Columbia University School of Architecture

Architecture
Planning
Technology

Bulletin 1972/1973

Directory

POST OFFICE ADDRESS: 405 Avery Hall, Columbia University, New York, N.Y. 10027

TELEPHONE: (Area Code 212) 280–3504

Address inquiries as follows:

ADMISSION • GENERAL INFORMATION • FINANCIAL AID APPLICATIONS • BULLETINS
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Student Employment Office, 206 Foreign Student Center. Telephone 280–2391
Office of the Dean, 405 Avery Hall. Telephone 280–3504

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Office of the Foreign Student Adviser, 106 Foreign Student Center. Telephone 280–3591

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Columbia University Health Service, St. Luke's Hospital, 1091 Amsterdam Avenue (between 113th and 114th Streets), New York, N.Y. 10025. Telephone 870–6566

HOUSING ON CAMPUS
For men and married graduate students: Residence Halls Office, 125 Livingston Hall. Telephone 280–2775
For women: Johnson Hall Office, 411 West 116th Street, New York, N.Y. 10027. Telephone 280–4494

HOUSING OFF CAMPUS
International House, 500 Riverside Drive, New York, N.Y. 10027. Telephone 666–7600
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Office of the Bursar, 210 Kent Hall. Telephone 280–3728

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TRANSCRIPTS OF RECORDS
Office of the Registrar, 201 Philosophy Hall. Telephone 280–3231

Columbia University in the City of New York

School of Architecture

1972-1973

Contents

The School of Architecture at Columbia

HISTORY OF THE SCHOOL

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.

In 1906 the first woman was admitted to the School and in 1924 the first minority student. Today there are sixty-nine women and forty-nine minority students.

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.

PHILOSOPHY OF THE SCHOOL

The School of Architecture 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.

The fundamental responsibility of the School is to help the student develop a sensitivity to the needs of mankind and to the continuous changes in those needs dictated by science, technology, the evolving patterns of growth and consumption, and the political realities of a developing national and world culture.

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. To this end, the School stresses the interaction of all three divisions so as to avoid a traditional unilateral approach to problem solving that is no longer satisfactory in our complex society.

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.

PROGRAMS AND DEGREES

DIVISION OF ARCHITECTURE

Bachelor of Architecture Degree Program

Master of Science Degree in Architecture Program,
with specializations in:
Architecture Research and Design
Hospital and Public Health Planning and Design
Restoration and Preservation of Historic Architecture

Master of Science Degree in Urban Design Program

Certificate Program in Restoration and Preservation

Doctor of Philosophy Degree Programs

DIVISION OF ARCHITECTURAL TECHNOLOGY

Master of Science Degree in Architectural Technology Program

Doctor of Philosophy Degree Programs

DIVISION OF URBAN PLANNING

Master of Science Degree in Urban Planning Program

Doctor of Philosophy Degree Programs

INSTITUTE OF URBAN ENVIRONMENT

See page 28.

URBAN ACTION AND EXPERIMENTATION PROGRAM

See page 29.

FACILITIES OF THE SCHOOL

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 undergraduate drafting rooms, 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.

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*

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

B.A., Harvard, 1955; M.Arch., 1958. Fulbright Scholar, 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.

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.

David Evan Glasser. *Assistant Professor of Architecture; Associate Dean*

B.Arch., Columbia, 1961. William Kinne Fellows Traveling Fellow, 1961. Member. American Institute of Architects. Registered architect.

Sigurd Grava. *Professor of Urban Planning (on leave, academic year)*

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*

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. Director, the Acoustics Laboratory.

Ada Karmi-Melamede. *Adjunct Associate Professor of Architecture*
B.A. in Arch., Technion-Israel Institute of Technology, 1961.

Alexander Kouzmanoff. *Professor 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 Assistant 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.

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. *Dean of the Faculty of Architecture*
Western Reserve, 1951; B.Arch., Yale, 1955. Fulbright Fellow, 1956. Member, American Institute of Architects. Registered architect. N.C.A.R.B. certificate.

Chester Rapkin. *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.

Charles J. Rieger. *Associate 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.

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. *Professor of Civil Engineering and 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*
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 B. Speaks. *Adjunct Assistant Professor of Urban Planning; Assistant Dean for Urban and Community Development*
B.A., Southern University, 1963; M.A., George Washington, 1965.

Charles W. Thurston. *Associate Professor of Architecture (on leave, spring term)*
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; American Society for Testing and Materials; 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.

OTHER OFFICERS OF INSTRUCTION

Sami Jibrail Al-Banna. *Assistant Professor of Graphics*

B.S.C., Al-Hikma (Iraq), 1965; M.S.C., Rhode Island, 1967; Eng.Sc.D., Columbia, 1972. Member, Phi Beta Pi; A.I.A.A.; A.C.M.

Victor G. Alicea. *Instructor in Urban Planning*

B.S., Columbia, 1963; M.S.W., 1966.

Harold K. Bell. *Adjunct Professor of Architectural Technology*

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

Ursula L. Berens. *Lecturer in Architecture*

B.A., Wellesley, 1951; B.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.

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 (Barnard and Graduate Faculties)*

B.A., Columbia, 1954; Ph.D., 1962.

Thomas K. Dahlquist. *Lecturer in Architecture*

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. Registered architect.

Frances Elaine Dowe. *Adjunct Associate Professor of Urban Planning*

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.

Daniel C. Dunham. *Preceptor in Urban Planning*

B.S., Wisconsin, 1950; M.Arch., Harvard, 1959.

Stanton Eckstut. *Lecturer in Architecture*

B.Arch. (Engr.), Pennsylvania State, 1965; M.Arch., Pennsylvania, 1968. Member, American Institute of Architects. Registered architect.

Alfred Knox Frazer. *Professor of Art History, Archaeology, and Architecture (on leave, academic year)*

B.Arch., Alabama Polytechnic Institute, 1949; M.A., New York University, 1958; Ph.D., 1964. Registered architect.

John M. Garber. *Adjunct Associate 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.

John C. Gaunt. *Lecturer in Architecture*

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

David H. Geiger. *Adjunct Associate Professor of Architecture*

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. Associate member, American Society of Civil Engineers. Registered engineer.

Arthur W. Jones. *Adjunct Assistant Professor*

B.A., Harvard, 1955; B.Arch., Pennsylvania, 1962; Fulbright Fellowship, 1963–1964; Member, American Institute of Architects. Registered architect.

Edgar Kaufmann, Jr. *Adjunct Professor of Art History and Architecture*

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.

Etel Thea Kramer. *Lecturer in Architecture*

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

Frank S. Kristof. *Adjunct Professor of Urban Planning*

B.B.A., College of the City of New York, 1942; M.S., Columbia, 1947; Ph.D., 1952.

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. Registered engineer.

Joseph 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 of Psychoanalytic Medicine; Explorer's Club.

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.

Tician Papachristou. *Adjunct Professor of Architecture*

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

Tony Pangaro. *Lecturer in Architecture*

B.S., Rensselaer Polytechnic Institute, 1967; B.A., 1968; M.Arch., Harvard, 1969.

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. Rome Centre Standing Committee; Association for Studies in the Conservation of Historic Buildings (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.

Theodorus H. M. Prudon. *Preceptor in Architecture*
M.A., Delft, 1969; M.S.Arch., Columbia, 1972.

Raquel Ramati. *Lecturer in Architecture*
B.Arch., Pratt, 1962. Senior urban designer, member, City Planning Commission. Member, American Institute of Planners. Registered architect (Israel).

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

Vernon L. Robinson. *Adjunct Assistant Professor of Architectural Technology*
B.A., Morgan State, 1957; M.S.W., Wisconsin, 1962.

Arnold Saks. *Adjunct Associate Professor of Architecture*
B.F.A., Syracuse, 1953; Yale, 1953–1954. Member, Alliance Graphique Internationale; American Institute of Graphic Arts. Works in permanent design collection of Museum of Modern Art.

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. *Lecturer in Architecture*
B.A., Harvard, 1961; B.Arch., Columbia, 1968.

Renato Severino. *Adjunct Professor of Architecture*
D.Arch., Florence (Italy), 1954. Fulbright grant, 1956.

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

Robert A. M. Stern. *Lecturer in Architecture*
B.A., Columbia, 1960; B.Arch., Yale, 1965. Registered architect.

John A. Templer. *Lecturer in Architecture*
Dip.Arch., Pretoria, 1958; B.Arch., 1963; Dip. Town Planning, Witwatersrand, 1968; M.S., Columbia, 1970. William Kinne Fellows Traveling Fellow, 1970. A.R.I.B.A.

Thomas J. Thomas. *Instructor in Urban Planning*
B.Arch., Rensselaer, 1959; M.S., Columbia, 1963. William Kinne Fellows Traveling Fellow, 1963.

Kenneth Watts. *Adjunct Associate Professor of Urban Planning*
B.Sc., London, 1942. Member, Royal Town Planning Institute (England), 1968–1971. Chief, Technical Cooperation Section, Center for Housing, Building and Planning, United Nations. Chief, Section for Asia & the Far East, Office of Technical Cooperation, United Nations, 1971.

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).

Timothy Wood. *Lecturer in Architecture*
B.Arch., Cornell, 1966; M.F.A., Princeton, 1969.

Constantinos Xanthopoulos. *Preceptor in Architecture*
B.Arch., National Technical University (Athens), 1965; M.S.Arch., Columbia, 1970. William Kinne Fellows Traveling Fellow, 1971.

George Yourke. *Lecturer in Architecture*
B.A., Columbia, 1954; B.Arch., 1957. William Kinne Fellows Traveling Fellow, 1957. Member, Regional Plan Association.

TEACHING ASSISTANTS

Kevin Hom, B.S.

Justin O'Connor, B.A.

