticipated that summer training institutes will be developed as time permits and need demands.

Required Areas

CORE COURSES

A6740-A6741	Seminar in restoration and preservation	3 pts
A6749-A6750	Historic preservation studio I & II	4 pts
A6751-A6753	Thesis	3 pts
A6754-A6755	Descriptive analysis of historic buildings I & II	3 pts

HISTORY *Minimum required:* 9 pts

A6730	American architecture before 1860	3 pts
A6731	American architecture after 1860	3 pts
A6732	American decorative arts before the American Crystal Palace Exhibition	3 pts
A6733	American decorative arts after the American Crystal Palace Exhibition	3 pts
A6734	The classical language and literature of architecture: 1485—1840	3 pts
A6752	Museological problem of the historic room	3 pts
A6760	American building technology before 1900	3 pts
A6766	American architecture colloquium	3 pts
A6769	Evolution of American city plans	3 pts
A8790	Research problems in the history of architecture	2 or 3 pts

DESIGN (*no requirements*)

A6774	Historic preservation studio III	4 pts
A6775	Historic preservation studio IV	4 pts

For further information on design courses see *Master of Architecture Degree*—Summary of the Master of Architecture Program, and below, Joint Degree Program.

TECHNOLOGY *Minimum required:* 3 pts

A4110	The building of buildings: a survey of structural principles	2 pts
A4210	Basic principles of traditional construction	2 pts
A6710	Practical problems in architectural preservation	3 pts
A6712	Conservation seminar: color technology	3 pts
A6762	Building pathology	3 pts
A6764	Conservation science	3 pts
A6763	Advanced conservation science	3 pts
A6761	Conservation seminar: masonry	3 pts

PRESERVATION PLANNING *Minimum required:* 3 pts

A4538	Development and finance	3 pts
A6759	Politics of preservation	2 pts
A6767	Planning for neighborhood preservation	3 pts
A6770-A6771	Role and function of preservation commissions	2 pts
A6862	The legal structure of the urban built environment	3 pts

Preservation Electives

A4510	Introduction to architectural recording and analysis	3 pts
A6310	History of landscape architecture	2 pts
A6742-A6743	Historical interiors	2 pts
A6747	Introduction to archeology in preservation	2 pts
A6748	Advanced archaeology in preservation	2 pts
A6756	Reading the building	2 pts

Elective subjects and presentation formats change from term to term depending on the availability of adjunct instructors. For the 1979-1980 academic year they included William Seale, consultant to the White House Historical Association, on historical interiors; W. Brown Morton, preservation consultant and former chief, Technical Preservation Services, Heritage Conservation and Recreation Service, Department of the Interior, on reading historic structures; John Fowler, legal counsel, President's Advisory Council on Historic Preservation, on the politics of preservation; George Tatum, formerly of the University of Delaware, on landscape architecture; Bert Salwen, New York University and Heritage Conservation and Recreation Service, Department of the Interior, on historical archeology; Meredith Sykes, Adelle Chatfield-Taylor, and Frank Sanchis, of the Landmarks Commission of New York City on computerized surveys, on the role of local preservation commissions.

General Electives

Up to 10 points of electives may be chosen from graduate courses outside the program.

Field Trips and Conferences

This is an integral part of the study program, which enables the student to visit a wide range of institutions, projects, and sites throughout the eastern United States and to attend national conferences sponsored by such institutional organizations as the National Trust for Historic Preservation, the Association of Preservation Technology, the National Endowment for the Arts, and the Society of Architectural Historians and major meetings organized at the state or local level. The University assumes a large percentage of the cost of transportation and lodging through the William Kinne Fellows Traveling Fellowships Fund. All students must participate in at least one field trip or conference per year.

Scholarships

Scholarships available to students in this program include the George B. Weitzmann Fellowship in advanced historical research, the Quester's Award for distinguished undergraduate work in architecture, and the William Kinne Fellows Traveling Fellowships for postgraduate travel.

Joint Degree Program

The Graduate School of Architecture and Planning offers the opportunity for certain qualified students to work toward two degrees simultaneously: the Master of Architecture and the Master of Science in historic preservation. 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. The full requirements for each degree are met in this shortened time by allowing certain courses to count towards both degrees, and by using electives from one program to meet requirements in the other.

Admission requirements for both programs must be met. Students wishing to apply for admission to the joint program should check both the M.Arch. and M.S.H.P. boxes on the application form. Those admitted to both programs will ordinarily complete their historic preservation studio sequence in the first year, and begin their architecture studio sequence in the second year. The historic preservation thesis and final architecture studio are combined in one special studio for joint-program students only; this is taken in the second term of the fourth year.

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 Graduate School of Architecture and Planning 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 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.

Because of the interdisciplinary nature of preservation, it is anticipated that other joint degree programs will be developed and offered in the future.

Division of Architectural Technology

CHAIRMAN: Mr. Cyril M. Harris

The Division of Architectural Technology was established to train architects and engineers in those specialties which are essential to improving buildings and building processes. By acquiring training in the latest technologies of building construction and environmental control in buildings, graduate architects increase their ability to communicate with their engineering consultants; by expanding their knowledge of the technical and human problems involved in the construction of buildings, graduate engineers become more effective consultants to architects, owners, and contractors. Team efforts are thereby reinforced.

The Division accepts students with first degrees in either architecture or engineering (or, exceptionally, others whose practice has been in related fields) and arranges graduate programs in technology to fit individual interests and needs. In shaping their programs in consultation with their advisers, students are expected to choose a portion of their course work in an identifiable area of study such as systems building and building construction, environmental control systems in buildings, or construction project management. Students with degrees in civil engineering are able to pursue advanced courses in structural analysis and design. Representative courses emphasizing the integration of mechanical and electrical systems into building processes are available, as are courses in acoustics and illumination, effect on ecological systems of energy generation and consumption, public health delivery systems, and others, together with digital computer applications to many of these studies. A master's thesis, normally written in the area of concentration, is a requirement for the degree of Master of Science in architectural technology. This thesis must be done in residence, under the supervision of a Columbia University faculty member. Research courses are available for the study of special problems, and academic courses and experimental laboratories in other divisions within the University are open to students in the program.

Master of Science Degree in Architectural Technology

Most of the courses shown in the chart "M.S. Degree in Architectural Technology" below are open to all students in the program. Some courses, however, because of their technical content or mathematical sophistication, may be taken only after proper preparation; prerequisites should be checked carefully. In addition to the thesis, all programs should include the following courses (unless these courses duplicate previous work): introductory courses in law and accounting; a course requiring use of computers; a course in systems building; a course emphasizing the interrelationship of structure and design. In addition to the listed courses, many of the offerings of other divisions of the University are available, with approval for one or possibly two elective choices in each program. Students should consult the appropriate bulletins.

To fulfill requirements for the degree students must complete a minimum of 34 points of course work, selected from the chart below.

M.S. Degree Program in Architectural Technology

AUTUMN TERM

SPRING TERM

Structures

	POINTS
A6134* Architectural consequences of structural decisions	3
CE E4023 Advanced structural analysis	3
CE E4241 Soil mechanics and foundations	3
CE E4232 Advanced design of concrete structures	3

	POINTS
A4134 Experimental structures	2
CE E4244 Foundation engineering I	3
Engr Mech E4214 Theory of plates and shells	3
Engr Mech E4215 Theory of vibrations	3

Mechanicals

	POINTS
A4628 Architectural acoustics	3
A4637 Lighting and buildings	2

Computers

	POINTS
Computer Sci E4811* Digital computers: engineering applications	3
Pl A4210 Introduction to computer application to urban planning	3

	POINTS
Computer Sci E4811* Digital computers: engineering applications	3
Graphics E4005 Computer-aided engineering graphics	3

Quantitative Methods

	POINTS
Engr Math E4200 Partial differential equations I	3

	POINTS
Engr Math E4300 Numerical methods	3

Practice Skills

	POINTS
A4624 Economic infrastructure of building as an activity	3
L6201* Accounting for lawyers	2

	POINTS
A4623 Economic analysis of housing technologies	2
Bus Law B6150 Legal aspects of business I	3

Finance

	POINTS
A4538 Development and finance	3
Business B6005 Business in a changing economy	3

	POINTS
A4539 Advanced development and finance	3

Required courses

AUTUMN TERM

SPRING TERM

Construction Systems

	POINTS
A4220 Construction technology I	3
A6760 American building technology	3
CE E4129 Construction management	3

	POINTS
A4246 Construction management and cost control	2
OR E4000 Introduction to methods of operations research	3

Planning

	POINTS
PI A4112 The city as a physical system	3
PI A4404 Urban transportation planning	3

	POINTS
PI A4120 Public intervention in the urban physical system	3

Environmental Studies

	POINTS
A4610 Environmental control systems	2
A4611 Advanced environmental control systems	2
Geography W4100 Environmental bases for regional and ecological systems	3

	POINTS
Engr Law W6277 Noise pollution: engineering and legal aspects	2
Geography W4041 Urban geography	3

Thesis/Research/Experience

	POINTS
A6690* Thesis	3
A6900 Research	2

	POINTS
A6901 Research	2

**Required courses*

Elective Concentrations

To achieve a degree of specialization in an area of technology, it is suggested that 10 to 12 points of elective courses be selected from one of the following groups:

Systems building and building construction	POINTS
Architecture A4246	2
Architecture A4538	3
Architecture A4623	2
Architecture A4624	3

Construction project management	
Architecture A4538	3
Architecture A4539	3
Architecture A4624	3
O.R. E4000	3

Environmental control systems

Architecture A4610	2
Architecture A4611	2
Architecture A4637	2

Structural analysis and design*

C.E. E4023	3
	POINTS
C.E. E4232	3
C.E. E4241	3
C.E. E4244	3
Engr. Mech. E4214	3
Engr. Mech. E4215	3

Normally only for students with first degrees in engineering.

Division of Urban Planning

CHAIRMAN: Mr. Elliott D. Sclar

Purpose

The primary purpose of the Urban Planning Division is the education of students so that they can contribute their knowledge, skills, and human understanding to the improvement of the quality of life in urban society. Course work, field work, community service, and research are means to this end. The division strives to facilitate the joint efforts of students, faculty, and staff toward achieving the goal of improving urban life.

Planning per se involves concern with policy; its vital center is the application of technical knowledge, research findings, and past experience to the city of today and tomorrow. The division at Columbia is concerned with those aspects of planning that deal directly or indirectly with the quality of the urban environment, access to opportunity in the urban setting, and availability of urban services.

Planners may be either publicly or privately employed. The urban planning program at Columbia seeks to educate planners for either role, but places a strong emphasis on matters of public policy. Planning is both a technical and a political process. The educational program is designed to give each student both a competence in technical skills and an understanding of political issues, so that he or she can combine the roles of technical expert, public servant and facilitator, and creative leader, in the particular combination that best suits the particular student. The curriculum is designed to provide understanding of the economic, social, political, and physical processes of urban society; to teach the skills, techniques, and methods of professional planning and of research; and to provide a context for the application of theory and skills to current urban problems, so that what is learned in theory can be tested in practice and can thus also enrich theory.

Emphasis

Given its broad policy-oriented concern, the subject matter of the program necessarily emphasizes the problems and potentials of the great urban regions of the world. The location of the School in the heart of the largest and densest metropolitan area in the United States is particularly opportune. New York City confronts the planner not only with difficult and ineludible challenges but also with a variety of resources with which to meet these challenges. International activities concentrated in the City, including those at United Nations headquarters, provide further resources and foci for the School's program. As part of Columbia University, the breadth and quality of the offerings of the Division of Urban Planning also go far beyond that which the division's size might otherwise dictate, since the division is able to draw upon the resources of the Graduate School of Arts and Sciences and of the other professional schools and educational and research facilities of the University.

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 Graduate School of Architecture and Planning, in conjunction with other schools 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 admissions offices for further information. In the case of the joint program offered in two divisions within the Graduate School of Architecture and Planning, students should consult the Office of Architecture Admissions.

Urban Planning and Architecture

The Graduate School of Architecture and Planning 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 130 points of credit, which may be earned in eight terms in residence in the Graduate School of Architecture and Planning.

Urban Planning and Business

The Graduate School of Business and the Graduate School of Architecture and Planning 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 Graduate School of Business and three terms in the Graduate School of Architecture and Planning.

Urban Planning and Historic Preservation

Pending approval of the University Senate, the Graduate School of Architecture and Planning proposes to offer a joint program leading to the degree of Master of Science in historic preservation and the degree of Master of Science in urban planning. The proposed program will require students to enroll for 90 points of credit, which must be earned in six terms in residence in the Graduate School of Architecture and Planning. Contact the Admissions Office for information on the status of this new program.

Urban Planning and International Affairs

The School of International Affairs and the Graduate School of Architecture and Planning 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 six terms of residence—at least two terms in the School of International Affairs and three terms in the Graduate School of Architecture and Planning.

Urban Planning and Law

The School of Law and the Graduate School of Architecture and Planning 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 and Planning.

Urban Planning and Public Health

The School of Public Health and the Graduate School of Architecture and Planning 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 School of Public Health and three terms in the Graduate School of Architecture and Planning.

Urban Planning and Social Work

The School of Social Work and the Graduate School of Architecture and Planning 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 and Planning.

Supplemental Programs

Under the William F. Kinne Fellows traveling fellowship program, available to students of the Graduate School of Architecture and Planning, a number of planning students are annually eligible to take part in study programs abroad. In order to expand their skills, students are also encouraged to accept employment in planning offices during their summer vacations. Community consultation is an integral part of the curriculum, and several such projects are continuously in operation.

Master of Science Degree in Urban Planning

The Master of Science in urban planning program at Columbia is a 60-point two-year program. It is the core program around which all intensive and joint degree efforts are built. It is, therefore, important that its requirements be fully understood by all students. Essentially the difference between this program and the other programs that the division administers centers on the use of elective courses. *The basic requirements are identical.*

Pedagogically, this program centers on the belief that the best professional education takes place in an environment of learning by doing, reinforced by classroom work that provides an orientation to the larger social and political issues involved in the evolution of policy and planning. This approach is implemented by a program of requirements, which includes workshops in planning skills, courses in analytic methods, planning studios, and thesis seminars. Field practice, although not required, is highly recommended for students with little or no professional work experience.

Program Requirements

Term 1

		POINTS
PI A4208	Analytic methods A	3
PI A6001	Introduction to the planning profession	3
PI A6290	Workshop in planning skills	3

Term 2

PI A4206	Analytic methods B	3
PI A6911	Studio	6

Term 3

Choice of one of five research seminars, in preparation of thesis	3

Term 4

PI A6918 Thesis 3

In addition three courses have to be taken to satisfy the sector requirement.

Sectors

The following sectors are offered in the Planning Division. A minimum of three courses have to be taken within a sector to fulfill requirements. Before choosing a sector, students are advised to consult the *Planning Student's Handbook* and consult with the appropriate director to apprise themselves of details and special requirements for each sector.

Sector	Director
Health and Human Services	R. Burlage
Housing and Community Development	P. Marcuse
Local Economic Planning/Community Economic Development	H. Goldstein
Planning for Developing Nations	R. Y. Kwok
Urban Design and Physical Development	G. Hermanuz

Planning Program for Developing Nations (PPDN)

Within the developing nations sector, the Division of Urban Planning offers students a specialized accelerated graduate study program leading to the degree of Master of Science in urban planning. The career orientation of this program is advanced training of planning professionals for middle- to high-level public offices. The unique feature of this program is that students complete a part of their work as nonresidents, outside of Columbia University, to obtain the professional degree. Their period of residence at Columbia University is thus substantially reduced to sixteen months. *This special concentrated program is available only to foreign students unable to complete the regular twenty-four-month program. Students requesting admission to this program should make their interest known at the time they apply for admission to the Urban Planning Division.*

Students are required to earn the same 60 points for the M.S.U.P. degree as in the full-term program. The residence requirement at Columbia University is shortened to three terms and one summer session to allow for some nonresidence research work to be carried out in the countries of origin or elsewhere. Prior to their attendance at Columbia University, students are required to undertake preparation and preliminary research in conditions and problems of the geographic area in which they expect to work. In the last term, students commence work on their theses, a substantial part of which should be finished before the term ends. Students then conduct additional on-the-spot research in their home countries or elsewhere for the completion of the theses.

Doctor of Philosophy Degree

The specific focus of the Ph.D. program is the analysis of the implications for public policy of knowledge and experience gained in planning and the problems raised or illuminated by that analysis. Such a focus both deepens and limits the concerns of the program. It deepens them by requiring, in addition to an attention to thoroughness of research, care in description, rigor of method, and an awareness of the policy implications of the research findings. On the other hand, it excludes from the main thrust of the program studies unconcerned with policy and thus unrelated to the main direction of the planning profession.

A Ph.D. degree candidate specializing in urban planning may have a background in economics, architecture, engineering, sociology, anthropology, law, or other disciplines

relevant to urban planning. Normally, before entering the doctoral program, the candidate will have earned a master's degree in urban planning or in one of these related fields. The subject of the doctoral dissertation may include historical and critical studies in urban and regional planning. Research for the dissertation must be original and contribute significantly to literature in the field. It must be of a publishable nature.

