Columbia University

Graduate School of Architecture and Planning

Bulletin 1973/1974

Directory

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COLUMBIA UNIVERSITY
IN THE CITY OF NEW YORK

GRADUATE SCHOOL OF ARCHITECTURE AND PLANNING

1973-1974

CONTENTS

THE GRADUATE SCHOOL OF ARCHITECTURE AND PLANNING

The Graduate School of Architecture and Planning contains three distinctive but cooperating divisions: Architecture, Architectural Technology, and Urban Planning. The educational disciplines concentrated within each of these divisions deal in different ways with one general problem area: man and his environment. The presence of the three 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 division, regardless of the degree program offered, it is the intention to provide the student with the information and strategies to enable him, as a professional, 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 their theoretical bases 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 planning, architectural, or technological problem be undertaken unless a major component of the solution provides the community, in its narrowest as well as in its broadest sense, with results permanently useful and beneficial to all.

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

The following are the general goals of the School and the specific educational aims and activities by which they 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 which 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 profession and of society as a whole, the School promotes basic research in the fields of architecture and environmental design 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 and environmental design 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.

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 one hundred and forty, 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.

Facilities

THE SCHOOL

The School, located in Avery Hall, has excellent drafting rooms, studios, classrooms, a lounge, exhibition galleries, a completely equipped workshop for making scale-models, and a photography laboratory.

AVERY LIBRARY

The resources of the world's leading architectural library, the Avery Memorial Library, 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 nearly ninety-five 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, adjacent to the comprehensive studios, is designed as a working library for the everyday use of the students. It contains more than two thousand books, a collection of nearly twenty thousand photographs, and the major professional periodicals from the United States and Europe.

COMPUTER CENTER

The Columbia University Computer Center, 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.

THE UNIVERSITY

To the resources of the city and the School are added the resources of a great university and its numerous divisions and departments, including the School of Engineering and Applied Science, the School of Public Health, and Teachers College. The special and unique advantages of Avery Library are enhanced by access to the other libraries of the University.

Programs and Degrees

DIVISION OF ARCHITECTURE

Master of Architecture Degree

Master of Science Degree in Architecture and Urban Design

Master of Science Degree in Historic Preservation

Master of Science Degree in Health Services Planning and Design

DIVISION OF ARCHITECTURAL TECHNOLOGY

Master of Science Degree in Architectural Technology

DIVISION OF URBAN PLANNING

Master of Science Degree in Urban Planning

Doctor of Philosophy Degree

FACULTY OF ARCHITECTURE

William J. McGill, Ph.D., L.H.D., LL.D. *President of the University*

Wm. Theodore de Bary, Ph.D., L.H.D., D.Litt. *Executive Vice President for Academic Affairs and Provost of the University*

James S. Young, Ph.D. *Deputy Vice President for Academic Affairs*

James Stewart Polshek, B.Arch. *Dean of the Faculty of Architecture*

Harold K. Bell. *Adjunct Professor*

B.B.A., College of the City of New York, 1947. President, Module Communities, Inc., a H.U.D. "Operation Breakthrough" award winner.

J. Max Bond, Jr. *Associate Professor of Architecture*

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

Robert H. Chapman. *Adjunct Professor of Architecture*

B. Medicine, M.A., Oxford, 1943; M.Arch., Harvard, 1950. Member, American Institute of Architects. Associate member, American Association of Hospital Consultants. Registered architect.

Victor F. Christ-Janer. *Adjunct Professor of Architecture*

B.F.A., Yale, 1942; B.Arch., 1947; D.F.A. (hon.), Lake Erie, 1967. Danforth Lecturer. Member, American Institute of Architects. Registered architect. N.C.A.R.B. certificate.

George R. Collins. *Professor of Art History*

B.A., Princeton, 1939; M.F.A., 1942.

James Marston Fitch. *Professor of Architecture*

Alabama, 1926; Tulane, 1928. Director, American Society of Architectural Historians; Municipal Art Society; Victorian Society of America. Member, National Committee, International Commission of Monuments and Sites; Advisory Council on Historic Preservation. Associate member, American Institute of Architects.

Kenneth Frampton. *Associate Professor of Architecture*

A.A.Dipl., A.A.Trop.Dipl., Architectural Association School (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.

Romaldo Giurgola. *Ware Professor of Architecture*

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

Sigurd Grava. *Professor of Urban Planning; Chairman, Division of Urban Planning*

B.C.E., College of the City of New York, 1955; M.S., Columbia, 1957; Ph.D., 1965. William Kinne Fellows Traveling Fellow, 1958. Member, American Institute of Planners; American Society of Civil Engineers. Licensed professional planner.

Albert O. Halse. *Associate Professor of Architecture*

B.Arch., New York University, 1940; M.A., 1944; Ed.D., 1952. Member, American Institute of Architects; American Institute of Interior Designers. Registered architect.

Cyril M. Harris. *Professor of Architecture and Electrical Engineering (on leave, academic year)*

B.A., California (Los Angeles), 1938; M.A., 1940; Ph.D., Massachusetts Institute of Technology, 1945. Fellow, Acoustical Society of America; Institute of Electrical and Electronic Engineers; Audio Engineering Society. Director, the Acoustics Laborarory.

Klaus Herdeg. *Assistant Professor of Architecture*

B.Arch., Cornell, 1963; M.Arch., Harvard, 1964. Member, Swiss Society of Architects and Engineers. Registered architect.

Ada Karmi-Melamede. *Adjunct Associate Professor of Architecture*

B.A. in Arch., Technion-Israel Institute of Technology, 1961.

Alexander Kouzmanoff. *Professor of Architecture; Chairman, Division of Architecture*

B.S., Illinois, 1939; M.S., 1949. Member, American Institute of Architects. Registered architect. N.C.A.R.B. certificate.

John M. McCormick. *Adjunct Professor of Architecture*

B.S., Villanova, 1956; M.S., Columbia, 1957; Eng. Sc.D., 1961. Member, American Society of Civil Engineers; Sigma Xi. Registered professional engineer.

William Garrison McNeil. *Adjunct Associate Professor of Architecture*

B.S., City College (New York), 1965. B.Arch., 1966; M.S., Columbia, 1969. William Kinne Fellows Traveling Fellow, 1969. Hult Fellow, 1970.

Adolf K. Placzek. *Adjunct Professor of Architecture*

Vienna, 1931–1938; B.S., Columbia, 1942.

Richard A. Plunz. *Assistant Professor of Architecture*

B.S., Rensselaer Polytechnic Institute, 1965; B.Arch., 1966; M.Arch., 1967.

Jan Hird Pokorny. *Associate Professor of Architecture*

Engineer-Architect, Polytechnical University (Prague), 1938; M.S., Columbia, 1941. Fellow, American Institute of Architects. Member, National Institute of Architectural Education. Registered architect. N.C.A.R.B. certificate.

James Stewart Polshek. *Professor of Architecture; Dean of the Faculty of Architecture*

B.Arch., Yale, 1955; B.S., Western Reserve, 1973. Fulbright Fellow, 1956. Fellow, American Institute of Architects. Registered architect. N.C.A.R.B. certificate.

Charles J. Rieger. *Professor of Architecture*

Architecte Diplômé par le Gouvernement Français, Paris, 1937. Fellow, Société des Architectes Diplômés par le Gouvernement Français; National Institute for Architectural Education; member and consultant on architectural education to Union Internationale des Architectes.

Vernon Ben Robinson. *Adjunct Professor*

B.A., Morgan State, 1957; M.S.W., Wisconsin, 1962.

Theodor K. Rohdenburg. *Associate Professor of Architecture*

B.Arch., Columbia, 1937. Member, American Institute of Architects; Association of Collegiate Schools of Architecture; American Arbitration Association. Registered architect.

Mario G. Salvadori. *James Renwick Professor of Civil Engineering and Professor of Architecture*

D.C.E., Rome, 1930; D.Math., 1933; Libero Docente in Theory of Structures, 1937. Fellow, American Society of Civil Engineers; American Society of Mechanical Engineers; New York Academy of Sciences. Member, American Concrete Institute; International Association of Shell Structures; International Association of Bridge and Structural Engineering. Registered professional engineer.

Loes Schiller. *Assistant Dean for Admissions, Financial Aid, and Student Records*

Dipl.S.W., Sociale Akademie (The Hague), 1953.

David Seader. *Assistant Professor of Urban Planning*

B.S., Columbia, 1967; M.S.U.P., 1969. HUD Fellowship, 1969.

Kenneth Alexander Smith. *Professor of Architecture (on leave, academic year)*
B.S., Massachusetts Institute of Technology, 1927. Member, National Institute for Architectural Education; Association of Collegiate Schools of Architecture; Society of Architectural Historians; American Institute of Architects. Registered professional engineer.

Robert A. M. Stern. *Assistant Professor of Architecture*
B.A., Columbia, 1960; B.Arch., Yale, 1965. Registered architect.

Charles W. Thurston. *Associate Professor of Architecture; Assistant Dean for Administration; Acting Chairman, Division of Architectural Technology*
B.S., Union (Schenectady), 1943; M.S., Columbia, 1950; Ph.D., 1958. Member, American Society of Civil Engineers; American Concrete Institute; American Society for Engineering Education; Society for Experimental Stress Analysis; Sigma Xi. Registered professional engineer.

Danforth W. Toan. *Adjunct Professor of Architecture*
B.A., Dartmouth, 1940; B.Arch., Columbia, 1949. Member, American Institute of Architects. Registered architect. N.C.A.R.B. certificate.

Foster Carlisle Towery. *Associate Professor of Urban Planning*
Antioch, 1956–1957; B.Arch., Auburn, 1961; M.Arch., Columbia, 1965. William Kinne Fellows Traveling Fellow, 1965.

Constantinos Xanthopoulos. *Assistant Professor of Architecture*
Dipl.Arch.-Engr., National Technical University (Athens), 1965; M.S.Arch., Columbia, 1970. William Kinne Fellows Traveling Fellow, 1971.

Other Officers of Instruction

Michael S. Adams. *Lecturer in Architecture*
B.A., Rice, 1964; B.Arch., 1965; M.S., Columbia, 1972.

Victor G. Alicea. *Instructor in Urban Planning*
B.S., Columbia, 1963; M.S.W., 1966.

Ursula L. Berens. *Lecturer in Architecture*
B.A., Wellesley, 1951; M.Arch., Yale, 1956. Registered architect.

Curtis Jay Berger. *Professor of Law*
B.A., Rochester, 1948; LL.B., Yale, 1951.

Horst Berger. *Adjunct Associate Professor of Architecture*
Dipl.Ing., Technische Hochschule Stuttgart (Germany), 1954. Member, American Concrete Institute. Registered engineer.

Ellen Perry Berkeley. *Adjunct Associate Professor of Architecture*
B.A., Smith, 1952. Harvard Graduate School of Design, 1952–1955. Loeb Fellow in Advanced Environmental Studies, 1973. Former senior editor of *Architectural Forum;* currently on editorial staff of *Architecture Plus.*

K. Michael Burke. *Instructor in Urban Planning*
B.A., Harvard, 1960; M.S., Columbia, 1969. William Kinne Fellows Traveling Fellow, 1970.

Joseph T. Butler. *Adjunct Associate Professor of Architecture*
B.S., Maryland, 1954; M.A., Ohio, 1955; Delaware, 1957. Winterthur Fellow. Member, National Arts Club; Victorian Society in America; Furniture History Society; Irish Georgian Society; American Collectors.

Arthur E. Bye, Jr. *Adjunct Professor of Architecture*
B.S., Pennsylvania State, 1942. Fellow, American Society of Landscape Architects; Architectural League of New York. Associate member, American Institute of Architects.

Demetrios Caraley. *Professor of Government in Barnard College*
B.A., Columbia, 1954; Ph.D., 1962.

Elaine Dowe Carter. *Adjunct Associate Professor of Urban Planning; Assistant Dean for Urban Development*

B.A., Howard, 1952; M.A., Boston, 1962. Member, American Society for Training and Development; American Sociological Association; National Association of Community Development; Organization Development Network.

Francois Confino. *Lecturer in Architecture*

Dipl.Arch., Swiss Federal Institute of Technology (Zurich), 1970.

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B.Arch., Columbia, 1958. William Kinne Fellows Traveling Fellow, 1958. Registered architect. N.C.A.R.B. certificate.

David G. De Long. *Preceptor in Architecture*

B.Arch., Kansas, 1962; M.Arch., Pennsylvania, 1963. Fulbright Scholar, 1967–1968. Member, Society of Architectural Historians. Registered architect.

Daniel C. Dunham. *Preceptor in Urban Planning*

B.S., Wisconsin, 1950; M.Arch., Harvard, 1959. Fulbright Scholar, School of Tropical Architecture, London, 1960.

Stanton Eckstut. *Adjunct Assistant Professor of Architecture*

B.Arch.Eng., Pennsylvania State, 1965; B.Arch., Pennsylvania, 1968. Principle Urban Designer, City of New York. Registered architect. N.C.A.R.B. certificate.

John M. Garber. *Adjunct Professor of Architecture*

B.A., Yale, 1946; B.Arch., Harvard, 1952; M.Arch., 1971. Member, American Institute of Architects. Registered architect. N.C.A.R.B. certificate.

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B.A., Minnesota, 1962; B.Arch., 1964; M.Arch., Pennsylvania, 1967.

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B.S., Drexel Institute of Technology, 1958; M.S., Wisconsin, 1960; Ph.D., Columbia, 1967. William Kinne Fellows Traveling Fellow, 1967. Member, American Concrete Institute. Member, American Society of Civil Engineers. Chairman, Air Kinetics Committee, B.R.I., National Academy of Sciences. Registered engineer.

John A. James. *Lecturer in Architecture*

B.S., City College, 1960; M.Arch., Harvard, 1971.

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D.F.A., Allegheny, 1963. Apprenticed with Frank Lloyd Wright, 1934–1935. Director, Department of Industrial Design, Museum of Modern Art. Honorary member, American Institute of Architects. Vice-President, International Council of Societies of Industrial Design.

Robert Kolodny. *Instructor in Urban Planning*

B.A., Antioch, 1962; M.C.P., Pennsylvania, 1967. Sears Roebuck Fellow, 1965–67. Member, American Institute of Planners; American Society of Planning Officials.

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M.A., Smith, 1960; B.Arch., Yale, 1964. Registered architect.

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Matthys P. Levy. *Adjunct Professor of Architecture*

B.C.E., College of the City of New York, 1951; M.S., Columbia, 1956; C.E., 1962. Fellow, American Society of Civil Engineers. Member, Architectural League. Registered engineer.

Joseph M. Lubart. *Associate Clinical Professor of Psychiatry*

B.A., Columbia, 1938; M.A., Pennsylvania, 1939; M.D., New York Medical College, 1943; Certificate

in Psychoanalysis, Columbia, 1953. Member, American Psychiatric Association; American Psychoanalytic Association; Association for Psychoanalytic Medicine; Explorer's Club.

Theodore Maggos. *Adjunct Assistant Professor of Architecture*

B.Arch., Western Reserve, 1964. Member, American Institute of Architects, Epsilon Delta Rho Honorary Architectural Fraternity, Cleveland. Registered architect.

David A. Mintz. *Lecturer in Architecture*

B.F.A., Carnegie-Mellon, 1955. Founder and member, Board of Directors, International Association of Lighting Designers. Member, Board of Directors, United States Institute for Theater Technology; Publications Committee, Illuminating Engineering Society; Society of Motion Picture and Television Engineers; Architectural League.

Julian Neski. *Adjunct Associate Professor of Architecture*

B.Arch., Rensselaer Polytechnic Institute, 1950. Member, American Institute of Architects, Ethics Committee, A.I.A. Registered architect. N.C.A.R.B. certificate.

Tician Papachristou. *Adjunct Professor of Architecture*

B.A., Princeton, 1951; M.F.A., Princeton, 1953. Member, American Institute of Architects.

Anthony Pangaro. *Lecturer in Architecture*

B.S., Rensselaer Polytechnic Institute, 1967; B.Arch., 1968; M.Arch., Harvard, 1969. Member, American Society of Planning Officials. Associate member, American Institute of Planners. Registered architect. N.C.A.R.B. certificate.

Kellis E. Parker. *Associate Professor of Law*

B.A., North Carolina, 1964; J.D., Howard, 1968.

Charles E. Peterson. *Adjunct Professor of Architecture*

B.A., Minnesota, 1928. Fellow, American Institute of Architects. Past president, Association for Preservation Technology (Canadian-American); Society of Architectural Historians. Member, U.S. ICOMOS Committee; U.S. International Centre Standing Committee; Association for Studies in the Conservation of Historic Buildings of Great Britain (an elective membership); Society of Architectural Historians, Great Britain. Fellow, Royal Society of the Arts. Honorary corresponding member, Conference on Training of Architects for Conservation (COTAC). Registered architect.

Theodore H. M. Prudon. *Preceptor in Architecture*

M.A., Delft, 1969; M.S.Arch., Columbia, 1972. William Kinne Fellows Traveling Fellow, 1972. Member, Dutch Society of Architects.

J. Woodson Rainey, Jr. *Lecturer in Architecture*

B.F.A., University of Utah, 1964; B.Arch., 1966. Alpha Rho Chi Medal, 1966.

Raquel Ramati. *Adjunct Assistant Professor of Architecture*

B.Arch., Pratt, 1962. Senior urban designer, member, City Planning Commission. Member, American Institute of Planners. Registered architect (Israel).