ADMINISTRATIVE OFFICERS

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

David Evan Glasser. *Associate Dean*

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

Robert B. Speaks. *Assistant Dean for Urban and Community Development*

Sigurd Grava. *Chairman of the Division of Urban Planning (on leave, academic year)*

Victor G. Alicea. *Acting Chairman, Division of Urban Planning*

Alexander Kouzmanoff. *Chairman of the Division of Architecture*

Mario Salvadori. *Chairman of the Division of Architectural Technology*

Chester Rapkin. *Director of the Institute of Urban Environment*

Harold K. Bell. *Director of the Urban Action and Experimentation Program*

Vernon Leo Robinson. *Associate Director of the Urban Action and Experimentation Program*

David Genero. *Associate Registrar*

Jane H. Bobbe. *Administrative Assistant*

Joan Evanish. *Office Manager*

AVERY LIBRARY

Adolf K. Placzek. *Director*

Herbert Mitchell. *Rare Book Curator*

Eleanor M. Thompson. *Reference Librarian*

Joanne Simonds. *Reference Librarian*

Joan Krengel. *City Planning and Housing Librarian*

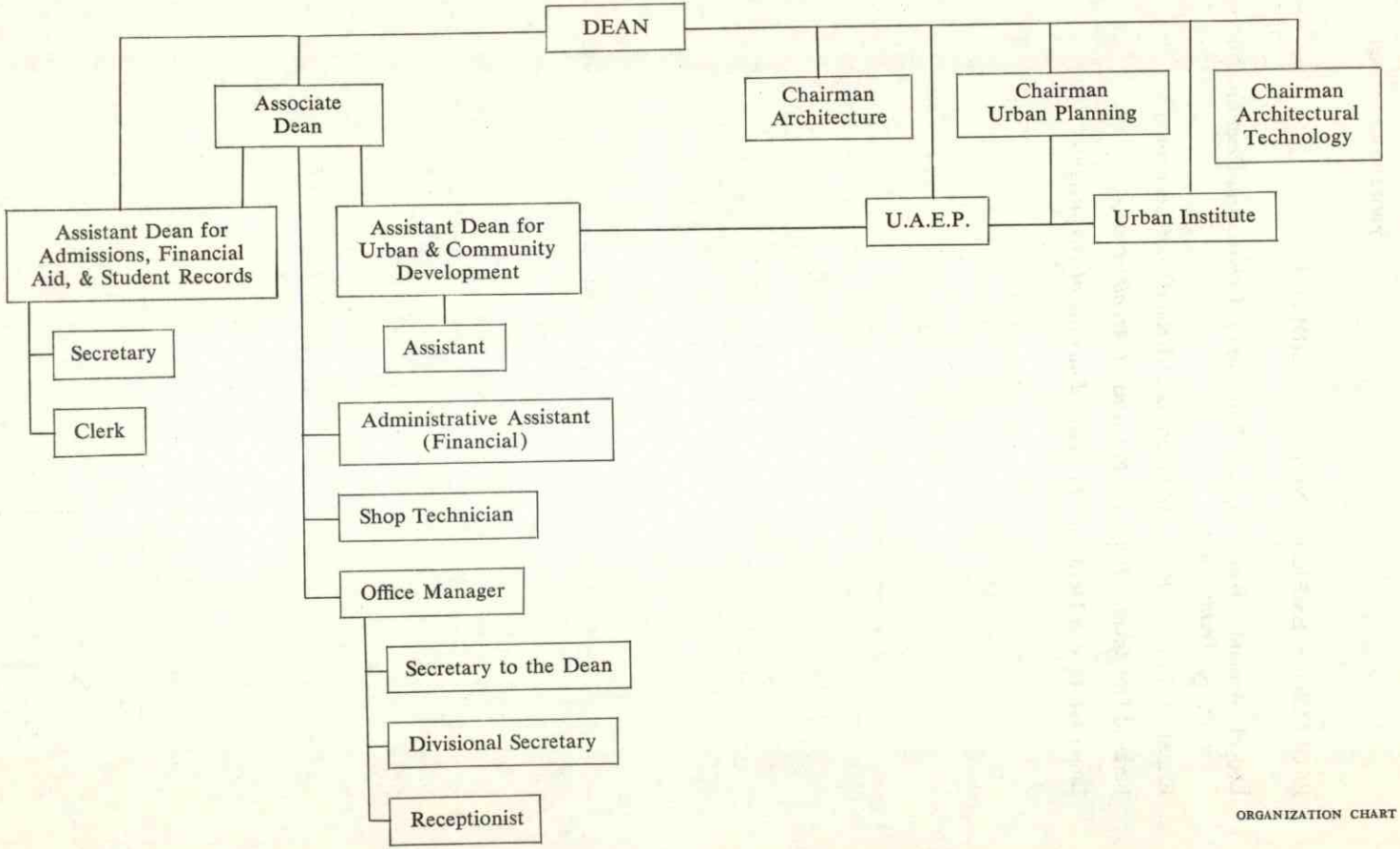
PROFESSORS EMERITI (NOT IN RESIDENCE)

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

Architecture Degree Program

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 responsibly creative, 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 Bachelor of Architecture and various Master of Science programs have been designed to respond to those needs. The Bachelor of Architecture degree program puts primary emphasis on its design sequence, which is broken down as follows: a three-term BASIC DESIGN AND ORIENTATION PHASE, a one-term INTEGRATION PHASE, a three-term DIVERSIFICATION PHASE, and a one-term SYNTHESIS PHASE. Parallel with these four phases are four primary information areas: TECHNOLOGY, THE PROFESSION, MAN AND ENVIRONMENT, AND CULTURE. These areas have been structured to interact with one another and with the design sequence during its various phases. After the completion of the basic design and orientation phase, members of the faculty perform services in these areas as "consultants" or actually become part of the design teams. At the core of the curriculum during the last four terms of the design sequence is the platform system. This is founded on the belief that a student's education is most valuable when it is motivated by the relevance and significance of the issues he is exploring and the discrete problems he is seeking solutions to. A platform is a broad area of interest proposed by one or

a group of students and/or faculty members who feel that the questions arising from the area of interest are both architecturally significant and of social utility.

The student, with the help of his advisers, is encouraged to set a course of study wherein his own interests can broaden while, at the same time, he develops a capacity for the understanding and resolution of significant problems of the man-made environment.

Graduate programs in the Division of Architecture, such as Urban Design, Architectural Research and Design, Hospital and Public Health Planning and Design, and Restoration and Preservation of Historic Architecture, and the availability of courses and faculty from the Divisions of Urban Planning and Architectural Technology provide the student with the possibility of expanding the sphere of his specific interests as they may affect the particular problems on which he is working.

For the core program in architecture see Chart A at end of chapter.

Evening Program

Beginning with the 1972–1973 academic year there is no separate evening program, except for currently enrolled students. Beginning with the 1973–1974 academic year certain courses will be available in the late afternoon and evening for students who find it necessary to work in the daytime. Such students will apply for admission to and be matriculated in the regular B.Arch. program.

FIRST YEAR (*for reference only*)

AUTUMN TERM

		POINTS
Architecture A3201	Architecture IA: introduction	4
Architecture A3121	Architectural construction I	3
Architecture A3181	Communication and drawing I	2
		9

SPRING TERM

Architecture A3202	Architecture IB: introduction	3
Architecture A3122	Architectural construction II	3
Graphics F3108	Architectural graphics II	2
	Elective	2
		10

SUMMER SESSION

Architecture S3009J	Applied mathematics	2

SECOND YEAR

AUTUMN TERM

Architecture A3203	Architecture IIA: introduction	4
Architecture A3010	Structural survey	2
Architecture A3011	Statically determinate structures and strength of materials	(4)
or		
Architecture A3012*	Strength of materials	(3)
		9 or 10

SPRING TERM

Architecture A3204	Architecture IIB: introduction	3
Architecture A3182	Drawing	2
	Electives	5
		10

THIRD YEAR

AUTUMN TERM

		POINTS
Architecture A3205	Architecture IIIA	4
Architecture A3130	Wood and steel	3
	Elective	3
		10

SPRING TERM

Architecture A3206	Architecture IIIB	3
Architecture A3124	Methods of technology	3
Architecture A4143	Mechanical systems survey	3
Architecture A3134	Concrete	3
		12

FOURTH YEAR

AUTUMN TERM

Architecture A3207	Architecture: platform IA	4
Architecture A4144	Mechanical systems and building design	3
Architecture A4152	History of architecture I	3
		10

SPRING TERM

Architecture A3208	Architecture: platform IB	3
Architecture A3125	Architectural detailing	2
	Electives	4
		9

* *Architecture A3012* may only be taken by students who have previously taken *A3011*. It will not be given again after the 1972–1973 academic year.

FIFTH YEAR

AUTUMN TERM

Architecture A3209	Architecture: platform IIA	4
Architecture A4151	Evolution of cities	3
Planning A4138	Economics of urban land and improvement	3
	Electives	2
		12

SPRING TERM

Architecture A3210	Architecture: platform IIB	3
Architecture A4153	History of architecture II	3
	Electives	4
		10

SIXTH YEAR: FULL-TIME STUDY

Graduate Programs

A candidate for the second professional degree may take a course of study for the combined master's degree in urban design and urban planning or for the M.S. degree in architecture with a specialization in one of the following: urban design; architectural research and design; hospital and public health planning and design; restoration and preservation of historic architecture. The student is expected to have achieved an outstanding record in his first professional degree. Since the programs require the study of technical aspects of the particular field beyond the level of the first professional degree, it is assumed that the student is not pursuing graduate study merely to refresh the professional skills he has already acquired. In addition, individual programs may be arranged for those students interested in environmental design, architectural history, and educational facilities planning and design. Every candidate for an M.S. degree must undertake design work in the studios, but the design work is organized for each specialty.

The status of the candidate is provisional during his first term of residence, and he is expected to maintain the equivalent of a B average. If he is permitted to continue, he may be required to take more than the minimum points required in design in order to earn his degree. A minimum of 30 points of course work at Columbia is required for the M.S. degree, regardless of the amount of advanced standing the student may have been awarded. The program and course requirements in each field are outlined on the following pages. All electives must be graduate courses and approved by the student's adviser.

A graduate program leading to the Certificate in Restoration and Preservation is also offered.

Urban Design

DIRECTOR: Mr. Romaldo Giurgola

Two different programs have been instituted for those concerned with the theory and practice of building cities and their supporting regions. The objective of both programs is to explore new information and methodology, and their applications to a sound approach to the relationships produced by human settlement at the city and regional scale. Project seminars, linked design platforms, community design centers, and public agency interaction are at the core of the programs. Project seminars survey different fields and set the base of ideas and techniques in preparation for the design approach. The design platforms introduced by students and faculty members cover relevant issues which are then projected into programs and eventual physical solutions. In order to achieve a comprehensive base, a number of planning courses complementing the design platforms and seminars are part of the curriculum.

PROGRAM A is a one-year program leading to a Master of Science degree in architecture with a specialty in urban design, with the primary emphasis on solving problems of the man-made-environment.

PROGRAM B offers a combined degree in urban design and urban planning, giving equal emphasis to physical design and to the social, political, and economic problems that generate it. The first year of PROGRAM B is concurrent and coincident with the design platform sequence of PROGRAM A. During the second year, the student is enrolled in the master's program in the Division of Urban Planning.

For both options, students should enter the Master of Science urban design program for the first year (see Chart B at end of chapter). The choice of program A or B should be made during the first term of study.