The doctoral study program prepares candidates for academic careers in teaching and research; it is not intended to be an advanced professional training program. The academic orientation of the program is evident from the fact that it is sponsored by the Graduate School of Arts and Sciences rather than by the Graduate School of Architecture and Planning.

The course requirements and choice of fields of specialization have been defined broadly to allow candidates some freedom to follow their inclinations. For the specific requirements; the chairman of the division of Urban Planning should be consulted. Prospective students are also advised to consult the Graduate School of Arts and Sciences bulletin for further information on the general requirements for the Ph.D. degree.

In brief, the requirements for the Ph.D. degree are as follows:

Courses: every candidate is required to complete 75 points of course work, of which at least 45 points must be earned in residence at Columbia.

Languages: there is no general language requirement imposed on all Ph.D. students. An automatic review is conducted to determine whether a language requirement is appropriate for a given candidate prior to his or her Ph.D. examination or dissertation preparation.

Certifying examinations: after completing the course work and language requirements, a student must pass three examinations to be certified as a Ph.D. candidate.

Dissertation: a publishable research report presented in the form of a dissertation and its defense is the final requirement for the Ph.D. degree.

The student is expected to complete all requirements within a period of seven years after initial enrollment. Those granted advanced standing must complete their studies in a correspondingly shorter period.

Application forms and a bulletin of the Graduate School of Arts and Sciences can be obtained from the Graduate School of Arts and Sciences Office of Student Affairs, 106 Low Memorial Library, Columbia University, New York, N.Y. 10027.

The Center for Advanced Research in Urban and Environmental Affairs

The Center for Advanced Research in Urban and Environmental Affairs was created in 1973 to assist the School in its efforts to serve broadly defined social purposes; to develop new knowledge that materially adds to the vitality of the architecture and planning professions; and to create opportunities for students to undertake advanced research work that complements the basic instructional program and, whenever possible, responds to the technical assistance needs of community service organizations. Moreover, the center seeks to expand the research capability of the School by aiding investigators in the areas of project development, staffing, funding, and publishing, and to insure the high quality of research products and community service activity by channeling to each project the interdisciplinary expertise represented on the center's Board of Advisers.

Research associates of the center include faculty members from the School and from other schools within the University, as well as professionals from public agencies and private firms who contribute their unique talents to research teams. In developing and carrying out research programs, associates have access to the varied and substantial experience of senior faculty members of the School, who are appointed by the Dean from each of the three divisions of the School to serve on the Board of Advisers for the center.

In its brief history, the center has sponsored a diverse series of activities. Projects recently completed or currently underway include:

—A nationwide study of the urban design and legal issues related to over-street construction that proposes design solutions and legal guidelines in considering the lease or sale of air rights.

—Advocacy (a new role for urban design): a comparative study in selected European countries and the United States of the use of advocacy in urban design to measure the potential and limits of using activism for improving public design.

—A three-year urban planning study on the capacity of urban communities to shelter former residents of mental health institutions.

—A study of the relationship between local economic change and the utilization of mental health services in a small industrial town in north central Massachusetts.

—An analysis of an 18,000-unit special survey that reports on the condition and supply of housing in New York City as it relates to rent control.

—The organization of a project to offer planning support to deal with the effects of historic preservation activities on inner-city neighborhoods and indigenous residents.

—The organization of a series of India-United States seminars on community planning and architecture to share and exchange theories, concepts, and technologies.

—An annual conference on urban development activities that seeks to identify and evaluate physical, social, and economic strategies for minority community vitalization.

In addition to its research activities, the center publishes *Preservation Bulletin,* a periodical-poster covering needs and opportunities for historic preservation in the tristate metropolitan area. Produced quarterly by a student-faculty workshop, the *Bulletin* promotes a wider understanding of the tools and techniques of preservation and encourages citizen participation in preservation activities.

A new scholarly publication entitled *Columbia Monographs on Architecture, Preservation, and Planning* is produced under an agreement signed by Praeger Publishers, a division of Holt, Rinehart and Winston, and the Columbia University Graduate School of Architecture and Planning. Topics in the series cover history, theory, professional practice, and policy analysis.

Authors are Columbia faculty, students, alumni, and associates of the school. Titles are generated out of activities of the Graduate School of Architecture and Planning Center for Advanced Research in Urban and Environmental Affairs. Others grow out of lectures and seminars delivered by eminent visitors to the school. These publications foster the educational and research programs within the School as well as in other schools of this and other universities.

Courses of Instruction

The University reserves the right to withdraw or modify the courses of instruction or to change the instructors at any time.

Students may not drop or change courses without official approval.

Numbering of Courses

Each course number consists of a capital letter followed by four digits and the term designation:

The capital letter indicates the University division for whose students the course is primarily offered: A, Architecture; B, Business; C, Columbia College; E, Engineering & Applied Science; F, General Studies; G, Graduate School of Arts and Sciences; L, Law; P, Public Health; R, School of the Arts; S, Summer Session; T, Social Work; W, Inter-Faculty.

The first digit indicates the level of the course, as follows:

0 Course which cannot be credited toward any degree
1 Undergraduate course
3 Undergraduate course, advanced
4 Undergraduate and graduate course
6 Graduate course
8 Graduate course, advanced
9 Graduate research course or seminar

An *x* following the course number indicates that the course meets in the autumn term; a *y* indicates the spring term.

Two consecutive numbers which are joined with a hyphen indicate a course which runs through both terms (e.g., *Architecture A3121x-A3122y).* The first half is prerequisite to the second half unless the course description says otherwise.

Points of Course Credit

The number of points of credit a course carries *per term* is given in boldface type on the right margin of the course entry. The value of a course in points of credit is calculated at the rate of one point for three hours' work each week in each term. The number of points is not determined by the number of class meetings a week, but by the number of hours of work required. For most courses it is assumed that the student will spend at least two hours in preparation for one hour of lecture, recitation, or seminar.

When and Where Classes Meet

The days, hours, and room assignments for all courses given in the Graduate School of Architecture and Planning are posted in Avery Hall at the time of registration. Other University divisions on the Morningside campus publish this information in a separate bulletin, which is distributed at registration.

Division of Architecture

Design Studio

The design program comprises approximately one-third of the total points required for graduation. It is continuously evaluated and modified in order to respond better to the dynamic

nature of the practice of architecture. Short and long design problems, case studies, historical and technological analyses, and research projects are utilized where deemed appropriate.

The student-faculty ratio varies from 14 to 1 to 10 to 1. Team teaching is utilized during most of the first year. In the following two years a carefully worked-out system allows each student to study with at least six different critics on various problems that have in common a concern with fundamental design issues as these are defined by faculty and students.

Design reviewers include visiting architects, historians, and critics as well as faculty members from the Planning, Historic Preservation, and Urban Design Programs of the School.

The following faculty members teach in the design studios: Max Bond, Victor Caliandro, Kenneth Frampton, Romaldo Giurgola, Klaus Herdeg, John James, Ada Karmi-Melamede, Alexander Kouzmanoff, Barbara Littenberg, Mary McLeod, Michael Mostoller, Steven Peterson, Richard Plunz, James Polshek, Michael Schwarting, Robert Stern, Susana Torre, Lauretta Vinciarelli, and Timothy Wood.

Architecture A4001. Comprehensive studio I. 7 pts

Architecture A4002. Comprehensive studio II. 7 pts

Architecture A4003. Comprehensive studio III. 7 pts

Architecture A4004. Comprehensive studio IV. 7 pts

Architecture A4005. Comprehensive studio V. 7 pts

Architecture A4006. Comprehensive studio VI. 7 pts

History Theory

Architecture A4345. Western architecture before 1750. 3 pts
Mr. De Long.
A broad analysis of major concepts in Western architecture before 1750. Significant buildings and building complexes examined in terms of cultural forces that brought them into being and related to those dominant patterns of architectural development that they helped shape. Lectures begin with antecedents in Egypt and the ancient Near East and continue with examples from ancient Greece and Rome, Byzantium, and Medieval, Renaissance, and Baroque Europe. Intended as a preparatory course for more detailed studies in the history of architecture. Mid-term and final examination required.

Architecture A4348x. Thresholds in the history of Western architecture I. 3 pts
Mr. Frampton.
The transformations in Western architecture practice and theory from the Renaissance to the mid-19th century. Not a survey course, but an examination of critical shifts in the basic conception of architecture and its relationship to society. An elucidation of the primary struggles for definition, meaning, and form in architecture during this period. Readings and lectures stress the link between theory and practice; the relationship between conceptual and technical factors; and the cultural, social, and political context out of which they have arisen. An emphasis on that aspect of Western architectural development inseparable from the evolution of bourgeois culture.

Architecture A4349y. Thresholds in the history of Western architecture II. 3 pts
Ms. McLeod.
Continuation of *A4348;* examines transformations in Western architecture from 1850 to 1930.

Architecture A4350x. Eclecticism: the function of memory in Anglo-American domestic architecture, 1876–1929. 3 pts
Mr. Stern.
Seminar examining the function of eclecticism in relationship to tradition and innovation in the period between the Centennial and the advent of the Great Depression. Course work includes lectures, student-conducted slide presentations with accompanying bibliography and precis.

Architecture A4354. Origins of modern architecture. **3 pts**
Mr. Kaufmann.
Prerequisite: the instructor's permission.
From rococo and rationalism through the arts-and-crafts movement.

Architecture A4355. Frank Lloyd Wright: the development of his architectural design. **3 pts**
Mr. Kaufmann.
Prerequisite: the instructor's permission.
Frank Lloyd Wright's practice over seven decades; critical examination of key buildings; Wright's responses to the architecture of other practitioners. Lectures, with student participation through brief weekly reports leading to class discussions. A written final examination essay or a prearranged research paper required.

Architecture A4356x. Classical seminar. **3 pts**
Mr. Giurgola.
An analysis of selected Greek and Roman complexes and buildings to gain insight into these fabrications in their own contexts. A study of the conceptual framework of the aesthetic and utilitarian aspects of the classical experience.

Architecture A4357. Renaissance seminar. **3 pts**
Mr. Giurgola.
An introduction to the architecture of the Renaissance through the study of intentions, results, methodologies, and form. Man-made environment and building complexes studied from the point of view of process and in relation to the present. The Italian experience from the 13th to the early 15th century.

Architecture A4359x. Renaissance to Baroque. **3 pts**
Mr. Schwarting.
Presentation of Italian Renaissance, Mannerist, and Baroque architects, the periods in which they worked, their theoretical interrelationships, and the buildings and physical environment that they created. The formal and stylistic transformations in relation to social, cultural, and apolitical developments. The relation of Italian architecture to the rest of Europe. Study of the city and the garden. A critical evaluation of buildings and planning in terms of ideas that transcend style and time and relate to general issues of architectural problem solving.

Architecture A4366x. Historical evolution of housing in New York City. **3 pts**
Mr. Plunz.
Research seminar on the evolution of housing design in New York City. Emphasis on the period from 1880 to the present. Topics include housing for all levels of income and various modes of development. Emphasis on the architecture of housing, but in relation to social and economic forces as they contribute to continuity in the development of housing types for the city. Case studies include the early high-rise apartment, the evolution of tenement house plans, social housing and philanthropy, squatter settlements, the urban single-family house, the garden apartment, and the "tower-in-the-park."

Architecture A4380. Architectural field study. **4 pts**
Staff.
Particular projects are developed by students under the tutorship of assigned faculty, in conjunction with topics that are prepared during travel-study.

Architecture A4400. Formal principles of architectural design. **3 pts**
Mr. Herdeg.
The investigation and analysis of buildings within and without their cultural context. Emphasis on those design principles that are true for differing cultures and building purposes because they derive their meaning from basic biological and psychological traits as well as from inherent, and thus stable, formal characteristics. Examples of architecture from nonindustrial societies as well as from preindustrial and industrial Europe and America. Lectures and discussions. Intended as a corollary to Comprehensive Studio I.

Architecture A4407y. The city, the garden, and landscape. **3 pts**
Mr. Peterson.
Lectures in architectural theory that analyze city and garden form. Emphasis placed on the relationship between large scale planning principles and various historical concepts of architectural space. A term paper is required.

Architecture A4410. Design attitudes in European and American urbanism: 1750–1930. **3 pts**
Mr. Plunz.
A topical history of architectural approaches to urban form-making. Emphasis is placed on developments in the United States in relation to Europe; and on the formation of design vocabulary in relation to political and cultural issues.

Architecture A4421. Twentieth-century architecture I. **3 pts**
Mr. Frampton.
Theoretical and practical development of 20th-century design. Emphasis on the efforts of successive thinkers, reformers, and designers to come to terms with industrialization and its overwhelming consequences. Taking the Renaissance as a point of departure, the course moves to the period 1850–1970 to encompass the industrial crisis in the mid-19th and the 20th-century reaction.

Architecture A4450x. Modern architecture and cultural identity: Asplund, Aalto, and Saarinen. **3 pts**
Mr. Wrede.
A seminar examining the evolution of architecture in Scandinavia and its cultural basis from the turn-of-the-century national romantic movements to the present. A survey of the general influences and movements in which they participated, with particular focus on the works of Gunnar Asplund, Alvar Aalto, and Eliel Saarinen.

Architecture A4456. Twentieth-century architecture II. **3 pts**
Mr. Mostoller.
An exploration of 20th-century urban architecture in terms of housing, office buildings, urban spaces, and new towns. The purpose is to understand modern architecture as an effort to create a viable, meaningful, and beautiful urban place.

Architecture A4458. Urban precedents. **3 pts**
Messrs. Herdeg and Schwarting.
Seminar limited to twenty students.
Prerequisite: M. Arch. degree candidacy or the instructor's permission.
The relationship between building and urban structure or the "interpretability" of a building's meaning in an urban context. Intended to help students to develop a consciousness of context and scale as well as the multiple roles that urban form can assume. Lectures by the instructors combined with presentations for review and discussion by student teams or individuals. Examples are drawn from a wide range of examples to examine the relation of cultural meaning to design principles that transcend time and culture.

Technology

Architecture A4110. The building of buildings: a survey of structural principles.
Mr. Salvadori. **2 pts**
An introduction to the basic concepts of structural action by means of models, slides, and films. Both elementary and refined concepts qualitatively considered without the use of mathematical tools. Special consideration to modern structural materials and to both classical and contemporary structural systems.

Architecture A4111. Statics and strength of structures. **3 pts**
Mr. McCormick.
The introduction of statics through the determination of reactions and internal forces of statically determinate beams, cables, three-hinged arches, trusses, and framed domes. Both graphical and analytical techniques are considered. Properties of areas. Axial, bending, and torsional stresses.

Architecture A4123. Wood and steel. **2 pts**
Mr. McCormick.
Application of the principles of structural analysis and design to modern timber and steel construction. Case studies. Use of handbooks and codes.

Architecture A4125. Concrete. **2 pts**
Mr. McCormick.
Application of the principles of structural analysis and design to modern reinforced concrete construction. Case studies. Use of handbook and codes.

Architecture A4134. Experimental structures. **2 pts**
Messrs. Berger, Geiger, Levy, and Thurston, and others.
Review of tensile structures, air structures, domes, cable roofs, and space trusses.

Architecture A4154. Structures review. **1 pt**
Mr. Thurston.
A structural design review.

Architecture A4220. Construction technology I. **3 pts**
Mr. Caliandro.
Introduction to architectural construction. Elementary current methods of construction, with detailed analysis of wood frame and masonry construction types. Emphasis is given to understanding the role of techniques and materials as they affect the design process.

Architecture A4221. Construction technology II. **3 pts**
Messrs. Pokorny and Rohdenburg.
Prerequisite: *Architecture A4220.*
Present development and architectural potential of the steel skeleton and reinforced concrete frame. Survey of components—finishes, panels, and the integration of mechanical equipment. Interrelation of technological choices and design.

Architecture A4225y. Construction technology review. **1 pt**
Mr. Rohdenburg.
A construction technology review of general material required for professional examination.

Architecture A4246. Construction management and cost control. **2 pts**
Mr. Pokorny.
An introduction for the advanced student to the latest techniques of construction management and cost control during all phases of the building process. Fast track scheduling, data banks, estimating techniques, value engineering, progress controls, computer utilization, record keeping, and labor problems. Construction management experts from the private building sector, as well as from public agencies (UDC, SUNY, GSA, etc.), participate, to provide an understanding of the challenges of the "real world," namely, cost, time, and quality.

Architecture A4610. Environmental control systems. **3 pts**
Mr. Gisolfi.
Introduction to water supply, sanitary, storm sewage, electrical, fire protection, and heating and cooling systems; discussion of elements of the various systems, including points of origin, generating equipment, distribution devices, delivery mechanisms, and control systems.

Architecture A4611. Advanced environmental control systems. **3 pts**
Mr. Meyer.
Active and passive systems for heating, cooling, and lighting of buildings. Emphasis on nonresidential building. Active systems include those for heating, electricity, vertical transportation, fire protection, and communications. Passive systems lectures address quantitative methods for analyzing thermal flow, natural lighting, and life cycle cost benefit. Specific systems for thermal storage, direction heat gain, and insulation. The lectures to be given by an architect and a mechanical engineer. Course requirements include problem sets and exams.