Chester Rapkin. *Adjunct Professor of Urban Planning*

B.S., College of the City of New York, 1939; Ph.D., Columbia, 1953. Member, American Institute of Planners. Commissioner, New York City Planning Commission.

Eugene Raskin. *Adjunct Professor of Architecture*

B.A., Columbia, 1930; B.Arch., 1932. Fellow, Institute of Arts and Archaeology, Paris, 1932. Langley Fellow, American Institute of Architects, 1951. Member, American Institute of Architects. Registered architect.

Paolo Riani. *Adjunct Associate Professor of Architecture*

Laurea in Arch., Florence, 1965; M.S.Arch., Columbia, 1971; Libera Doc.Arch., Rome, 1971. Member, Italian Order of Architects.

James V. Righter. *Lecturer in Architecture*

B.A., Harvard, 1958; M.Arch., Yale, 1970.

Ovadia A. Salama. *Adjunct Associate Professor of Urban Planning*

B.S., Paris, 1960; M.S., 1963; M.A., Pennsylvania, 1969; Ph.D., 1971. Senior analyst and project director, Abt Associates, Inc., Cambridge, Mass.

Alfred Schimmel. *Adjunct Associate Professor of Urban Planning*
B.S., College of the City of New York, 1935; M.S., 1936. Senior member, American Society of Appraisers. Fellow, Institute of Assessing Officers.

S. J. Schulman. *Adjunct Professor of Urban Planning*
B.C.E., Cooper Union, 1949; M.S., Columbia, 1954. William Kinne Fellows Traveling Fellow, 1954. Member, American Institute of Planners. Registered engineer.

Sean West Sculley. *Adjunct Assistant Professor of Architecture*
B.A., Harvard, 1961; B.Arch., Columbia, 1968.

William C. Shopsin. *Adjunct Assistant Professor of Architecture*
B.Arch., Carnegie Institute of Technology, 1960. Chairman, NYC/AIA Historic Buildings Committee, 1969–1973. Member, American Institute of Architects. Registered architect. N.C.A.R.B. certificate.

William Todd Springer. *Adjunct Assistant Professor of Architecture*
B.Arch., Cornell, 1960; M.S.Arch., Columbia, 1962; Hochschule für Gestaltung, 1963. Registered architect.

Douglas D. Telfer. *Adjunct Associate Professor of Architecture*
Diploma, Durham (England), 1961; M.Arch., Columbia, 1962. Member, A.R.I.B.A. Registered architect. Campus architect, Columbia University.

Thomas J. Thomas. *Instructor in Urban Planning*
B.Arch., Rensselaer Polytechnic Institute, 1959; M.S., Columbia, 1963. William Kinne Fellows Traveling Fellow, 1963. Member, American Institute of Planners. Licensed professional planner.

Henry J. Wald. *Adjunct Associate Professor of Architecture*
B.M.E., Cooper Union, 1948; M.Arch., Columbia, 1971. Fellow, Illuminating Engineering Society; Commission Internationale d'Eclairage; Pi Tau Sigma. Registered professional engineer.

Steven Winter. *Adjunct Assistant Professor of Architecture*
B.Arch., Sydney (Australia), 1966; M.S., Columbia, 1968. William Kinne Fellows Traveling Fellow, 1968. Affiliate, Royal Australian Institute of Architects. Member, Architectural Association, London; Architectural League. Registered architect, State of N.S.W. (Australia). Registered architect, N.Y.

Timothy Wood. *Lecturer in Architecture*
B.Arch., Cornell, 1966; M.F.A., Princeton, 1969. Registered architect. N.C.A.R.B. certificate.

Roberto Brambilla. *Visiting Critic in Urban Design and Consultant to the Dean on the Formation of the Center for Research*

Richard Lam. *Visiting Critic in Transportation Planning and Consultant to the Dean on the Formation of the Center for Research*

Sue Rodgers. *Visiting Critic in Architecture*

Elia Zenghelis. *Visiting Critic in Architecture*

Jeffrey Zupan. *Visiting Critic in Urban Design*

TEACHING ASSISTANTS

Peter Engelbrecht
Kevin Hom
Stanley Kennedy
John Meyer
Patricia Obst
Geraldine Pontius

Administrative Officers

James Stewart Polshek. *Dean of the Faculty of Architecture*

Loes Schiller. *Assistant Dean for Admissions, Financial Aid, and Student Records*

Charles W. Thurston. *Assistant Dean for Administration*

Elaine Dowe Carter. *Assistant Dean for Urban Development*

Sigurd Grava. *Chairman of the Division of Urban Planning*

Alexander Kouzmanoff. *Chairman of the Division of Architecture*

Charles W. Thurston. *Acting Chairman, Division of Architectural Technology*

Idaehla Antosik. *Assistant Registrar*

Jane H. Bobbe. *Administrative Assistant*

Joan Evanish. *Office Manager*

Anne Boxall. *Executive Secretary to the Dean*

Saundra Moorer. *Architecture Division Secretary*

Marga Walter. *Planning Division Secretary*

AVERY LIBRARY

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Joanne Simonds. *Reference Librarian*

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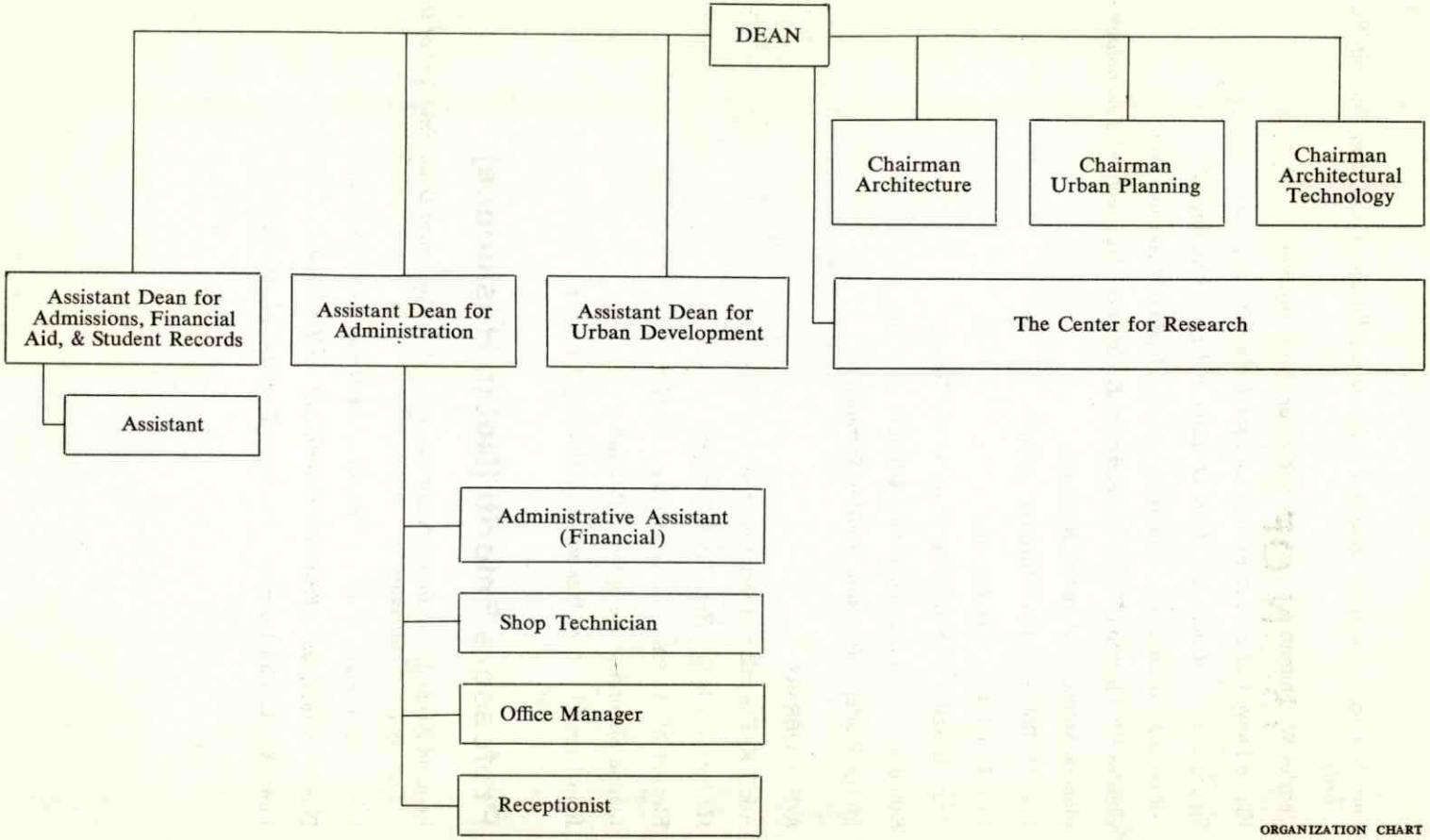
Professors Emeriti (Not in Residence)

Leopold Arnaud. *Ware Professor Emeritus of Architecture; Dean Emeritus of the Faculty of Architecture*

Ernest M. Fisher. *Professor Emeritus of Urban Land Economics*

Percival Goodman. *Professor Emeritus of Architecture*

James Grote Van Derpool. *Professor Emeritus of Architecture*



ORGANIZATION CHART

DIVISION OF ARCHITECTURE

CHAIRMAN: Mr. Alexander Kouzmanoff

Decisions regarding our man-made environment must be arrived at in a manner that is more responsive to the desires of mankind and more sensitive to the human and natural ecological forces of which we are a part. The increasing complexity of our world, with its new technologies and bureaucracies, creates physical environmental problems of enormous diversity. The architect, now more than at any time in history, undertakes by his choice of profession the responsibility for dealing effectively with these problems. The *design process* is the architect's basic framework. The sequential understanding of this process must enable him to arrive at the kind of humane solutions which satisfy functional needs and at the same time create a universally understood order and harmony that ultimately will reinforce and encourage the highest aspirations of man.

For the architect to be influential, he must understand the complex interactions that underlie the various problems he will face during his professional life. His education must be at once synthetic with respect to all disciplines and, at the same time, specific with respect to the various pertinent skills he must acquire. For these reasons, the education of the student of architecture must be designed to stress the interdependence of all the various disciplines he will later be called upon to bring together. It must also reflect the principal importance of the social and political forces that shape his world. The Master of Architecture and various Master of Science programs have been designed to respond to those forces.

Master of Architecture Degree

The Three Year M.Arch. Curriculum

The three primary matrices, which provide a framework by means of which all aspects of our world may be understood and our understanding of them communicated, form the basis upon which we are constructing a curriculum. Each matrix interacts with the others—defining and structuring specific areas of study which can be continuously evaluated and changed in accordance with the needs of an evolving culture. The central matrix is the PERCEPTUAL. It is the core of the curriculum and the area of major concentration. It shall be continuously modified and reinforced by both the CONSTRUCTUAL and CULTURAL matrices.

THE CONSTRUCTUAL MATRIX

—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.

THE PERCEPTUAL MATRIX

—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

(a) discovering the relationships between disparate natural and man-made phenomena;
(b) formulating these relationships into particular areas of inquiry in a communicable and verifiable manner; and
(c) 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.

THE CULTURAL MATRIX

—to comprehend and rationalize the chaotic aspects of existence 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

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

The specific content of each matrix and the relations between them are graphically described in the chart shown on pages 18–19.

THE COMPREHENSIVE STUDIO

Each of the six terms is organized around a Comprehensive Studio. The first four studios are concerned with various human activity systems and the building typologies appropriate to them. Terms five and six are organized into workshops dealing with specific issues and emphasizing research as well as advanced design problem solving.

In term six the student may be permitted to engage in work under the joint supervision of the studio staff and the staff of one of the M.S. programs in the Division of Architecture (see below). Such permission does not guarantee later admission to the M.S. program but does allow the student to do preliminary work in the field of specialization in which he intends to pursue an advanced degree.

The strategies to be followed and the topics to be dealt with in the Comprehensive Studios are determined by the faculty and staff whose interests lie within the Constructual, Perceptual, or Cultural areas of inquiry. Much information traditionally conveyed via lectures and seminars will be studio integrated, except for abstract principles and other material inappropriate to the studio format.

SUMMARY OF THE PROGRAM

For a graphic description of the program see the chart on pages 18–19.

MASTER OF ARCHITECTURE DEGREE

108 points required for the degree

PROGRAM ANALYSIS / PROGRAM STRUCTURE		YEAR 1 term 1	YEAR 1 term 2	YEAR 2 term 1
CONSTRUCTUAL MATRIX	STRUCTURES	Principles of Structure A4010 2 pts	Statics & Strength A4011 3 pts	Wood & Steel† A4123 2 pts
	ENVIRONMENTAL SYSTEMS	Buildings and the Biosphere; Evolution of Western Building Technology	Comprehensive Studio II A4102 12 pts; Case Study; Principles of Climate Control & System Selection	Comprehensive Studio III A4103 9 pts; Case Study; Integration of Climatological & Mechanical Control Systems
	ASSEMBLAGE SYSTEMS	A4149 1 pt; A6162 1 pt	Principles & Selection of Building Assemblies & Systems	Application of Building Assemblies & Systems
PERCEPTUAL MATRIX	QUANTITATIVE SKILLS	Comprehensive Studio I A4101 8 pts; Architectural Graphics	Site Planning	Type A; Redesign A; Critical Evaluation; Housing Introduction
	DESIGN			Type B; Redesign B
	QUALITATIVE SKILLS	Classification & Ranking (General Systems Analysis)	Programming: Research & Analysis	
CULTURAL MATRIX	THEORY			Comparative Critical Analysis of Built Form A4190 2 pts
	HISTORY	Principles of Architectural Design A4147 2 pts		Origins of Modern Architecture A4154 3 pts
	SOCIAL SCIENCE	Perception Theory* A4166 1 pt; Architecture & Behavior A4168 1 pt		Environment, Social Institutions, & Personality Development* A4160 2 pts
	PLANNING		Origins of Design Attitudes in Modern Urban Planning A4164 2 pts	
IMPLEMENTATION	DEVELOPMENT			
	LAW			
	MANAGEMENT			
	PRACTICE & SKILLS		Critical/Descriptive Writing* A4043 2 pts; Interaction of Color* A4182 2 pts	Contemporary Practice in Restoration & Preservation A4161 2 pts; Architectural Presentation* A4185 2 pts

* An elective course which can be taken during any term with the permission of the chairman and studio directors. All other courses are required and must be taken in the term indicated. Students must take 23 points in elective courses.

† Not given in 1973–1974.

‡ All students are required to take one of the following: Irrationality and Architecture I (A4175), History Seminar (A4156), or Rise of an American Architecture (A4150).

			YEAR 3		
term 2			term 1	term 2	
Concrete A4125 2 pts			Experimental Structures A4134 1 pt	Computers in Architecture* A4019 2 pts	
Principles of Lighting A4137 1 pt	Principles of Acoustics† A4129 1 pt		Architectural Acoustics† A4128 2 pts	Impact of Planning Strategies on the Natural Environment* Pl A6124 3 pts	
Critical Analysis of Current Housing Technology & Economy A4023 2 pts			Advanced Building Systems* A4050 2 pts	Architectural Consequences of Structural Decisions* A6134 3 pts	
Comprehensive Studio IV A4104 8 pts	Housing Typology Zoning: Principles & Design	Site Selection Programs Site Planning	Comprehensive Studio V A4105 9 pts	Comprehensive Studio VI A4106 10 pts	Critical Evaluation
			Faculty/student–defined workshops. Areas of study relate to human activity systems (health and education, production and consumption, culture and recreation). One workshop is concerned with Black problems as they relate to architecture and planning. Other minority workshops may be established in addition.		
			Irrationality and Architecture I* ‡ A4175 2 pts	Irrationality and Architecture II* A4176 2 pts	
Models of Twentieth-Century Architecture A4191 2 pts			History Seminar* ‡ A4156 2 pts	Rise of an American Architecture* ‡ A4150 2 pts	
Economic & Social Elements of Housing* Pl A4142 3 pts				Economic Infrastructure of Building as an Activity A4024 2 pts	
Contemporary Planning Problems* Pl A6159 3 pts				New Towns Seminar* Pl A4148 3 pts	
			Development & Finance* A4038 3 pts		
			Architectural Practice & Legal Aspects of Construction* A4132 2 pts		
			Construction Management & Cost Control* A4146 2 pts		
Contemporary Practice in Restoration & Preservation A4162 2 pts	Architectural Presentation* A4186 2 pts			Structures* A4014 1 pt	Construction & Systems* A4139 1 pt

Master of Science Degree in Architecture and Urban Design

DIRECTOR: Mr. Romaldo Giurgola

This one-year program consists of a project of programming and design of a single complex dealing with a human settlement in its high to low density character.

The first term emphasizes the contextual and objective aspects of the project including the evaluation of project intentions, the assessment of the problem, and the analysis of the major forces which define the program. Such forces as movement, economics, and regulatory factors are studied for their potential in effecting form.

The second term emphasizes the resolution aspects of the project, stressing the architectural consequences of the program.

The program is summarized below.