Architectural Research and Design

The program in architectural research and design provides an opportunity for the student to thoroughly investigate complex problems, which he programs and criticizes and on which he is criticized, in such a way as to develop further his own personal philosophy of architectural design and aesthetics.

A total of 34 points is required for the degree (see Chart B at end of chapter).

Hospital and Public Health Planning and Design

DIRECTOR: Mr. Robert H. Chapman

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 55.

A total of 34 points is required for the degree (see Chart D at end of chapter).

Restoration and Preservation of Historic Architecture

DIRECTOR: Mr. James Marston Fitch

A master's degree program prepares students whose undergraduate degree is in architecture for professional work in the field of historic preservation. In addition to regular classroom and studio work under the regular faculty, the course includes lectures by a wide range of specialists and a number of expense-paid field trips to institutions, sites, and projects in cities along the East Coast. Degree requirements include a master's thesis and an internship at an approved institution or agency after completion of course work.

A certificate program is open to students whose undergraduate work is in art history, archaeology, or American studies. Such students may enroll for a course leading to the Certificate in Restoration and Preservation. The course normally requires three terms, depending on the student's previous study in art and architectural history and in graphics and drafting. Under certain circumstances, qualified students may be accepted for a joint two-year program with the School of Architecture and either the Department of Art History and Archaeology or the Department of History in the Graduate School of Arts and Sciences. They receive both the M.A. degree and the certificate. The student must be admitted to the proper department through the Graduate School of Arts and Sciences Office of Student Affairs.

A minimum of 36 points plus the thesis and a three-month internship are required for both the master of science degree and the certificate (see Chart C at end of chapter).

VISITING LECTURERS

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 *(The Smithsonian Institution)*
Penelope Batchelor *(National Park Service)*
George O. Bird *(Henry Ford Museum)*
Helen D. Bullock *(The National Trust)*
David Chase *(The Smithsonian Institution)*
Richard O. Cummings *(Brooklyn College)*
James M. Deetz *(Plimoth Plantation)*
Elspeth Dusenberry *(New York University Institute of Fine Arts)*
Albert Fein *(Long Island University)*
Henry Glassie III *(Indiana University)*
Ralph Griswold *(Colonial Williamsburg)*
Henry A. Judd *(National Park Service)*
Edward Larribee *(Hunter College)*
Harley J. McKee *(Syracuse University)*
Lawrence Majewski *(Institute of Fine Arts)*
James C. Massey *(Historic American Buildings Survey)*
Virginia Partridge *(New York Historical Association)*
Henry Hope Reed *(Central Park, New York)*
L. S. Russell *(Royal Ontario Museum)*
John Stevens *(Architectural Heritage, Inc.)*
George R. Tatum *(University of Delaware)*
Robert M. Vogel *(The Smithsonian Institution)*
John G. Waite, Jr. *(New York State Historic Trust)*
Anne St. Clair Wright *(Historic Annapolis, Inc.)*

Doctor of Philosophy Degree Programs

In this division, a candidate for the Ph.D. degree may choose his specialty from several fields, including history, environmental design, restoration, hospital facilities, and the structural or technical fields which would not be included in the Division of Architectural Technology. The Ph.D. degree candidate may not specialize in design, and no studio courses will be credited toward the degree. For further information regarding admission and degree requirements, see pages 49–50 and 53–54.

CHART A

ARCHITECTURE PROGRAM
126 points required for the degree

PROGRAM ANALYSIS / PROGRAM STRUCTURE		BASIC DESIGN			Integration	DIVERSIFICATION			Synthesis
		term 1	term 2	term 3	term 4	term 5	term 6	term 7	term 8
DESIGN	DESIGN STUDIO	BASIC DESIGN I A3101 6 pts	BASIC DESIGN II A3102 6 pts	BASIC DESIGN III A3103 6 pts	ARCHITECTURE DESIGN PLATFORM I A3104 6 pts	ARCHITECTURE DESIGN PLATFORM II A3105 6 pts	ARCHITECTURE DESIGN PLATFORM III A3106 6 pts	ARCHITECTURE DESIGN PLATFORM IV A3107 6 pts	THESIS A3108 9 pts
	DESIGN SEQUENCE SUPPORT	Communication & Drawing A3181 2 pts	Interaction of Color A3182 2 pts						
SYSTEMS & MEASURES	STRUCTURES	Structural Survey A3010 2 pts		Statics & Strength of Materials* A3011 4 pts	Steel & Timber A3130 3 pts	Concrete A3131 3 pts		Experimental Structures† A4134 2 pts	
	MECHANICAL SYSTEMS & SERVICES		Mechanical Systems Survey A4143 3 pts	Mechanical Systems & Building Design A4144 3 pts	Noise Control in Buildings†‡ A4128 2 pts	Architectural Acoustics† A4129 2 pts	Lighting† A4137 2 pts		
	CONSTRUCTION SYSTEMS & MATERIALS	Construction I A3121 3 pts	Construction II A3122 3 pts		Methods of Technology† A3124 3 pts	Architectural Detailing† A3125 2 pts		Advanced Technology I† A4049 3 pts	Advanced Technology II† A4050 3 pts
	QUANTITATIVE METHODS & COMPUTERS SITE DESIGN	Applied Mathematics§ A3009 2 pts			Computers in Architecture† A4109 3 pts	Computer Applications to Architectural Technology† A4020 3 pts	Site Planning & Landscape Design† A4058 2 pts		
PROFESSION	PRACTICE				Graphics Workshop† A3144 2 pts	Design & the Office A3145 3 pts	Legal Aspects of Practice† A3146 2 pts	Construction Documentation† A3147 2 pts	
	FINANCIAL ASPECTS					Development & Finance† A4038 3 pts			Construction Management & Cost Control† A3148 2 pts

THE	SPECIAL PROBLEMS					Contemporary Practice in Restoration & Preservation† A4161 2 pts	Subsidized Housing Packaging Techniques† A4039 3 pts	Government-developed Urban Communities† A4041 3 pts	
MAN & ENVIRONMENT	ECOLOGY			Man-made Environment—the Eco-system† A4149 3 pts		Environmental Bases for Regional & Ecological Studies† Geog G4000 3 pts	Human Ecology† A4160 2 pts		
	PLANNING			Urban Process & Planning PI A3161 3 pts		Economics of Urban Land & Improvement† PI A4138 3 pts	Housing† PI A4142 3 pts		The Planner as Manager of Change† PI A6138 3 pts
	POLITICS					The Politics of Design† A4046 3 pts	Planning & the Political Process† PI A4157 3 pts	Community Development & Advocacy Planning† PI A4179 3 pts	
CULTURE	THEORY	Elements of Architectural Design A4008 2 pts		Evolution of Cities†‡ A4151 2 or 3 pts		Irrationality & Architecture I† A4175 3 pts	Irrationality & Architecture II† A4176 3 pts	History & Theory of Modern Architecture I A4190 2 pts	History & Theory of Modern Architecture II† A4191 2 pts
	HISTORY		History of Architecture I A4152 3 pts	History of Architecture II A4153 3 pts		History of Architecture III A4154 3 pts			Historical Problems in Modern Architecture†‡ Art Hist G9660x and y 3 or 6 pts
RECOMMENDED POINTS PER TERM		17	17	18	16	18-19	14-17	13-15	11-13

* Students who have previously passed a course in statics take *Architecture A3012—Strength of materials*, which will not be offered again after the autumn term of 1972.
† This course is recommended as an elective. It need not be taken in the indicated year.
‡ May be taken autumn or spring term.
§ Qualified students may be exempted from this requirement by passing an examination during registration. An elective approved by the student's adviser should be substituted.

CHART B

PROGRAM ANALYSIS / PROGRAM STRUCTURE		URBAN DESIGN*		ARCHITECTURAL RESEARCH & DESIGN 34 points required for the degree	
		term 1 autumn	term 2 spring	term 1 autumn	term 2 spring
CORE PROGRAM	DESIGN	Research & Design A6129 5 pts	Research & Design A6130 8 pts	Research & Design A6129 5 pts	Research & Design A6130 8 pts
	THEORY	Advanced Research I A6021 2 or 3 pts	Advanced Research II A6022 2 or 3 pts	Irrationality & Architecture I A4175 3 pts	Irrationality & Architecture II A4176 3 pts
	PRACTICE	Community design center or public agency internship (individual or group basis with permission of instructor)		Private office or public agency internship (individual basis with permission of instructor)	

* This outline represents the core program of Program A (which requires 34 points for the degree) and of the first year of Program B (which requires 75 points for the combined degree).

CHART F

PROGRAM ANALYSIS / PROGRAM STRUCTURE	URBAN PLANNING 60 points required for the degree	
	YEAR 1	YEAR 2
CORE PROGRAM	COMPREHENSIVE WORKSHOP Pl A6109-A6110 12 pts per term	THESIS Pl A6117-A6118 3 pts per term
		ADVANCED RESEARCH I & II Pl A6025-A6026 3 pts per term
		ADVANCED STUDIO Pl A6111x or y 6 pts
	ELECTIVES 6 pts	ELECTIVES 12 pts

ELECTIVES*		AUTUMN			SPRING			
	THEORY	Evolution of Cities† A4151 2 or 3 pts	Community Development & Advocacy Planning Pl A4179 3 pts	Politics of Design A4046 3 pts	Systems Concepts in Urban Planning Pl A6120 3 pts	Planning & the Political Process Pl A4157 3 pts	Urban Design Theory Pl A6161 3 pts	
	SOCIAL SYSTEMS				Territoriality in the Urban Community Pl A4178 3 pts	Social Service Systems: Planning & Change Pl A4140 3 pts	Planning Problems in Minority Areas Pl A4180 3 pts	Social Administration Soc Wk T8403 3 pts

tecture, 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.

See Chart F (at end of chapter) for an outline of this program.

Doctor of Philosophy Degree Programs

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. Students with a particular interest in these subjects or with a particular interest in developing nations are sometimes invited to participate in the work of the Institute of Urban Environment (see page 28). 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 49–50 and 53–54.

Division of Urban Planning

CHAIRMAN (on leave, academic year): Mr. Sigurd Grava

ACTING CHAIRMAN: Mr. Victor G. Alicea

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 during summer vacations. In order to expand their skills, students who are not on traveling fellowships 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 and the Graduate School of Business. 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. Ordinarily, students enter in the autumn term, but a few advanced students are accepted in the spring. This degree program is open to students with degrees in the arts or the sciences, including architecture, landscape archi-

THE PROFESSION	PRACTICE	Legal Aspects of Business I† Bus Law B6901 3 pts	Design & the Office A3145 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 I* A6021 2 or 3 pts	Thesis*‡ A6802 3 pts			Advanced Research II* A6022 2 or 3 pts	Thesis*‡ A6802 3 pts	
MAN & ENVIRONMENT	ECOLOGY	Environmental Bases for Regional & Ecological Studies Geog G4000 3 pts	Man-made Environment—the Eco-system A4149 3 pts	Oceanography for Engineers I Engr E4101 3 pts		Environmental Control Technology Ch E E4410 3 pts	Site Planning & Landscape Design A4058 2 pts	Oceanography for Engineers II Engr E4102 3 pts
	PLANNING	Evolution of Cities† A4151 2 or 3 pts	Transportation Planning Pl A6132 3 pts	Urban Process & Planning Pl A3161 3 pts		Evolution of Cities† A4151 2 or 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.