Architecture A4626y. Architectural detailing. **3 pts**
Mr. Rohdenburg.
Prerequisites: *Architecture A4220* and *A4221.*
A "studio" course in which designers detail a building that they have designed themselves. Discussion includes a broad range of considerations in architectural detailing from organizing documents for an entire project, to resolution of selected individual problems. Emphasis placed on the practicality of details to achieve objectives of weatherability, durability, physical comfort, and economy of construction; and on whether the details maintain the spirit of the overall design conception.

Architecture A4628. Architectural acoustics. **3 pts**
Mr. Harris.
Physical properties of sound. Reflection, absorption, and diffraction of sound waves. Sound absorptive materials and constructions. Principles of room acoustics; room resonance, diffusion of sound; the decay of sound in a room. Designing for optimum reverberation time. Acoustical defects in rooms and auditoriums

and how to avoid them. The acoustical design of rooms, lecture halls, auditoriums, studios, and open-air theatres. Noise transmission in buildings. Noise control methods in HVAC systems, in electrical systems, and in piping systems. Control of airborne noise in buildings (walls, slabs, double-wall construction, doors and windows, enclosures, use of sound absorptive materials). Control of solid-borne noise in buildings.

Architecture A4637. Lighting and buildings. **3 pts**
Mr. Marantz.
Light as a controllable material. Developing brightness relationships in internal spaces; appraisal of alternatives. Daylight and electric light as a single system. Evaluation of light sources for distribution, color, and cost. Design methodology, experiments, and case studies.

Architecture A4640y. The architect and solar energy. **3 pts**
Mr. Dunham.
The potential role of solar radiation as a direct and indirect energy source in the coming decades. Past uses and research are reviewed; present designs and proposed innovations are evaluated in illustrated lectures. Special emphasis on plans and designs for using renewable energy to modify climate and buildings, and on the importance of solar applications in the developing world. Professionals practicing in the field contribute specialized lectures; optional field trips to solar installations in the New York City area.

Architecture A4653y. Workshop on climate and building design. **3 pts**
Mr. Gisolfi.
Indigenous architecture and its relation to climate and energy. Students develop designs that respond to local climate conditions and make practical calculations for passive and active solar applications.

Architecture A6134. Architectural consequences of structural decisions. **3 pts**
Mr. Salvadori.
Prerequisite: a knowledge of elementary steel, concrete, and wood structures.
Basic concepts of structural behavior applied to the solution of practical problems with the specific purpose of determining the influence of structural decisions on architecture. Optimalization of structure considered as a component of the architectural system. Considerations of economy, functionality, and practicality of construction in the search for proper architectural solutions. Large-span and high-rise structures as well as structures for modular buildings. Additional knowledge of advanced structures introduced when required for the solution of the problem at hand.

Architecture A6690. Thesis. **3 pts**
Mr. Harris.
Required of students in the architectural technology program.
The thesis is directed to the solution of an architectural problem through use of a technology of major interest to the student. It should be under the sponsorship of an adviser, who may be from any Faculty of the University.

Visual Studies

Architecture A4500. Architectural representation: studio. **3 pts**
Mr. Wood.
Work in a two- and three-dimensional graphics vocabulary with special attention to the individual student's skills. Emphasis on conceptual/perceptual techniques in measured and freehand drawing. Complements the design work in Comprehensive Studios I and II. Intended also to generate a high level of graphic ability.

Architecture A4521. Basic photography for architects. **2 pt**
Instructor to be announced.
Intended to develop a basic understanding of camera use, specifically in its application as a tool for architects.

Architecture A4526y. Architectural representation: seminar. **3 pts**
Ms. Vinciarelli.
Emphasis on the link between spatial architectural intentions and the means of representation. Projects by two or more architects to be used as case studies for spatial analysis. Seminars on the work of the chosen architects are an integral part of the course.

Methods/Practice

Architecture A4405. Principles of urban design. 3 pts
Mr. Eckstut.
Open to degree candidates in architecture and architecture graduates.
The external forces that impact the design of a building and, in turn, the forces through which the individual building impacts the urban context beyond its immediate site. Design of buildings considered with respect to the following: (*a*) large-scale design objectives such as land use, bulk, open space, and circulation; (*b*) coordination of a variety of vested interests instead of the traditional single client; (*c*) long-term development in phases. Consideration of architecture in terms of maximum public benefits instead of designing for the users of a building.

Architecture A4530. Computers in architecture. 3 pts
Mr. Thurston and others.
Introduction to FORTRAN IV computer programming and to computer utilization in architecture. Recent developments in computer graphics. Both the potentials and limitations of computer usage in the profession are explored.

Architecture A4538. Development and finance. 3 pts
Mr. Bell.
An introduction to economic decision making with regard to income-producing properties, through case study examinations of the effects of feasibility studies, political restraints, pioneering, financing, methods of leverage, taxation, and investment return. Successful and unsuccessful suburban and urban multifamily housing, shopping center, rehabilitation and renovation, and office building projects.

Architecture A4539. Advanced development and finance. 3 pts
Mr. Bell.
Prerequisite: *Architecture A4538.*
A continuation of the analysis of sophisticated "deal making." An examination of the economics and feasibility of condominium conversions, office and loft building conversions, hotel and motel operations, medical and specialized buildings, land acquisition, and restoration and rehabilitation. The general contractor; estimating and bidding. Pitfalls in leasing and management. Selected on-the-scene, in-depth economic evaluations of multifamily housing, shopping center, and office building complexes in the metropolitan area.

Architecture A4545. Economics in urban design. 3 pts
Mr. Bell.
Economic development of troubled neighborhoods and cities. The principles of *Architecture A4538* applied to inner-city case studies. Public laws, regulations, and finance mechanisms are an integral part of the development process. The goals of the public and private developer are examined. Focus on the emerging tools for neighborhood redevelopment, downtown business district revival, new town and in-town housing schemes, industrial development, and special purpose districts using advanced public and private financing techniques.

Architecture A4560. Architectural practice and legal aspects of construction.
Mr. Rohdenburg. 3 pts
Responsibilities inherent in the interrelationship of architects, consultants, public and private owners, and building contractors. Development of contract documents and specifications. Liens, arbitration, and insurance.

Architecture A4623. Economic analysis of current housing technologies. 3 pts
Mr. Bell.
Examination of the politics and economics of current (traditional and new) technologies, including economic comparisons of different structural systems: single family, low and high rise. Case study methods deciding which systems, technology, or combinations of technologies would be most likely to produce a financially feasible building venture.

Architecture A4624. Economic infrastructure of building as an activity. 3 pts
Mr. Bell.
Case study methods. Examination of various land-development and building ventures including single-family housing, condominium and cooperative developments, planned-unit communities, new towns, and new towns-in-towns. "Go-ahead" decision making. Basic approaches to successful buildings. Suburban versus urban housing economics.

Historic Preservation

Architecture A4210. Basic principles of traditional construction. 2 pts
Mr. Pokorny.
For students in the historic preservation program.
Designed to give the nonarchitecture student an introduction to the structural principles and building materials employed in traditional American structures of wood and masonry. Seminars supplemented by required reading and graphic exercises.

Architecture A4510. Introduction to architectural recording and analysis. 3 pts
Mr. James.
Examination of existing architectural examples in terms of their physical, historical, and cultural contexts; their anatomy, both perceptual and conceptual; and their meanings. Development of skills in the observation of architecture ("seeing" what is there); the recording (graphic representation) of the perceptual phenomena; and the analysis of these phenomena to discover the underlying concepts, and the architectural design principles and means employed to express these concepts.

Architecture A6310. History of landscape architecture. 2 pts
Mr. Tatum.
The art of the pleasure garden as a reflection of the cultures of the ancient world, medieval Europe, Renaissance and Baroque Italy, 17th-century France, 18th-century England, and of 19th-century United States. Emphasis on the primary literature of the subject and on theoretical and philosophical sources; horticultural questions will be considered only peripherally.

Architecture A6710. Practical problems in architectural preservation. 3 pts
Mr. Pokorny.
Each preservation project presents a series of problems the solution of which depends in large part on the ability of the preservationist to understand and coordinate the efforts of a team of specialists on whom he or she must rely. This seminar demonstrates through a spectrum of cases the range of problems usually encountered, retraces the process of decision making, and evaluates the results. Focus on the technological and managerial aspects of each project considered in context with the other elements—whether political, social, economic, architectural, or historic—pertinent to each problem.

Architecture A6712. Conservation seminar: color technology. 3 pts
Mr. Weiss.
Materials approach to changing patterns in the use of paints and dyes in historic buildings. Correlation of innovations in color technology with period styles in paints, wallpapers, and textiles. Color theory and matching.

Architecture A6730. American architecture before 1860. 3 pts
Mr. De Long.
Guiding ideals in American architecture from the seventeenth century to the Civil War. Major buildings together with their precedents and parallels are studied to identify dominant trends and illustrate the development of stylistic patterns. Current stylistic terminology is critically evaluated.

Architecture A6731. American architecture: after 1860. 3 pts
Mr. De Long.
A continuation of *A6730.* Guiding ideals in American architecture from the Civil War to 1960.

Architecture A6732. American decorative arts before the American Crystal Palace Exhibition. 3 pts
Ms. Bordes.
Survey of major periods from the 17th century to the mid-19th century. Illustrating lectures stress stylistic parallels between architecture, ceramics, silver, glass, textiles, and lighting. Research sources for architects and historians also emphasized.

Architecture A6733. American decorative arts after the American Crystal Palace Exhibition. 3 pts
Ms. Bordes.
Survey of major philosophical and stylistic movements after the mid-19th century. Slide lectures demonstrate parallels among decorative arts. Special attention paid to the reform movements of the 19th century, the origins of "modern" design, and research tools.

Architecture A6734. The classical language and literature of architecture: 1485–1840. 3 pts
Mr. Foulks.
A detailed review of the literature which propagated the use of classical architectural idioms from the Renaissance through the Greek Revival. The classical orders as visually interpreted by the architectural treatise in Italy, Germany, France, and England and later pattern books of England and America. Influence of these printed sources upon executed buildings is emphasized to aid the student in stylistic analysis and identification of characteristic ornament and decorative devices of various periods.

Architecture A6740-A6741. Seminar in restoration and preservation. 3 pts
Mssrs. Fitch and Murtagh.
Current concepts as expressed in legislation, institutions, and actual projects, here and abroad. Lectures and field trips designed to familiarize advanced students with methods or archaeological and bibliographic research, technical problems of restoration and conservation, and curatorial problems of interpretation and maintenance.

Architecture A6742-A6743. Historical interiors. 2 pts
Mr. Seale.
Rooms as reflections of life-style. Interiors and their contents from the 18th to the 20th century, with special emphasis on conceptualizing and carrying out historical restoration. The first term deals with an historical analysis of the subject matter. The second term stresses restoration of interiors.

Architecture A6747. Introduction to archaeology in preservation. 2 pts
Mr. Salwen.
Principles of anthropological archaeology, with emphasis on ways in which this discipline can contribute to broader preservation goals.

Architecture A6748. Advanced archaeology in preservation. 2 pts
Mr. Salwen.
A continuation of *A6747*. Attention on the development and present status of historical archaeology and specific examples of ways in which archaeology, architecture, and history can complement each other.

Architecture A6749–A6750. Historic preservation studio I and II. 4 pts
Staff.
Studies are organized around multidisciplinary projects in which the various specialists enrolled in the program contribute their knowledge as a team. The projects chosen allow exploration of real life situations. The student learns to identify, define, and solve a broad range of problems in historic preservation.

Architecture A6751–A6753. Thesis I and II. 3 pts
Staff.
In consultation with an adviser, the student develops and presents a thesis that shows evidence of in-depth study of and original research in one area of historic preservation.

Architecture A6752. Museological problems of the historic room. 3 pts
Instructor to be announced.
The installation, maintenance, and interpretation of the historic room as a feature of the general museum. In addition to lectures, each student is expected to execute historical documentation and prepare measured drawings and installation layouts for a specific room.

Architecture A6754–A6755. Descriptive analysis of historic buildings I and II.
Mr. Sanchis. 3 pts
Field trips and studio work to teach the student to make thorough and comprehensive surveys of actual buildings, recording by measurement, photographs, and verbal descriptions. Study of techniques for inventories and surveys of whole districts, as a basis for broad conservation policies. Introduction to recording techniques such as surveying, photography, and photogrammetry.

Architecture A6756. Reading the building. 2 pts
Mr. Morton.
An introduction to the method a preservation professional uses to evaluate and analyse historic buildings. Consideration of elements; such as style, workmanship, setting, materials, building type, environment, structural stability, deterioration, and historical continuity; to develop a methodology for understanding a historic building in its present condition and developing responsible recommendations for its preservation and continued use.

Architecture A6759. Politics of preservation. **2 pts**
Mr. Fowler.
An overview of federal, state, and local government participation in historic preservation including the history of preservation legislation, the current status of programs and policies, and possible future government actions.

Architecture A6760. American building technology before 1900. **3 pts**
Mr. Foulks.
A survey of the major materials and techniques employed in American building before 1900. Following introductory lectures, guest speakers discuss specific topics in their respective fields.

Architecture A6761. Conservation seminar: masonry. **3 pts**
Mr. Weiss.
Current research in the identification, deterioration, and treatment of brick, stone, and cement/lime composites. Chemistry of cleaners and consolidants. Development of patching and repair methods, with an emphasis on field techniques. Field work in the New York area coordinated with masonry suppliers, contractors, and craftsmen.

Architecture A6762. Building pathology. **3 pts**
Mr. Prudon.
A study of the deterioration of building materials and systems. Survey of methodologies for the investigation of physical conditions and structural configurations of historic buildings. Analysis and discussion of available implementation techniques for repair and restoration.

Architecture A6764. Conservation science. **3 pts**
Mr. Weiss.
Laboratory approach to the physical and chemical properties of traditional building materials. Interrelationships of deteriorative processes with these properties. Practical analytical methods for the investigation of samples from historic structures. Conservation treatments in the laboratory and in the field.

Architecture A6763. Advanced conservation science. **3 pts**
Mr. Weiss.
Research problems in the technical study of historic architectural materials. Individual student projects, including applications of chemical instrumentation and advanced microscopy to the analysis of building fabric. Experimental approach to conservation treatments and accelerated weathering.

Architecture A6766. American architecture colloquium. **3 pts**
Mr. De Long.
Prerequisite: the instructor's permission.
The investigation of a particular problem in American architecture through introductory lectures and detailed student reports. Typical problems include the picturesque in American architecture and American architecture between the two world wars.

Architecture A6767. Planning for neighborhood preservation. **3 pts**
Ms. Boyer.
Study of three areas that contribute to professional practice: organization and decision making in public agencies; theories of change in urban environments; and the use of planning techniques to further historic preservation objectives. Discussion of urban historical geography as a key to urban change; public agency organization and decision making; planning techniques that can be turned to the advantage of preservation, such as zoning, density control, design review, and community development; and the various government programs that affect the built environment.
Planning problems in the preservation of 19th-century urban environments. Discussion of planning techniques that further preservation objectives as well as publicly funded programs for community development, neighborhood conservation, and housing rehabilitation. For a major portion of the course students work in teams with local planners and community groups to prepare a preservation plan for a neighborhood in the New York area.

Architecture A6769. Evolution of American city plans. **3 pts**
Ms. Boyer.
Examination of selected city plans located in different regions and at various stages of economic development. Primary focus on shifting patterns of land uses and the development of circulation patterns, residential districts, industrial areas, commercial centers and public markets, park and recreational facilities.

Architecture A6770–A6771. Roles & functions of preservation commissions. 2 pts
Ms. Chatfield-Taylor, Mr. Sanchis, Ms. Sykes.
Introduction to the work of municipal preservation commissions. Investigation into both theoretical and practical problems of survey, administration, and design. Involves class and field work.

Architecture A6774. Historic preservation studio III. 4 pts
Staff.
Advanced planning and design problems in preservation.

Architecture A6775. Historic preservation studio IV. 4 pts
Staff.
Advanced planning and design problems in preservation.

Architecture A6862. The legal structure of the urban built environment. 3 pts
Mr. Byard.
An introduction to the law which shapes, changes, and preserves the built form of cities including the legal structure of the private transactions that build and maintain buildings; the public regulatory context for those transactions, with a particular focus on zoning and preservation laws; tax incentives and other supports intended to shape those transactions; and the legal structure of the public component, including the law of streets and public spaces.

Architecture A8790. Research problems in the history of architecture. 2 or 3 pts
Staff.
Prerequisite: the instructor's permission.
Students do extra work for the third point.
Advanced research in the history of architecture: the rise and development of architectural movements; analysis of particular architects and building types; special monuments, etc. Development of the student's critical and analytical capacity is encouraged by individual tutoring and the student's preparation of papers.

Urban Design

Architecture A6850. Columbia urban design studio I. 5 pts
Mr. Eckstut and Ms. Hermanuz.
An introduction to the vocabulary and methodology of the urban design practice. A variety of scales of built-up land are considered, including the total city, local areas, and the individual property. In all cases, the emphasis is on learning how to survey, discover, and describe an existing situation, as well as on possible conclusions from each type of scale and scope of involvement. Since urban design is implemented by government, and usually in the form of controls and legislation, studio time is devoted to zoning concepts and language. In addition, there are sketch problems intended to introduce advanced developments in urban design graphics and the design of "instructions to others." Most studio work is developed individually and made purposely different for each student in order to provide comparisons and thereby maximize the educational benefits of the many exercises. Field trips are scheduled one day each week. Weekly written reports of the field trips are required, to develop writing skills.