M.S. DEGREE IN ARCHITECTURE AND URBAN DESIGN 36 points required for the degree			
term 1	autumn	term 2	spring
Development and Finance		Origins of Design Attitudes in Modern Urban Planning, 1750–1930	
A4038	3 pts	A4164	2 pts
Planning Law and Administration		Seminar in Restoration and Preservation	
Pl A4183	3 pts	A6154	3 pts
Urban Design Project (planning and programming)		Urban Design Project (physical design development)	
A6129	6 pts	A6130	6 pts
Urban Transportation Planning Techniques		Advanced Research	
Pl A6132	3 pts	A6022	3 pts
Electives	3 pts	Electives	4 pts

Master of Science Degree in Health Services Planning and Design

DIRECTOR: Mr. Robert H. Chapman (*on leave, academic year*)

ASSOCIATE DIRECTOR: Mr. Constantinos Xanthopoulos

The planning of health services on a regional or country-wide basis makes it necessary to study the services and facilities involved as systems components, with linkages to the structure and life of the communities served.

The aim of the program is to involve the architect as a member of the team of health-services planning researchers and practitioners. It is to increase his skills and his ability to analyze and synthesize complex problems in the framework of the current effort to coordinate and integrate social disciplines.

The program offers a one-year course directed to the study of architecture, planning, and technology of health service systems. To fulfill the aim of the program, the required courses are multidisciplinary in their approach. In addition to the core program, students are encouraged to develop their special interests. They are assisted in the choice of a curriculum which will best fit their needs.

Problem confrontation consists of individual and/or group research and synthesis with either theoretical or pragmatic project orientation. Organized seminars cover the spectrum of health service design and planning by micro- and macro-areas.

New York City and its vicinity is used as a resource for site visits to health service facilities and for off-campus teaching purposes.

Students who register for courses at the School of Public Health must register both in that School and in the School of Architecture. Information on this registration procedure is on page 64.

A total of 34 points is required for the degree (see the chart on pages 23–24).

SEMINARS

Each year a number of great lecturers conduct seminars at the School of Architecture or at their own offices or the institutions with which they are affiliated. They include the following:

Roy E. Brown. *Mount Sinai School of Medicine*
John H. Bryant. *School of Public Health, Columbia University*
Daniel Drosness. *Department of Social Medicine, Montefiore Hospital and Medical Center*
Robert Galen. *College of Physicians and Surgeons, Columbia University*
Raymond S. Gambino. *College of Physicians and Surgeons, Columbia University*
Eli Ginzberg. *Graduate School of Business, Columbia University*
Harold Laufman. *Institute for Surgical Studies, Montefiore Hospital and Medical Center*
Regina Loewenstein. *Center for Community Health Systems, Columbia University*
William Lloyd. *Martin Luther King, Jr., Health Center*

George Parker. *Graduate School of Business, Columbia University*
Alfred Kahn. *School of Social Work, Columbia University*
Mary Ramshorn. *Teachers College, Columbia University*
Eugene D. Rosenfeld. *E. D. Rosenfeld Associates*
Rachel Rothkovitch. *Long Island Jewish Hillside Medical Center*
Granville H. Sewell. *School of Public Health, Columbia University*
Richard Sonder. *Russo & Sonder, Architects*
Eleanor Lambersten. *Cornell University School of Nursing*
Harold Wise. *Montefiore Hospital and Medical Center*
Eberhard Reidler. *Craig, Zeidler, Strong, Architects*
Robert Hyde Jacobs. *Craig, Zeidler, Strong, Architects*

SUMMARY OF THE PROGRAM

For a graphic description of the program see the chart on pages 23–24.

PROGRAM ANALYSIS / PROGRAM STRUCTURE			M.S. DEGREE IN HEALTH SERVICES PLANNING AND DESIGN 34 points required for the degree						
			TERM 1 — AUTUMN			TERM 2 — SPRING			
			Diversification	Analysis	Consolidation	Diversification	Integration	Synthesis	Consolidation
			HEALTH SERVICE COMPONENTS Basic Structure	RESEARCH	ELECTIVES (see next page)	HEALTH SYSTEM COMPONENTS Basic Structure	HEALTH SYSTEM	RESEARCH	ELECTIVES (see next page)
CORE PROGRAM	ARCH.: HEALTH FACILITY	HOSPITAL-INSTITUTIONAL	Ambulatory Care OPD & ER	Health Facilities I A6139	HOSPITAL RESEARCH I A6141			Health Facilities II A6140	HOSPITAL RESEARCH II A6142	
			In-Patient Care Nursing Units	Health Facilities I A6139						
			Diagnostic & Treatment			Health Facilities II A6140				
			Commerce Systems			Health Facilities II A6140				
		NON-INSTI-TUTIONAL	Community Health Facilities	Health Facilities I A6139						
	HEALTH SERVICES PLNG.	U.S.	Health Care Delivery Systems Structure	Health Services Planning A6167						
		EUROPEAN & OTHER	Health Care Delivery Systems Structure				Health Services Planning A6168			
			Regional Health Service Planning	Health Services Planning A6167		Health Services Planning A6168				
		POINTS	7	3	7	7		4	6	
		Total	17			17				

ELECTIVES

HEALTH*	PLANNING†	TECHNOLOGY SYSTEMS & MEASURES‡	CULTURE§
Public Health	Economy	Structures	Theory
Environmental Health Sciences	Regional Analysis	Building Services & Systems	History
Sociomedical Sciences	Politics & Policies	Quantitative Methods	
Epidemiology	Social Aspects	Computer Applications	
Biostatistics	Environment (Man-made)	Systems Theory & Analysis	
Administrative Medicine	Ecology		
Comprehensive Health Planning			
Hospital Administration			

* See the bulletin of the School of Public Health for relevant courses.
† See the bulletins of the Schools of Architecture, Business, International Affairs, Law, and Public Health, and of Teachers College. See also those bulletins which list the course offerings of the Departments of Economics, Geography, and Sociology.
‡ See the bulletins of the Schools of Architecture, Business, and Engineering, and of the College of Physicians & Surgeons. See also those bulletins which list the course offerings of the Departments of Economics and Geography.
§ See the bulletin of the School of Architecture and those bulletins which list the course offerings of the Departments of Anthropology, Geography, Philosophy, Psychology, and Sociology.

Master of Science Degree in Historic Preservation

DIRECTOR: Mr. James M. Fitch

A master's program specially designed to prepare students for the wide range of work now required by the expanding field of historic preservation. Students whose undergraduate degrees are in architecture, landscape architecture, art history, or cultural history are eligible to apply.

The program of study has four main components:

Course work: includes academic studies specially structured for this program; design work in the studios; advanced historical research; and electives taken within the School as well as in the Department of Art History and Archaeology and in the Department of History.

The Seminar: is aimed at giving the student a synoptic overview of both the theoretical and practical problems of the field; some forty distinguished lecturers participate each year (see list below).

Field trips: all-expense-paid field trips are an integral part of the study program and enable the students to visit a wide range of institutions, projects, and sites throughout the eastern United States.

Internships: during both the academic year and the summer vacation period, students do historic research and prepare surveys and measured drawings of actual sites.

For architects and landscape architects a one-year program requiring a minimum of 36 points of course work, including a design thesis, and a three-month postgraduate internship at an approved institution is offered. For all other candidates the program requires a one-year course of study earning 36 points of credit, a written thesis, and a three-month postgraduate internship. These students are also required to take additional courses (see the chart on page 28) prior to or in conjunction with enrollment in the program. If the latter, the time required to complete the program will necessarily be longer than one year.

LECTURES

Each year a number of lectures are commissioned on various specialized aspects of the preservation of the artistic and historic patrimony. Among the distinguished scholars who regularly deliver such lectures are the following:

Rita Androsko. *Smithsonian Institution*
Penelope Batchelor. *National Park Service*
George O. Bird. *Henry Ford Museum*
Billie Britz. *National Trust*

Helen D. Bullock. *National Trust*
Bainbridge Bunting. *University of New Mexico*
Richard C. Candee. *Old Sturbridge Village*
David Chase. *Smithsonian Institution—Dunbarton Oaks*
James M. Deetz. *Plimoth Plantation*
Eric DeLony. *Historic American Engineering Record*
Elspeth Dusenberry. *New York University Institute of Fine Arts*
Samuel Edgerton, Jr. *Boston University*
Albert Fein. *Long Island University*
Henry A. Judd. *National Park Service*
Harley J. McKee. *Syracuse University*
Lawrence Majewski. *Institute of Fine Arts*
James C. Massey. *National Trust*
William Massey. *National Trust*
Virginia Partridge. *New York Historical Association*
Charles E. Peterson. *Restoration Architect*
Morgan Phillips. *Society for Preservation of New England Antiques*
L. S. Russell. *Royal Ontario Museum*
Stanley South. *University of South Carolina*
John Stevens. *Old Bethpage Village, Inc.*
George R. Tatum. *University of Delaware*
Robert M. Vogel *Smithsonian Institution*
John G. Waite, Jr. *New York State Historic Trust*
Anne St. Clair Wright. *Historic Annapolis, Inc.*

SUMMARY OF THE PROGRAM

For a graphic description of the program see the charts on pages 27 and 28.

M.S. DEGREE IN HISTORIC PRESERVATION
(for students with B.Arch. or B.LandscapeArch. degrees)
36 points plus 3 month internship

	TERM 1 AUTUMN	TERM 2 SPRING
DESIGN	Restoration and Preservation Studio A6149 5 pts	Thesis A6150 5 pts
THEORY & METHODOLOGY	Seminar: Restoration & Preservation A6153 3 pts Descriptive Analysis of Historic Buildings I A6155 2 pts	Seminar: Restoration & Preservation A6154 3 pts Descriptive Analysis of Historic Buildings II A6156 2 pts
PROFESSION	Contemporary Practice A4161 2 pts	Contemporary Practice A4162 2 pts
CULTURE	American Architecture: 1600–1914 A6158 3 pts Decorative Arts: European A4130 2 pts Historical Research Problems A8049 3 pts	Technology of Early American Buildings A6157 3 pts Decorative Arts: American A4131 2 pts
ELECTIVES	For related courses in architecture, art history, and urbanism, see course listing in this bulletin and in the bulletins of other divisions of the University.	

M.S. DEGREE IN HISTORIC PRESERVATION

(for students with B.A. degrees in art history, American studies, history, or related fields)
36 points plus 3 month internship

	TERM 1 — AUTUMN		TERM 2 — SPRING	
THEORY & METHODOLOGY	Seminar: Restoration & Preservation A6153 3 pts	Descriptive Analysis of Historic Buildings I A6155 2 pts	Seminar: Restoration & Preservation A6154 3 pts Descriptive Analysis of Historic Buildings II A6156 2 pts	Thesis A6152 6 pts
CULTURE	Historical Research Problems A8049 3 pts American Architecture: 1600–1914 A6158 3 pts	Elective in Art History (graduate course) 3 pts Decorative Arts: European A4130 2 pts	Technology of Early American Buildings A6157 3 pts	Decorative Arts: American A4131 2 pts
PROFESSION	Contemporary Practice A4161 2 pts		Contemporary Practice A4162 2 pts	

NOTE: The following courses must be taken prior to or in conjunction with enrollment in the program. If the latter, the time required to complete the program will necessarily be longer than one year.

C3301 History of Architecture I
C3302 History of Architecture II
A4121 Basic Principles of Construction
A4149 Buildings and the Biosphere
A4163 Basic Principles of Architectural Graphics
P1 A4146 Impact of Cultural Systems on Urban Form

DIVISION OF ARCHITECTURAL TECHNOLOGY

ACTING CHAIRMAN: Mr. Charles W. Thurston

The division is active in the study and development of new technologies relevant to modern architecture. The range of problems considered is wide: systems construction, mechanical and electrical systems, structural analysis and synthesis, effects on ecological systems of energy generation and consumption, public health service delivery systems, office and project management, and other, together with digital computer applications to these studies.

The division accepts students with first degrees in either architecture or engineering, and arranges graduate programs in technology to fit individual interests and needs. Students are afforded wide latitude in choosing courses, subject to the inclusion of the following somewhere in their preparation: introductory courses in law and accounting; courses requiring the use of computers; advanced courses in structural analysis and building systems. Both a master's thesis and a period of six months practical professional experience in an office, a laboratory, or in the field are required for the degree of Master of Science in architectural technology. Research courses are available for the study of special problems, and the academic courses and experimental laboratories of other divisions within the University are available for student work.

Most of the courses shown in the accompanying table are open to all students in the program. Some courses, however, because of their technical content or mathematical sophistication, may be meaningful only after proper preparation; prerequisites should be checked carefully. No course may be included in a graduate program when it covers essentially the same material studied in previous course work. In addition to the listed courses, many of the offerings of other divisions of the University are available on a selective basis for one, or possibly two, electives in each program, and the appropriate bulletins should be consulted.

Master of Science Degree in Architectural Technology

See the chart on pages 30–31 for an outline of this program.

PROGRAM ANALYSIS / PROGRAM STRUCTURE		M.S. DEGREE IN ARCHITECTURAL TECHNOLOGY 34½ points + 6 months professional experience required for the degree						
		AUTUMN				SPRING		
TECHNOLOGY	STRUCTURES	Architectural Consequences of Structural Decisions A6134 3 pts	Advanced Structural Analysis I CE E4023 3 pts	Soil Mechanics & Foundations CE E4241 3 pts	Experimental Structures A4134 1 pt	Theory of Plates & Shells Engr E4214 3 pts	Foundation Engineering I CE E4244 3 pts	Prestressed Concrete Structures CE E4233 2 pts
	ELECTRICAL & MECHANICAL SYSTEMS	Architectural Acoustics* A4128 2 pts				Principles of Acoustics A4129 1 pt	Principles of Lighting A4137 1 pt	
	COMPUTERS	Computer Application to Urban Planning P1 A6108 3 pts	Computer-Assisted Instruction† T15101 3 pts	Digital Computer Engineering Applications† Engr Math E4811 3 pts		Computers in Architecture* A4019 2 pts	Digital Computer Engineering Applications† Engr Math E4811 3 pts	Computer-Assisted Instruction† TI5101 3 pts
	CONSTRUCTION SYSTEMS	Advanced Building Systems A4050 2 pts	Design & Construction of Pre-fab Buildings CE E4021 2½ pts	Reinforced Concrete Structures CE E4232 2 pts	Introduction to Methods of Operations Research† OR E4000 3 pts	Systems Analysis CE E4028 2 pts	Introduction to Methods of Operations Research† OR E4000 3 pts	
	QUANTITATIVE METHODS	Ordinary Differential Equations I† Engr Math E3200 3 pts	Partial Differential Equations† Engr Math E4200 3 pts			Ordinary Differential Equations I† Engr Math E3200 3 pts	Partial Differential Equations† Engr Math E4200 3 pts	Numerical Methods Engr Math E4300 3 pts

THE PROFESSION	PRACTICE	Legal Aspects of Business I† Bus Law B6901 3 pts				Legal Aspects of Business I† Bus Law B6901 3 pts		
	FINANCIAL ASPECTS	Business in a Changing Economy† Bus B6005 3 pts	Development & Finance A4038 3 pts	Managerial Accounting† Bus B6013 4 pts		Business in a Changing Economy† Bus B6005 3 pts	Managerial Accounting† Bus B6013 4 pts	
	EXPERIENCE	Professional Experience*‡ A6801 ½ pt				Professional Experience*‡ A6801 ½ pt		
	SPECIAL PROBLEMS	Advanced Research* A6021 2 or 3 pts	Thesis*‡ A6802 3 pts			Advanced Research* A6022 2 or 3 pts	Thesis*‡ A6802 3 pts	
MAN & ENVIRONMENT	ECOLOGY	Environmental Bases for Regional & Ecological Studies Geog G4000 3 pts	Buildings & the Biosphere A4149 1 pt	Oceanography for Engineers I Engr E4101 3 pts		Environmental Control Technology Ch E E4410 3 pts	Oceanography for Engineers II Engr E4102 3 pts	
	PLANNING	Planning and the Urban Political Process Pl A4157 3 pts	Transportation Planning Pl A6132 3 pts			The Planner as a Manager of Change Pl A6138 3 pts		
	POLITICS	Government-Developed Urban Communities A4041 3 pts				Subsidized Housing Packaging Techniques A4039 3 pts		

* Required of all students.
† May be taken autumn or spring term.
‡ To be taken during the student's last term of residence.

DIVISION OF URBAN PLANNING

CHAIRMAN: Mr. Sigurd Grava

The program of work in the division of urban planning is designed to familiarize the prospective city planner with the broader problems of human environment and to educate him in those aspects of the planning process which he may ultimately choose as his specialty. Planning theory and method, housing and real estate, city building and rebuilding, regionalization, transportation, social and recreational facilities, slums and poverty, and the interrelationships between the various levels of government are studied in seminars and lecture courses. Theory, methodology, and practical application are integrated in studios and workshops.

As part of a university in a large metropolis, the division of urban planning enjoys particular advantages. There are many new programs, technologies, and experiments in progress, so that New York City is, indeed, uniquely equipped to show students at first hand both the problems and the potentials of urbanization. The presence of the United Nations headquarters facilitates consideration of urban affairs in other nations, the developing as well as the industrialized. Some of the foremost housing and planning experts in the world are also here, and they are often called upon to give special lectures and courses, to criticize projects, and to advise students. The student may also avail himself of the assistance of official government planning agencies in preparing his work.

Under a traveling fellowship program available to the School of Architecture, a limited number of planning students are eligible annually for study programs abroad. In order to expand their skills, students are encouraged to accept employment in planning offices during their summer vacations or to take supplemental courses offered by the division of urban planning as described in the bulletin of the Summer Session.