PROGRAM STRUCTURE / PROGRAM ANALYSIS

CHART E

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 2 pts	Theory of Plates & Shells Engr E4214 3pts	Foundation Engineering I CE E4244 3 pts	Prestressed Concrete Structures CE E4233 2 pts
	ELECTRICAL & MECHANICAL SYSTEMS	Mechanical Systems Survey* A4143 3 pts	Architectural Acoustics* A4129 2 pts			Mechanical Systems & Building Design* A4144 3 pts	Noise Control A4128 2 pts	Lighting A4137 2 pts
	COMPUTERS	Computer Application to Urban Planning Pl A6108 3 pts	Computer Application to Architectural Technology A4020 3 pts	Computer-assisted Instruction† TI5101 3 pts	Digital Computer Engineering Applications† Engr Math E4811 3 pts	Computers in Architecture* A4019 3 pts	Digital Computer Engineering Applications† Engr Math E4811 3 pts	Computer-assisted Instruction† TI5101 3 pts
	CONSTRUCTION SYSTEMS	Advanced Technology in Architecture I* A4049 3 pts	Design & Construction of Pre-fab Buildings CE E4021 2½ pts	Reinforced Concrete Structures CE E4232 2 pts		Advanced Technology II A4050 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

Doctor of Philosophy Degree Programs

In this division a candidate for the Ph.D. degree may specialize in any one of the scientific or technical fields that have particular relation to architecture, such as structural design, environmental design, or construction techniques, under a doctoral program subcommittee of the Graduate School of Arts and Sciences. Any of these subjects may be expanded into a financial study of the proposal. Research for the dissertation is expected to be original and to contribute significantly to the literature in the field. For admission and degree requirements, see pages 49–50 and 53–54.

Division of Architectural Technology

CHAIRMAN: Mr. Mario Salvadori

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 others, 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, somewhere in their preparation, of the following: 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 Program

See Chart E (at end of chapter) for an outline of this program.

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			

CHART D

* See the bulletin of the School of Public Health for relevant courses.
† See the bulletins of the Schools of Architecture, Business, International Affairs, and Law, 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.

PROGRAM STRUCTURE / PROGRAM ANALYSIS			HOSPITAL AND PUBLIC HEALTH 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 below)	HEALTH SYSTEM COMPONENTS Basic Structure	HEALTH SYSTEM	RESEARCH	ELECTIVES (see below)
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-INSTITUTIONAL	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			

CHART C

PROGRAM ANALYSIS

PROGRAM STRUCTURE

RESTORATION AND PRESERVATION OF HISTORIC ARCHITECTURE
DEGREE PROGRAM: 36 points + 3 month internship
* CERTIFICATE PROGRAM: 36 points + 3 month internship

	term 1 autumn			term 2 spring		
DESIGN	Design (Degree Candidates Only) A6149 5 pts			Thesis (Degree Program)† A6150 5 pts		Thesis (Certificate Program) A6152 5 pts
THEORY & METHODOLOGY	Restoration & Preservation: Seminar A6153 3 pts	Historic Buildings I A6155 2 pts		Restoration & Preservation: Seminar A6154 3 pts	Historic Buildings II A6156 2 pts	Technology of Early American Building A6157 2 pts
PROFESSION	Contemporary Practice A4161 2 pts			Contemporary Practice A4162 2 pts		
CULTURE	American Architecture: 1600–1914 A6158 3 pts	Architecture Historical Research‡ A8049 2 or 3 pts	Architectural Proportion & European Decorative Arts A4130 2 pts	Architecture Historical Research‡ A8049 2 or 3 pts		American Decorative Arts: 1620–1914 A4131 2 pts
ELECTIVES	For related courses in architecture, art history, history, etc., see the course listings in this bulletin and in the bulletins of other appropriate schools of the University.					

* Prerequisite: *Architecture A3111, A4152,* and *A4153* or their equivalents are prerequisite to enrollment as a full-time student in the certificate program.
† Design thesis.
‡ May be taken either term.

ELECTIVES (*continued*)*							
	HOUSING	Government-developed Urban Communities A4041 3 pts	Housing and City Rebuilding† Pl W6141 3 pts		Housing Pl A4142 3 pts	Subsidized Housing Packaging Techniques A4039 3 pts	
	ECONOMIC DEVELOPMENT	Economics of Urban Development Pl A4182 3 pts	Municipal Budgeting Pl A4172 3 pts	Location Theory Geog G4022 3 pts	Regional Science Seminar Pl A6176 3 pts	Seminar on Land Values & Taxation Pl A6151 3 pts	
	TRANSPORTATION	Transportation Planning Pl A6132 3 pts					
	ENVIRONMENTAL SYSTEMS	Environmental Bases for Regional & Ecological Studies Geog G4000 3 pts	Urban Environmental Management Pl A6163 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	The Planner as Manager of Change Pl A6138 3 pts		
	INTERNATIONAL PLANNING	Regional Planning & Development in Latin America Pl W4181 3 pts			Planning Problems in the Urbanizing World Pl A6180 3 pts	Seminar in Urban Problems & Housing in Latin America Pl A8181 3 pts	
	SERVICE COURSES	Urban Process & Planning Pl A3161 3 pts	Economics of Urban Land & Improvement Pl A4138 3 pts				

* May be taken first or second year.
† May be taken autumn or spring term.

Institute of Urban Environment

DIRECTOR: Mr. Chester Rapkin

PROFESSOR
Sigurd Grava

INSTRUCTOR
Victor G. Alicea

RESEARCH ASSOCIATE
Robert Ponte

RESEARCH ANALYST
Rae Zimmerman

The purpose of the Institute of Urban Environment is to conduct research in urban problems, both in the United States and in other countries; and to apply the analytic tools and techniques of architecture, planning, and the social sciences to the critical urban issues of our time, for both scholarly purposes and those of policy development. The goal of the Institute is to achieve a better understanding of urban programs and policies. To this end, it seeks to advance the skills and training required to cope with the ever mounting problems of the cities, as well as to satisfy the individual needs of architects, planners, and construction technologists intending to enter the urban professions. Studies are promoted at the Institute which can be useful to governments, private foundations, and international agencies at the same time that they provide a vital educational experience for students. Some of the areas that have come within the purview of Institute research are housing, social planning, urban design, construction technology, water pollution, land values, and planning for the developing countries.

As a center for information and source material, the Institute enables visiting scholars and experts to work on their chosen fields of study relative to the various aspects of urbanization. A further purpose is to stimulate and aid in the provision of courses in urban environment at Columbia, particularly those dealing with the developing countries; and to exchange students and faculty members with foreign universities concerned with urban problems. In special circumstances, the Institute will act as adviser to official agencies and governments here and abroad, or may undertake projects on their behalf.

The Institute draws on the experiences and resources of the division of urban planning, architecture, and architectural technology, and cooperates with other departments and institutes of the University.

Urban Action and Experimentation Program

DIRECTOR: Mr. Harold K. Bell

ASSOCIATE DIRECTOR: Mr. Vernon L. Robinson

The program was created by the late Charles Abrams in 1967 to make the resources of both the University and the business world available to other schools within the University, to other universities in the United States, to urban communities, to industry, and to government.

The U.A.E.P. is an action-oriented applied research program in the School of Architecture. Its primary goal is to create funded programs to execute its action-oriented applied research experiences. The client may be a business corporation, a community group, or a division within the University, depending on the particular problem and the tools required to deal with it.

Participants in the program are graduate students; faculty members from the schools of Law, Business, Journalism, and Architecture; and outside professional consultants in related fields as required. The program draws on the skills and resources of other professional schools within the Columbia complex.

Each year, the program publishes the results of its experiences and research, and these reports are available from the program office in Avery Hall.

Areas of activity include:

1. Technical assistance to communities, government, universities, and industry in the areas of housing production, technology, and economic development.
2. Innovative curriculum development for colleges and universities.
3. Sponsorship of colloquia, workshops, seminars, and elective courses in urban affairs, community development, and housing, for graduate students, business executives, faculty members, and community leaders.
4. Advising students on master's theses dealing with housing production and technology.
5. Sponsorship of applied research projects in industrialized housing technology.
6. Preparation of research proposals for government funding in subsidized housing, urban planning, and economic development.

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 CREDIT

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

WHEN AND WHERE CLASSES MEET

The days, hours, and room assignments for all courses given in the 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 A3009x. 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 A3010x. Structural survey. **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 A3011x. Statically determinate structures and strength of materials. **4 pts**

Mr. McCormick.

Prerequisite: *Architecture A3009* 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. Axial, bending, and torsional stresses.

Architecture A3012x. Strength of materials. **3 pts**

Mr. Thurston.

This course is not to be given again after the 1972–1973 academic year.
Prerequisite: *Architecture A3011.*
The establishment of the relationship between internal forces, properties of cross-sectional areas and material properties, and deformation for axial loading, torsion, and bearing.

Architecture A3101x-A3102y. Basic design I and II. **6 pts**

Messrs. Gaunt, Sculley, and Springer.

An inquiry into the process of looking at, interpreting, and making space. Organized about a sequence of problems, the program centers on an abstract discipline which provides a concise framework for the development of a personal process of design. It includes two- and three-dimensional problems, color studies, observation and evaluation of human activities, analysis of building types, models and methods of graphic representation. Model.

Architectural A3103x. Basic design III. **6 pts**

Messrs. Bond and Wood; Ms. Kramer.

Transition from abstract (design) problem solving to real prototypical building design. Application of design process evolved in *Architecture A3101-A3102—Basic design I and II* to simple building types. Investigation of all stages of design sequence from programming through construction detailing. Integration of mechanical system and construction system sequences into design sequence.

Architecture A3104y. Architecture: platform I. **6 pts**

Messrs. Bond, Frampton, Jones, Kouzmanoff, McNeil, Riani, Stern, and Templer and Ms. Karmi-Melamede.