Architecture A6851. Columbia urban design studio II. 7 pts
Mr. Eckstut and Ms. Hermanuz.
Application of material drawn from the previous studio experience and the supporting courses. Each student is a project director for a major urban design project. The studio projects have real clients and involve many outside resources for their solutions, with emphasis on the role and impact of an integrated urban design process on the public as chief beneficiary. Included are approaches and solutions to a related series of design steps involving local area planning, the development of urban design guidelines and criteria, and legislative controls.

Architecture A6860x–A6861y. Urban design infrastructure. 3 pts
Mr. Grava.
Open only to students in the urban design program.
Support elements in the city and how they serve to determine the built characteristics of the physical environment. Relationship of the following elements to land use and density: vehicular, rail, and pedestrian circulation; water supply; sewage; waste disposal; energy; communications; signage and lighting. Each system analyzed with regard to both technical considerations and potential for encouraging or inhibiting future development. Presentations by visiting lecturers from the appropriate government agencies or private industries. Completion of a research assignment each term is required.

Architecture A6863. The implications of politics for urban design. 3 pts
Mr. Cooper.
Plans for physical develoment invariably undergo extensive modification as a project moves from the drawing board to the street. Perhaps the most important modifications result from the political process, both in the course of official review procedures (e.g., if zoning changes are required or public money is involved) and in the course of less formal community review procedures, which are often more rigorous and more difficult to pass.
In this course an analysis is made, utilizing recent and prominent case histories in the New York region, of the influence of political decision making upon urban design methodology. Examples are selected from industrial, commercial, housing, and transportation planning projects. The course seeks to demonstrate the importance of building political acceptability into any urban design proposal, and to analyze perils and suggest some ways of meeting them.

Architecture A6870. Implementation of urban design. 3 pts
Mr. Eckstut.
How urban design gets implemented, and the influence of the different mechanisms on the design process and products. Includes a review of the following: public processes, programs, and laws that shape both public and private urban developments; zoning, capital budget, taxation, finance, urban renewal, mapping, design review, public works, and district design. Also included: several practical applications of writing and drawing "instructions to others."

Research and Thesis

Architecture A6900-A6901. Research I or II. 2 pts
Mr. Polshek and the staff.
Either term may be taken separately.
Prerequisite: a project outline and the written permission of a faculty project supervisor.
An introduction to the independent study of technical, scientific, and social aspects of architecture. Each student selects an area for investigation, plans an approach to his chosen subject matter, and develops an adequate presentation of his findings. The project may involve experimentation, accumulation of physical data, consultation with recognized authorities, or surveys of opinion, and is expected to add significantly to the existing knowledge of the chosen subject.

Division of Planning

Required Core Courses

Planning A4208. Analytic methods A. 3 pts
Mr. Goldstein.
Required of all first-year students in the urban planning program.
An introduction to quantitative and qualitative techniques used by urban planners. Topics include survey methodology, sampling, descriptive and inferential statistics, hypothesis testing, bivariate correlation and regression analysis, and techniques of population projection.

Planning A4206. Analytic methods B. 3 pts
Mr. Sclar.
Required of all first-year students in the urban planning program.
Prerequisite: successful completion of *Planning A4208.*
A second course in analytic techniques for urban planners. Topics include introduction to computer usage, techniques of multiple regression and correlation analysis, factor analysis, introduction of econometrics, and mathematical approaches to planning.

Planning A6001. Introduction to the planning profession. 3 pts
Mr. Marcuse and staff.
Required of all first-year students in the urban planning program.
The course consists of (*a*) lecture-discussions, covering the history and role of planning as a profession, the types of practice, planning theory, and professional ethics; (*b*) small-scale field work projects; an intensive examination of a concrete planning problem in the New York area, and of proposal for its solution.

Planning A6290. Workshop in planning skills. **3 pts**
Ms. Hermanuz and the staff.
Required of all first-year students in the urban planning program.
An introductory workshop on the tools and skills of the planning profession. Topics include mapping, graphics, report writing, techniques of oral presentation, and sources of community data. Students with sufficient background in these areas may be exempted from this course or may design a curriculum for their background.

Planning A6911. Planning studio. **6 pts**
The staff.
Required of all first-year students.
Work on actual planning projects in collaboration with and under the supervision of faculty members. Emphasis on project and program planning for community and other public service organizations with limited technical-assistance resources, and on policy analysis and policy planning for government agencies at the city and state levels. Field work, team consultation, and seminars.

Planning A6918. Thesis. **3 pts**
The staff.
Prerequisite: A research seminar in a sector of specialization or completion of a satisfactory outline and first chapter of thesis.
An in-depth examination of a single problem in planning. In most cases, an individual written report is prepared, based on the student's own research. In some cases, it may be combined with or stem from work in the planning studio or field practice. Students periodically meet with faculty members in seminar sessions for discussion of common problems and for progress reports.

Planning Theory and Practice

Planning A4007. Economic, social, and political context of planning. **3 pts**
Instructor to be announced.
Focus on the structure and genesis of thought about the city and the urban public, and about the planning process in American city and regional planning. Particular emphasis on definitions of the boundaries of planning concepts in different historical periods and how they have limited the practice, policies, and programs of planning and have related and reacted to changing economic, social, and political contexts.

Planning A4010. Issues in the city. **3 pts**
Instructor to be announced.
Each year a different policy issue in the concrete setting of current conditions in older major metropolitan areas is considered. Typical issues are considerations of equity in the planning of public services or decentralization and community planning. Faculty members, both of the Division and of related programs within the School, as well as visitors, discuss the policy focus of the course in their own area of specialization.

Planning A4056. Municipal budgeting. **3 pts**
Instructor to be announced.
Municipal budgeting and planning for physical development and service programs; the municipal budget and the urban economy; expenditures and how they are financed; political, fiscal, and administrative factors that affect budget decisions; impact of other levels of government; municipal accounting; criteria and techniques for evaluating and making municipal resource allocations. Examples from New York City situations.

Planning A4058. The built environment: sex roles and social policy. **3 pts**
Ms. Leavitt.
A critical analysis of how the professions have reinforced traditional societal roles of women and of how women in the fields today might redirect the focus of the traditional male-dominated professions to create environments that meet the needs of women who demand greater control over their own lives. Examination of how fixed concepts of community have incarcerated women, of attempts by women to gain control over their environment, of the extent that struggles have had to suppress issues of sexism, of the success or failure of struggles to bring about significant change, of the practitioners' vocabulary and tools and their implications, and of how the profession can address itself to the unmet needs of women.

Planning A4112. The city as a physical system. **3 pts**
Mr. Grava.
A discussion devoted to an understanding of the urban physical system, what it is, how it came about, and some of the general theories that purport to explain its form and function. Historical comparative analysis—from Paleolithic villages to the new town movement—of the form of cities as a product of political, economic, and social forces. Discussion of some major theorists on urban form and design. An exploration of the basic concepts of urban morphology and their relationships to the contemporary urban/metropolitan situation. A review of planning tasks for selected types of city districts. The planning approaches in some countries not following the American model.

Planning A4115. The city as social and political systems. **3 pts**
Instructor to be announced.
Political and social aspects of urban life, focusing on the planner's role and potential in change. Political and social theory as the bases for understanding current urban processes. Examination of these aspects for redistribution of power, the positive function of conflict, and the problems of equity and efficiency.

Planning A4116. Urban and regional economic systems. **3 pts**
Mr. Kwok.
The economic theories that influence the structure and the dynamics of urban and regional development; functions of and relationship between city and region; linkages and interdependence of activities; location design and transportation; analysis of land rent and land use competition; urban and regional growth and development; and economic issues in urban and regional planning.

Planning A4120. Public intervention in the urban physical system. **3 pts**
Instructor to be announced.
Basic principles of constitutional law and the interrelationships of legislation, administration, and litigation as related to the planning effort. The various legal controls available to carry out official planning policy: zoning, official map and building control, subdivision regulations, building and housing codes, aesthetic and sign regulations, urban renewal, public development, landmarks, and historical districts. A survey of the structure and responsibilities of planning institutions, particularly the local planning board. Relationships to other levels of government and current state and federal role in land and development control. Practice in formulation of regulations.

Planning A4210. Introduction to computer application. **3 pts**
Instructor to be announced.
An introduction to basic computer terminology, equipment, use, and FORTRAN and WATFIV programming. An investigation and survey of the application of electronic data-processing in urban planning and municipal operations—data handling, information systems, data banks, and retrieval. The development and use of mathematical models; statistical analysis; methods and utilization of graphic output; critical-path scheduling and project management. Lectures are accompanied by demonstrations and student work in analysis, programming, and preparation of instruction decks. Auxiliary equipment and the equipment of the University Computer Center are utilized.

Planning A4401. Spatial planning. **3 pts**
Instructor to be announced.
This course or the equivalent is prerequisite to other courses in the spatial development sector.
Physical and functional elements of urban areas and examination of the potential of deliberate action toward higher efficiency and improved quality of life. Data collection methods from land use surveys to remote sensing. Methods and analytic tools from graphic sketches to simulation models. Procedures for planning from regional networks to special district configurations. By concentrating on land use and activity patterns, the course provides the common base for further specialized work in environmental transportation, housing, and other fields.

Planning A4404. Urban transportation planning. **3 pts**
Mr. Grava.
Examination of characteristics of the several modes of movement and the interdependencies between them. Appropriate analytical techniques for each mode are discussed. The transportation planning process, with its component analyses of the supply and demand functions of movement systems, is discussed in detail. Case studies of major transportation planning efforts are analyzed.

Planning A4706. Infrastructure and the physical environment. 3 pts
Mr. Grava.
A review of the studies and surveys leading to the development and construction of various physical service/infrastructure systems, as well as a discussion of their components and service capabilities. This includes planimetric and photogrammetric surveys, land description, soils analyses, street engineering, water supply, sewerage, drainage, and solid waste management. Short exercises under each. In all cases the planning dimensions at the municipal and regional levels are emphasized. The overall aim of the course is to give practical skills to the urban planner allowing constructive participation in the building of a livable environment.

Planning A6052. Planning law and administration. 3 pts
Mr. Marcuse.
An analysis of the various legal controls available to carry out official planning policy: zoning, offical map and building control, subdivision regulations, building and housing codes, aesthetic and sign regulations, urban renewal, public development. Emphasis is on basic principles of constitutional law and on the interrelationships of legislation, administration, and litigation. Practice in formulation of regulations. The administration of the planning and renewal development functions.

Planning A6217. Techniques of program evaluation. 3 pts
Mr. Sclar.
Prerequisite: *Planning A4206* or the instructor's permission.
A selective review of the major evaluation techniques applied in the fields of urban planning and urban policy analysis; cost-benefit and cost-effectiveness analysis; PPBS; optimization, goal achievement, scenarios, and delphi procedures; metropolitan plan evaluation methods; simulation; sensitivity analysis; social experiments. Examination of theoretical issues and of the context and problems that define and constrain urban planning and program evaluation. Review of evaluation studies of new towns, metropolitan plans, and public services delivery. Lectures, seminars, and student projects.

Planning A6220. Systems concepts in urban planning. 3 pts
Mr. Grava.
Specific mathematical or computer-use knowledge is not required.
Theory of decision making, drawing from general systems theory and advanced simulation and evaluation techniques and applying this knowledge primarily to the urban situation. "Systemic planning" as a procedural approach combining scientific methodology with urban concerns and as one of the theoretical paths available to decision makers generally and urban professionals specifically. Contrasts and similarities with other theories. Major cases, particularly those related to urban management and organization issues.

Planning A6434. Transportation issues seminar. 3 pts
Mr. Grava.
Prerequisite: *Planning A4404* or the instructor's permission.
Discussion of major issues in transportation at several levels, from national to local, and covering the economic, political, and social implications of decision making in transportation. Current topics and case studies are investigated.

Planning A6913-A6914. Field practice. 3 pts
Ms. Leavitt.
Prerequisite: the instructor's approval of field placement.
Semimonthly seminar in which students' field placements in state, local, and regional planning and housing agencies, nonprofit technical assistance organizations, private design and planning firms, or community based corporations are used to examine critically the everyday roles of planners, focusing on the relationship between planners and their constituencies. Seminar addresses questions of professionalism, role identity and legitimation issues, and future uses of planning services.

Planning A6920. Urban planning theory. 3 pts
Mr. Kwok.
Theoretical exposition of urban planning issues; rationale for and against planning; nature of public and private interests; values, roles, and legitimacy of the planner; planning processes and models; ideals and concepts.

Planning A6925-A6926. Advanced research I and II. **3 pts**
The staff.
Either term may be taken separately.
Prerequisite: a project outline and the written permission of a faculty project superviser.
Individual or small-group research, in consultation with a faculty member, in areas of the student's choice. Students are responsible for planning and conducting research activities and enlisting the cooperation of a faculty adviser.

Planning A8900-A8901. Doctoral research colloquium. **3 pts**
Mr. Sclar.
Open only to Ph.D. degree candidates in planning or in closely related fields.
Discussion to center on advanced planning theory and on contemporary cases with methodological, conceptual, or policy implications, the specific format and subjects to be determined by the group.

Planning A8926. Doctoral research. **12 pts**
Mr. Sclar.

Anthropology G4167. Urban anthropology. **3 pts**
For information on this course, see the bulletin of the Graduate School of Arts and Sciences.

Architecture A4410. Design attitudes in European and American urbanism: 1750–1930. **3 pts**
Mr. Plunz.
For a complete description of this course, see course listings under *Division of Architecture*—Theory.

Architecture A6767. Planning for neighborhood preservation. **3 pts**
Ms. Boyer.
For a complete description of this course, see course listings under *Division of Architecture*—Historic Preservation.

Architecture A6769. Evolution of American city plans. **3 pts**
Ms. Boyer.
For a complete description of this course, see course listings under *Division of Architecture*—Historic Preservation.

Architecture A6862. The legal structure of the urban built environment. **3 pts**
Mr. Byard.
For a complete description of this course, see course listings under *Division of Architecture*—Historic Preservation.

Corporate Relations and Public Affairs B8450. Public management and policy. **3 pts**
For a complete description of this course, see the bulletin of the Graduate School of Business.

Geography W4022. Location theory. **3 pts**
For information on this course, see the bulletin of the Graduate School of Arts and Sciences.

Geography W4041. Urban geography. **3 pts**
For information on this course, see the bulletin of the Graduate School of Arts and Sciences.

Geography W4100. Environmental bases for regional and ecological studies. **3 pts**
For information on this course, see the bulletin of the Graduate School of Arts and Sciences.

Geography W4912. Resources of the seas. **3 pts**
For information on this course, see the bulletin of the Graduate School of Arts and Sciences.

Geography G9401-G9402. Seminar in natural resources and environmental systems I and II. **3 pts**
For information on this course, see the bulletin of the Graduate School of Arts and Sciences.

History W4203. The medieval town: layout, planning, society. **3 pts**
For information on this course, see the bulletin of the Graduate School of Arts and Sciences.

History—Urban Studies W4673-W4674. American urban history. **3 pts**
For information on this course, see the bulletin of the Graduate School of Arts and Sciences.

Law L6242. Environmental law. **3 pts**
For a complete description of this course, see the bulletin of the School of Law.

Logistics and Transportation B6942. Economics of transportation. **3 pts**
For a complete description of this course, see the bulletin of the Graduate School of Business.

Operations Research E4000. Introduction to methods of operations research. **3 pts**
For a complete description of this course, see the bulletin of the School of Engineering and Applied Science.

Operations Research E4701. Transportation systems analysis. **3 pts**
For a complete description of this course, see the bulletin of the School of Engineering and Applied Science.

Political Science G4226. Political analysis of social programs. **3 pts**
For information on this course, see the bulletin of the Graduate School of Arts and Sciences.

Political Science G4241. The political setting of public administration. **3 pts**
For information on this course, see the bulletin of the Graduate School of Arts and Sciences.

Political Science G8232. Colloquium on urban politics, policy making, and administration. **3 pts**
For information on this course, see the bulletin of the Graduate School of Arts and Sciences.

Sociology G4047. Urban sociology and social policy. **3 pts**
For information on this course, see the bulletin of the Graduate School of Arts and Sciences.

Sectors

Health and Human Services Planning

Planning A4512. Health services planning and programming.
Mr. Burlage. **3 pts**
Familiarization with concepts related to definitions of physical and mental health, to methodologies for analysis of need for and supply of health services, to available techniques for relating policies to plans, to programs for the planning of health services in operational terms that are susceptible to evaluation. Field work from the perspectives of the provider and the client at the neighborhood, municipal, and regional levels.

Planning A4515. Colloquium in urban health planning. **1 pt**
Mr. Burlage.
A seminar series featuring outside speakers concerned with current debates in health policy.

Planning A4517. Community facilities and participation in planning. **3 pts**
Ms. Leavitt.
Examination of community facilities and participation of groups around issues of education and child care. Traditional concepts of planning, legislation, users' needs; relationship of facilities to program planning; impact of the fiscal crisis; and relationship to job creation.