Joint degree programs exist with the School of Law, the Graduate School of Business, and the School of Social Work. Community consulting work by students of planning is an integral part of the curriculum, and several projects are continuously in operation.

Master of Science Degree in Urban Planning

The M.S. degree in urban planning requires two years of full-time study; no part-time students are accepted. Students are ordinarily admitted in the autumn term. This degree program is open to students with degrees in the arts or the sciences, including architecture, landscape architecture, civil engineering, economics, anthropology, sociology, law, and computer programming. While students receive broad training in the field of planning as a whole—from problem exploration and design

to implementation—they are also given the opportunity to specialize, and are expected to do so.

The core of the M.S. degree is the comprehensive workshop (*Planning A6109-A6110*). This required workshop presents and integrates basic planning material, and provides a foundation for advanced work and specialization. The workshop program incorporates theory, methodology, design problems, seminars, guest and staff lectures, field trips, and limited field placement opportunities. After completing the comprehensive workshop, the student is free to develop his own program on consultation with faculty advisers, limited by the requirements of a three-course specialization sequence and a thesis. The small number of required courses allows the student to take a great range and number of elective courses, especially in the second year of the program. Furthermore, under the research course option, students may pursue individual studies on topics of their own choosing or organize small seminar or studio groups, under the supervision of specific faculty members. Courses in other divisions of the University are also open to planning students. The opportunity is available for students to participate in the formulation of major curriculum policies through the student-faculty council.

SUMMARY OF THE PROGRAM

For a graphic description of the program see the chart on pages 34–35.

Doctor of Philosophy Degree

The Ph.D. degree candidate specializing in urban planning may have a background in economics, architecture, engineering, sociology, anthropology, law, and other disciplines relevant to urban planning. The subject of the dissertation may also include historical and critical studies in urban and regional planning. Research for the Ph.D. dissertation must be original and contribute significantly to literature in the field. It must be of a publishable nature. A physical design will not qualify for a thesis, although a master plan of a region with an accompanying written report may qualify. If the Ph.D. degree candidate does not have a background in design, design studio courses are required (usually two terms). For admission and degree requirements, see pages 58 and 62–63.

M.S. DEGREE IN URBAN PLANNING

60 points required for the degree

YEAR 1: Comprehensive Workshop (Pl A6109-A6110) plus six points of electives

AUTUMN — TERM 1

WEEK	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
PROGRAM (12 pts)	1: INTRODUCTION			2: SOCIAL SERVICE SYSTEMS					3: HOUSING & REDEVELOPMENT				4: INFRASTRUCTURE		
STUDIO (PL A6109)	125th ST PROBLEM		DE-BRIEF-ING	MULTI-SERVICE SYSTEMS PROBLEM			DE-BRIEFING		METROPOLITAN & INNER-CITY PROBLEM			DE-BRIEF-ING	SITE PLANNING PROBLEM		DE-BRIEF-ING
			RE-LATED THEO-RY				RELATED THEORY					RE-LATED THEO-RY			
LECTURES (COMPREHENSIVE WORKSHOP)	ON 125th ST		INTRO	SOCIAL PLANNING				INTRO	HOUSING			INTRO	UTILITY SYSTEMS PLANNING & DESIGN		
METHODS	BASIC INFORMATION			SOCIAL SERVICE PLANNING METHODS			PLANNING TECHNIQUES		DEMOGRAPHY & MARKET ANALYSIS						
RELATED ACTIVITIES	FIELD TRIPS, SEMINARS, READINGS, GAMES, ETC.														

SPRING — TERM 2

WEEK	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
PROGRAM (12 pts)	5: ECONOMIC ACTIVITIES			6: TRANSPORTATION				7: ENVIRONMENT			8: SYNTHESIS				
STUDIO (PL A6110)	ECONOMIC DEVELOPMENT PROBLEM			URBAN TRANSPORTATION PROBLEM			DE-BRIEF-ING	ECOLOGY POLICY PROBLEM			URBAN GROWTH PROBLEM				DE-BRIEF-ING
	DE-BRIEFING						RE-LATED THEO-RY	DE-BRIEFING							
LECTURES (COMPREHENSIVE WORKSHOP)	URBAN ECONOMICS		INTRO	TRANSPORTATION			INTRO	ENVIRONMENT		INTRO	NEW TOWNS & GOVERNMENT PROGRAMS				
METHODS	ECONOMIC ANALYSIS			TRANSPORTATION PLANNING METHODS				ENVIRONMENTAL & REGIONAL ANALYSIS & PLANNING TECHNIQUES							
RELATED ACTIVITIES	FIELD TRIPS, SEMINARS, READINGS, GAMES, ETC.														

YEAR 2: Thesis (Pl A6117-A6118) plus 24 points of electives selected from among the following courses (including Field Practice Projects—Pl A6111):

THEORY	Impact of Cultural Systems on Urban Form Pl A4146 3 pts	Systems Concepts in Urban Planning Pl A6120 3 pts	Advocacy Planning Pl A4179 3 pts	Planning & the Urban Political Process Pl A4157 3 pts	The Planner as a Manager of Change Pl A6138 3 pts	Regional Growth & Planning Implications Pl A4154 3 pts	New Towns Seminar Pl A4148 3 pts
METHODS	Planning Statistics & Quantitative Methods Pl A4174 3 pts	Computer Application to Urban Planning Pl A6108 3 pts	Planning Law & Administration Pl A4183 3 pts	Municipal Budgeting Pl A4172 3 pts	Advanced Computer Workshop Pl A6119 3 pts	Models in City & Regional Planning Pl A6176 3 pts	Regional Science Seminar Pl A6178 3 pts

HOUSING	Economic & Social Elements of Housing Pl A4142 3 pts	Seminar in Housing Policy Pl A4144 3 pts	Advanced Individual Research Pl A6025-A6026 3 pts	Government-Developed Urban Communities A4041 3 pts
TRANSPORTATION	Urban Transportation Planning Techniques Pl A6132 3 pts	Transportation Issues Seminar Pl A6134 3 pts	Advanced Individual Research Pl A6025-A6026 3 pts	
SOCIAL SERVICES	Planning, Programming & Evaluation of Service Systems Pl A4140 3 pts	Social Issues, Policy & Citizen Participation Pl A4176 3 pts	Advanced Individual Research Pl A6025-A6026 3 pts	
ENVIRONMENTAL SYSTEMS	Urban/Suburban Environmental Management Pl A6163 3 pts	Impact of Planning Strategies on the Natural Environment Pl A6124 3 pts	Advanced Individual Research Pl A6025-A6026 3 pts	
ECONOMIC ACTIVITY	Economics of Urban & Regional Development Pl A4182 3 pts	National Economic Policy—Implications for Urban Development Pl A6126 3 pts	Advanced Individual Research Pl A6025-A6026 3 pts	
INTERNATIONAL PLANNING	Planning Problems in Less-Developed Countries Pl A6180 3 pts	Development Planning in Less-Developed Countries Pl A6189 3 pts	Advanced Individual Research Pl A6025-A6026 3 pts	Urban/Rural Planning and Housing Development in Contemporary China Pl A6190 3 pts

FIELD PRACTICE PROJECTS
Pl A6111 6 pts

THESIS
Pl A6117-A6118 3 pts

THE CENTER FOR RESEARCH OF THE GRADUATE SCHOOL OF ARCHITECTURE AND PLANNING

It has been proposed that a Center for Research of the Graduate School of Architecture and Planning be established in order to help fulfill two of the primary goals of the School:

(a) that the School serve broadly defined social purposes; and

(b) that it seek to develop new knowledge that will materially add to the vitality of the profession and the viability of society.

It is implicit in the above that the activities sponsored by the Center shall provide academic and fiscal reinforcement to the three Divisions of the Graduate School of Architecture and Planning.

It is proposed that the Center replace both the Institute of Urban Environment and the Urban Action and Experimentation Program. When the Center for Research has been formally constituted, existing programs and grants are to be continued under its auspices.

Encouragement is to be extended to new proposals which incorporate specific community interventions that can be implemented, monitored, and evaluated in a realistic rather than a "laboratory" context. These proposals may be generated from within the Graduate School of Architecture and Planning or from within any of the other schools or combinations of schools in the University. Proposals from professionals not affiliated with the University may also be considered.

It is anticipated that the services of students, Faculty, and staff will be utilized when possible, and that they shall be paid in a manner commensurate with their contribution provided this falls within the guidelines of University fiscal policy.

The proposed Center shall be comprised of an Executive Committee consisting of Faculty representatives from each of the three Divisions, a director, a financial officer, principal investigators, and research associates.

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; 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 courses 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 STUDY

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 School of Architecture 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.

Architecture

Architecture A4009x. Applied mathematics. **2 pts**

Mr. Thurston.

A survey of mathematics necessary to the analyses of structures and mechanical systems by modern methods. Included are the elements of algebra, trigonometry, differential calculus, integral calculus. Illustrative examples and student exercises are taken from the field of architectural practice.

Architecture A4010x. Principles of structure. **2 pts**

Mr. Salvadori.

An introduction to the basic concepts of structural action by means of models, slides, and films. Both elementary and refined concepts are qualitatively considered without the use of mathematical tools. Special consideration to modern structural materials and to both classical and contemporary structural systems.

Architecture A4011x and y. Statics and strength. **3 pts**

Mr. McCormick.

Prerequisite: *Architecture A4009* or the passing of an equivalency examination.
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. Visual aids are used.

Architecture A4014y. Structures. **1 pt**

Mr. Thurston.

A structural design review.

Architecture A4019y. Computers in architecture. **2 pts**

Mr. Seader.

Introduction to both computer utilization in architecture and FORTRAN IV computer programming. Project scheduling, computer-aided design, space allocation, urban planning, and mapping. Recent developments in computer graphics and architectural research. Both the potentials and limitations of computers in the profession explored through original programming experience as well as traditional classroom activities.

Architecture A4023y. Critical analysis of current housing technology and economy. **2 pts**

Mr. Bell.

Examination of the economics of the new technologies, including economic comparisons of different structural systems. Prefabricated housing, concrete panel, Box and T systems, H.V.A.C. and electrical advances, union, code, and political constraints.

Architecture A4024y. Economic infrastructure of building as an activity. **2 pts**

Mr. Bell.

Case study method. Examination of various building ventures including planned unit communities, "go-ahead" decision making, basis approaches to successful building.

Architecture A4038x. Development and finance. **3 pts**

Mr. Bell.

Lectures and seminars in the business aspects of income-producing properties, particularly the effects of financing, leverage, and taxation on investment return. Building projects from preliminary planning stages through land acquisition, financing (interim, permanent, and secondary), and alternative approaches to possible sale of completed structures.

Architecture A4039y. Subsidized housing packaging techniques. **3 pts**

Messrs. Bell and Robinson.

This course provides a framework for understanding the techniques and processes of delivering subsidized housing and community facilities to poor, high-density minority communities.

Architecture A4041x. Government-developed urban communities. **3 pts**

Mr. Robinson and visitors.

Examination of the New York State Urban Development Corporation as a case study in investigating the role of government—federal, state, and local—in the urban development process for the renewal of core cities and the development of outlying areas.

Architecture A4043y. Critical/descriptive writing for architects and planners. **2 pts**

Ms. Berkeley.

Students experiment with different kinds of writing—"objective," descriptive, humorous, critical, analytical—on subjects of concern to architects and planners. In most cases, the specific subjects are chosen by the students. Discussion centers on the writing *process:* how to define the readership, how to organize thoughts and notes, etc. Emphasis is on writing as a means of communicating ideas encountered in fulfilling the normal demands of professional practice, or in a related activity such as architectural journalism.

Architecture A4050x. Advanced building systems. **2 pts**

Mr. Winter.

Detailed aspects of industrialization in architecture. Study of various building systems, techniques, and materials; selection of building types, sizes, and costs. Methodology of the design team. Studies of structural, mechanical, and electrical components; factory operations, transportation, on-site assembly; code, zoning, and labor considerations; costs and financing. Field trips to factories and buildings.

Architecture A4101x. Comprehensive studio I. **8 pts**

DIRECTOR: Klaus Herdeg.

Messrs. Garber, Gaunt, Herdeg, James, Rainey, Righter, and Sculley.

This studio constitutes an introduction to three primary aspects of architecture: the cultural base, the perceptual/conceptual frame, and the influence of constructional technique. Beginning with the study of the built form of pre-industrial societies, it addresses itself to the generic aspects of shelter and to the effects of climate, topography, and basic resources of the elements of a building system. These studies are complemented by exercises in the development of form and space through the use of two- and three-dimensional elements. Particular attention is given to the problem of classification, coding, and ranking.

Complementary training in basic skills such as graphic presentation, photography, model making, etc., is given as an integral part of the studio.

Architecture A4102y. Comprehensive studio II. **12 pts**

DIRECTOR: Klaus Herdeg.

Messrs. Bye, Gaunt, Herdeg, James, Maggos, Pokorny, Rainey, Rohdenburg, Sculley, Springer, Telfer, and Winter.

This studio addresses itself to the problem of a simple architectural totality. It is concerned with a complete building program within a specific context. The scale and complexity of this program will be such as to involve only a relatively limited range of structural and environmental components.

The problem is introduced through comparative studies in buildings of similar type and scale. After critical evaluation of these studies, the studio addresses itself to a specific design program, with the aim of organizing a set of programmatic requirements into a conceptual whole. Emphasis is placed on (1) the part played by methodical programming in the evolution of a design and (2) the integration of the building into a given site wherein orientation, topography, landscape, and access exercise an influence over built form. This problem is also used to introduce the student to the principles of climate control, through a methodical evaluation of alternative environmental systems.

Architecture A4103x. Comprehensive studio III. **9 pts**

DIRECTOR: J. Max Bond.

Messrs. Bond, Maggos, Neski, Pokorny, Polshek, Rohdenburg, Winter, and Wood; Ms. Kramer.

This studio is concerned with an introduction to the nature of building typologies as they may be determined by particular cultural and socioeconomic systems such as health, education, culture, recreation, and production.

The problem is introduced by asking students to undertake comparative case studies of existing buildings of a type and scale similar to that to be designed. After a critical evaluation of these studies, the studio addresses itself to a specific design program with the aim of organizing a set of programmatic elements into a conceptual whole. Emphasis is on the critical nature of design as an activity. The study of climate control techniques and the application of mechanical services is integrated into the studio. The principles governing these techniques and services are introduced through lectures and seminars,

and the selection of appropriate systems is demonstrated through case studies. This studio ends with an introduction to the subject matter of Studio IV.

Architecture A4104y. Comprehensive studio IV. **8 pts**

DIRECTOR: J. Max Bond.

Messrs. Bond, Bye, Pangaro, Wood, and Zenghelis; Mses. Ramati and Rodgers.

The studio concentrates on the nature of housing as a total system. The process of study is broken down as far as possible into sequential sections. These study sections are supported by specialized study seminars. *Section I:* housing typologies—an investigation of housing types, scales, and densities. *Section II:* the influence of site selection and programming in relation to several selected housing types. *Section III:* an actual housing design involving a number of different programs and sites, one of which is selected and developed by the student.

The emphasis in Section II is on the impact of zoning laws on built form and on the political forces that underlie their regulations. Section I also concerns itself with a critical analysis of current housing technology and economy, including prefabricated housing, HVAC innovations, structural systems, and management concepts. In Sections I and II, considerable attention is devoted to the design of open space and the provision of services, including parking, recreation, etc., in relation to housing.

Architecture A4105x-A4106y. Comprehensive studios V and VI. **9 and 10 pts**

DIRECTOR: Kenneth Frampton.

The aim of the final year is to establish a situation in which students and staff are able to work together as teams on interrelated typological issues. In so far as possible, the students and staff mutually preselect the topics on which they are to concentrate. At the termination of the studio students are advised as to whether they should continue into the final design studio or carry out more specialized design-related research of their own choosing.

A4105: 9 pts. Messrs. Frampton, Giurgola, Kouzmanoff, Levy, McNeil, and Plunz; Ms. Karmi-Melamede.

This studio addresses itself to a range of interrelated typological studies wherein both the program and its context are established as typical for a particular region or situation. Prior to the commencement of the studio students and staff jointly determine the nature of these studies and the composition of the various teams which are to work on them.

A4106: 10 pts. Messrs. Frampton, Kouzmanoff, Levy, Plunz, Polshek, and Stern; Ms. Karmi-Melamede.

This studio is a logical continuation of Studio V. At this juncture students may either choose to continue to develop the typological work of the previous term or, alternatively, to work on a specific in-depth study of their own choice. In the latter instance certain students may, with the permission of the staff, concentrate in an area of related research outside the field of architectural design as defined in professional terms.

Students may, with the permission both of the studio staff and of the director of the appropriate Master of Science program, concentrate their research in one of the following areas:

1. Architecture and urban design
2. Health services planning and design
3. Historic preservation

In his chosen area the student undertakes a specific design problem or research project under the guidance of both the studio staff and the staff of the appropriate M.S. program.

Architecture A4111x. Graphic preparation. **2 pts**

Mr. Halse.

A basic introduction to the use of drafting instruments and techniques to provide the knowledge and practice of recording buildings by scale drawings.

Architecture A4121y. Basic principles of construction. **3 pts**

Mr. Rohdenburg.

A course 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 are supplemented by required reading and graphic exercises.