Open to students in the second term of the second year of the B.Arch. program, provided that they have earned a satisfactory recommendation from the design review committee and completed all prerequisite courses.
A platform system, the order of which corresponds to the student's particular interests, development, and abilities. Selected areas of interest proposed by students and/or staff, the intended result being to involve the students in the entire design process: program development and analysis, structural and mechanical considerations, design, and presentation techniques. Design critics are assisted by visiting planners, economists, and mechanical and structural engineers.

Architecture A3105x. Architecture: platform II. **6 pts**

Messrs. Frampton, Jones, Kouzmanoff, McNeil, and Stern.

A continuation of *Architecture A3104.*

Architecture A3106y. Architecture: platform III. **6 pts**

Messrs. Bond, Frampton, Jones, Kouzmanoff, McNeil, Pangaro, Riani, Stern, and Templer and Ms. Karmi-Melamede.

A continuation of *Architecture A3105.*

Architecture A3107x. Architecture: platform IV. **6 pts**

Messrs. Frampton, Jones, Kouzmanoff, McNeil, Pangaro, and Stern.

A continuation of *Architecture A3106.*

Architecture A3108y. Architecture: thesis. **9 pts**

Messrs. Frampton, Kouzmanoff, and Polshek, Ms. Karmi-Melamede, and staff.

A final problem in design chosen by the student and approved by the staff and faculty; students develop program with client, staff, and faculty assistance. Program submitted to design chairman in December. The synthesis phase consists of a complete study of a building or buildings, including presentation drawings, mechanical and structural analysis, outline cost estimate, and three-dimensional studies.

Architecture A3111x. Graphic preparation. **2 pts**

Mr. Halse.

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

Architecture A3121x. Construction I. **3 pts**

Messrs. Dahlquist and Rohdenburg.

Examination of traditional and contemporary systems of architectural technology, their historical development and applicability to current building technology. Awareness of construction techniques and materials as an implicit part of the design process is a fundamental course objective. Lectures, seminars, research projects, and field trips.

Architecture A3122y. Construction II. **3 pts**

Messrs. Dahlquist and Rohdenburg.

Analysis and design of construction systems and assemblies; preparation of basic construction documents. Development of design detailing methodology. Lectures, seminars, laboratory design projects, and field trips.

Architecture A3124y. Methods of technology. **3 pts**

Mr. H. Berger.

Present developments and architectural potential of the steel skeleton and reinforced-concrete frame, analyzed in terms of strength, safety, weatherability, and long-term economy. Related subjects, such as exterior and interior finishes, panel systems, and the integration of mechanical equipment.

Architecture A3125x. Architectural detailing. **2 pts**

Mr. Rohdenburg.

Detailing as an extension of the design process. Each student devises details for his own schematic design of a small building; emphasis is on maintaining the spirit of the original scheme in details which also satisfy utilitarian requirements.

Architecture A3130y. Steel and timber construction. **3 pts**

Mr. McCormick.

Application of the principles of structural design and analysis to members used in modern timber and steel frame buildings. Use of various handbooks and codes.

Architecture A3131x. Concrete. **3 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 A3144y. Graphics workshop. **2 pts**

Mr. Saks and others.

The usage of graphics: to direct, to identify, to inform. After brief examination of various disciplines and formats, one major communication problem, that of the University itself, is taken through research, planning, model, and prototype units.

Architecture A3145x. Design and the office. **3 pts**

Mr. Papachristou.

The process of making a building projected against the day-to-day realities of the office: internal (organization, environment, work habits) and external (clients, builders, communities, agencies, etc.). Current methods of practice examined, and alternatives for the future explored. Discussions in classroom or architectural office.

Architecture A3146y. The legal aspects of practice. **2 pts**

Mr. Rohdenburg.

Responsibilities inherent in the interrelationship of architect, consultants, public and private owners, and building contractors. Contracts, liens, arbitration, and liability insurance; codes and zoning. Special lectures by guest experts.

Architecture A3147x. Construction documentation. **2 pts**

Mr. Pokorny.

The development of drawings and of details and specifications required for the construction of an architectural project. The coordinating of the work of the architect, his consultants, and the client.

Architecture A3148y. 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 C3150x. The architect in society. **3 pts**

Mr. Raskin.

For description see Columbia College bulletin, page 54.

Architecture A3181x. Communication and drawing. **2 pts**

Design staff.

Architecture A3182y. Interaction of color. **2 pts**

Ms. Berens.

Based on Josef Albers' *Interaction of Color.* Exercises designed to explore color *relationships* and, thereby, increase awareness and understanding of how color is *actually perceived.*

Architecture A3183x-A3184y. Drawing I and II. **2 pts**

Mr. Rieger.

Drawings from nature and architecture. Inquiry into spatial notations; image systems and their use; research in three dimensions.

Architecture A3203x-A3204y. Architecture IIA and IIB: introduction. **4 and 3 pts**

Messrs. Pokorny and Yourke. *A3203:* 4 pts. *A3204:* 3 pts.

Prerequisite or corequisite: *Architecture A3182* and *A3122.*
A minimum of nine hours a week in the studio, with occasional seminars, constitutes a sequence of exercises in the design of three-dimensional form as it occurs in buildings; and the study of structure, utility, and the organization of space. Designs are studied by means of sketches and models and are afterward presented as rendered drawings. Stress is on an orderly manner of procedure. Seminar discussions relate closely to the work in the studio.

Architecture A3205x-A3206y. Architecture IIIA and IIIB. **4 and 3 pts**

Mr. Eckstut. *A3205:* 4 pts. *A3206:* 3 pts.

Problems in the design of simple buildings and in site planning are presented in a progressive and carefully related series. The criticism of the instructors in design, which accompanies the development of the students' designs, is supplemented by library research and group discussions.

Architecture A3207x-A3208y. Architecture: platforms IA and IB. **4 and 3 pts**

Mr. Toan. *A3207:* 4 pts. *A3208:* 3 pts.

For description see *Architecture A3104* above.

Architecture A3209x-A3210y. Architecture: platforms IIA and IIB. **4 and 3 pts**

Mr. Toan. *A3209:* 4 pts. *A3210:* 3 pts.

For description see *Architecture A3104* above.

Architecture A4008x. Elements of architectural design. **2 pts**

Mr. Stern.

Analytical introduction to the formal components of architectural design. Individual buildings and urban groupings examined. Lectures and discussions.

Architecture A4019y. Computers in architecture. **3 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 A4020x. Computer applications to architectural technology. **3 pts**

Mr. Al-Banna.

Applications of computer technology to architectural layout, automated drafting, interactive computer graphics, architectural design, analysis of trusses, frames, and shells, and design of structural elements.

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 A4046x. The politics of design. **3 pts**

Ms. Ramati.

Political forces determining programs and design process including tools such as incentive zoning, special districts, use of air rights. The relationship of the architect to these forces discussed with guest speakers from government, communities, and private development. New York City as the prototype.

Architecture A4049x. Advanced technology in architecture I. **3 pts**

Mr. Severino.

Design approach to mass production of buildings. Analysis of the processes in which social input can generate the architecture of mass culture with technology. Consideration of the industrialization processes in building and the technological and economic problems they present. Review of architecture through new methods of construction derived from industry; possible new applications of these methods to low- and high-rise buildings and potential influences on global urban design.

Architecture A4050y. Advanced technology II. **3 pts**

Mr. Winter.

Detailed aspects of industrialization in architecture. Study of various 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. Appraisal of results; qualities of finishes, units, buildings, and complexes. Field trips to factories and buildings.

Architecture A4058y. Site planning and landscape design. **2 pts**

Mr. Bye.

Landscape architecture as it relates to architecture and site planning. Illustrated lectures analyze the character of a geographical region; the pictorial and psychological effects of plant life; landscape composition, including scale, atmospheric perspective, landscape illusions, color, light and shade, shape, size, texture, and seasonal change; the importance of plant life to the immediate climate of a site (microclimatology); land forms; rocks, water, terrain; plant ecology; climate; land drainage and grading. A variety of plant forms surveyed.

Architecture A4128x or y. Noise control in buildings. **2 pts**

Mr. Harris.

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 A4129x. Architectural acoustics. **2 pts**

Mr. Harris.

Physical properties of sound. Reflection, absorption, and diffraction of sound waves. Sound absorptive materials and constructions. Principles of room acoustics; room resonance, diffusion of sound; the decay of sound in a room. Designing for optimum reverberation time. Acoustical defects in rooms and auditoriums and how to avoid them. The acoustical design of rooms, lecture halls, auditoriums, studios, and open-air theatres. Sound amplification systems.

Architecture A4130x. Architectural proportion and European decorative arts. **2 pts**

Mr. Butler.

Various rules of architectural proportion from the sixteenth to the nineteenth century and their influence on interiors and furniture. The persistence and reinterpretation of classical theories.

Architecture A4131y. American decorative arts: 1620–1914. **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 A4134x. Experimental structures. **2 pts**

Mr. Geiger.

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. Lighting. **2 pts**

Mr. Mintz.

The impact of lighting design in creating successful environments, and the aesthetic use of light in architecture. Discussions and demonstrations of instrument and light source applications. Case studies, field trips, design problems. Emphasis on subjective and empirical rather than theoretical considerations.

Architecture A4143y. Mechanical systems survey. **3 pts**

Mr. Glasser and others.

An introduction to basic mechanical and electrical systems and their impact on design of buildings. Various conceptual attitudes with respect to the integration of building services in architecture considered without the use of mathematical methods. Course centrally organized by an architect, with specialists from various disciplines providing technical expertise. Seminars, case studies, research assignments, and field trips.

Architecture A4144y. Mechanical systems and building design. **3 pts**

Mr. Glasser and others.

Design approach to the integration and expression of building service systems in architecture. Technological, environmental, economic, and legal constraints affecting design of mechanical and electrical systems are discussed. Lectures, seminars, laboratory design studies, and field trips.

Architecture A4149x. Man-made environment—the eco-system. **3 pts**

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 A4151x or y. Evolution of cities. **2 or 3 pts**

Mr. Garber.

Morphological analysis of urban form. Ecological, social, economic, and cultural determinants of urban structure and growth. The city in history. Case studies and research assignments. Illustrated lectures.

Architecture A4152y. History of architecture I. **3 pts**

Mr. De Long.

The development of architectural form from its beginnings in the West through the fall of the Roman Empire, including significant examples of non-Western architecture.

Architecture A4153x. History of architecture II. **3 pts**

Mr. De Long.

The development of architectural form in the West from early medieval times to the beginnings of the Industrial Revolution.

Architecture A4154x. History of architecture III. **3 pts**

Mr. Kaufmann.

Architecture in the Western world from about 1750 to about 1950. The rise of concepts influenced by the Enlightenment, the democratic revolutions, and the Industrial Revolution, launching architecture in the modern world. Beginning with historicism, aestheticism, and the arts and crafts, then, in Europe going through art nouveau, expressionism, and "functionalism" and in this country following trails blazed by Richardson, Sullivan, and Wright, architecture has developed flexible, dependable approaches to the challenge of life in the modern world.