Planning A4530. Local social planning: community human services and health.
Mr. Burlage. **3 pts**
Public services development and delivery at the local level; relation of decentralized health and social services delivery planning and comprehensive, land-use-oriented planning, health and social-environmental considerations; innovations in employment and management policies. Alternatives for decentralized public service planning.

Planning A4620. The social planning process: conceptualization and methods. 3 pts
Instructor to be announced.
Definitions of social policy, social planning, and social and public services planning. Relationship of the social to the economic, political, and physical aspects of the planning process. Conceptualization of the planning components of policy, programming, and action for change. Methods available from the field of public services planning, from within planning, and from other disciplines.

Planning A6513. Health and human services research seminar. 3 pts
Mr. Burlage.
Exploration of changing social planning concepts, services sector problems, and institutional forces, with detailed examination of evolving health system planning context, emphasizing emerging and alternative frameworks and roles on the community, municipal, regional, and federal levels.

Public Health P6012. Health, poverty, and the low income consumer. 1 pt
For a complete description of this course, see the bulletin of the School of Public Health.

Public Health P6013. Health planning in developing countries. 3 pts
For a complete description of this course, see the bulletin of the School of Public Health.

Public Health P6502. Health care delivery systems. 3 pts
For a complete description of this course, see the bulletin of the School of Public Health.

Public Health P6518. Health facilities planning and design. 3 pts
For a complete description of this course, see the bulletin of the School of Public Health.

Public Health P6544-P6545. Health care financial management I and II. 3 pts
For a complete description of this course, see the bulletin of the School of Public Health.

Social Work T6121. Introduction to social work organizing and planning. 3 pts
For a complete description of this course, see the bulletin of the School of Social Work.

Social Work T6707. The politics of social welfare policy. 3 pts
For a complete description of this course, see the bulletin of the School of Social Work.

Social Work T6801. Social welfare policy. 3 pts
For a complete description of this course, see the bulletin of the School of Social Work.

Housing and Community Development

Planning A4304. Housing and community development: the economic and social elements. 3 pts
Instructor to be announced.
Prerequisite: the instructor's permission.
This course or the equivalent is prerequisite to other courses in housing and community development.
A fundamental understanding of housing in its social and economic aspects. Emphasis on the nature of the housing problem, the dynamics of the housing market, the history and current status of government attempts at intervention in the market, and housing's place in resolving the major public issues of poverty, segregation, and urban growth and decay. Theory and analytic method are stressed.

Planning A4308. The determinants of housing policy. 3 pts
Mr. Marcuse.
Prerequisite: *Planning A4304* or the instructor's permission.
How governmental housing policy is formed: political, social, economic, physical, technological, ideaological components. Alternate explanations of policy formation: philanthropic, fiscal, interest group, structural, and other theories. Emphasis on analysis of history of housing policy in the United States and comparisons with other countries' policy evolution.

Planning A4310. Comparative housing problems and policies: developed nations. 3 pts
Instructor to be announced.
Prerequisite: *Planning A4304* or the instructor's permission.
A comparative examination of housing policy in industrialized nations, focusing primarily on policy development in the United States and the United Kingdom, with some attention to other countries of Eastern and Western Europe. The historical role of housing in social and economic policy with emphasis on lessons that might have applications in the United States.

Planning A4312. Analytic techniques for housing planning and programming.
Instructor to be announced. 3 pts
Designed to provide direct working acquaintance with the basic techniques of financial analysis and planning for housing in the public sector, with focus on the essential tools for preparing housing plans, developing housing programs, analyzing their feasibility, and actually packaging housing developments. Emphasis on housing development and redevelopment from a public sector point of view, emphasizing ways in which public intervention changes market processes or accommodates itself to market realities, rather than on market considerations as such.

Planning A4412. The location of housing. 3 pts
Mr. Sclar and the staff.
Prerequisite: *Planning A4116* or the instructor's permission.
A systematic inquiry into the factors that shape housing location decisions. Factors considered are rent and location theory, economics of zoning, industrial and commercial location principles, local public services, and public finance.

Planning A4616. Comparative housing problems and policies: developing nations. 3 pts
Instructor to be announced.
The phenomenon of squatting and squatter-built housing; urban population growth and the demand for shelter; the impact of rapid urbanization on housing development; potential solutions to population growth and housing shortage.

Planning A6341. Housing in the central city and areas without growth. 3 pts
Instructor to be announced.
Prerequisite: *Planning A4304* or the instructor's permission.
Exploration of theories of urban growth and decay as they pertain to residential land uses, and of the basic strategies devised to redevelop the inner cities and rehouse their populations. Students are expected to become acquainted in depth with the principles and practices of programs of slum clearance, public housing, urban redevelopment, urban renewal, neighborhood conservation, neighborhood preservation, relocation, demonstration and model cities, new towns-in-towns, and new-town and suburban development as mechanisms for decanting urban populations. A significant project of research and analysis is required.

Planning A6344. Seminar in housing policy. 3 pts
Instructor to be announced.
Prerequisite: *Planning A4304* or the instructor's permission.
Exploration of the major social, economic, and political issues confronting contemporary American housing policy. Examination in a small working-group setting of alternative policy approaches to racial and economic segregation, abandonment and residential decay, urban growth, forms of public subsidy, balancing rights of ownership with those of occupancy, etc. A significant research effort is required.

Planning A6830. Research seminar in housing and community development.
Instructor to be announced. 3 pts
Seminar to provide background for conducting policy-relevant research on current issues, programs, and techniques in housing and community development. Topics include research and evaluation methodology, outlining a study, use of data sources, and discussion of the researchable issues and debates in the housing-community development field.

Local Economic Planning/Community Economic Development

Planning A4314. Analytic techniques in local economic planning. 3 pts
Messrs. Goldstein and Bell.
Detailed examination of techniques used in public sector and community-based development project planning. Case study approach. Students perform analyses related to current development projects with actual data. Techniques include industry development feasibility analysis, local employment forecasting, economic impact analysis, fiscal impact analysis, multiplier analysis, business venture analysis, the market study, and the financial feasibility study. Other techniques added according to student interest and availability of case study material.

Planning A4325y. Employment and training planning in the economic development process. 3 pts
Mr. Goldstein.
Issues relevant to the employment and training process. Concern with the planning process on the labor-supply side of the market economy. Complement to economic planning courses concerned with the demand for labor. Prior background in neoclassical micro- and macroeconomic theory and labor economics is helpful, although not necessary. Lecture and discussion formats.

Planning A4507. Metropolitan economic development. 3 pts
Mr. Vietorisz.
The political economy of metropolitan and regional development, with examples drawn from both developed and developing countries. Emphasis on the world's major megalopolises and their hinterlands: planning options, means of control, and long-term prospects.

Planning A4509y. Urban economic development planning. 3 pts
Mr. Goldstein.
Foundation course in the local economic planning/community development sector.
The use of analytically-based approaches for diagnosing weaknesses in a local economy and for designing and evaluating appropriate economic development strategies and institutions to correct these weaknesses. Both "best" conventional professional practice and alternative, or community-based approaches, are covered. The geographic scale is generally that of the large industrial central city. Students should have some familiarity with the concepts of urban and regional economic theory before enrolling in this course.

Planning A6274. Methods of regional economic development. 3 pts
Mr. Kwok.
Prerequisite: *Planning A4116* or the instructor's permission.
Methods of regional analysis with emphasis on economic, environmental, and social variables; analytic and procedural techniques; social accounting and auditing; interregional flow and balance of payments; comparative cost-and-activity complex analysis; system integration; and large-scale modeling.

Planning A6840x. Research seminar in local economic planning/community economic development. 3 pts
Mr. Goldstein.
Preparation to conduct policy-relevant research on current problems, issues, programs, and techniques in local economic planning. Topics in research and evaluation methodology, how to structure arguments, secondary data sources, and discussion of the researchable issues and debates currently informing professional practice. Students have opportunities to lead seminars and to present their research ideas.

Architecture A4538. Development and finance. 3 pts
Mr. Bell.
For a complete description of this course, see listing under *Division of Architecture.*

Architecture A4539. Advanced development and finance. 3 pts
Mr. Bell.
For a complete description of this course, see listing under *Division of Architecture.*

Planning For Developing Nations

Planning A4510. Planning in socialist nations. 3 pts
Ms. Hermanuz.
Investigation of the impact of socialism on the planning process. Place of planning in socialism and preconditions to planning as set up by the socialist ideology. Focus on case studies illustrating various types of socialism, as applied political systems, and their influence on the definition of goals, the setting of priorities, and the means of controls.

Planning A4602. Planning issues and preliminary research in developing nations. 3 pts
Mr. Kwok.
Open only to students in the Planning Program for Developing Nations.
Fundamentals of planning history, theory, and concepts. Emphasis on background and terminology of modern planning and on fundamental planning issues in developing nations. Investigation of information and sources applicable to planning in a specific geographic area—statistical materials; demographic, economic, and social indicators; administrative organization; and institutional structure. Evaluation of the type, the extent, and the degree of detail of information available.

Planning A4607. Comparative urban development and planning: developing nations. 3 pts
Mr. Kwok.
Key features and determinants of urbanization in the Third World; efficiency and distribution of land, utilities, transportation, housing and social services; spatial policy, metropolitan planning and new town development; urban administration, management and finances; and case studies of cities in developing nations.

Planning A4609. Urban planning problems in developing nations. 3 pts
Mr. Dunham.
An investigation into the planning problems characteristic of nations in the early stages of economic development. Physical and social results of rapid urbanization. Emerging norms and theories. Administrative and training requirements. The role of international technical assistance agencies. Housing policies, programs, and projects. Case studies of selected areas.

Planning A4612. National development issues in developing nations. 3 pts
Instructor to be announced.
Exploration of economic issues and problems in development planning; review of the general conditions in developing nations; the social, cultural, and political dynamics of development; analysis of the principal factors of development and growth models; and examination of development policies and strategies with reference to the institutional structure.

Planning A4614. Planning and development in contemporary China. 3 pts
Mr. Kwok.
An investigation and survey of the problems in urban and rural planning, housing, and public service development of a socialist nation in view of its ideology and economy. The evolution of development and planning in attaining national goals under changing conditions. Analysis of planning concepts and policies, spatial pattern, implementation, causes and effects.

Planning A4616. Comparative housing problems and policies: developing nations. 3 pts
Instructor to be announced.
For a complete description of this course, see course listings under *Division of Planning*—Housing and Community Development.

Planning A4624. Regional development in developing nations. 3 pts
Instructor to be announced.
Survey of different types of regions; objectives of regional development; balance of regional and national growth; technology, human resources, and social development; planning programs for regional development; institution factors and institution building; case studies.

Planning A6602. Advanced seminar in planning topics in developing nations. **3 pts**
The staff.
Prerequisite: At least one basic planning course in the topic of the student's choice, and the instructor's permission.
Intensive investigation in a special planning sector in developing nations. Students may specialize in housing, transportation, social services, environment, metropolitan planning, regional planning, or methodology. Individual or small-group projects in consultation with a faculty member. Outlines and subjects to be determined jointly by the students and faculty member.

Planning A6603. Research seminar in developing nations. **3 pts**
Mr. Kwok.
Seminar for thesis development. Topics include research and evaluation methodology, outlining a study, use of data sources, in-depth discussion of the researchable issues, and debates in the area of development planning. Outside speakers from international agencies are invited.

Geography W4910. The geography of hunger and food supply. **3 pts**
For information on this course, see the bulletin of the Graduate School of Arts and Sciences.

Planning S4617D. Urbanization policies in developing countries after Habitat. **3 pts**
For a complete description of this course, see the bulletin of the Summer Session.

Public Health P8015. Health, poverty, and social justice in less developed countries. **3 pts**
For a complete description of this course, see the bulletin of the School of Public Health.

Public Health P9603. Health and population policies in the international perspective. **3 pts**

Teachers College TF4054. Education and manpower planning. **3 pts**
For a complete description of this course, see the bulletin of Teachers College.

TZ4000. Institutions and programs in international educational development.
For a complete description of this course, see the bulletin of Teachers College. **3 pts**

Teachers College TZ4020. Education planning in international development.
For a complete description of this course, see the bulletin of Teachers College. **3 pts**

For regional courses in developing nations, consult the bulletin of the School of International Affairs.

Urban Design and Physical Development

Architecture A4539. Advanced development and finance. **3 pts**
Mr. Bell.
For a complete description of this course, see listing under *Division of Architecture*—Methods/Practice.

Architecture A4545. Economics in urban design. **3 pts**
Mr. Bell.
For a complete description of this course, see listing under *Division of Architecture*—Methods/Practice.

Architecture A6769. Evolution of American city plans. **3 pts**
Ms. Boyer.
For a complete description of this course, see listing under *Division of Architecture*—Historic Preservation.

Architecture A6863. Implications of politics for urban design. **3 pts**
Mr. Cooper.
For a complete description of this course, see listing under *Division of Architecture*—Urban Design.

Architecture A6870. Implementation of urban design. 3 pts
Mr. Eckstut.
For a complete description of this course, see listing under *Division of Architecture*—Urban Design.

Planning A4120. Public intervention in the urban physical system. 3 pts
Instructor to be announced.
For a complete description of this course, see listing under *Division of Planning*—Planning Theory and Practice.

Planning A4401. Spatial planning. 3 pts
Instructor to be announced.
For a complete description of this course, see listing under *Division of Planning*—Planning Theory and Practice.

Planning A4404. Urban transportation planning. 3 pts
Mr. Grava.
For a complete description of this course, see listing under *Division of Planning*—Planning Theory and Practice.

Planning A4706. Infrastructure and the physical environment. 3 pts
Mr. Grava.
For a complete description of this course, see listing under *Division of Planning*—Planning Theory and Practice.

Planning A6434. Transportation issues seminar. 3 pts
Mr. Grava.
For a complete description of this course, see listing under *Division of Planning*—Planning Theory and Practice.

Planning A6917. Research seminar in urban design. 3 pts
Ms. Hermanuz.
Basic introduction to urban design methodology. Through a series of analyses of physical environments at a variety of scales, students are trained in the techniques of graphic and descriptive analysis and their interpretation.

Geography W4041. Urban geography. 3 pts
For information on this course, see the bulletin of the Graduate School of Arts and Sciences.

Admission

OFFICE OF ARCHITECTURE ADMISSIONS: 400 Avery
Office hours: Monday through Friday, 10 to 4

Telephone: (Area code 212) 280-3510

Admission Procedure

Application forms may be obtained from the Office of Architecture Admissions and should be completed in accordance with the instructions accompanying them. Applicants should request the registrar of each of the colleges and professional schools they have attended to send an official transcript of their work directly to the Office of Architecture Admissions. Three letters of recommendation are required and should be submitted to the Office directly by the sponsors. A personal statement is required of all applicants. Information on additional required supporting materials is listed below under the name of the degree offered.

Application Deadlines

For Degree Candidates

Autumn term: Applications and all supporting material must be received by February 15. Applications for the architectural technology program must be received before May 31. Scholarship applications must be received by February 15.

Spring term: Only the architectural technology program offers spring admissions to beginning students.
Applications must be received by November 30.

For Special Students

Autumn term: Applications must be received by July 31.

Spring term: Applications must be received by December 15.

No application will be forwarded to the Committee on Admissions until all supporting documents and materials have been received. It is the applicant's responsibility to make sure that all of the materials he or she has requested and submitted have been received prior to the deadline for receipt of applications.

Deposit

An applicant who has been accepted for admission as a degree candidate is required to pay a $50 deposit to the University within fifteen days after the notice of acceptance. This deposit is applied toward tuition when the applicant registers; if the applicant does not register, the deposit is not refunded. Credit for the deposit may be extended for twelve months when an applicant fails to register due to illness or other causes beyond the applicant's control. Proof of any extenuating circumstances may be required.

If the fee is not paid within fifteen days after receiving the notice of acceptance, the applicant forfeits the place in the School that has been reserved for him or her.

Master of Architecture Degree (six terms)

Policy Regarding Admissions and Prerequisites

Eligibility

The M.Arch. program at Columbia is for the first professional degree in architecture; therefore, students who already hold a professional degree (such as the B.Arch. degree) are not eligible to apply to the program. Students who have studied architecture in nonprofessional programs (such as a B.S. program in architecture) may apply, with the possibility of obtaining advanced standing for such coursework. Prior architectural study is not a requirement; approximately one-half of each entering class has no background in architecture. 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 February 15. Students are admitted to the M.Arch. program for the autumn term only.

Academic Preparation

All applicants must have, at the time of first registration, an undergraduate degree or its equivalent from an accredited college or university. Applicants are required to take the Aptitude Test of the Graduate Record Examination. The test should be taken no later than two months before applications are due. Information may be obtained from the Graduate Record Examination, Educational Testing Service, Box 955, Princeton, N.J. 08540.

1. Applicants who have no prior background in architecture must complete a 3-point course in architectural graphic presentation as a prerequisite for the Comprehensive Studio Sequence, before first registration into the M.Arch. program. The following course, which is offered by the Graduate School of Architecture and Planning through the Columbia University Summer Session, is the required course for fulfillment of this prerequisite:

   S1020R Architectural representation: introduction 3 pts

   Students required to take the course will be officially notified in their letter of admission, which is sent out on April 1.