Architecture A4123. Wood and steel. Mr. McCormick. 2 pts. Not given in 1973–1974.

Application of the principles of structural design and analysis to members used in modern timber and steel frame buildings. Extensive use of case studies. Integrated with work study.

Architecture A4125y. Concrete. **2 pts**

Mr. H. Berger.

Properties of concrete as a construction material, methods of construction of concrete components and buildings, structural design and analysis of concrete members. Field trips.

Architecture A4128. Architectural acoustics. Mr. Harris. 2 pts. Not given in 1973–1974.
Noise measurements. Noise sources in mechanical systems. Noise control methods in HVAC systems (vibration isolation, vibration damping, traps, plenums, duct lining, selection of air terminal devices). Noise control 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 solidborne noise in buildings (discontinuous construction, box-within-a-box, resilient floor coverings, impact noise measurements). Checking and rating completed systems in a building (rating schemes, dbA, NC curves, loudness).

Architecture A4129. Principles of acoustics. Mr. Harris. 1 pt. Not given in 1973–1974.
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. Sound amplification systems.

Architecture A4130x. Decorative arts: European. 2 pts

Mr. Butler.

A survey of dominant theories in design and proportion in European architecture, interior design, and furniture. Review of literature (Vitruvius, Vignola, Palladio, Serlio, etc.) influential in perpetuating the classical tradition. Lectures, field trips, museum visits.

Architecture A4131y. Decorative arts: American. 2 pts

Mr. Butler.

A survey of the evolution of American furniture and interior decorative design, to give architects and historians a general understanding of stylistic parallels between this specialized field and architecture in general. Illustrated lectures and museum tours.

Architecture A4132x. Architectural practice and legal aspects of construction. 2 pts

Mr. Rohdenburg.

Responsibilities inherent in the interrelationship of architects, consultants, public and private owners, and building contractors. Development of contact documents and specifications. Liens, arbitration, and insurance.

Architecture A4134x. Experimental structures. 1 pt

Mr. Geiger and others.

A review of tensile structures, air structures, domes, cable roofs, and space trusses, with emphasis on relative economy and criteria in conceptualizing new forms.

Architecture A4137y. Principles of lighting. 1 pt

Mr. Wald.

System approach to lighting design with relationship to other elements of environmental control and structure. Parameters of design for visual performance and aesthetics. Design methodology. Light sources, control media, and effects on architecture. Color. Case studies in depth.

Architecture A4139y. Construction and systems. 1 pt

Mr. Pokorny.

For students wishing to enter architectural practice as early as possible.
Students study the material independently and review it with the instructor in six seminar meetings.

Architecture A4146x. 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, value engineering, CPM and other progress controls, computer utilization, record keeping, and labor problems. Construction management experts from the private building sector, as well as from public agencies such as UDC, SUNY, the Dormitory Authority, etc., participate, to interject an understanding of the challenges of the "real world," namely cost, time, and quality.

Architecture A4147x. Principles of architectural design. 2 pts

Mr. Herdeg.

The investigation and analysis of buildings within and outside of their cultural contexts. Emphasis is placed on those design principles which have universal validity. Lectures and discussions.

Architecture A4149x. Buildings and the biosphere. **1 pt**

Mr. Garber.

Past and present modifications to the environment through the processes of construction; structures and groups of structures as these relate to energy consumption. The environmental crisis as related to construction; implications of certain Utopian models. Establishment of design criteria to deal with problems identified above. Outline for a design process based on the criteria.

Architecture A4150y. Rise of an American architecture. **2 pts**

Mr. Kaufman.

Prerequisite: the instructor's permission; personal interview required.
From A. J. Downing to Olmsted and Wright.

Architecture A4154x. Origins of modern architecture. **3 pts**

Mr. Kaufman.

From rococo and rationalism through the arts and crafts movement.

Architecture A4156x. Architecture history seminar. **2 pts**

Mr. Giurgola.

An introduction to architecture through the study of intentions, finalities, programs, methodologies, and form. Man-made environments and building complexes of different periods are studied with regard to their processes and in relation to present experience and projects for the future.

Architecture A4160x. Environment, social institutions, and personality development. **2 pts**

Dr. Lubart.

The fundamental institutions by which a society lives are derived from the primary problems of adaptation faced by that society during its early phases of development in reaction to its environment. The latter includes factors that are geographic, climatic, ecological, and human. Since all members of a given society are exposed during childhood to patterns of relatively fixed institutions, it follows that a large proportion of an individual's fundamental inventory of emotional and cognitive responses, behavioral potentials, fantasies, and projected attitudes (conscious and unconscious) will be similar to those of all the other individuals with whom he shares his culture. This inventory of shared response potentials constitutes Basic Personality and expresses the patterns by which it is possible to differentiate our culture from another. This course presents a frame of reference for defining such patterns on a comparative cultural basis. Techniques are presented utilizing psychoanalytic and anthropological modes directed toward defining a methodology for studying the relations between social institutions and intra-psychic processes. Various primitive societies and our own are analyzed, compared, and contrasted.

Architecture A4161x-A4162y. Contemporary practice in restoration and preservation. **2 pts**

Mr. Prudon.

A survey of current activity, here and abroad, designed to familiarize students with the types, scales, and levels of physical intervention in defense of the artistic patrimony. Analysis of a wide range of adaptive uses of old buildings and a survey of current specialized technologies of conservation. Lectures, field trips, and individual research papers.

Architecture A4163x. Basic principles of architectural graphics. **5 pts**

Mr. Rieger.

A comprehensive studio-centered course, for the nonarchitecture student, stressing the integrated fundamentals of architectural design, graphics, construction, and building materials, through concrete exercises and problems. This program, in capsule form, presents the student with the methods and graduated problem-solving techniques which are essential to architectural practice.

Architecture A4164y. Origins of design attitudes in modern urban planning, 1750–1930. **2 pts**

Mr. Plunz.

Seminar on selected topics concerning the perceptions of contemporary architects and planners in relation to urban form; an analysis of the relationship of design vocabulary to the conditioning of designers' thinking caused by social contingencies. Case studies emphasize the rise of deterministic thinking and the development of formal vocabularies of functionalism; intentional communities, growth,

change, mobility, and social stratification as important form determinants; problems of applied fantasy and abstraction; and the phenomenon of scientific thinking and its resultant aesthetic.

Architecture A4166x. Perception theory. **1 pt**

Instructor to be announced.

Architecture A4168x. Effects of architecture on behavior. **1 pt**

Mr. Toan and staff of the National Training Laboratory Institute.

Human behavior is strongly molded by the made environment. An interdisciplinary study, undertaken in collaboration with Drs. Kenneth Pollock and Noel Tichy and Ms. Leonore Schwartz of the National Training Laboratory Institute of Applied Behavioral Science of Washington, D.C., examines the complex interdependencies inherent in architecture's relation to man through a series of experiential workshops, lectures, and research projects. Theoretical and methodological approaches linking individual and social behavior to habitable and cohabitable space are explored.

Architecture A4175x. Irrationality and architecture I. **2 pts**

Mr. Christ-Janer.

An attempt at an understanding of the failure of tectonics to support the base of architectural theory. A view of the collapsing methodologies in architectural practice and a look at the reconstructions of old systems. A reappraisal, with emphasis upon the mystical poetic traditions as seen from the vantage point of post-Freudian psychology, "inistential" philosophy, and comparative religion: a concern with the mythic as primal-level ontological experience.

Architecture A4176y. Irrationality and architecture II. **2 pts**

Mr. Christ-Janer.

A continuation of *Architecture A4175.*

Architecture A4182y. Interaction of color. **2 pts**

Ms. Berens.

Based on Josef Albers' *Interaction of Color.* Exercises designed to explore color *relationships* and, thereby, develop increased awareness and understanding of the relative nature of color and how it is actually perceived.

Architecture A4185x-A4186y or A4185y-A4186x. Architectural presentation. **2 pts**

Mr. Halse.

Architectural visual presentation in various media, with relation to the design of both interior and exterior subjects. Exploration of graphic techniques. Analysis of color, line and value as elements of visual communication. A personal approach in a logical fashion is emphasized. The student is encouraged to experiment.

Architecture A4190x. Comparative critical analysis of built form. **2 pts**

Mr. Frampton.

The comparative critical analysis of specific approaches to the design of built form. In-depth analyses of work of individual architects or particular schools. These will take the form of individual student presentations subject to seminar discussion.

Architecture A4191y. Models of twentieth-century architecture. **2 pts**

Mr. Frampton.

An attempt to trace the development of design theory in relation to the evolution of architecture in the twentieth century. Avant-garde movements in Italy, Holland, France, Spain, Germany, England, and the United States, beginning around the turn of the century. Architectural and design theory from 1945 to the present.

Architecture A4205x-A4206y. Architecture IIIA and IIIB. **4 and 3 pts**

Mr. Pokorny. *A4205:* 4 pts. *A4206:* 3 pts.

This course is patterned on *Architecture A4103* and *A4104.*

Architecture A4207x-A4208y. Architecture platforms IA and IB. **4 and 3 pts**

Mr. Toan. *A4207:* 4 pts. *A4208:* 3 pts.

For description see *Architecture A4103* and *A4104.*

Architecture A4209x-A4210y. Architecture platforms IIA and IIB. **4 and 3 pts**

Mr. Toan. *A4209:* 4 pts. *A4210:* 3 pts.

For description see *Architecture A4105.*

Architecture A6021x-A6022y. Advanced research. **2 or 3 pts**

The staff.

Either term may be taken separately.
Open only to candidates for advanced degrees.
Prerequisite: submission of tentative proposals before the beginning of the term.
Students do extra work for the third point.
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.

Architecture A6129x-A6130y. Urban design project. **6 pts**

A6129. Messrs. Giurgola (*in charge*), Eckstut, Towery, and Zupan, and Ms. Ramati.

A6130. Messrs. Giurgola (*in charge*), Eckstut, and McNeil, and Ms. Ramati.

This program is a two-part project consisting of, first, the planning and programming steps, and, second, the physical design development for a complex for human settlement.

Architecture A6134x. Architectural consequences of structural decisions. **3 pts**

Mr. Salvadori.

Prerequisite: a knowledge of elementary steel, concrete, and wood structures.
Basic concepts of structural behavior are 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 is investigated and considerations of economy, functionality and practicality of construction are used in the search for proper architectural solutions. Large-span and high-rise structures as well as structures for modular buildings are considered. Additional knowledge of advanced structures is introduced when required for the solution of the problem at hand.

Architecture A6139x-A6140y. Health facilities I and II. **4 pts**

Messrs. Chapman and Xanthopoulos.

Seminars and site visits utilizing the staff and experts with knowledge in special fields concerned with hospitals and health-related facilities. *A6139:* hospital-based services, including ambulatory and in-patient care, and community health services. *A6140:* diagnostic and treatment services, and commerce systems and supporting services. Analytic examination of each health component, and subsequent synthesis in order to view health facilities and services as a total system.

Architecture A6141x-A6142y. Hospital research I and II. **3 and 4 pts**

Messrs. Chapman and Xanthopoulos. *A6141:* 3 pts. *A6142:* 4 pts.

Each student selects areas for investigation in the field of health services planning and/or design plans and approach to his subject matter, and develops a presentation of his fiindings. The project may involve experimentation, accumulation of physical data, consultation with recognized authorities, or surveys of opinion. Elective courses should be selected to relate to and complement the student's research topic.

Architecture A6149x. Restoration and preservation studio. **5 pts**

Messrs. Fitch and Shopsin.

Projects concerning the restoration, preservation, adaptation, and/or modernization of actual historic buildings or districts. To develop realistic programs, students are required to measure, photograph, and document buildings, interview owners, execute required historical research, etc.

Architecture A6150y. Thesis. **5 pts**

Mr. Fitch.

The student is expected to select an actual historic building or complex of buildings, research its historical origins, graphically document its present condition, and prepare plans, models, and text demonstrating his proposals for restoration or adaptive use.

Architecture A6152y. Thesis. **6 pts**

Mr. Fitch.

The student is expected to analyze in depth a selected stylistic movement, historical personage, or significant monument, showing in detail its origins, development, and historical significance.

Architecture A6153x-A6154y. Seminar in restoration and preservation. **3 pts**

Mr. Fitch and visiting lecturers.

Current concepts as expressed in legislation, institutions, and actual projects, here and abroad. To familiarize advanced students with methods of archaeological and bibliographic research, technical problems of restoration and conservation, and curatorial and maintenance problems. Field trips.

Architecture A6155x-A6156y. Descriptive analysis of historic buildings I and II.

Mr. Prudon. **2 pts**

Field trips and laboratory work to teach the student to make a thorough and comprehensive survey of actual buildings, analyzing and recording by measurement, photographs, and verbal descriptions. Study of techniques for inventories and surveys of whole districts, as a basis of broad conservation policies. Stylistic analysis of characteristic ornament and decorative devices of various periods in American architecture to develop the student's ability to make stylistic identification and attributions.

Architecture A6157y. Technology of early American buildings. **3 pts**

Messrs. Fitch and Peterson and visiting lecturers.

Building materials and construction methods from the first settlements on the mainland, in the Caribbean, and in Hawaii, until 1860. Background for analyzing and dating old fabrics. Lectures by leading authorities and field projects.

Architecture A6158x. American architecture: 1600–1914. **3 pts**

Mr. Fitch.

A detailed examination of the main forces—cultural, technical, and ecological—which shaped American architecture from the first settlements to World War I. Special attention to domestic, folk, and vernacular buildings. Field trips and term paper.

Architecture A6162x. Evolution of Western building technology. **1 pt**

Mr. Fitch.

A brief survey of traditional structural concepts and constructional methodologies brought by European immigrants to the New World and of their modification to meet the exigencies of radically new environmental conditions.

Architecture A6167x-A6168y. Health services planning. **3 and 4 pts**

Messrs. Chapman and Xanthopoulos. *A6167:* 3 pts. *A6168:* 4 pts.

Seminars and discussions with the staff and visiting experts. *A6167:* introduction to main components of health services planning. Political, economic, and social aspects shaping health systems in contemporary environments. *A6168:* health care delivery systems and regional health services planning in the U.S. and selected countries.

Architecture A6801x or y. Professional experience. **½ pt**

Mr. Salvadori.

The student (in the master's program in architectural technology) registers for this course when he registers for his last term of residence. At the end of the term he receives the mark of CP, "credit pending." The CP is changed to a final grade at the end of the required working period.

Upon completion of the required academic year of studies on the campus, a six-month period is required in the office of an architect or consulting engineer, or in the field on a construction project, or in a research laboratory. A report indicating satisfactory completion of the work is required from the student supervisor.

Architecture A6802x or y. Thesis. **3 pts**

Mr. Salvadori.

The student (in the master's program in architectural technology) registers for this course when he registers for *Architecture A6801* and is graded in the same manner at the end of the term.

The thesis is directed to the solution of an architectural problem by use of one of the technologies of major interest to the student and is under the sponsorship of an adviser who may be from any Faculty of the University.

Architecture A8023x-A8024y. Advanced research. **2 or 3 pts**

The staff.

Open only to Ph.D degree candidates.
Students do extra work for the third point.
Individually conducted advanced research into technical aspects of building construction, town planning, and housing.

Architecture A8049x or y. Research problems in the history of architecture. **2 or 3 pts**

Messrs. Fitch and Placzek.

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; and the development of critical analysis by means of individual reports and discussion.

The following courses are offered in Columbia College for students pursuing an architecture major:

Architecture A3101. Architectural graphics	**Mr. Rainey**	**2 pts**
Architecture C3103. Freehand drawing	**Mr. Rieger**	**2 pts**
Architecture C3201. Elements of architectural design I	**Mr. Stern**	**2 pts**
Architecture C3202. Elements of architectural design II	**Messrs. Stern and Righter**	**3 pts**
Architecture C3301. History of architecture I	**Mr. DeLong**	**3 pts**
Architecture C3302. History of architecture II	**Mr. DeLong**	**3 pts**
Architecture C3303. The architect in society	**Mr. Raskin**	**3 pts**
Architecture V3662. Cities and planning	**Mr. Collins**	**3 pts**
Architecture C3833. Modern architecture	**Mr. Santomasso**	**3 pts**
Architecture A4010. Principles of structure	**Mr. Salvadori**	**2 pts**
Architecture A4024. Economic infrastructure of building as an activity	**Mr. Bell**	**2 pts**
Architecture A4149. Building and the biosphere	**Mr. Garber**	**3 pts**
Architecture A4182. Interaction of color	**Ms. Berens**	**2 pts**

Planning

Planning A4140x. Planning, programming, and evaluation of social service systems. **3 pts**

Mr. Alicea.

Issues and problems in the delivery of social services to urban communities: health, education, income maintenance, manpower training, and related service systems; skills and tools in social programming such as proposal writing, funding and grantsmanship, program evaluation techniques, and political feasibility studies; and community organization and planning as a tool for service-systems change.

Planning A4142y. Housing: the economic and social elements. **3 pts**

Mr. Kolodny.

Prerequisite: the instructor's permission.
This course aims at a fundamental understanding of housing in its social and economic aspects. Emphasis is on the nature of the housing problem, the dynamics of the housing market, the history and current status of governmental attempts at intervention in the market and housing's place in resolving the major public issues: poverty, segregation, urban growth and decay. Theory and analytic method are stressed.

Planning A4144x. Seminar in housing policy. **3 pts**

Mr. Kolodny.