Architecture A4160y. Human ecology. **2 pts**

Dr. Lubart.

Personality as the resultant of interaction between the social practices by which a society lives and the human organism's innate drives and psychological mechanisms by which he perceives and integrates environmental stimuli. An attempt to define a frame of reference for understanding the impact of social institutions on the psychodynamic processes involved in the development of both adaptive and maladaptive behavior. Material derived from both primitive cultures and our own contemporary society.

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 A4175x. Irrationality and architecture I. **3 pts**

Mr. Christ-Janer.

Architecture A4176y. Irrationality and architecture II. **3 pts**

Mr. Christ-Janer.

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-A4191y. History and theory of modern architecture I and II.

Mr. Frampton. **2 pts**

History and theory of the modern movement from 1750 to the present.

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

Mr. Smith and 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. Architecture: research and design. **5 and 8 pts**

Messrs. Christ-Janer and Giurgola, and others.

Architecture and the urban context in a series of advanced topical researches and proposals in the fields of public and private environmental interests, education, health, production and consumption, transportation, housing, renewal, and community growth, for the most part connected with New York regional problems. Particular attention to those relationships in human institutions which develop the potential to make architecture, from the design of a street to new towns. Research and projects both by teams and by individuals, supported by seminars and discussions with experts in specific subject areas.

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 an area for investigation in the field of health services, plans an approach to his

subject matter, and develops a 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 subject. 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 Prudon.

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 (Master's program in restoration and preservation).

Mr. Fitch. **5 pts**

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 (Certificate program in restoration and preservation).

Mr. Fitch. **5 pts**

The student is expected to analyze in depth a selected stylistic movement, historical personage, or significant monument, showing in detail its origins, development, and historic 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. Historic buildings I and II. **2 pts**

Mr. Prudon.

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 building. **2 pts**

Mr. Fitch 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 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:* structure and organization of health-care delivery systems in the U.S. and concepts and methods of regional health-services planning. Political, economic, and social aspects shaping health systems in today's environments. *A6168:* health-care delivery systems and regional health-services planning in selected countries in Europe and elsewhere.

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 V and VI. **2 or 3 pts**

Mr. Smith and 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.

PLANNING

Planning C3050. Introduction to urban planning. 3 pts. Not given in 1972–1973.

Planning A3161x. Urban process and planning: a survey. **3 pts**

Mr. Templer.

The city as a context for life and society; quantitative and qualitative measures of the environment; determinants of urban evolution and revolution; innovation and structure; prospectives, alternatives and strategies.

Planning A4138x. Economics of urban land and improvement. **3 pts**

Mr. Kristof.

A survey of economic forces affecting the growth of cities and metropolitan areas, the location of activities in such areas, the spatial pattern of land values and land use. Analysis of the real estate market and the economics of building, including problems of planning and financing appropriate projects.

Planning A4140y. Social service systems: planning and change. **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. **3 pts**

Mr. Kolodny.

The nature and mechanism of the housing market. The basic social, political, and economic forces that affect the supply and demand for housing in metropolitan areas. The nature and structure of the construction industry. The role of government in the housing field. Race and income segregation and its role in the housing market. The place of housing in the urban structure.

Planning A4157y. 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. Dowe.

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: statistical methods, resource allocation and optimization, location theory, elements of regional social accounts, projections and forecasting methods; community welfare and cost-benefit analysis; elements of systems-control theory with reference to land use, housing, transportation, and social goods. Review of social and economic data sources and basic data treatment approaches.

Planning A4178y. Social structure and territoriality in the urban community. **3 pts**

Mr. Rapkin.

The nature and consequences of urban concentration; patterns of city growth and structure; slums and low-rent districts; urban pathology; poverty: problems and progress; the city and the suburbs; the movement of people: journey to work, migration, mobility, and relocation; race and housing; patterns of ethnic adaptation; mental health in the metropolis; the social and psychological meaning of space.

Planning A4179x. Community development and advocacy planning. **3 pts**

Mr. Speaks.

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 A4180y. Planning problems in minority areas. **3 pts**

Mr. Speaks.

Review and analysis of the negative and positive impacts of the "urban-planning tradition" on black, Puerto Rican, American Indian, and other minority groups in the U.S. Evaluation of strategies designed to maximize urban planning as an effective tool for pursuing and institutionalizing minority group interest.

Planning W4181x. Regional planning and development in Latin America. **3 pts**

Instructor to be announced.

Multi-national approach to planning in Latin America with emphasis on engineering, administrative, political, and juridical aspects within South America. Study of the resources of the South American continent and of sub-regional groupings of development interest.

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

Mr. Rapkin.

The economic factors that influence the structure and dynamics of urban land use. These include the general structure of local sources of income and employment: the functions and activities of residential and non-residential establishments that lead them to seek particular kinds of accommodations and locations; the nature of ties between establishments that influence locational decisions; and the role of public policy in guiding growth and change.

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**

Mr. Burke and the staff.

Either term may be taken separately.
Prerequisite: submission of tentative proposals before the beginning of the term.
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, Seader, Thomas, and Towery.

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 or y. Advanced studio. **6 pts**

Mr. Burke and the staff.

Groups of students, in consultation with faculty members, may propose topics and advanced work programs.

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

Mr. Seader and the staff.

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

Planning A6120y. Systems concepts in urban planning and architecture. **3 pts**

Mr. Salama.

Recommended preparation: *Planning A4174.*
The theory and methods of analysis of large systems with reference to urban social structure and to integrated architectural complexes considered as micro-regions. Illustration of generalized problem-solving activities; techniques and examples drawn from organization theory, living systems, cultural anthropology, and decision theory.

Planning A6122. Urban gaming seminar. 3 pts. Not given in 1972–1973.

Planning A6131. Planning engineering: land use and service systems. 3 pts. Not given in 1972–1973.

Planning A6132x. Transportation planning. **3 pts**

Mr. Thomas.

The functional interrelationship of transportation and land use planning; elements of transportation economics; modes of travel, types of vehicles, and terminal facilities and their impact on urban environment; tools for measuring and predicting interregional movement demands; analysis of the major land use and transportation studies; policies for guiding the course of regional growth.

Planning A6138y. The planner as a manager of change. **3 pts**

Ms. Dowe.

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.

Law-Planning W6141x and y. Housing and city rebuilding. **3 pts**

Mr. C. J. Berger.

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.

Planning A6151y. Seminar on land values and taxation. **3 pts**

Mr. Rapkin.

Prerequisite: the instructor's permission.
Exploration into the determination of land values, variations within and between urban areas, problems of measurement, the influence of various types of land planning and intervention, particularly real estate taxation. Investigation of various practices and procedures in selected foreign countries. Study paper required.

Planning A6161y. Urban design theory. **3 pts**

Mr. Thomas.

Definition of urban design and its objectives. Urban design and the planning process. Contemporary urban design theories and concepts as related to present social concerns. Historical comparative analysis of urban form as a product of the societal life style—political, social, economic, and physical. Illustrated lectures and seminars on case studies and analysis of relevant examples (new towns, downtown renewal projects, large scale housing, cultural-entertainment centers, office building groupings, urban parks, etc.).

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

Mr. Burke.

Physical ecology of the urban environment. An examination of technological, economic, political, social, and biological factors in contemporary issues in natural-environment controls, including air and water pollution, estuarine development, noise, and pesticide and herbicide use.

Planning A6170. Contemporary European city planning. 3 pts. Not given in 1972–1973.

Planning A6176y. Regional science seminar: 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; actual situations studied in context (Pittsburgh, Philadelphia, San Francisco, Boston, etc.); decision-oriented as well as 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 A6180y. Planning problems in the urbanizing world: seminar. **3 pts**

Messrs. Dunham and Watts.

Population growth and urban formations. The squatting problem. Land problems and policies. Financing for development. Administration and training for development. Self-help formulas. Emerging norms and practices. Case studies based on missions and reports.

Planning A6183. Urbanization and development policies in Africa: seminar. 3 pts. Not given in 1972–1973.

Planning A6187x-A6188y. Urban workshops. **3 pts**

Mr. Speaks.

Practical, on-the-job internship for students participating in the City Planning Work-Study program; designed to integrate the student's work and academic experience through formal workshops, seminars, and selected group-research projects.

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

Mr. Rapkin.

Open only to advanced Ph.D. degree candidates.
Discussion and analysis of selected research projects and of research in progress, with emphasis on method and techniques, in a multi-disciplinary setting.

Planning A8181y. Seminar in urban problems and housing in Latin America. 3 pts

Instructor to be announced.

Prerequisite: the instructor's permission.

Planning A9800y. Doctoral research. 0 to 12 pts

Mr. Rapkin 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.

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 30 for the key to course listings which identifies the division of the University which is offering each course.

Anthropology G4122. Human ecology

Anthropology G4173. Community studies in complex cultures

Anthropology G4198. The study of cultural character

Anthropology-Economics G9388. Problems of economy and society in developing countries

Art History G4410. The classical tradition and the Renaissance

Art History G4590. American art and architecture, 1600–1800

Art History G4625. Modern architecture—the nineteenth century

Art History G4660. Modern architecture—the twentieth century

Art History G8005. Colloquium on the history of architecture

Art History G8668. Architecture of the 1960's

Art History G8711. Problems in modern architecture, 1850–1950

Art History G8713. Frank Lloyd Wright

Art History G9660. Historical problems in modern 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 B6901. Legal aspects of business I

Chemical Engineering E4410. Environmental control techniques

Civil Engineering E4011. Digital computer applications

Civil Engineering E4021. Design and construction of prefab buildings

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

Corporate Relations B8256. Comparative analysis of the enterprise and its environment

Corporate Relations B9255. Seminar in business and urban problems

Economics G4228. The urban economy

Economics G6211-G6212. Introduction to microeconomic analysis

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

Economics G6229. Human resources and the urban economy

Economics G6235. The history of economic thought

Economics G6302. Economic planning

Economics G6805-G6806. Public finance

Economics G8230. Colloquium on urban economics

Economics G9325. Seminar in economic development

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 G4030. Cultural geography

Geography G4041. Urban geography

Geography G4050. Population geography

Geography G9401-G9402. Seminar in geographical and environmental systems

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 L9183. Seminar in urban and human renewal

Law L9192. Seminar in welfare rights

Management B9752. Seminar in business enterprise

Mathematical Statistics–Sociology G4181-G4182. Statistical method 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 G4231. Government and politics in metropolitan regions

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 G4022. Population

Sociology G4038. Use of surveys in the study of social problems

Sociology G4043. The social structure of the United States

Sociology G4044. Social change

Sociology G4075. Formal organization

Sociology G4094. The communication process

Sociology G4221. Computers in the social sciences

Sociology G6088. The use of census-type data

Sociology G8015-G8016. Analysis of social structures

Teachers College TF3206. Urban sociology and education

Teachers College TF5206. Seminar in urbanism and education

Teachers College TF5430. Analysis of urban social systems

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; evening by appointment

Telephone: (Area code 212) 280–3510

All qualified men and women receive consideration for admission without regard to race, creed, color, or national origin.