2. To fulfill the prerequisite for the Technology Course Sequence, all applicants must have completed a 3-point course in mathematics covering the basic elements of algebra, trigonometry, and analytic geometry, and the rudiments of differential and integral calculus. The following courses are acceptable for this prerequisite:

   Columbia University Summer Session:

S1100J	Brief calculus	3 pts
S1101D	Calculus I	3 pts
S1101J	Calculus I	3 pts

   Columbia College:

V1100x	Brief calculus	3 pts

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. The following course, which is offered by the Columbia University Summer Session, is acceptable for fulfillment of this prerequisite:

   S3660D Modern architecture 3 pts

Candidates who have not yet successfully completed the above academic prerequisites at the time of application are eligible for admission into the M.Arch. program. However, their admission into the program is conditional on the successful completion of the prerequisites before the first registration in September.

If the technology prerequisite or the history/theory prerequisite courses are to be taken at another college or university, after admission to the M.Arch. program, prior approval must be obtained by sending, during the summer, course titles and descriptions to the Assistant Dean of Admissions. The credit for these courses must be recorded by transcript at the above office, as soon as possible, but before September 1. The points for these courses are *not* applicable to the M.Arch. degree.

Applicants are *strongly advised* of the importance of having completed the following nonmandatory course work: one term of general physics (with laboratory) and one term of studio in the visual arts (drawing, painting, or sculpture). In addition, a reading knowledge of a modern foreign language, a course in environmental studies, and additional courses in architectural history are recommended.

Additional information regarding courses offered in the Columbia University Summer Session may be obtained by writing to Office of the Summer Session, 102 Low Memorial Library, Columbia University, New York, N.Y. 10027.

Students in need of financial aid may use part of their student loan for the Columbia Summer Session courses. (See *Financial Aid*—Loans.)

Supporting Materials

In addition to the application form and supporting documents, applicants must submit a portfolio showing evidence of their graphic abilities: paintings, drawings, prints, graphic designs, or architectural drawings. It is highly recommended that evidence of freehand drawing skills be included. Submitted materials, either original work or reproductions of the originals, should be loose leaf; the material should not exceed 8½ by 11 inches and should not measure more than ½ inch in thickness. The pages should not be placed in a ring binder and each page must be clearly marked with the applicant's name.

The material is 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 will be informed in their letter of admission of the level at which they will enter the Comprehensive 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 will be determined. Students may be required to take the studio prerequisite, *S1020D Architectural representation: introduction,* at Columbia during the summer, or only the normal three-year sequence *A4001-A4006 Comprehensive studio.* A limited number of students may receive advanced standing points for *A4001* and *A4002 Comprehensive studio,* 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 and Planning. No subsequent petitions for advanced standing in design studio courses are considered.

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.

Information regarding 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 chairmen at any time after enrollment. Official transfer of credit by the Columbia University Registrar, however, cannot be accomplished until one year of full-time enrollment in the M.Arch. program. 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 and Planning. For cases in which no equivalent course is offered at Columbia, the petition is reviewed by the chairman of the Division of Architecture. Advanced standing credit will be 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 courses may be waived on the basis of professional experience or examination in subject matter. Because waivers do not carry point or course credit, elective courses may be taken to fulfill the credit requirements for the M.Arch. degree. All students must complete a minimum of 72 (out of a total of 108) points of course work at Columbia to obtain the Master of Architecture degree.

The Five-Year M.Arch. Curriculum-Work/Study

Many qualified applicants for the M.Arch. degree do not have available the tuition and time required to attend full time. A Work/Study option has been initiated offering such students the opportunity to undertake graduate work while maintaining employment during most of the program. This option has been integrated with the full-time program by jointly scheduling the design studios and most courses.

The full-time program leading to the M.Arch. degree normally requires three years of study and includes 108 points of academic credit. Students in the Work/Study Program are able to complete the same requirements in five years as follows: one year of full-time study followed by four years of part-time study.

Professional Option Plan

The University provides opportunities for students in the School of General Studies to obtain their B.A. or B.S. degrees while completing the first year of the M.Arch. program in the Graduate School of Architecture and Planning. Since the details differ in each undergraduate division, students should consult the bulletins of the particular divisions in which they will be or are registered. Similar programs are available to or may be arranged for students enrolled in other colleges.

Applicants may enter only in the autumn term; they must attend on a full-time basis.

Joint Degree Program in Architecture and Urban Planning

For further information, see *Division of Urban Planning*—Joint Degree Programs.

Joint Degree Program in Architecture and Historic Preservation

For further information see *Historic Preservation*—Joint Degree Programs.

Master of Science Degree in Architecture and Urban Design (two terms)

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 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.

Applicants for the M.S. program in urban design may enter only in the autumn term; they must attend on a full-time basis. For the program in building design, two years of work experience in an architectural office are required in addition to the above admissions requirements.

Master of Science Degree in Historic Preservation (four terms)

Applicants for admission to the program leading to the M.S. degree in historic preservation must hold a first degree in architecture, landscape architecture, art history, American studies, history, or other related fields. It is required that candidates holding nonarchitectural degrees take a course in architectural drafting. Drafting courses are generally available in vocational and community colleges. Ability is tested by a proficiency examination immediately before the start of the first year of work; students needing more instruction are required to take a recommended course outside the University. The course does not carry credit toward the M.S. degree. All applicants are required to take the Aptitude Test of the Graduate Record Examination.

It is also strongly recommended that students who have little or no background in the history of architecture take the equivalent of two terms of the history of architecture or prepare themselves by reading books on basic architectural history. (A reading list is provided on request.) An examination is given at the start of the first year of work. Students needing more instruction are directed to take available courses included in the program for credit.

Applicants may enter only in the autumn term; they must attend on a full-time basis.

Master of Science Degree in Architectural Technology (two terms)

Applicants for admission to the program leading to the M.S. degree in architectural technology must hold the B.S. degree in civil engineering or the equivalent, or the B.Arch. degree or the equivalent. All applicants must take the Aptitude Test of the Graduate Record Examination; they are urged to take it no later than two months before their application is due. Information may be obtained from the Graduate Record Examination, Educational Testing Service, Box 955, Princeton, New Jersey 08540.

Since several of the requirements for this degree may be taken in the evening, it is possible to enroll in this program on a part-time basis. Applicants may enter in either the autumn or the spring term.

Master of Science Degree in Urban Planning (four terms)

Since the program leading to the M.S. degree in urban planning is designed to prepare students from many different backgrounds for careers in the planning field, applicants may hold degrees in professional fields such as architecture, engineering, planning, and law. They may also hold degrees in the social sciences, usually sociology, political science, geography, or economics. Applicants may enter only in the autumn term. A course in statistics and one in economics, sociology, or political science (preferably related to urban issues) are required before entrance into the program. Courses in all three social sciences are recommended. Ability in statistics will be tested by a proficiency examination immediately prior to the start of the first year of work, and students needing more instruction will be required to take a recommended statistics course. The course will not carry credit toward the M.S. degree.

All applicants should, if possible, submit examples of term papers with their application and are required to take the Aptitude Test of the Graduate Record Examination. The test should be taken no later than two months before applications are due. Information may be obtained from the Graduate Record Examination, Educational Testing Service, Box 955, Princeton, New Jersey 08540.

Joint Degree Programs in Urban Planning and Other Disciplines

For descriptions of these programs see *Division of Urban Planning*—Joint Degree Programs.

Doctor of Philosophy Degree

The programs leading to the Ph.D. degree are for students who wish to prepare themselves for professional careers in teaching or research. The University gives preference to applicants who have completed their undergraduate work within the last five years.

An applicant must hold, or expect to receive before enrollment, a bachelor's degree in arts, letters, philosophy, or science. The degree work must ordinarily include no less than 90 points of liberal arts courses in the humanities, the social sciences, and the pure sciences. Professional courses, such as architecture, are not credited toward the liberal arts requirements. The liberal arts requirement is ordinarily not fulfilled by the usual degree in architecture or engineering. An applicant whose only degree is in one of these fields should therefore be prepared to complete certain liberal arts requirements that will be outlined to the applicant by the Graduate School of Arts and Sciences Director of Admissions before the applicant can be admitted as a regular student in the doctoral program.

Applicants must apply on the Graduate School of Arts and Sciences application forms and should not use School of Architecture forms.

For further information on the program, the applicant should consult *Division of Urban Planning*—Doctor of Philosophy Degree in this bulletin, as well as the bulletin of the Graduate School of Arts and Sciences.

Special Students

Under certain circumstances professionals in the field of architecture or planning may be eligible to take courses in the Graduate School of Architecture and Planning. These students must receive permission from the Office of the Assistant Dean for Admissions in order to obtain applications for admission as *special students* (nondegree candidates). Many courses, including the design studios, are not open to special students.

If at a later date a special student wishes to apply for matriculation in either the M.Arch. or M.S. degree programs, the student must file a formal application before the stipulated deadline. The Admissions Committee will not treat the applicant preferentially.

Students who take courses as special students and are later admitted to a degree program may be awarded advanced standing for up to 15 points of work taken as a special student. Those who wish to apply for degree candidacy are therefore urged to do so at the earliest possible time.

Summer Session

Certain introductory courses are available to students during the Summer Session. Those interested in applying should contact the Office of Summer Session Admissions, 103 Low Memorial Library (telephone 280-2838) for bulletins and application forms.

Foreign Students

In general, only those foreign students (1) who can understand rapid idiomatic English and can speak, write, and read English with a high degree of facility and (2) who can prove their ability to support themselves financially while in the United States are eligible for admission to Columbia. For a single student, a minimum of $9,300 for living and tuition expenses for each academic year (early September to mid-May), plus travel money, is considered essential. Since a foreign student holding a student visa (F) or exchange visa (J) is required by the United States Immigration and Naturalization Service to carry a full program of study, students should not plan to depend on income from outside employment.

All applicants who are admitted to Columbia and whose first language is not English, or who received their secondary or university education in countries where English is not the native language will, unless specifically exempted by the Office of Foreign Student Admissions, be required to take Columbia University's English Language Placement Test—even if they have taken the Test of English as a Foreign Language (TOEFL—see below). Students who do not meet the standards of the University may be required to take English language courses before beginning or in conjunction with their program of study. No point credit is given for these courses, and students should bear in mind the possibility that their period of study in the United States may be lengthened by their need to gain the required proficiency in English. Provision should therefore be made for the additional living and tuition expenses that may have to be met.

Students Applying from within the United States

Students applying from within the United States, whether nonimmigrants or immigrants (permanent residents), should follow the standard application procedures.

If applying from outside the New York City area, students whose native language is not English or who did not receive their education in an English-speaking country should make arrangements to take the Test of English as a Foreign Language (TOEFL). Inquiries about this test, which is administered four times annually throughout the world, should be addressed to TOEFL, Educational Testing Service, Box 899, Princeton, New Jersey 08540. Applicants are urged to make arrangements to take either the November or the February examination.

If applying from within or near the New York City area, students should make an appointment with an adviser in the Office of Foreign Student Admissions, 208 Lewisohn Hall, Columbia University, New York, N.Y. 10027 (telephone [212] 280-3587). They will then have to take the English Language Placement Test (in lieu of the TOEFL), unless exempted by this office.

Students Applying from Overseas

Foreign students who expect to have nonimmigrant status (F or J visa) and who are applying to Columbia from overseas should do the following: (*a*) Students should write for a preliminary application to the Office of Foreign Student Admissions, 208 Lewisohn Hall, Columbia University, New York, N.Y. 10027, U.S.A. This office will evaluate the preliminary application and notify the student whether he or she should proceed with a formal application for admission. No documentation or application fee is required in submitting a preliminary application. (*b*) Students whose native language is not English or who did not receive their education in an English-speaking country should make arrangements to take the Test of English as a Foreign Language (TOEFL). Inquiries about this test, which is administered four times annually throughout the world, should be addressed to TOEFL, Educational Testing Service, Box 899, Princeton, New Jersey 08540, U.S.A. Applicants are urged to make arrangements to take either the November or the February examination.

Financial Aid

Students desiring financial aid who reside in countries that have a United States Educational (Fulbright) Commission should apply through the Commission. Information about the Commission, and about Fulbright grants (both travel and full-support grants) may be obtained from the nearest United States Embassy, Consulate, or Information Service. Students in Great Britain who wish to request financial aid should apply through the English-Speaking Union, 37 Charles Street, London, WIX8AB, England. All other applicants should write to the Office of Foreign Student Service, 208 Lewisohn Hall, Columbia University, for a preliminary application. If the preliminary application is found to be satisfactory, a final application for admission to the School will be sent by the Foreign Student Admissions Counselor. Students interested in applying should begin the application procedure one year before they wish to enter.

Foreign Student Services

The staff of the Office of the Foreign Student Adviser, 208 Lewisohn Hall, provides advice and counseling to foreign students on such matters as housing, personal and financial problems, and regulations of the United States Immigration and Naturalization Service (visas, extensions of stay, work permission, temporary departure from the United States, transfer from Columbia to another school, termination of study). Information about the various foreign student clubs at Columbia and about opportunities to attend conferences, travel in the United States, and participate in community and cultural activities may be obtained from this office. Maps of New York City and discount tickets to concerts and plays are available.

The staff of the Office of Foreign Student Admissions, 208 Lewisohn Hall, provides information and counseling on University admission, advanced standing, English proficiency examinations, and academic placement.

Degree Requirements

The requirements for the various degrees are outlined in the programs of the three divisions. In addition, the student must meet the requirements given below.

Curriculum

Students are responsible for the completion of the curriculum in the stated order. Petitions for exceptions may be made, in writing, to the Dean.

Although the curricula, with the exception of the doctoral program, are for specified periods of one, two, or three years, these are minimum periods and not guaranteed times for completing the degree requirements, particularly in the design sequence.

Design Review

A comprehensive review by the faculty and staff of the design work of every M.Arch. candidate is made at an appointed time. The student must earn a satisfactory recommendation from the design review committee before being allowed to register for the next design course. The committee may recommend that the student be asked to withdraw or that the student be required to complete additional design work and submit to another review before being permitted to proceed to the next term of the design program.

Academic Standing

Students receiving a grade of F in any design course, or in nondesign courses more than one F (or its equivalent), may be asked to withdraw. Although consideration is given to particular cases where a student's work has suffered because of illness, the student may be required to take additional work to demonstrate that he or she has overcome the problems that have resulted in a poor record.

Advanced Standing

No advanced standing may be granted until a student has successfully completed one year in the Master of Architecture degree program or one year in the program leading to the award of the M.S. degree in urban planning or in historic preservation.

Leave of Absence

A leave of absence may be granted upon the student's written request after satisfactory completion of one year in the Graduate School of Architecture and Planning. A leave of absence assures readmission to the School provided the student complies with the terms of the leave. Leaves of absence are granted only to students in good standing.

Readmission After an Unauthorized Absence

Students who absent themselves without obtaining a leave of absence must apply for readmission to the School. This formal application must be made to the Admission Office *at least one month* before the student expects to resume his or her studies.

Registration and Expenses

Registration

The registration procedure for all students is as follows (see the Academic Calendar for dates):

1. The student reports to the Student Affairs Office, 400 Avery, where he or she obtains registration cards and instructions.
2. The student's program must be approved by his or her academic adviser. The student then proceeds to the Student Affairs Office in order to have the course cards signed.
3. The signed cards are then presented to the Bills and Charges department. The location of the appropriate offices is given in the registration instructions.

All students will be asked to give Social Security numbers when registering in the University. Those who do not now have a number should obtain one from their local Social Security office well in advance of registration.

A student who is not a citizen of the United States and who is registering at the University for the first time must secure a clearance from the Office of the Foreign Student Adviser in 208 Lewisohn Hall before registering for courses.

Orientation Program for New Foreign Students

The Office of Foreign Student Services orientation program for new foreign students for the academic year 1980-1981 takes place on Tuesday, August 26. For further information, consult the Office of the Foreign Student Adviser, 208 Lewisohn Hall (extension 3591). Foreign students who should attend the orientation program for the academic year 1980-1981 will be advised of the dates of the program by the Office of Foreign Student Services.

Students who are required to take the English Language Placement Test may do so as early as Wednesday, August 27, 1980, for the 1980-1981 academic year and Wednesday, August 26, 1981, for the 1981-1982 academic year. Test schedules will be available in 505 Lewisohn Hall.

Auditing Courses

Degree candidates who are registered full time may audit one or two courses in any division of the University without charge. Application is made at the Registrar's Office, 208 Philosophy, during the change-of-program period in each term. Applications may not be filed before or after the change-of-program period.

Applications require *(a)* the certification of the Registrar that the student is eligible to audit, and *(b)* the approval of the dean of the school in which the courses are offered. For approval to audit graduate courses, consult the Graduate School of Arts and Sciences Division in the Registrar's Office. For obvious reasons, elementary language courses, laboratory courses, studio courses, applied music courses, and seminars will not be open to auditors. Other courses may be closed because of space limitations. In no case will an audited course appear on the student's record, nor is it possible to turn an audited course into a credit course by paying the fee after the fact. Courses previously taken for credit may not be audited.