Prerequisite: the instructor's permission.
Exploration of the major social, economic, and political issues confronting 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 and product is required.

Planning A4146y. Impact of cultural systems on urban form. **3 pts**

Mr. Thomas.

An investigation of the interdependencies between the elemental activity systems of a culture and the physical forms which provide the matrix for living patterns. 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. Analysis of the grammar of urban physical pattern—public and private space, districts, pathways, use of water, green space, etc. Illustrated lectures, seminars, and case studies.

Planning A4148y. New towns seminar. **3 pts**

Messrs. Burke and Thomas.

Analysis of the concept of "contained" communities and their implications as a device for the expansion of existing urban constructs, as well as for the "colonization" of new areas. The planning and development process is dealt with in detail, considering legislation, economics packaging and marketing, social pattern design, implication of service systems as formative elements, and the physical plant. Experts in substantive areas are drawn from an increasingly active U.S. "new town movement."

Planning A4154y. Regional growth and planning implications. **3 pts**

Instructor to be announced.

Planning A4157x. Planning and the urban political process. **3 pts**

Mr. Caraley.

An examination of the relationship between urban planning and the political process, with particular attention to the resources, strategies, and tactics for influencing local governmental policies available to the professional planner.

Planning A4172x. Municipal budgeting. **3 pts**

Ms. Carter.

Introduction to budgeting systems and analysis of implications of these systems for the planner. Utilization of New York City budget and budgeting system as case study.

Planning A4174x. Planning statistics and quantitative methods. **3 pts**

Mr. Salama.

Introduction to the variety of quantitative methods useful in the planning process. Exercises and illustrations drawn from urban and social problems. Research design techniques: review of basic statistics; estimations, tests, experiments; multivariate analysis. Applied decision techniques; optimization, simulation, stochastic processes, dynamic programming. Applicability to planning situations.

Planning A4176y. Social issues, social policy, and citizen participation. **3 pts**

Instructor to be announced.

Prerequisite: the instructor's permission.
A discussion of national population trends and problems; the evolution of social policy in relation to these trends and problems; and the interaction of planning with politics in the policy development process.

Planning A4179x. Advocacy planning. **3 pts**

Instructor to be announced.

An analysis of the principles and dynamics of advocacy planning for comprehensive community development in urban areas; special emphasis on the planner's role as community organizer, technocrat-expert, and political advocate of community interest in resource development, facilities planning, and program production.

Planning A4182x. Economics of urban and regional development. **3 pts**

Instructor to be announced.

The economic factors that influence the structure and the dynamics of urban and regional development; the relationship and interaction between the city and region; theories of spatial organization; linkages and interdependence of activities and functions; location decisions and transportation; analysis of land rent and land use competition; structure of the community: income distribution, employment, and industry; urban problems of poverty, slums, and housing; and changes in economic patterns: instability, growth, and trends.

Planning A4183x. Planning law and administration. **3 pts**

Mr. Schulman.

An analysis of 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. Emphasis is on basic principles of constitutional law and on the inter-relationships of legislation, administration, and litigation. Practice in formulation of regulations. The administration of the planning and renewal development functions.

Planning A6025x-A6026y. 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 supervisor.
Individual or small-group research, in conjunction with a faculty member, in areas of the student's choice. Students are responsible for planning and conducting research activities and obtaining a faculty adviser.

Planning A6108x. Computer application to urban planning. **3 pts**

Mr. Seader.

An introduction to basic computer terminology, equipment, use, and 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 A6109x-A6110y. Comprehensive workshop. **12 pts**

Messrs. Alicea, Burke, Kolodny, Kwok, Seader, and Thomas.

Open only to and required of first-year urban planning students.
An intensive introduction to urban planning wherein students are expected to explore and discuss, under workshop-staff guidance, the fundamental issues and concepts of the planning field. They receive in a focused and individually selective way those basic skills that they need as professionals. Students work within the framework of a series of major problems which foster a range of experiences from theoretical

problems to design details. The program consists of: theory seminars, individual and small group projects, community interaction, field trips, guest and staff lectures, and seminars on skills and tools. The entire workshop program is coordinated on a highly flexible schedule. Two-term sequence.

Planning A6111x and y. Field practice projects. **6 pts**

The staff.

Prerequisite: a project outline and the written permission of a faculty project supervisor.
Group planning projects dealing with solutions to real problems in the field. Projects may be initiated by faculty or by a team of students with a faculty adviser, or by means of a request for technical assistance from an agency or community group.

Planning A6117x-A6118y or A6117y-A6118x. Thesis. **3 pts**

The staff.

Individual report on a subject of special study. The thesis may be presented either graphically or in essay form.

Planning A6119y. Advanced computer workshop. **3 pts**

Mr. Seader.

Prerequisite: *Planning A6108* and *Architecture A4119* or their equivalents, or the instructor's permission.
Exploration of the use of computers in urban planning, with emphasis on computer graphics, computer mapping, simulation and modeling techniques, mathematical analysis, and information handling. Under the direction of the instructor, students experiment with various software and prepackaged programs, and develop and extend their own programming abilities through original projects in a workshop atmosphere. The Computer Center's IBM 360/91 computer and programming support are available for the course.

Planning A6120x. Systems concepts in urban planning. **3 pts**

Mr. Grava.

Prerequisite: basic computer programming and mathematics and the instructor's permission.
An exploration of programming, systems analysis, simulation models, operations research, decision theory, and other new management, study, and data handling methods as to their applicability and use in city planning and urban studies. Lectures, seminars, and student projects. Emphasis on theoretical concepts and case studies.

Planning A6124y. Impact of planning strategies on the natural environment. **3 pts**

Mr. Burke.

Prerequisite: *Planning A6163* or the instructor's permission.
Environmental effects of planning policies and development, techniques in planning to minimize ecological disruption, estuarine development, environmental impact statements, and case studies.

Planning A6126x. National economic policy and its implications for urban development. **3 pts**

Instructor to be announced.

A discussion of issues and trends in national economic policy and its implications for planning on a regional, state, and city level.

Planning A6132x. Urban transportation planning techniques. **3 pts**

Mr. Thomas.

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 A6134y. Transportation issues seminar. **3 pts**

Mr. Grava.

Prerequisite: *Planning A6132* or the instructor's permission.
Prerequisite: some background in transportation planning, 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 A6138y. The planner as a manager of change. **3 pts**

Ms. Carter.

Examination of community change: strategies and methods; application of methods to simulated and real problems; identification and development of planner's skills in managing change.

Planning A6159y. Contemporary planning problems. **3 pts**

Instructor to be announced.

Planning A6163x. Urban/suburban environmental management. **3 pts**

Mr. Burke.

Physical ecology of the urban environment, including air, water, and noise pollution; solid waste and landfill; the role of Environmental Protection Administrations and other public agencies; power generation and the energy crisis. Worldwide environmental issues, including policy conflicts between over- and under-developed countries; world energy flows; world population and food production.

Planning A6176y. Models in city and regional planning. **3 pts**

Mr. Salama.

Recommended preparation: *Planning A4174* or the equivalent.
Review of the various types of quantitative models designed to assist or complement the planning process; discussion of their underlying social theories in the light of concepts from structuralism and political economy. Decision-oriented, descriptive, and theoretical models of urban form related to function; emphasis on dynamic simulation, optimization, and hierarchical control; analysis of large and complex systems including environmental, social, political, and economic variables (Lowry, Forrester, Isard, Hester, Rothenberg, and other recent models).

Planning A6178x. Regional science seminar. **3 pts**

Mr. Salama.

Lectures on developing economies, with emphasis on the role of technology. Balanced regional and national growth. Discussion and supervision of individual research projects in these and other topics.

Planning A6180x. Planning problems in less-developed countries. **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 A6183. Urbanization and development policies in Africa: seminar. 3 pts. Not given in 1973–1974.

Planning A6189x. Development planning in less-developed countries. **3 pts**

Instructor to be announced.

Exploration of the issues and problems of development planning; discussion of the general theories of development; review of the basic factors influencing development; examination of the effects of international relationships on development strategies; analysis of developmental goals, allocation policies, and investment choices with reference to the social, cultural, and institutional structure; and comparison of the urbanization and regional planning approaches.

Planning A6190x. Urban/rural planning and housing development in contemporary China. **3 pts**

Mr. Kwok.

An investigation and survey of the problems in planning and housing development of a developing socialist nation in view of its politics and ideology; the evolution of development strategies in attaining its national goals under changing conditions; and an analysis of planning with reference to agriculture, industry, population, education, transportation, and administration.

Planning A8000y. Doctoral research colloquium. **3 pts**

Mr. Grava and the staff.

Open only to advanced Ph.D. degree candidates.
Specific topics and format to be determined by the group.

Discussion and analysis of selected research projects and of research in progress, with emphasis on method and techniques, in a multi-disciplinary setting.

Planning A9800y. Doctoral research. **2 to 12 pts**

Mr. Grava and the staff.

Individual supervision of thesis preparation for Ph.D. degree candidates who have passed their qualifying examination and are working on their dissertations.

Law-Planning W6141x. Housing and community development. **2 pts**

Mr. Parker.

Federal, state, and city programs. Public, non-profit, cooperative, and private housing problems. The role of the entrepreneur. Housing and urban renewal financing. Social, legal, economic, and administrative aspects of land use, housing, and urban renewal. Community improvement and urban planning assistance programs.

Law-Planning W6299y. Urban development controls. **3 pts**

Mr. Parker.

Problems of management and control of the development of housing in metropolitan areas. The economic and social impact of federal and state government control devices and the role of judicial intervention. The role of zoning in the inner city; regulation for aesthetic purposes; the exclusionary impact of land use controls on minority groups; new towns, planned unit development, and other innovations.

Courses from other Schools of the University and from Teachers College

The courses listed below are not all given every year. Students should consult the bulletin of the appropriate school for further information. See page 37 for the key to course listings which identifies the division of the University offering each course.

Anthropology G4122. Human ecology

Art History G4590. American painting and sculpture, 1670–1900

Art History G4625. Modern architecture—the nineteenth century

Art History G8005. Colloquium on the history of architecture

Art History G8668. Architecture of the 1960's

Art History G9660. Historical problems in modern architecture and city planning

Business B6005. Business in a changing economy

Business B6011. Human behavior in organizations

Business B6013. Managerial accounting

Business B6014. Statistical analysis and inference

Business B6015. Operations research

Business Law B6150. Legal aspects of business I

Chemical Engineering E4410. Environmental control techniques

Civil Engineering E4011. Digital computer applications

Civil Engineering E4023. Advanced structural analysis I

Civil Engineering E4028. Systems analysis

Civil Engineering E4232. Reinforced concrete structures

Civil Engineering E4241. Soil mechanics and foundations

Civil Engineering E4244. Foundation engineering I

Civil Engineering E6331. Theory of structural design

Civil Engineering E9328. Seminar in systems analysis for capital projects

Computing Science G4401-G4402. Numerical analysis and digital computers I and II

Corporate Relations B8254. Business and its urban environment

Economics G4228. The urban economy

Economics G6211-G6212. Microeconomic analysis

Economics G6228. Urban land use, transportation, and public services

Economics G6302. Economic planning

Economics G6805-G6806. Public finance

Economics G9331. Seminar in economic planning

Electrical Engineering E4451-E4452. Noise pollution: measurement and control

Engineering E3005. Technology and society

Engineering E3112. Mechanics of solids II

Engineering E4101. Oceanography I

Engineering E4102. Oceanography II

Engineering E4214. Theory of plates and shells

Engineering-Law W6277. Noise pollution: engineering and legal aspects

Engineering Math E3200. Ordinary differential equations I

Engineering Math E4200. Partial differential equations I

Engineering Math E4300. Numerical methods

Engineering Math E4811. Digital computers: engineering applications

Environmental Health Sciences P6207. General principles of environmental quality control

Geography W3041. Urban geography

Geography W3071-W3072. Quantitative techniques in geography

Geography G4000. Environmental bases for regional and ecological studies

Geography W4014. Conservation theory and environmental management

Geography G4022. Location theory

Geography G4023. Spatial analysis

Geography W4030. Cultural geography

Geography W4041. Urban geography

Geography W4050. Population geography

History W4203. The medieval town

History G8709. Colloquium on American urban history

Industrial Engineering E4300. Industrial economics

Industrial Engineering E6001. The engineering of management B

Industrial Relations and Organization Behavior B8402. Interpersonal behavior

Law L6116. Property

Law L6234. Crime and society: introductory course in criminology

Law L6275. Law for the poor in an affluent society

Law L6477. Metropolitan government

Law L6483. Real estate transactions

Law L9004. Seminar in advanced real estate transactions

Law L9192. Seminar in welfare rights

Management B9752. Seminar in business enterprise

Mathematical Statistics–Sociology G4181-G4182. Statistical methods in the social sciences

Operations Research E4000. Introduction to methods of operations research

Operations Research E4701. Transportation systems analysis

Political Science G4226. Political analysis of social programs

Political Science G4241. The political setting of public administration

Political Science G4265. The social control of technology

Political Science G6215. Interest group politics and theory

Political Science G8214. Colloquium on public policy

Political Science G8233-G8234. Colloquium on urban and social policy

Political Science G8245. Colloquium on political modernization in urban Black America

Psychology G8500. Seminar in space perception

Psychology G9100. Seminar in perception of objects, people, and events

Quantitative Analysis B6933. Managerial aspects of electronic data processing

Quantitative Analysis B8934. Operations research—management science

Social Work T6401. Community organizing and planning I

Social Work T6402. Community organizing and planning II

Social Work T6707. The politics of social welfare policy

Social Work T6801. Social policy and social welfare I

Social Work T6802. Social policy and social welfare II

Social Work T6812. Social services: policy and delivery strategies

Social Work T8403. Social administration

Sociology G4044. Social change

Sociology G4094. The communication process

Sociology G4221. Computers in the social sciences

Teachers College TF3206. Urban sociology and education

Teachers College TF5206. Seminar in urbanism and education

Teachers College TW3271. Political geography

Transportation B6942. Economics of transportation

ADMISSION

OFFICE OF ARCHITECTURE ADMISSIONS: 400 Avery

Office hours: Monday through Friday, 10 to 4

Telephone: (Area code 212) 280–3510

All applicants receive consideration for admission without regard to race, creed, color, national origin, or sex.

In considering a candidate for admission to the Graduate School of Architecture and Planning, the Committee on Admissions is interested in his potential for intellectual and professional growth. A student's admission depends, therefore, on his demonstrated intellectual capacity and preparation in his field of study, and on his expectation of professional attainment.

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 he has attended to send an official transcript of his 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.
Scholarship applications must be received by February 15.
Applications for the architectural technology program must be received before July 1.

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 14.

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 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 $50 deposit to the University within fifteen days after the notice of his acceptance. This deposit is applied toward his tuition when he registers; if he does not register, it is not refunded for any reason except entry into military service or the Peace Corps. Application for refund must be made in writing at the time of the admissions cancellation. Credit for the deposit may be extended for (1) twelve months when an applicant fails to register due to illness or other causes beyond his control, or (2) the period of active duty in the military service or Peace Corps. Proof of any extenuating circumstances may be required.

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

Master of Architecture Degree (six terms)

Students are admitted to the M.Arch. program in the autumn term only, and they must attend on a full-time basis.

ACADEMIC PREPARATION

All applicants must have, at the time of enrollment, an undergraduate degree or the equivalent from an accredited college or university. An architecture major is not required. The following courses are recommended as preparation for the Master of Architecture program: one term each of calculus, general physics, and architectural history, and one term of drawing, painting, or sculpture.

Applicants are also 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 Records Examination, Educational Testing Service, Box 955, Princeton, New Jersey 08540.

SUPPORTING MATERIALS

In addition to the application form and required supporting documents, applicants must submit a portfolio of paintings, drawings, prints, or graphic designs. Preferably, portfolios should not exceed 12 by 18 inches. They will be returned by mail only if sufficient postage and packaging are included and if return addresses are indicated on the portfolios.

ADMISSION AS A TRANSFER STUDENT

Applicants who wish to transfer from another architectural program may apply to the M.Arch. program for admission as transfer students. Advanced standing toward the M.Arch. degree for all relevant courses taken at other institutions is given only upon the recommendation of the faculty members in charge of the appropriate courses at Columbia and with the written approval of the Dean. Advanced standing will be awarded only in courses in which students have obtained a grade of C or better. No requests for advanced standing will be considered until official copies of relevant transcripts have been submitted to the Student Records Office. In some cases, faculty members may ask to see examples of previous course work.

Courses may be waived on the basis of professional experience or examinations in subject matter. Waivers do not carry point or course credit, and approved elective courses must be taken to fulfill the point requirements for the degree.

An estimate of the course work which prospective transfer students would be required to complete may be obtained during an interview with the Dean or one of his representatives and must be determined before or during the registration period. *All transfer students must complete a minimum of 60 points of course work at Columbia to obtain the Master of Architecture degree.*

PROFESSIONAL OPTION PLAN

The University provides opportunities for students in Barnard College, Columbia College, and the School of General Studies to obtain their B.A. or B.S. degrees while completing the first year of the M.Arch. program of the School of Architecture. Since the details vary in each undergraduate division, the students should consult the bulletin of the particular division in which he will be or is registered. Similar programs are available to, or have been arranged with, students from other colleges.