In considering a candidate for admission to the School of Architecture, 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 15.

No application will be forwarded to the Committee on Admissions until all supporting documents and materials have been received. It is the applicant's responsibility to make sure that all of the materials he 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 or certificate 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.

BACHELOR OF ARCHITECTURE DEGREE (eight terms)

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

ACADEMIC PREPARATION

All applicants must have completed a minimum of two academic years of study (60 points or 90 quarter hours) of undergraduate liberal arts at an accredited college or scientific school. Preference is given to students who hold undergraduate degrees or who are enrolled in one of the School's professional option programs. The liberal arts preparation must include the following:

	Years
English composition and literature	2
Modern foreign language (preferably French or German)	2
Analytical geometry, differential and integral calculus	1
Physics	1
Economics, government, or sociology	1
European or world history	1

A one-year course in painting or drawing is highly recommended.

Applicants with deficiencies in the liberal arts courses listed above are sometimes admitted, but these deficiencies must amount to no more than 15 points, and must be made up, through course work, before the student has completed 35 points of work in the architecture program.

Students with deficiencies in mathematics or science must complete courses in

these subjects during the summer immediately preceding the autumn term in which they will register for the first time.

Students are urged to consult the admissions officer before enrolling in liberal arts courses which are to be used to make up deficiencies. Students must submit to the Office of Admission official transcripts of the courses completed to make up these deficiencies.

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 must meet the 60-point liberal arts requirement. Advanced standing toward the B.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 and the student records official. 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 50 points of course work at Columbia to obtain the Bachelor 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 B.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 Bard, Kenyon, Mount Holyoke, and Swarthmore Colleges. It is expected that similar arrangements will be made with other colleges and universities.

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

MASTER OF SCIENCE DEGREE IN ARCHITECTURE (two terms)

All applicants for admission to the program leading to the M.S. degree in architecture must have a B.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.

The programs in special fields are: (1) architectural research and design, (2) hospital and public health planning and design, (3) preservation and restoration of historic buildings. In addition, individual programs will be arranged for those students interested in environmental design, architectural history, and educational facilities planning and design.

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 DESIGN

All applicants for admission to the program leading to the M.S. degree in urban design must have a B.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 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 the return address is indicated on the portfolio.

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

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 (a few advanced students may be accepted for spring entry); 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.

CERTIFICATE IN RESTORATION AND PRESERVATION

This program is open to students whose undergraduate work is in art history, archaeology, or American studies. Such students may enroll for a course leading to the Certificate in Restoration and Preservation. The course normally requires three terms depending on the student's previous study in art and architectural history, graphics, and drafting.

Under certain circumstances, qualified students may be accepted for a joint two-year program with the School of Architecture and either the Department of Art History and Archaeology or the Department of History. They receive both the M.A. degree (in art history or history) and the Certificate. The student applying for this joint program must be admitted to the proper department through the Office of Student Affairs of the Graduate School of Arts and Sciences. He must be registered in the School of Architecture for a minimum of 30 points for the Certificate during one year and in the second year must be registered for a minimum of 30 points in the Graduate School of Arts and Sciences.

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

Certain introductory courses in architecture and urban planning except design studios are open to special students (students who are not candidates for a degree). If however, at a later date, a special student wishes to apply for matriculation in either the B.Arch. or M.S. degree programs, the Admissions Committee will not treat his application preferentially. In addition, introductory courses are available to college students during the Summer Session. Those interested in applying should consult the Summer Session bulletin or Office (102 Low Library, telephone 280–2338) for information on course offerings and application procedure.

Many advanced courses of interest to professional architects and planners are offered throughout the calendar year. Professional architects and planners who wish to take one or more of these courses must formally apply for admission and register as special students. Requests for application forms, general information, and information on specific course requirements should be directed to the Office of Architecture Admissions.

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.

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 or undergraduate 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 Admissions Counselor. 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 four 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 B.Arch. candidate is made at the end of the second year in the day program, or at the end of the third year in the evening program. The student must earn a satisfactory recommendation from the design review committee and must complete all courses prerequisite to the third year 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 year 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 two years in the Bachelor 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 hospital and public health 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 Administration 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 Administration 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 Thursday, August 31, and Friday, September 1; the first meeting is at 10 a.m. in the auditorium of Earl Hall. The program includes meetings with the staff of the Office of Foreign Student Services, the staff of the Intercultural Program Office of Earl Hall, and the dean of the school in which the student is enrolled; information about registration; the English Language Place-

ment Test; tours of the campus and the library; social events; and, later, an opportunity to visit an American family.

The English Language Placement Tests are scheduled to begin on Tuesday, August 29, for those students who wish to take the test before the orientation program begins. Locations and test schedules are available in 211 Lewisohn Hall or in the Office of Foreign Student Services, Foreign Student Center.

Students on all types of visas, including permanent residents who are new to Columbia, are urged to attend.

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 11, through Friday, September 15, for the autumn term; Thursday, January 25, through Wednesday, January 31, 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 which is issued by the Registrar's Office. The deadline for making program changes is Friday, September 15, in the autumn term, and Wednesday, January 31, in the spring term (see the Academic Calendar). In no case will permission to drop courses be granted after November 10 in the autumn term and after March 19 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 term, 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 his dean or director for an equitable solution.

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	$2,976.00
Living expenses (room, board, books, clothing, laundry, travel, sundries)	2,100.00
	$5,076.00

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	$ 97.00
With the proviso that for degree candidates the fee for a program of 15 to 19 points is	1,450.00

HEALTH INSURANCE FEE AND HEALTH INSURANCE PREMIUM

Health service fee, per term (see pages 61–62)	$20.00
Student accident and health insurance premium (see pages 61–62)	
For the autumn term (October 1–February 1)	
Student only	12.00
Additional cost for spouse (optional)*	16.00
Additional cost for spouse and one or more unmarried children under the age of nineteen (optional)*	28.00
For the spring term and summer period (February 1–October 1)	
Student only	24.00
Additional cost for spouse (optional)*	32.00
Additional cost for spouse and one or more unmarried children under the age of nineteen (optional)*	58.00

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 receives this written notification. (For partial withdrawal, see "Changes in Programs of Study," on page 56.)

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

* 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.

After September 15 in the autumn term or January 31 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 spouse and one or more unmarried children under nineteen years of age (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 15 in the autumn term and January 31 in the spring term, and by paying the fee and the premium. A student registered for less than 6 points 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 22 in the autumn term and February 7 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 dissertations and for students who present certifications from their deans or departmental chairmen that they are registering for research or study *in absentia*. Such evidence must be presented in the Registrar's Office not later than September 15 in the autumn term and January 31 in the spring term.

The costs of the medical care and insurance program are listed in the schedule of fees on page 60.

HOUSING

ON CAMPUS

The University provides limited housing for undergraduate and graduate men and women, both single and married, 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). All rates below are approximate and may be subject to change.

Rates in the men's residence halls (Harmony, McBain, Hudson, Ruggles, John Jay, and 70 Morningside Drive) range from $480 to $765 for the academic year, with $675 the median rate. Meals are available in the University dining halls only on weekdays, on a cash basis. Inquiries should be directed to the Residence Halls Office, 125 Livingston Hall.

In Johnson Hall, the women's residence, room rates for the academic year range from $600 to $850, with $735 the median rate. All residents are required to take breakfast and dinner at Johnson Hall five days a week at a cost of approximately $525 for the academic year, exclusive of weekends and holiday periods. Inquiries should be directed 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 graduate students. Each apartment contains a living room, a bedroom, a complete kitchen, and a bathroom; basic furniture is provided. Rates range from $1,620 to $2,050 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 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.

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, from September 1 through May 15, 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.

UNIVERSITY STUDENT HANDBOOK

The *University Student Handbook* describes all the services and facilities maintained by the University for students in the Graduate School of Arts and Sciences, the School of General Studies, and the professional schools on the Morningside campus. The handbook furnishes such information as the location of the various libraries, how to get student-rate tickets, where to find placement officers, where to rent a typewriter, and so on.

Copies are distributed at registration. Any student who fails to pick up his copy then may obtain one at the Office of Information and Visitor Services, 201 Dodge, after registration.

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 and, in addition, may provide a stipend for living expenses. 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 but carries no additional cash stipend. Scholarships may be awarded to graduates and undergraduates, but are not available to students registered in the evening program. 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 resarch 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. A fellow or a scholar may accept employment only when written permission is granted by the Dean.

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 1972–1973. Applicants for admission who are also applicants for fellowships or scholarships must submit the application by February 15, 1973. 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 B.Arch. or M.S.

programs of the School should apply for grants-in-aid before February 15 (see page 71).

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.

LOULA D. LASKER FOUNDATION FELLOWSHIPS IN CITY PLANNING, HOUSING, AND URBAN RENEWAL

Awarded to students enrolled in a graduate degree program in urban planning, housing, urban renewal, conservation, or redevelopment. Recommendations are made by the school to which the candidate is applying.

NATIONAL SCIENCE FOUNDATION GRADUATE FELLOWSHIPS

Annual predoctoral fellowships are offered for study in engineering, the pure sciences, and the social sciences. Applications are available from the National Science Foundation, Washington, D.C., and are due by December 5.

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.

SEARS ROEBUCK FOUNDATION GRADUATE FELLOWSHIPS IN CITY PLANNING AND URBAN RENEWAL

Fellowships and scholarships for students beginning graduate study in urban planning who are United States citizens. The candidate must apply on a form available from the Foundation, 3333 Arthington Street, Chicago, Illinois, 60607, and submit the application, together with his application for admission, to the school of his first choice.

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 scholarsips for graduate and undergraduate 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 taxable 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. Please note that the Columbia University School of Architecture is classified as a graduate school by New York State.

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

Six two-year 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, in administration, and in the work of the Institute. 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 prorams 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 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 send 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 Admissions and Financial Aid after June 1.

GRANTS-IN-AID

Grants-in-aid are awarded to B.Arch. and M.S. candidates who are currently registered in their degree program at the time of application and who have shown evidence of financial need, integrity, and scholarship. The grant is usually awarded in conjunction with a student loan.