Changes in Programs of Study

Students who wish to drop courses or to make other changes in their programs of study must obtain written approval from the Student Affairs Office on a special form. The deadline for

making program changes in each term is shown in the Academic Calendar. In no case will permission to add courses be granted after the last day of change-of-program week in each term. *Failure to attend classes or unofficial notification to the instructor does not constitute dropping a course and will result in a failing grade in the course.*

Tuition for courses dropped during the change-of-program period will be refunded in full, but the comprehensive fee will not be reduced. For courses dropped after the last day for change of program, no adjustment will be made.

Grades

All students registered in the School of Architecture will be graded on the pass-fail system described below:

P = Pass (This grade indicates an acceptable level of work.)
F = Fail (The grade of F is a final grade and is not subject to reexamination.)

The mark of R (registration credit; no qualitative grade earned): accepted for degree credit only in the doctoral programs. The mark of R is given only to those students who indicate, upon registration, that they intend to take the course for R credit, or who file notice of change of intention with the office of the Registrar not later than the last day for change of program. Students wishing to change to R credit after this date are required to submit the Dean's written approval to the Registrar. (The mark of R is entered on the student's record by the Registrar, and thus is not a grade given by the instructor.) It should be noted further that a course that has been taken for R credit may not be repeated later for examination credit.

The mark of ABS (absent from the final examination): granted by the instructor not later than the day of the examination, to a student whose attendance and progress have been satisfactory and who cannot be present because of sickness or some other extreme emergency. The student must make arrangements with his or her department to take a special examination. If the ABS is not removed within one year, it will automatically be changed to an F.

The mark of INC (incomplete): given to a student who has satisfactorily met all the requirements of a course except for the completion of certain assigned papers or reports that the student has been compelled to postpone for reasons beyond his or her control and satisfactory to the instructor. If the INC is not removed by the completion of the required work within one year, it will be automatically changed to an F. *The mark of INC cannot be assigned without approval from the Dean's Office.*

The mark of YC (year course): given at the end of the first term of a course in which the full year's work must be completed before a qualitative grade is assigned. The grade given at the end of the second term is the grade for the entire course.

The mark of CP (credit pending): given only in graduate research courses in which student research projects regularly extend beyond the end of the term. Upon completion, a final qualitative grade is assigned and credit allowed. The mark of CP implies satisfactory progress.

Regulations

According to University regulations, each person whose registration has been completed will be considered a student of the University during the term for which he or she is registered unless the student's connection with the University is officially severed by withdrawal or otherwise. No student registered in any school or college of the University shall at the same time be registered in any other school or college, either of Columbia University or of any other

institution, without the specific authorization of the dean or director of the school or college of the University in which the student is first registered.

The privileges of the University are not available to any student until he or she has completed registration. A student who is not officially registered for a University course may not attend the course unless granted auditing privileges (see "Auditing Courses" above). No student may register after the stated period.

Attendance and Length of Residence

The minimum residence requirement for each Columbia degree is 30 points of course work completed at Columbia University. Therefore, a student who wishes to receive both a master's degree and a doctorate from Columbia should be aware that any advanced standing awarded for graduate work completed elsewhere will not reduce the 60 points of residence credit required for obtaining both degrees.

Students are held accountable for absences incurred owing to late enrollment.

Religious Holidays

It is the policy of the University to respect its members' observance of their major religious holidays. Officers of administration and of instruction responsible for the scheduling of required academic activities or essential services are expected to avoid conflict with such holidays as much as possible. Such activities include examinations, registration, and various deadlines that are a part of the academic calendar.

Where scheduling conflicts prove unavoidable, no student will be penalized for absence due to religious reasons, and alternative means will be sought for satisfying the academic requirements involved. If a suitable arrangement cannot be worked out between the student and the instructor involved, students and instructors should consult the appropriate dean or director. If an additional appeal is needed, it may be taken to the Provost.

Academic Discipline

The continuance of each student upon the rolls of the University, the receipt of academic credits, graduation, and the conferring of any degree or the granting of any certificate are strictly subject to the disciplinary powers of the University.

Conduct

All members of the University community, its visitors and guests, are governed by the Rules of University Conduct, which apply to all demonstrations, including rallies and picketing, that take place on or at a University facility. It is the student's responsibility to be aware of all provisions, regulations, and procedures contained in the Rules. Copies are available in the Office of the University Senate, 406 Low Memorial Library.

Estimated Expenses

The approximate cost of attending the University for the eight months of the academic year is as follows:

Tuition for a 30-point program	$6,010
Living expenses (room, board, books, clothing, laundry, travel, sundries)	3,780
	$9,790

Materials

Books and supplies for first-year M.Arch. students are available at the Charette Store in Avery Hall. The School furnishes lockers and drafting tables, but students must supply their own paper, instruments, and materials.

The School reserves the right to retain a copy of any work submitted for credit—drawings, designs, plates, essays, or models, as well as any fellowship competition drawings—whether submitted by graduates or by students in residence.

Fees

The following fees are prescribed by statute and are subject to change at the discretion of the Trustees.

Beginning with the academic year 1979-1980, University charges such as tuition and fees, residence halls and board plans may be paid at the student's convenience during the term. The full amount of any charge may be paid when due without penalty, or payment may be made in installments. If partial payments are made, a finance charge of 1 percent a month is assessed on amounts not paid by the due date shown on the monthly bill. In either event, however, the student is required to sign a Retail Installment Credit Agreement at the time of registration that sets forth the full terms and conditions of payment. All charges must be paid by the end of the term.

Tuition, the health service fee, health insurance premium, and special fees are payable each term in advance and as part of registration.* If these fees are paid after the last day of registration (see the Academic Calendar), they will not be reduced, and a minimum late fee of $25 will be imposed. Checks for tuition and fees should be made payable to Columbia University.

Comprehensive Fee

For degree candidates engaged only in research	$240.00

Tuition

For all courses, per point, except where a special fee is fixed	$200.00
With the provision that for degree candidates the tuition for a program of 15 to 19 points shall be, per term	3,005.00

Health Insurance Fee and Health Insurance Premium

Payment of the health service fee, which is merely contributory to the total cost of health service, and of the health insurance premium is compulsory for some students and optional for others. Students for whom payment is compulsory may waive participation in one or both of the health plans by showing proof of comparable coverage. For benefits attainable under these plans, for regulations governing waiver of participation, and for other information, see "Medical Care and Insurance" below.

Health service fee, per term	$26.00

*However, the newly admitted degree candidate in the Graduate School of Architecture and Planning is required by the School, upon acceptance, to submit a deposit in order to reserve a place in the entering class. This amount is credited toward tuition when the student registers. See "Deposit" under Admission—*Admission Procedure.

Student accident and health insurance premium	
For the autumn term (September 1–February 1)	
Student only	$41.00
Additional cost for one dependent (optional)*	78.00
Additional cost for two or more dependents (optional)*	107.00
For the spring term and summer period (February 1–September 1)	
Student only	57.00
Additional cost for one dependent (optional)*	56.00
Additional cost for two or more dependents (optional)*	95.00

Application Fees and Late Fees

Application for admission as a degree candidate	$25.00
Application for admission as a special student	5.00
Late application, or late renewal of application, for a degree	25.00

Late Registration Fees

	Full-Time	*Part-Time*
During late registration	$ 25.00	$25.00
Up to four weeks after late registration	50.00	35.00
Four to eight weeks after late registration	75.00	45.00
Eight to twelve weeks after late registration	100.00	55.00
Beyond twelve weeks after late registration	125.00	65.00

Withdrawal and Adjustment of Fees

A student in good academic standing who is not subject to discipline will always be given an honorable discharge if the student wishes to withdraw from the University. If the student is under twenty-one years of age, a parent or guardian must first give consent in writing to the proper dean or director.

Any student withdrawing must notify the Registrar in writing at once; any adjustment of the tuition that the student has paid is reckoned from the date on which the Registrar receives this written notification. (For partial withdrawal, see "Changes in Programs of Study" above.)

The health service fee, health insurance premium, application fees, late fees, and special fees are not refundable.

In addition, at a minimum, the following amount of tuition will be retained:	
Students registered for 12 or more points	$50.00
Students registered for less than 12 points	25.00

After the last day to change programs in each term (see *Academic Calendar*), the above amount is retained *plus* an additional percentage of the remaining tuition (as indicated in the adjustment schedule below) for each week, or part of a week, that the student remains registered after these dates. The student is considered registered until the date on which the student's written notice of withdrawal is received by the Registrar.

**Unmarried children must be under the age of nineteen. Dependent coverage is available upon application to William M. Mercer, Inc., 1221 Avenue of the Americas, New York, N.Y. 10020. The premium for this coverage is paid directly to the company by the student.*

Adjustment Schedule

	Minimum Tuition Retained	*Percentage of Remaining Tuition Retained*
Up to and including dates specified above	$25 or $50	0
Following week	25 or 50	10
Second following week	25 or 50	20
Third following week	25 or 50	30
Fourth following week	25 or 50	45
Fifth following week	25 or 50	60
Sixth following week	25 or 50	75
Seventh following week	25 or 50	90
Eighth following week	25 or 50	100 (no adjustment)

Application or Renewal of Application for a Degree

Degrees are awarded three times a year—in October, January, and May. A candidate for any Columbia degree (except the doctoral degree) or for a certificate must file an application with the Registrar, in 208 Philosophy, in accordance with the dates shown in the Academic Calendar. A late fee of $25 will be charged after these dates and until the expiration of the *late* filing period for each conferral date. Applications received *after* the late filing period will automatically be applied to the next conferral date.

If the student fails to earn the degree by the conferral date for which he or she has made application, the student may renew the application. A $25 late fee will be charged for late filing of renewals of application according to the same schedule as for original applications (see above).

Requests for Transcripts

Transcripts can be requested by writing to the Office of the Registrar, 201 Philosophy Hall, Columbia University, New York, N.Y. 10027. *Official* transcripts must be sent by the University Office of the Registrar directly to an official address such as another university, a college, a business firm, or a government agency. However, a student may request that an unofficial transcript (stamped "Student Copy") be sent to him or her. There is a charge of $2 for each transcript requested except those that are sent between offices of Columbia University. Checks accompanying transcript requests should be made payable to Columbia University.

Medical Care and Insurance

The University has authorized a two-part program of medical service to protect and promote the health of its students. First is the Columbia University Health Service, on the second floor of John Jay Hall. It provides to students who pay the health service fee complete out-patient care on its own premises, with its own staff of doctors and specialists. More particularly, Health Service provides the following services: (1) commonly used medicines free of charge; (2) laboratory studies and x-rays ordered by the Health Service; (3) medical, surgical, and psychiatric consultation in the Health Service; (4) one consultation with a specialist when recommended by a Health Service physician; (5) immunizations and certificates for travel (there is a small charge for materials); (6) abortion referral, contraception advice, and premarital examination; (7) one visit for emergency dental care when recommended and authorized by the Health Service Office. Students are eligible for this care during the summer if they have paid the spring term health service fee. The policy can, if the student elects to pay a higher premium, be extended to cover dependents (see the schedule of fees).

Second is the Student Accident and Health Insurance (SAHI), which supplements the Health Service by providing coverage against in- or out-of-hospital accident and in-hospital illness anywhere in the world throughout the entire calendar year. The benefits under the policy are described in a brochure which may be obtained from the Columbia University Health Service, John Jay Hall, Columbia University, New York, N.Y. 10027, or from the Office of the Registrar, Bills and Charges Division, 203 Philosophy, Columbia University, New York, N.Y. 10027.

The health service fee and the cost of the SAHI premium are automatically charged to *(a)* students registered for 12 or more points and *(b)* all those certified as full-time students by their departments, regardless of points. Any student living in the University residence halls who is not included in categories *(a)* and *(b)* will be charged the health service fee only. Part-time special students who are registered for less than 12 points may, if they wish, participate in the combined health service-SAHI program by filing application in the Registrar's Office not later than the last day to change programs in each term, and by paying the fee and the premium. A student who is not in the health service-SAHI program is entitled only to emergency first-aid care in the Columbia University Health Service.

Participation in the health service plan may be waived by students who present documentary evidence that they are covered by H.I.P., G.H.I., or Medicaid, or that they are members of the armed forces or the dependents thereof. It may also be waived for graduate students who present certifications from their deans or departmental chairmen that they are registering for research or study *in absentia*. Such evidence must be presented in the Registrar's Office not later than the second Friday after the first day of classes.

A student who already has an accident and health insurance policy will be exempted from paying the SAHI premium by providing information on the form provided during registration and if the policy is accepted by the University as being comparable to the student plan.

The costs of the medical care and insurance program are listed in the schedule of fees under "Fees" above.

Services and coverage under Health Service and Insurance change from year to year; students are advised to consult the latest Health Service and Insurance brochure (referred to above) for a full and current description of health benefits.

Housing

On Campus

The University provides limited housing for undergraduate and graduate men and women who are registered either for an approved program of full-time academic study or for doctoral dissertation research.

University residence halls: include traditional dormitory facilities as well as suites and apartments for single and married students; furnishings and utilities are included. Rates range from $1,115 to $1,490 per person for the 250-day period September 1, 1980, to May 9, 1981, and from $1,950 to $3,000 per person for the 350-day period August 23, 1980, to August 8, 1981.

University rental properties: include apartments owned and managed by the University in the immediate vicinity of the Morningside campus. These are leased yearly, as they become available, to single and married students at rates that reflect the size and location of each apartment as well as whether furnishings or utilities are included.

Requests for additional information and application forms should be directed to the Assignments Office, 113 Livingston Hall, Columbia University, New York, N.Y. 10027.

Off Campus

The University also operates the Registry of Off-Campus Accommodations, which endeavors to help students find rooms or apartments in rental properties not owned or operated by the

University. Listings are varied, change quickly, and are not inspected or approved by the University. It is, therefore, necessary to visit the office, in 110 Livingston Hall, to read the listings and arrange to evaluate personally any that may be of interest. It is advisable to telephone (212) 280-2773 in advance to determine the best time for a visit to the registry.

International House, a privately owned student residence and program center near the campus, has accommodations for about five hundred graduate students, both foreign and American. Rates for the academic year range from approximately $159 to $199 a month, including membership fees; students should anticipate a yearly cost-of-living increase. A cafeteria, recreational facilities, and a varied program are available to members. To be eligible for admission a student must be at least twenty-one years old and must be registered for at least 12 points or the equivalent. Inquiries should be addressed to the Committee on Admissions, International House, 500 Riverside Drive, New York, N.Y. 10027.

Financial Aid

General Policies

Financial aid programs are administered without regard to race, color, creed, national origin, or sex.

The goal of the School's program of financial assistance is to provide financial aid to all students who have demonstrated need consistent with University guidelines and the analysis of the Graduate and Professional School Financial Aid Service (GAPSFAS). Financial need is met through a combination of grants and/or loans. Students should apply under the separate state-guaranteed loan programs. An entering student who receives a scholarship grant should be able to meet, through a combination of the grant, loan funds, parental contributions, summer earnings, and other resources, all expenses through the academic year. The need of a student is determined by assessing all possible resources including the student's own resources, those of his or her spouse, if any, and a parental contribution based on a uniform method of computation through GAPSFAS. From these resources, a student's estimated expenses are deducted; the difference becomes the student's "need."

In upperclass years, a student who continues to have financial need and continues to achieve a satisfactory record will qualify for a continuation of financial aid.

A scholarship grant is applied as a credit toward tuition: one half at registration for the autumn term, the other half at registration for the spring term.

Application Procedure

The Graduate School of Architecture and Planning is a participant in the Graduate and Professional School Financial Aid Service (GAPSFAS). Accordingly, all applicants, their parents, and spouses or spouses-to-be must complete a GAPSFAS application form. Such forms are obtained from GAPSFAS, Box 2614, Princeton, New Jersey 08540. A financial aid application can be considered only if it has been analyzed by the GAPSFAS. Each parent must complete the appropriate section of the GAPSFAS application. In view of limited financial aid resources, an applicant's assertion of self-support or emancipation is not recognized in awarding scholarship grants. Applications for financial aid should be filed with the GAPSFAS as soon as possible after the admission application has been submitted so that if a favorable admission determination is made, the financial aid application from GAPSFAS can be promptly reviewed.

State Loan Programs

In view of the limitations of the loan resources of the University, each student must first endeavor to obtain a loan through the Guaranteed Loan Program in his or her state. Generally, only those students who have been unable to secure state loans are eligible for loans administered through the University. State loans are interest-free while the student is enrolled and are favorable in terms thereafter. Repayment of principal need not commence until nine months after graduation and may be spread out over a number of years, depending on the borrower's individual circumstances. A loan should be applied for *as promptly as possible,* since a number of weeks is required for processing the application. Students should contact their local State Education Offices with regard to State Loan Programs in their home state.

New York State Tuition Assistance Program

Any student who has been a legal resident of New York State for the preceding year is entitled to a TAP Award for each term in which the student is registered as a full-time degree candidate. The amount of this award is based upon the net taxable balance of the student's income and the income of those responsible for the student's support, as reported on the New York State income tax return for the previous calendar year.

Application forms and further information can be obtained from the New York State Higher Education Services Corporation, Tower Building, Empire State Plaza, Albany, New York 12255. Application for awards should be filed three months in advance of the beginning of the term for which the grant is to apply.