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

WORK AND STUDY PROGRAM

Commencing with the 1973–1974 academic year, a work and study option is being initiated which will offer students the opportunity to undertake graduate work while maintaining part-time employment. In order to provide an integrated work and study program, the majority of design studios and courses will be jointly scheduled. The full-time program leading to the M.Arch. degree normally requires three years of study and covers 108 points of curriculum credit. Students in the work and study program will be able to complete their degree requirements in five years, including a summer workshop curriculum.

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. Preferably, the portfolio should not exceed 12 by 18 inches and should be submitted with the application. It 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 architecture may enter only in the autumn term; they must attend on a full-time basis.

Master of Science Degree in Health Services Planning and Design (two terms)

All applicants for admission to this program must have a B.Arch. or M.Arch. degree or the equivalent. In addition to the application forms and required supporting documents, applicants must submit a portfolio containing examples of their architectural designs, particularly those executed during the last two years of their undergraduate training.

Applicants to the M.S. program in health services planning and design may enter only in the autumn term, but may attend on a full-time or part-time basis.

Master of Science Degree in Historic Preservation

For architects and landscape architects this is a one-year master's program requiring a minimum of 36 points of course work, including a design thesis and a three-month postgraduate internship at an approved institution.

For candidates with a B.A. in art history, American studies, history, or other related fields this is a one-year course of study requiring 36 points of credit, plus the prerequisites or corequisites listed in the chart on page 28, a written thesis, and a three-month postgraduate internship at an accredited institution.

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 generally enter only in the autumn term; they must attend on a full-time basis. A course in elementary 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.

All applicants must submit examples of their design work or 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.

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 his 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 towards 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 which will be outlined to him by the Graduate School of Arts and Sciences Director of Admissions before he 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 the appropriate sections of 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 a few courses in the School of Architecture. 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). Certain specified courses, including design studios and the Comprehensive Workshop, are not open to special students. Requests for application forms and other information should be directed to the Office of Architecture Admissions.

If at a later date a special student wishes to apply for matriculation in either the M.Arch. or M.S. degree programs, he must file a formal application before the stipulated deadline. The Admissions Committee will not treat his application 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 so do 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 Sessions Admissions, 103 Low Library (telephone 280–3331) for bulletins and application forms.

Foreign Students

The School welcomes foreign students and admits a number each year to its various programs. Since financial aid is limited and since most foreign students can obtain their first professional degree at institutions in their own or nearby countries, it is recommended that those who require financial aid in order to study at Columbia should obtain their first degree at home and apply for advanced degrees in the School of Architecture.

All foreign applicants must first file a preliminary application with the Office of Foreign Student Services, Foreign Student Center, Columbia University. If this application shows that they are eligible, an application for admission to the School is forwarded to them by the Foreign Students Admissions Officer. Students interested in applying should begin the application procedure one year before they wish to enter.

Students from countries where the Institute of International Education maintains offices should apply through the Institute. Students in Great Britain should apply through the English Speaking Union. The United States embassies, consular offices, and information offices can supply information about the above agencies and also about Fulbright Travel Grants for students coming to study in the United States.

All foreign students must pass an examination in the English language before

they are accepted. They are tested again when they enter the University and may be required to take courses in English. (This rule also applies to foreign applicants for *special student* status.) Difficulties with the language or with adapting to a foreign country and new methods of instruction may require a foreign student to spend more than the minimum scheduled time to complete the program at the School.

DEGREE REQUIREMENTS

The requirements for the various degrees are outlined in the required and suggested 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.

While 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 he is allowed to register for the next design course. The committee may recommend that the student be dropped or that he 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

Quality performance is required of the students admitted to the School. Students receiving a grade of F in any design course, or in non-design courses more than one F (or its equivalent), are not allowed to continue. While 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 has overcome the problems which have resulted in his 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.

No advanced standing is given to students in any of the programs leading to the award of the M.S. degree in architecture.

Courses applied toward one degree may not be applied toward another degree.

Leave of Absence

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

Doctor of Philosophy Degree

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 School of Architecture.

The program aims to help candidates acquire comprehensive and meaningful understanding of processes shaping urban environment and to discover ways of directing these processes through policies and programs to realize social goals. Thus, attainment of a high level of individual scholarship and a demonstrated capacity for research are the two significant criteria for judging a candidate's suitability for the award of the Ph.D. degree.

The course requirement and choice of fields of specialization have been defined broadly to allow candidates some freedom to follow their inclinations. For the specific requirements of the various doctoral programs, the chairmen of the divisions in the School of Architecture 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 60 points of course work, of which at least 30 points must be earned in residence at Columbia.

Languages: a candidate must demonstrate the ability to read and translate professional literature from two foreign languages. In special cases mathematics may be substituted for one of the two required languages.

Certifying examinations: after completing the course work and language requirements, a student must pass an oral and written examination 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 his 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.

REGISTRATION AND EXPENSES

Registration

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

1. The student reports to the Administration Office, 400 Avery, where he obtains his registration cards and has his program approved.
2. He takes the signed forms to the Registrar's Office, 208 Philosophy, for processing.
3. He pays his fees at the Bursar's Office, 210 Kent.

Students in the master's program in health services planning and design report to Room 510 at the School of Public Health after they have completed the above registration procedure. They will be asked to fill out a Course Permission Form A-2 and a Course Application Blank A-3 for each course which they will take at the School of Public Health. Signatures are required on both forms: from the professor of the course and from the design critic in charge of the program. Students who do not complete these forms will not be considered registered by the School of Public Health.

On registration days the Registrar's Office, 208 Philosophy, is open from 9 a.m. to 8 p.m.

The Admissions Office is open during registration periods from 10 a.m. to 12 noon, 2 to 5 p.m., and 6 to 8 p.m.

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.

Registration for the second year will not be permitted until all entrance deficiencies have been removed unless special arrangements have been made with the Admissions Office before the end of the first year.

Note: Students who are not citizens of the United States and who are registering at the University for the first time must secure a clearance from the Office of Foreign Student Services, Foreign Student Center, before registering for their courses.

Orientation Program for New Foreign Students

The Office of Foreign Student Services orientation program for new foreign students takes place on Friday, August 31. For further information, consult the Office of the Foreign Student Adviser, 106 Foreign Student Center (extension 3591).

Students who are required to take the English Language Placement Test may do so as early as Tuesday, August 28. Test schedules will be available in 211 Lewisohn Hall or at the Office of Foreign Student Services, Foreign Student Center.

Auditing Courses

Degree candidates who are registered for 15 points or more in the current term 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: Monday, September 10, through Friday, September 14, for the autumn term; Thursday, January 24, through Wednesday, January 30, for the spring term. Applications may not be filed before or after these dates.

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, 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.

Changes in Programs of Study

A student who wishes to drop courses or to make other changes in his program of study must obtain written approval from the Student Records Office on a special form. The deadline for making program changes is Friday, September 14, in the autumn term, and Wednesday, January 30, in the spring term (see the Academic Calendar). In no case will permission to drop courses be granted after October 30 in the autumn term and after March 14 in the spring term.

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

A written evaluation of each student's performance will be provided by his instructor. These evaluations will indicate how well the student succeeded in accomplishing the course objectives.

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 which 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 take a special examination, either in September or in March. He must file an application in advance at the Registrar's Office and pay a fee of $10 (see the Academic Calendar for deadline dates). 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 which he has been compelled to postpone for reasons beyond his 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

Each person whose registration has been completed will be considered a student of the University during the term for which he is registered unless his 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 he is first registered.

The privileges of the University are not available to any student until he has completed his registration. Since, under the University statutes, payment of fees is part of registration, no student's registration is complete until his fees have been paid. No student is permitted to attend any University course for which he is not

officially registered unless he has been granted auditing privileges. No student may register after the stated period unless he obtains the written consent of the proper dean or director. No student is officially withdrawn from a course unless he has filed the proper form with the Office of the Registrar.

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 advance 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.

Any student whose religious duties conflict at any time with academic requirements should apply to the Office of the Dean for an equitable solution. It is the policy of the University to respect its members' observance of major religious holidays. Those responsible for the scheduling of the required academic activities or essential services have been asked 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 parties concerned, students and instructors should consult a religious counselor or the office of the appropriate dean or director.

LEAVES OF ABSENCE

All degree candidates who enrolled for the first time in September 1962 or thereafter are required to attend the School continuously until they have completed all the course requirements for their degree. If a student wishes to interrupt his studies for any reason, he must apply in writing to the Dean, stating the reason and period of the leave. A leave already granted may be extended at the discretion of the Dean.

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 studies.

ACADEMIC DISCIPLINE

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

Estimated Expenses

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

Tuition and fees for a 30-point program	$3,278.00
Living expenses (room, board, books, clothing, laundry, travel, sundries)	2,400.00
	$5,678.00

MATERIALS

Books and supplies for first-year students will cost around $100; for others, around $75. 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.

PERSONAL EXPENSES

The University advises each student to open an account in one of the local banks as soon as he arrives in New York City. Since it often takes as long as three weeks for the first deposit to clear, he should cover his immediate expenses by bringing with him travelers checks or a draft drawn on a local bank.

Tuition and room rent may of course be paid by check, and any excess will be refunded to the student after the check has cleared.

INCOME TAX DEDUCTIONS

According to Treasury decision 6291, under Section 162 of the 1954 Internal Revenue Code, income tax deductions are allowed in many instances for tuition and other educational expenses. Students are referred to the federal ruling on income tax deductions for teachers and other professional people seeking to maintain or improve skills required in their employment.

Fees

The following fees, prescribed by statute *for each autumn or spring term,* are subject to change at any time at the discretion of the Trustees:

COMPREHENSIVE FEE

For degree candidates engaged only in research	$150.00

TUITION

For all courses, per point, except where a special fee is fixed	$ 106.00
With the proviso that for degree candidates the tuition for a program of 15 to 19 points shall be, per term	1,590.00

HEALTH INSURANCE FEE AND HEALTH INSURANCE PREMIUM

Health service fee, per term (see pages 71–72)	$26.00
Student accident and health insurance premium (see pages 71–72)	
For the autumn term (September 1–February 1)	
Student only	19.00
Additional cost for one dependent (optional) *	26.00
Additional cost for two or more dependents (optional) *	45.00
For the spring term and summer period (February 1–September 1)	
Student only	27.00
Additional cost for one dependent (optional) *	37.00
Additional cost for two or more dependents (optional) *	63.00

APPLICATION FEES AND LATE FEES

Application for admission as a degree candidate	$20.00
Application for admission as a special student	5.00
Application for each special examination	10.00
Renewal of application for a degree (see below)	1.00
Late registration	10.00
Late application for a special examination	10.00
Late application, or late renewal of application, for a degree	10.00

PAYMENT OF FEES

Tuition, the comprehensive fee, the health insurance premium, the health service fee, 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 late fee of $10 will be imposed.

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 he wishes to withdraw from the University. If he is under twenty-one years of age, his 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 he has paid is reckoned from the date on which the Registrar

* Unmarried children must be under the age of nineteen. Dependent coverage is available upon application to Brown, Crosby & Co., Inc., 110 William Street, New York, N.Y. 10038. The premium for this coverage is paid directly to the company by the student.

receives this written notification. (For partial withdrawal, see "Changes in Programs of Study," on page 65.)

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 September 14 in the autumn term or January 30 in the spring term, 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 his written notice of withdrawal is received by the Registrar.

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

A candidate for a degree must file application by the date specified in the Academic Calendar. If the degree is not earned by the next regular time for the issuance of diplomas, subsequent to the date of filing, the application must be renewed for a fee of $1. Doctoral degrees are awarded whenever the candidate completes the requirements. Other degrees are awarded three times a year–in October, February, and May.

REQUESTS FOR TRANSCRIPTS

Transcripts may be requested by writing to the Office of the Registrar, 201 Philosophy. *Official* transcripts must be sent by the University 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. There is a charge of $1 for each transcript requested except those which are sent between offices of 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 University Health Service itself, which provides the following services to students who pay the health service fee: (1) ten days bed care in the infirmary each term and four days of ward care in St. Luke's Hospital; (2) laboratory studies and x-rays ordered by the Health Service; (3) medical, surgical, and psychiatric consultation in the Health Service; and (4) one consultation with a specialist when recommended by a Health Service physician. A student is not eligible for this case during the summer unless he has paid the Summer Session health service fee. See the bulletin of the Summer Session for further details.

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, 1091 Amsterdam Avenue, New York, N.Y. 10025, or from the Registrar's Office, Bills and Charges Division, 208 Philosophy Hall, Columbia University, New York, N.Y. 10027. Basically, SAHI provides benefits of up to $1,000 for any one accident, after which it pays 80 percent of further expenses up to an additional reimbursement of $10,000. Within the limits of the schedule of benefits given in the brochure, coverage for an illness includes hospital room and board; surgeons', nurses' and physicians' fees; hospital services and supplies; and ambulance service. In addition to the basic illness benefits, Major Medical pays 80 percent of further expenses up to an additional reimbursement of $10,000 ($3,000 for mental or nervous disorders). The policy can, if the student elects to pay a higher premium, be extended to cover his dependents (see the schedule of fees).

The health service fee and the cost of the SAHI premium are automatically charged *(a)* all students registered for 12 or more points and *(b)* all students certified as full-time by their departments regardless of points. Students living in the University residence halls who are not included in categories *(a)* or *(b)* will be charged the health service fee only. A part-time student who is registered for less than 12 points may, if he wishes, participate in the combined health service–SAHI program by filing application in the Registrar's Office not later than September 14 in the autumn term and January 30 in the spring term, and by paying the fee and the premium. A student who is not in the program is entitled only to emergency first-aid care in the University Health Service.

A student who already has an accident and health insurance policy will be exempted from paying the SAHI premium if he can show proof of comparable coverage (for example, a Blue Cross–Blue Shield Identification Card). The deadline for submitting proof of comparable coverage to the Registrar's Office is September 21 in the autumn term and February 6 in the spring term.

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 are registering only to defend their doctoral dis-

sertations and for students who present certification 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 September 14 in the autumn term and January 30 in the spring term.

The costs of the medical care and insurance program are listed in the schedule of fees on page 69.

Housing

ON CAMPUS

The University provides limited housing for undergraduate and graduate men and women who are regularly registered either for an approved program of full-time academic work or for work being done on a doctoral dissertation. The University residence halls are shown on the campus map (inside back cover). The rates below are for the academic year 1973–1974.

Rates in the residence halls (Harmony, Hudson, John Jay, Johnson, McBain, Ruggles, and 70 Morningside Drive) for single and double rooms range from $525 to $875 per person, with $737 the average rate. Meals are available in the John Jay or Johnson Hall dining rooms on weekdays when classes are in session. These may be paid for in cash or through subscription to a board plan. Inquiries from men students should be directed as early as possible to the Residence Halls Office, 125 Livingston Hall, New York, N.Y. 10027. Inquiries from women students should be directed as early as possible to Johnson Hall, 411 West 116th Street, New York, N.Y. 10027.

Woodbridge Hall, at 431 Riverside Drive, is a University residence hall for married full-time graduate students. Each apartment contains a living room, a bedroom, a complete kitchen, and a bathroom; basic furniture is provided. Rates range from $1,820 to $2,220 a year, including utilities. Inquiries should be directed to the Residence Halls Office, 125 Livingston Hall.

Burgess, at 542 West 112th Street is a newly renovated, air-conditioned building for married full-time graduate students. Accommodations range from efficiency apartments (one room plus kitchenette and bath) to two-bedroom apartments; basic furniture is provided. Rates range from $150 to $240 a month, including utilities. Requests for further information and for application forms should be directed to the Office of University Housing, 400 West 119th Street, New York, N.Y. 10027. Students are urged to apply as soon as they apply to the School.

OFF CAMPUS

Students who wish to live in furnished rooms or apartments off campus may consult the Registry of Off-Campus Accommodations, 401 West 117th Street, for information.

International House, a privately owned student residence near the campus, has accommodations for about five hundred graduate students, both foreign and American. Rates are $92 to $117 a month for the academic year, and include a continental breakfast, linen and maid service, and membership and program fees. 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 for a program of full-time research. Inquiries should be addressed to the Committee on Admissions, International House, 500 Riverside Drive, New York, N.Y. 10027.

FINANCIAL AID

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

Fellowships and Scholarships

The School of Architecture awards fellowships and scholarships to its students in annual competition. A fellowship is an academic honor accompanied by an award which defrays tuition and fees. Fellowships are usually reserved for graduate study. A scholarship is an award, on grounds of scholarly competence and need, which defrays all or part of the cost of tuition and fees. The term of each award, except for traveling fellowships, is one academic year.

No services to the School or to the donor of the fellowship or scholarship are required, nor shall there be any restriction on publication of studies or research as a condition of the grant.

Fellows and scholars, unless they are traveling fellows, are expected to reside in New York City or its vicinity during the term of the award in order to devote full time to academic studies.

Stipends are paid by the Bursar in two installments: one-half at the time of registration for the autumn term, the remainder at the beginning of the spring term. The fellow or scholar must register not later than the registration dates specified in the Academic Calendar, or the School will consider the fellowship or scholarship vacated and may appoint someone else in his place.

Fellowships and scholarships may be cancelled at any time for failure to maintain a satisfactory academic standard or to comply with the terms of the award.

Application Procedure

Fellowships and scholarships have already been awarded for 1973–1974. Applicants for admission who are also applicants for fellowships or scholarships must submit the application by February 15, 1974. Applicants for fellowships or scholarships who are currently enrolled in the School but who are applying for admission to a second degree program must also submit the application for admission and fellowships by February 15. The special forms on which application must be made can be obtained by writing to, or calling, the Office of Architecture Admissions. Awards will be announced in April.