Application forms for grants-in-aid are available in the Office of Architecture Admissions after spring registration. Applications must be returned to the Admissions Office before February 15, if they are to be considered for the following academic year. Awards will not be announced until all of the spring grades have been received.

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 require typing and some require shorthand as well. Full-time University employees are eligible for a limited number of points of tuition exemption in each term, provided they qualify for admission and meet the deadlines for application to the University 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, 1972-1973

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

Aug 1 Tuesday.* Last day to apply or reapply for October degrees and certificates (see September 7).

Sept 1 Friday.* Last day to apply for September special examinations.

AUTUMN TERM

Aug 31 Thursday, and September 1, Friday. Orientation program for new foreign students (see page 55).

Sept 5–7 Tuesday–Thursday.† Registration, including payment of fees.

7 Thursday. Classes begin. Last day to apply for Ph.D. final examinations (defense) to be held this term. Last day to file *late* application for October degrees and certificates.

8 Friday. Late registration begins.

9–10 Saturday–Sunday. Rosh Hashanah, beginning of the Jewish New Year.

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

15 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.**

18 Monday. Yom Kippur, Jewish Day of Atonement.

19–25 Tuesday–Monday. Special examinations.

23–24 Saturday–Sunday. First days of Sukkoth, Jewish holiday of Tabernacles.

30 Saturday, through October 1, Sunday. Concluding days of Sukkoth.

Oct 24 Tuesday. Midterm date.

25 Wednesday. Award of October degrees and certificates.

Nov 6 **Monday. Academic holiday.**

7 **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 23–26 **Thursday–Sunday. Thanksgiving holidays.**

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

Dec 1 Friday.* Last day to apply or reapply for February degrees and certificates (see January 24).

13 Wednesday. Classes end.

14 Thursday. Study day.

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

15–22 Friday–Friday. Midyear course examinations. Term ends.

23 **Saturday, through January 16, 1973, Tuesday. Christmas holidays.**

SPRING TERM

Jan 17–19 Wednesday–Friday.† Registration, including payment of fees.

19 Friday. Last day to apply for Ph.D. final examinations (defense) to be held this term.

22 Monday. Classes begin. Late registration begins.

24 Wednesday. Last day to file *late* application for February degrees and certificates.

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

31 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 14 Wednesday. Award of February degrees and certificates.

15 Thursday. Last day to apply for 1973–1974 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.

19 Monday.* Last day to apply or reapply for May degrees and certificates (see April 9). Last day to apply for March special examinations.

Mar 8 Thursday. Midterm date.

11–18 **Sunday–Sunday. Spring holidays.**

19–23 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 Monday. Last day to file *late* application for May degrees and certificates.

17–18 Tuesday–Wednesday. First days of Pesach, Jewish holiday of Passover.

20 Friday. Good Friday.

23–24 Monday–Tuesday. Concluding days of Pesach.

May 2 Wednesday. Classes end.

3 Thursday. Study day.

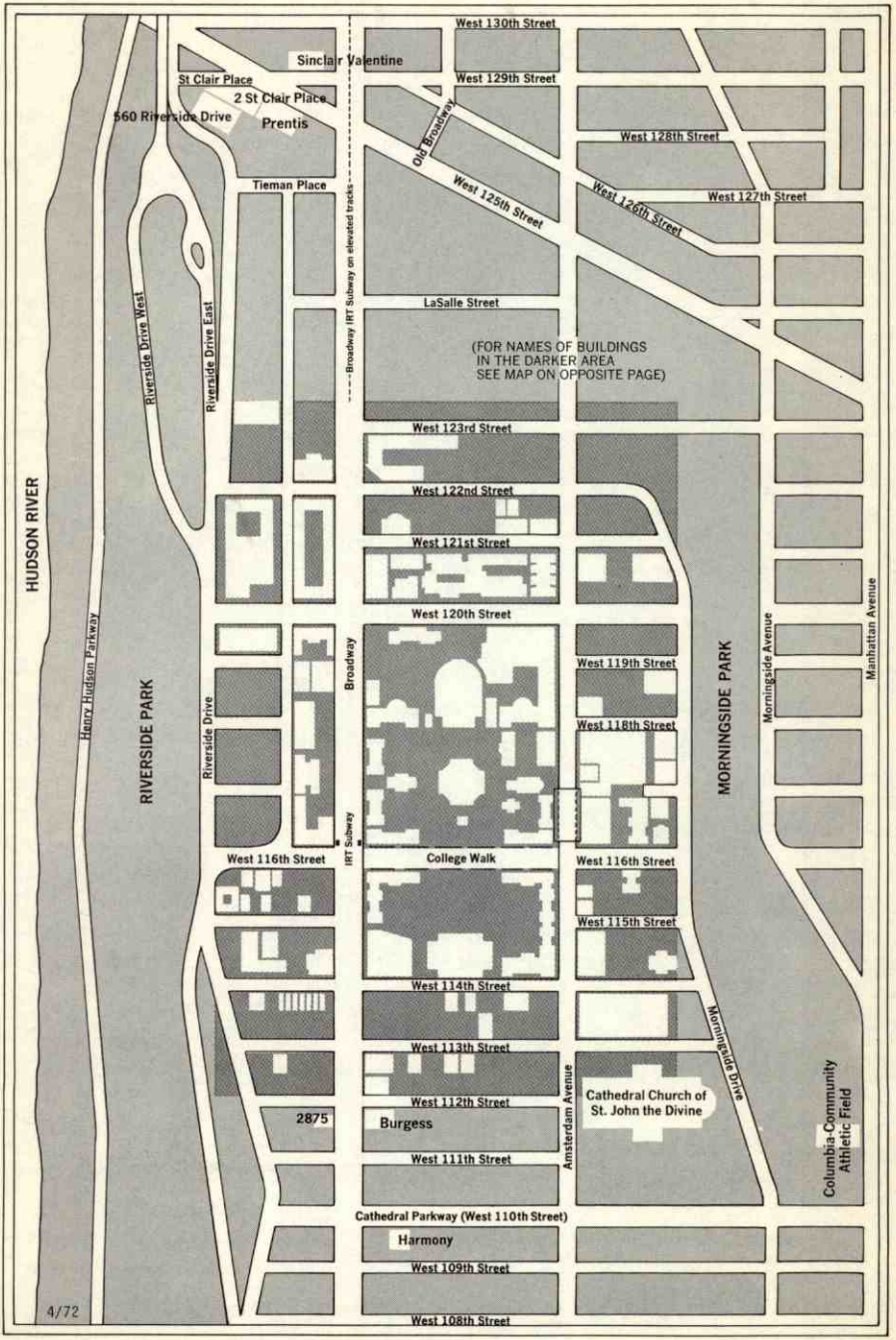
4–11 Friday–Friday. Final course examinations. Term ends.

COMMENCEMENT

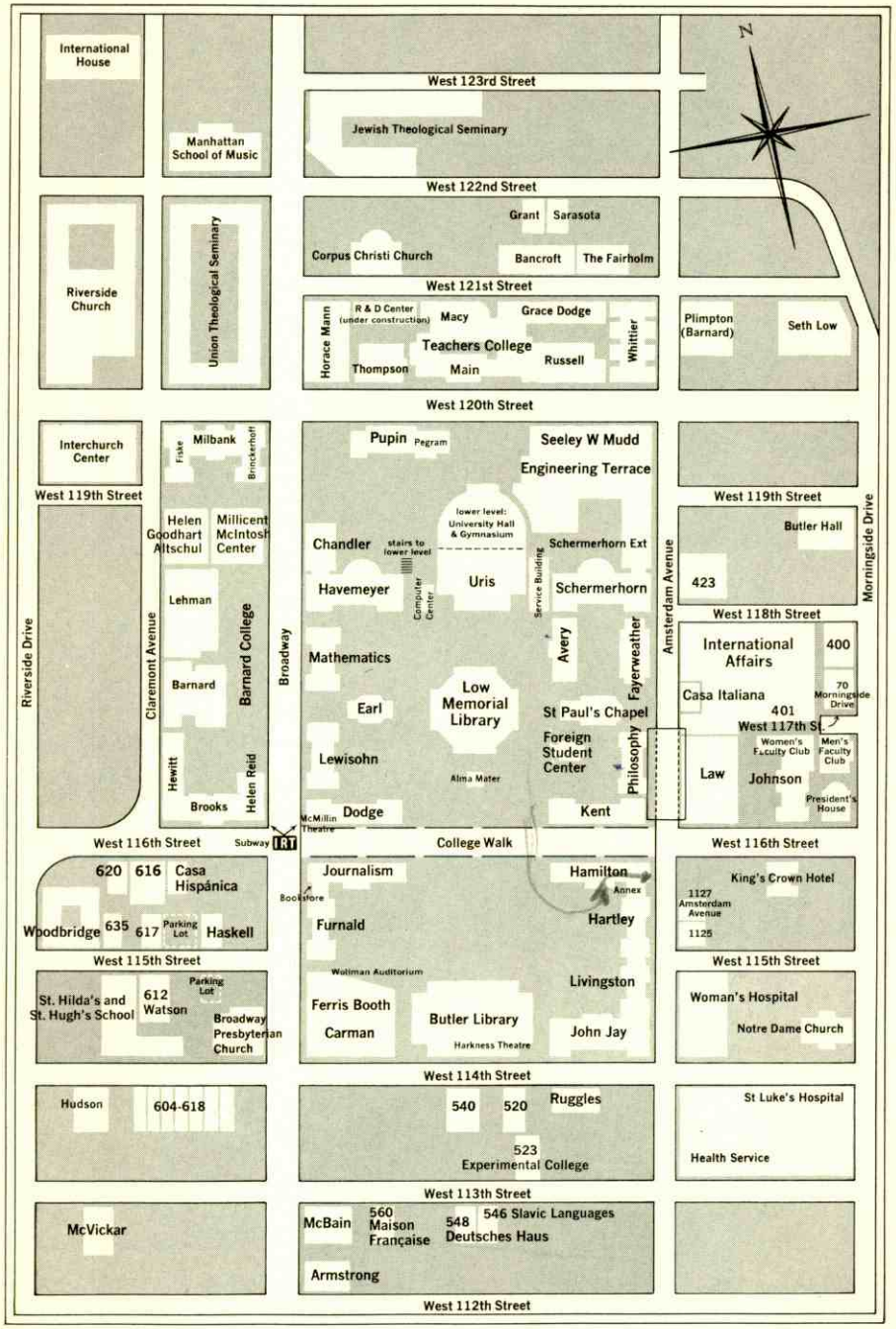
May 13 Sunday. Baccalaureate Service.

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

The Morningside Heights Area of New York City



The Morningside Campus & Environs



To Columbia Students

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