University Loan Programs

Loan funds administered by the University may be available for students with financial need who have been unsuccessful in securing loans through their State Loan Programs. University loans, like state loans, are interest-free while the student is enrolled. Repayment of principal and interest need not commence until nine months after graduation, or when enrollment is terminated.

National, Regional, and Foundation Fellowships

AMERICAN INSTITUTE OF ARCHITECTS—AMERICAN INSTITUTE OF ARCHITECTS FOUNDATION SCHOLARSHIPS PROGRAM
Applications and information may be obtained from the American Institute of Architects, Scholarship Program, 1735 New York Avenue, N.W., Washington, D.C. 20006. The deadline for filing applications is usually December 31.

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
Since 1967 the United States Department of Housing and Urban Development has awarded fellowships (under its City Planning and Urban Studies Fellowship Program) to several School of Architecture applicants. Applications and further information may be obtained from the Office of Housing and Urban Development, Urban Studies Fellowship Program, Washington, D.C. 20410. The deadline for filing applications is March 1.

NEW YORK STATE REGENTS COLLEGE TEACHING FELLOWSHIPS
Annual predoctoral fellowships are open to legal residents of New York State for doctoral study in preparation for college teaching. Recipients must indicate their intent to teach in an institution of higher learning within the State upon graduation. Applications may be obtained from the New York State Higher Education Services Corporation, Tower Building, Empire State Plaza, Albany, New York 12255, and are due December 1.

PUBLIC HEALTH SERVICE FELLOWSHIPS
Predoctoral fellowships are available to students in the basic sciences or the social sciences for work relating to problems of health and disease. Applications are obtained by writing to the Chief, Career Development Review Branch, Division of Research Grants, National Institute of Health, Bethesda, Maryland 20014, and are due by December 1.

JOHN HAY WHITNEY FOUNDATION OPPORTUNITY FELLOWSHIPS
The John Hay Whitney Foundation offers Opportunity Fellowships for seniors in college or college graduates planning or already engaged in graduate or professional studies who are United States citizens with racial or cultural backgrounds or regions of original residence as follows: Negroes, Spanish-Americans, American Indians, and residents of the Southern Appalachian and Ozark Mountain areas, Guam, Puerto Rico, Samoa, the Pacific Trust Territory, and the Virgin Islands. Applications can be obtained from the John Hay Whitney

Foundation, 111 West 50th Street, New York, New York 10020. The deadline for filing applications is November 30.

International Fellows Program

The International Fellows Program was created for outstanding American graduate students who wish to use their professional training on an international level. The program is open to men and women under thirty who are American citizens and who have been admitted to graduate degree programs in Columbia University. Admission is based on the applicant's character, motivation, collegiate record, and professional promise; on the recommendations of the applicant's instructors; and particularly on the applicant's demonstrated ability and estimated potential for leadership in a chosen field and in the field of international affairs.

Each International Fellow follows the program of study prescribed by the graduate school or department of the University in which the fellow is enrolled. In addition fellows are required to take a full-year course, *IFP W6045-W6046—The role of the United States in world affairs,* open only to International Fellows. In both terms, each fellow is required to give an oral summary of a proposed position paper on an international topic, to prepare the paper, and to take a final examination. Fellows of the Graduate School of Architecture and Planning receive elective credit for this course.

In addition to formal classes, the International Fellows have an extensive program of extracurricular activities. A special six-day session is held each September at the United Nations, and the fellows make two three-day trips to Washington to meet with Congressional leaders and executives of the Pentagon, the State Department, the White House, USIA, AID, and other agencies.

Candidates in need of financial assistance may be granted stipends to defray part of their expenses. For information about the program and for application forms, write directly to the International Fellows Program, Box 18, Law School Building, 435 West 116th Street, Columbia University, New York, N.Y. 10027. Applications must be submitted by February 1.

University Fellowships and Scholarships

Several fellowships and scholarships for graduate study are awarded annually from funds provided by the University. In order to be considered, applicants merely submit the financial aid request of the Graduate School of Architecture and Planning application to the Admissions Office by February 15. Current students submit a grant-in-aid application, which can be obtained from the Admissions Office during the spring term.

Medals and Prizes

ALPHA RHO CHI MEDAL
Awarded annually to the student who has shown ability in leadership and who gives promise of professional merit through his or her attitude and personality.

AMERICAN INSTITUTE OF ARCHITECTS MEDAL
A medal and a copy of Henry Adams' *Mont Saint-Michel and Chartres* awarded annually to the student who has maintained the best general standard in all departments during the entire professional course. A copy of the book is also given to the alternate for the prize.

AMERICAN INSTITUTE OF PLANNERS CERTIFICATE
Given to an outstanding graduating student in planning.

MORTIMER HIRSCH MEMORIAL PRIZE
A prize of $75 awarded to the student who submits the best research paper in the history or theory of architecture.

LUCILLE SMYSER LOWENFISH MEMORIAL PRIZES
Two cash prizes awarded annually for the purchase of professional books to the students in the graduating class who submit the best theses.

NEW YORK SOCIETY OF ARCHITECTS MEDAL
Awarded annually to the student who has maintained the highest standard during the entire professional course.

ROBERT C. WEINBERG PRIZE FOR ACADEMIC EXCELLENCE
Awarded by the New York Metropolitan Chapter of the American Institute of Planners.

Assistantships and Readerships

Teaching assistantships and readerships are available to qualified students. Assistants divide their time equally between their studies and various tasks, helping faculty members in instruction and in administration.

Student Employment/Work-Study

The schedules of architecture students are so heavy that very little time is left for part-time work. However, those students who must work part time should consult the Financial Aid Officer, who will recommend jobs under the Work-Study Program.

Wives or husbands of students may consult the Office of Student Employment, 206 Lewisohn Hall, for information. Those who are interested in full-time jobs on the campus should contact the University Personnel Office, 209 Dodge. Most of these jobs are clerical or secretarial in nature, usually requiring some typing and in some instances stenography as well. Regular full-time University employees are eligible for a limited number of points of tuition exemption providing they meet the stated requirements of the Supporting Staff Plan (a copy of which can be obtained from the University Personnel Office, 313 Dodge), as well as the admission requirements of the school or division in which they wish to enroll. Tuition-exempt courses are taken primarily in evening classes in the School of General Studies.

A list of opportunities in architectural offices for summer employment and full-time employment for graduates is maintained in the Dean's Office.

Academic Calendar: 1980–1981, 1981–1982

Major Religious Holidays

For a statement of University policy regarding religious holidays, see *Registration and Expenses*—Regulations.

JULY

1 Tuesday. Last day to apply for autumn admission to the architectural technology M.S. program.

31 Thursday. Last day to apply for admission to the autumn term as a special student.

AUGUST

1 Friday.* Last day to apply or reapply for October degrees (see September 4).

Autumn Term 1980

AUGUST

26 Tuesday. Orientation program for new foreign students (see *Registration and Expenses*—Orientation Program for New Foreign Students).

SEPTEMBER

2-4 Tuesday-Thursday.† Registration, including payment of fees.

4 Thursday. Classes begin. Last day to apply for Ph.D. final examinations (defense) to be held this term. Last day to file *late* application or renewal of application for October degrees. Applications received after this date will automatically be applied to the next conferral date.

5 Friday. Late registration begins.

8 Monday. First day to change programs and apply to audit courses.

16 Tuesday. Last day to (1) register for credit, (2) change programs, (3) apply to audit courses, and (4) register for R credit. **No adjustment of fees for individual courses dropped after this date.**

OCTOBER

21 Tuesday. Midterm date.

22 Wednesday. Award of October degrees.

31 Friday.* Last day to apply or reapply for all degrees, except doctoral degrees, to be awarded in January (see December 5).

NOVEMBER

3 Monday. Academic holiday.

4 Tuesday. Election Day. Holiday.

*Students who apply after this date must pay a late fee.
†Students allowed to register after the period specified must pay a late fee.

27–30 Thursday–Sunday. Thanksgiving holidays.

30 Sunday. Last day to apply for spring admission to the architectural technology M.S. program.

DECEMBER

5 Friday. Last day to file *late* application or renewal of application for January degrees. Applications received after this date will automatically be applied to the next conferral date.

10 Wednesday. Classes end.

11 Thursday. Study day.

12 Friday. Last day to apply for admission to the spring term as a special student.

12–19 Friday–Friday. Midyear course examinations. Term ends.

20 Saturday, through January 13, 1981, Tuesday. Winter holidays.

Spring Term 1981

JANUARY

14–16 Wednesday–Friday.* Registration including payment of fees.

16 Friday. Last day to apply for Ph.D. final examinations (defense) to be held during the term.

19 Monday. Classes begin. Late registration begins.

21 Wednesday. Award of January degrees.

22 Thursday. First day to change programs and apply to audit courses.

28 Wednesday. Last day to (1) register for credit, (2) change programs, (3) apply to audit courses, and (4) register for R credit. **No adjustment of fees for individual courses dropped after this date.**

FEBRUARY

15 Sunday. Last day to apply for 1981–1982 admission to the Graduate School of Architecture and Planning (except for the architectural technology M.S. program—see *Admission*—Admission Procedure). Last day for current graduate students in the School to apply for a second degree program. Last day to apply for financial aid.

16 Monday.† Last day to apply or reapply for all degrees, except doctoral degrees, to be conferred in May (see March 30).

MARCH

1 Sunday. Annual Commemoration Service in St. Paul's Chapel.

5 Thursday. Midterm date.

8–15. Sunday–Sunday. Spring holidays.

30 Monday. Last day to file *late* applications or renewal of application for May degrees. Applications received after this date will automatically be applied to the next conferral date.

Students allowed to register after the period specified must pay a late fee.
†Students who apply after this date must pay a late fee.

APRIL

29 Wednesday. Classes end.

30 Thursday. Study day.

MAY

1-8 Friday-Friday. Final course examinations. Term ends.

Commencement 1981

MAY

10 Sunday. Baccalaureate Service.

13 Wednesday. Conferring of degrees and certificates.

JULY

1 Wednesday. Last day to apply for autumn admission to the architectural technology M.S. program.

31 Friday. Last day to apply for admission to the autumn term as a special student.

AUGUST

3 Monday.* Last day to apply or reapply for all degrees, except doctoral degrees, to be awarded in October (see September 10).

Autumn Term 1981

AUGUST

25 Tuesday. Orientation program for new foreign students. (see *Registration and Expenses*—Orientation Program for New Foreign Students).

31 Monday through Thursday, September 3†. Registration, including payment of fees.

SEPTEMBER

8 Tuesday. Classes begin. Last day to apply for Ph.D. final examinations (defense) to be held during the term. Last day to file *late* application or renewal of application for October degrees. Applications received after this date will automatically be applied to the next conferral date.

8 Tuesday. Late registration begins.

14 Monday. First day to change programs and apply to audit courses.

18 Friday. Last day to (1) register for credit, (2) change programs, (3) apply to audit courses, and (4) register for R credit. **No adjustment of fees for individual courses dropped after this date.**

OCTOBER

27 Tuesday. Midterm date.
28 Wednesday. Award of October degrees.

Students who apply after this date must pay a late fee.
†Students allowed to register after the period specified must pay a late fee.

NOVEMBER

2 Monday. Academic holiday.

3 Tuesday. Election Day. Holiday.

6 Friday.* Last day to apply or reapply for all degrees, except doctoral degrees, to be awarded in January (see December 11).

26–29 Thursday–Sunday. Thanksgiving holidays.

30 Monday. Last day to apply for spring admission to the architectural technology M.S. program.

DECEMBER

11 Friday. Last day to file *late* application or renewal of application for January degrees. Applications received after this date will automatically be applied to the next conferral date.

14 Monday. Classes end.

15 Tuesday. Study day.

15 Tuesday. Last day to apply for admission to the spring term as a special student.

16–23 Wednesday–Wednesday. Midyear course examinations. Term ends.

24 Thursday, through January 19, 1982, Tuesday. Winter Holidays.

Spring Term 1982

JANUARY

20–22 Wednesday–Friday.† Registration, including payment of fees.

22 Friday. Last day to apply for Ph.D. final examinations (defense) to be held during the term.

25 Monday. Classes begin. Late registration begins.

27 Wednesday. Award of January degrees.

28 Thursday. First day to change programs and apply to audit courses.

FEBRUARY

3 Wednesday. Last day to (1) register for credit, (2) change programs, (3) apply to audit courses, and (4) register for R credit. **No adjustment of fees for individual courses dropped after this date.**

15 Monday. Last day to apply for 1982–1983 admission to the Graduate School of Architecture and Planning (except for the architectural technology M.S. program—see *Admission*—Admission Procedure). Last day for current graduate students in the School to apply for a second degree program. Last day to apply for financial aid.

22 Monday.* Last day to apply or reapply for all degrees, except doctoral degrees, to be conferred in May (see April 1).

Students who apply after this date must pay a late fee.
†Students allowed to register after the period specified must pay a late fee.

MARCH

7 Sunday. Annual Commemoration Service in St. Paul's Chapel.

11 Thursday. Midterm date.

14–21 Sunday–Sunday. Spring holidays.

APRIL

1 Thursday. Last day to file *late* application or renewal of application for May degrees. Applications received after this date will automatically be applied to the next conferral date.

MAY

5 Wednesday. Classes end.

6 Thursday. Study day.

7–14 Friday–Friday. Final course examinations. Term ends.

Commencement 1982

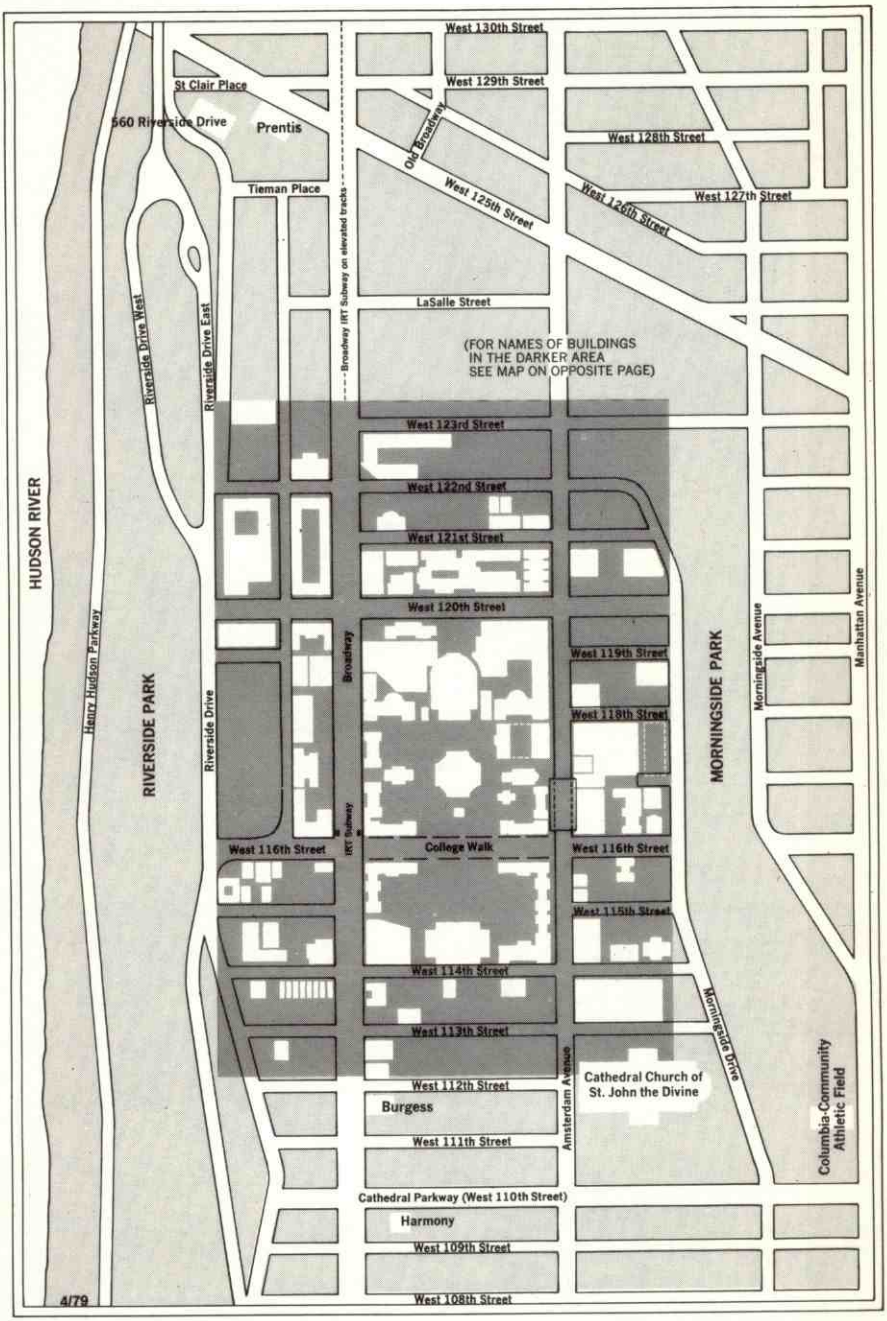
MAY

16 Sunday. Baccalaureate Service.

19 Wednesday. Conferring of degrees and certificates.

House No. 1849-202

The Morningside Heights Area of New York City



The Morningside Campus & Environs