Applicants for financial aid who are currently enrolled in the M.Arch. or M.S. programs of the School should apply for financial aid before February 15. Full-time enrollment (12 points per term) is required of all students receiving financial aid.

ENDOWED FELLOWSHIPS AND SCHOLARSHIPS

ARCHITECTURE ALUMNI FUND FOR STUDENT AID

One partial tuition scholarship awarded annually. Gift of the Architecture Alumni Association.

LEOPOLD ARNAUD SCHOLARSHIP

One partial-tuition scholarship awarded annually. Gift of various donors.

QUINCY WARD BOESE FELLOWSHIP

One fellowship awarded annually. Bequest of Quincy Ward Boese.

BORING FELLOWSHIP

One fellowship awarded annually. Gift of Edward C. Moore, Jr.

GEORGE W. ELLIS FELLOWSHIPS

Two fellowships awarded annually to graduate students who are residents of the state of Vermont or who are graduates of a Vermont college or university. These awards are open to students in other divisions of the University as well as to architecture students. The bequest of George W. Ellis.

WILLIAM KINNE FELLOWS TRAVELING FELLOWSHIPS

Several fellowships awarded annually. Open to members of the graduating class for study and travel for a period of at least three months.

WILLIAM KINNE FELLOWS SUMMER SCHOLARSHIPS

Several scholarships awarded annually. Open to members of the graduating class for study and travel during the summer before their final year.

EDWARD HALE KENDALL SCHOLARSHIP

One scholarship awarded annually. Bequest of Edward Hale Kendall.

VINCENT G. KLING SCHOLARSHIP

One scholarship awarded annually to a third- or fourth-year student who shows promise in design. Gift of the employees of Vincent G. Kling and Associates.

CHARLES F. MCKIM TRAVELING FELLOWSHIP

One fellowship awarded every sixth year. Open to graduates of the School. Gift of Charles F. McKim.

WILLARD B. PERKINS FELLOWSHIP

One fellowship awarded annually. Bequest of Willard B. Perkins.

JAMES RENWICK, JR., SCHOLARSHIP

One scholarship awarded annually. Bequest of Anna Cooper Renwick.

LYDIA C. ROBERTS FELLOWSHIPS

Several fellowships awarded annually. Open to students born in Iowa who have been graduated from an Iowa college or university. Each holder, when accepting the award, must state that it is his purpose to return to Iowa for at least two years after he completes his studies at Columbia. Holders are eligible to apply for reappointment. These awards are open to students in other divisions of the University as well as to architecture students. A gift of Lydia C. Chamberlain.

F. AUGUSTUS SCHERMERHORN SCHOLARSHIP

One scholarship awarded annually. Established by the Trustees in honor of F. Augustus Schermerhorn.

LILA W. VAN DER SMISSEN SCHOLARSHIP

One scholarship awarded annually.

GEORGE BRECHER WEITZMAN FELLOWSHIP

One scholarship for the study of architectural history awarded annually to a graduate student who has received a bachelor's degree in architecture. Gift of Morris Brecher.

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, 1785 Massachusetts Avenue, N.W., Washington, D.C. 20036. The deadline for filing applications is November 30.

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 State Education Department, Regents Examination and Scholarship Center, Albany, New York 12201, 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 Institutes 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 may 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 30 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 his instructors; and particularly on his demonstrated ability and estimated potential for leadership in his 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 he is enrolled. In addition he is 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 School of Architecture 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 School of Architecture application to the Admissions Office by February 15. Current students submit a grant-in-aid application which may be obtained from the Admissions Office after spring registration and should be returned before February 15.

New York State Scholar Incentive Awards

Any student who has been a legal resident of New York State for the preceding year is entitled to a Scholar Incentive Award for each term in which he is registered as a full-time degree candidate. The amount of this award is based upon the net tax-

able balance of his income and the income of those responsible for his support, as reported on the New York State income tax return for the previous calendar year.

Application forms and further information may be obtained from the Department of Education, Regents Examination and Scholarship Center, Albany, N.Y. 12201. Application for awards should be filed three months in advance of the beginning of the term for which the grant is to apply.

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 attitude and personality.

ALUMNI MEDAL

Awarded annually to the student in the graduating class who has shown throughout the course the greatest promise in design.

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.

BORING MEDAL

Awarded annually to the winner of the Boring Prize Competition.

HAMLIN MEDAL

Awarded annually to the winner of the Hamlin Prize Competition.

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 undergraduate terminal problems.

NEW YORK SOCIETY OF ARCHITECTS MEDAL

Awarded annually to the student who has maintained the highest standard during the entire professional course.

VAN DER SMISSEN MEDAL

Awarded annually to the student of the graduating class who has shown the greatest spirit of cooperation and friendship during the entire course.

WARREN MEDAL

Awarded annually to the winner of the Warren Prize Competition.

Assistantships

Teaching assistantships are available to candidates for the M.S. degree in architecture and in urban planning. Assistants divide their time equally between their studies and various tasks, helping faculty members in instruction and in administration. Doctoral candidates may also be appointed.

Research assistantships are available to candidates for the M.S. or Ph.D. degrees in urban planning.

Loans

A student who must borrow money in order to meet expenses for his study at Columbia University is urged to apply for a loan through the program administered by his state of legal residence.

Most state programs now include residents who are attending out-of-state schools. They will allow the student to borrow up to $1;500 for the academic year with an interest rate of 7 percent and to arrange a ten-year repayment schedule that begins nine months after graduation. (The New York State maximum is $2,000.)

The usual procedure for the transaction of state loans is for the student to obtain the appropriate state forms from his local bank in his state of residence, and to bring the completed forms to the school he will attend. After the application has received institutional certification, it is returned to the student for presentation to his local bank's loan officer; then it is sent to the state corporation for approval, and finally the student receives his loan from the local bank.

As can be seen, this lengthy procedure, which takes about six weeks, demands that the student begin to inquire about his state student loan program immediately. Applications will be processed by this office as soon as they are received. The student must be sure that his application is legible, complete, and signed.

A student may receive National Defense Education Act loans or Columbia University loans only if he can demonstrate ineligibility for a state loan, or if he needs financial aid in excess of the maximum state loan. The interest rate for these loans is 3 percent and the repayment period is the same as for state loans. Student loan programs are designed to supplement the student's budget; they are not to be used as the sole means of support. Applications are available in the Office of Architecture Admissions after June 1.

Student Employment

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 Foreign Student Center, for part-time work. 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 may 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 for summer employment and full-time employment for graduates in architectural offices is maintained in the Dean's Office.

ACADEMIC CALENDAR, 1973-1974

MAJOR RELIGIOUS HOLIDAYS

See "Attendance and Length of Residence" on page 67 of this bulletin for a statement of University policy on absence for the observance of religious holidays.

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

Aug 1 Wednesday.* Last day to apply or reapply for October degrees (see September 6).

31 Friday.* Last day to apply for September special examinations.

Autumn Term

Aug 31 Friday. Orientation program for new foreign students (see page 64).

Sept. 4–6 Tuesday–Thursday.† Registration, including payment of fees.

6 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.

7 Friday. Late registration begins.

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

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

17–21 Monday–Friday. Special examinations.

Oct 23 Tuesday. Midterm date.

24 Wednesday. Award of October degrees.

Nov 5 **Monday. Academic holiday.**

6 **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.

Nov	**22–25**	**Thursday–Sunday. Thanksgiving holidays.**
	30	Friday. Last day to apply for spring admission to the architectural technology M.S. program.
Dec.	**3**	Monday.* Last day to apply or reapply for February degrees (see January 23).
	12	Wednesday. Classes end.
	13	Thursday. Study day.
	14	Friday. Last day to apply for admission to the spring term as a special student.
	14–21	Friday–Friday. Midyear course examinations. Term ends.
	22	**Saturday, through January 15, 1974, Tuesday. Christmas holidays.**

Spring Term

Jan	**16–18**	Wednesday–Friday.† Registration, including payment of fees.
	18	Friday. Last day to apply for Ph.D. final examinations (defense) to be held this term.
	21	Monday. Classes begin. Late registration begins.
	23	Wednesday. Last day to file *late* application or renewal of application for February degrees. Applications received after this date will automatically be applied to the next conferral date.
	24	Thursday. First day to change programs and apply to audit courses.
	30	Wednesday. Last day to (1) register for credit, (2) change programs, and (3) apply to audit courses. **No adjustment of fees for individual courses dropped after this date.**
Feb	**13**	Wednesday. Award of February degrees.
	15	Friday. Last day to apply for 1974–1975 admission to the School of Architecture. Last day for current graduate students in the School to apply for a second degree program. Last day to apply for financial aid.
	18	Monday.* Last day to apply or reapply for May degrees (see April 9). Last day to apply for March special examinations.
Mar	**7**	Thursday. Midterm date.
	10–17	**Sunday–Sunday. Spring holidays.**
	18–22	Monday–Friday. Special examinations.

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

April 9 Tuesday. 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 1 Wednesday. Classes end.

2 Thursday. Study day.

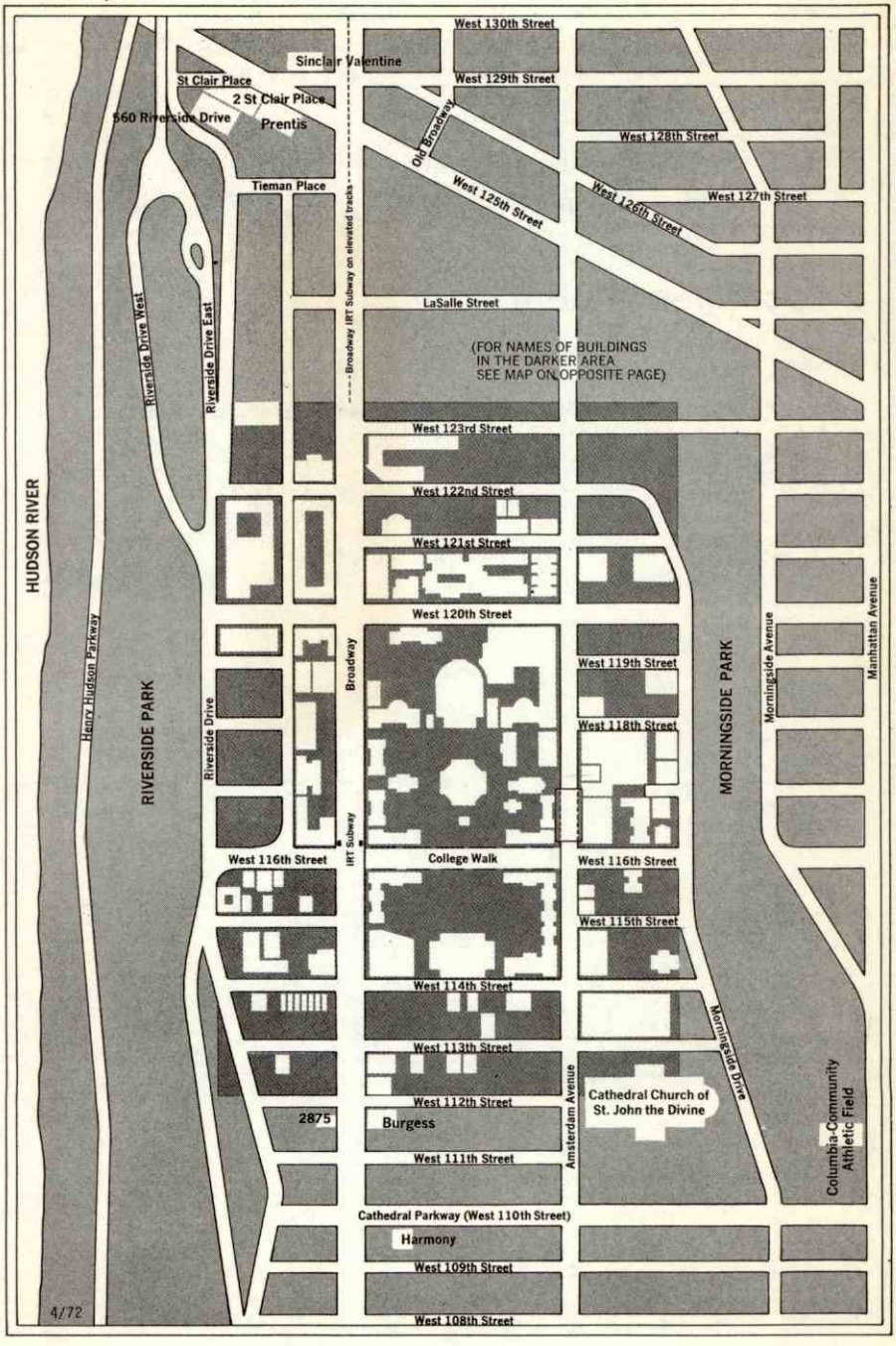
3–10 Friday–Friday. Final course examinations. Term ends.

Commencement

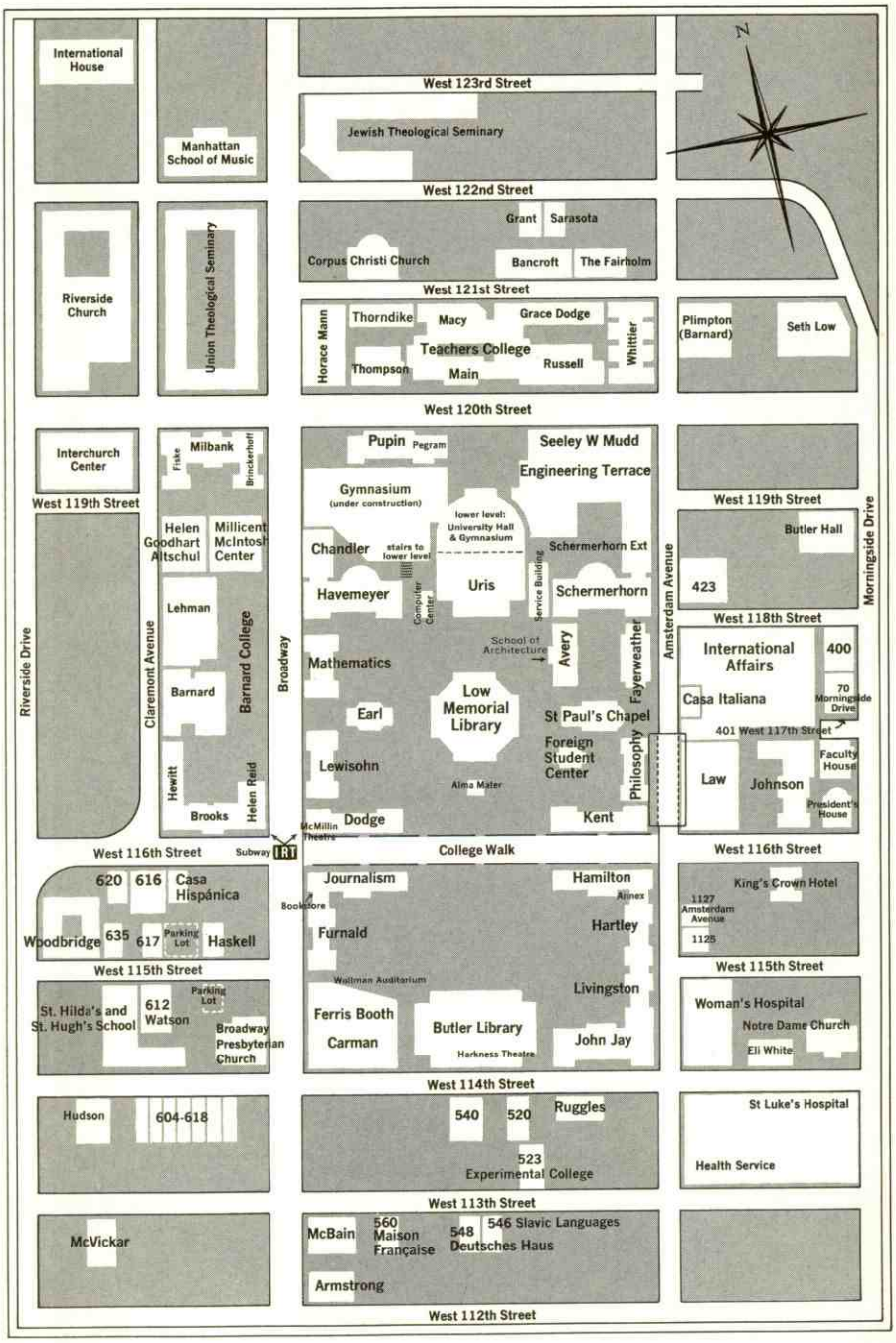
May 12 Sunday. Baccalaureate Service.

15 **Wednesday. Conferring of degrees and certificates.**

The Morningside Heights Area of New York City



The Morningside Campus & Environs



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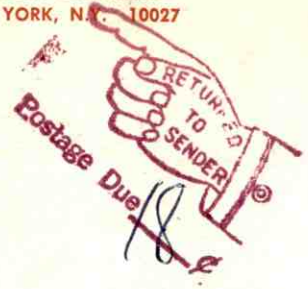
COLUMBIA UNIVERSITY
NEW YORK, N.Y. 10027



SPECIAL FOURTH-CLASS RATE—BOOKS

FORWARDING TIME HAS EXPIRED