




Brandeis University  
Library



*As for the wise, their  
body alone perishes in  
this world — Rashi*





Digitized by the Internet Archive  
in 2010 with funding from  
Boston Library Consortium Member Libraries

<http://www.archive.org/details/graduateschoolof6566bran>





Brandeis University

The  
Graduate School  
of Arts and  
Sciences  
1965/1966

Archives  
LD 571  
B562  
1965/66





BRANDEIS UNIVERSITY BULLETIN 65/66



The  
Graduate  
School  
of Arts  
and  
Sciences

AUGUST 12, 1965

Brandeis University  
Library



*As for the wise, their  
body alone perishes in  
this world – Rashi*

z Brandeis on the Brandeis  
t Berks under a commission  
w York. Dedicated by Chief  
anniversary of the birth of  
Brandeis, November, 1956.

cted as of June 1, 1965.

Vol. XV No. 2 August, 1965

*Brandeis University Bulletin, published six times a year;  
three times in August; one each in October, February and  
May, at Brandeis University, Waltham, Massachusetts, 02154.*

*Entered as second class matter at the Post Office  
at Boston, Massachusetts.*

*“It must always be rich in goals and ideals, seemingly attainable but beyond immediate reach. . . .*

*“It must become truly a seat of learning where research is pursued, books written, and the creative instinct is aroused, encouraged, and developed in its faculty and students.*

*“It must ever be mindful that education is a precious treasure transmitted—a sacred trust to be held, used, and enjoyed, and if possible strengthened, then passed on to others upon the same trust.”*

—from the writings of  
LOUIS DEMBITZ BRANDEIS (1856-1941)  
on the goals of a university.



*“Brandeis will be an institution of quality, where the integrity of learning, of research, of writing, of teaching, will not be compromised. An institution bearing the name of Justice Brandeis must be dedicated to conscientiousness in research and to honesty in the exploration of truth to its innermost parts.*

*“Brandeis University will be a school of the spirit—a school in which the temper and climate of the mind will take precedence over the acquisition of skills, and the development of techniques.*

*“Brandeis will be a dwelling place of permanent values—those few unchanging values of beauty, of righteousness, of freedom, which man has ever sought to attain.*

*“Brandeis will offer its opportunities of learning to all. Neither student body nor faculty will ever be chosen on the basis of population proportions, whether ethnic or religious or economic.”*

—PRESIDENT ABRAM L. SACHAR, at the ceremonies inaugurating  
Brandeis University, October 8, 1948



# Table of Contents

Academic Calendar	8
Brandeis University	11
The Graduate School of Arts and Sciences	39
General Information	39
Academic Regulations	48
Degree Requirements	54
Fees	59
Areas of Study and Courses	67
Fellowships	169
Directories	181

# Academic Calendar 1965-1966

## Fall Term

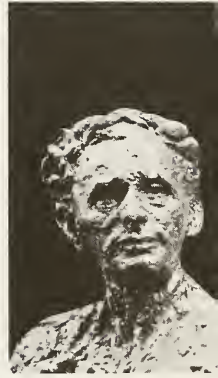
Wednesday	September 15 and	Registration, including payment of fees.
Thursday	September 16	Students who register later will be fined \$10.00.
Friday	September 17	Medical examinations for new students. Failure to keep appointment results in \$5.00 fine.
Monday	September 20 and	Opening days of instruction in all courses.
Tuesday	September 21	
Monday	September 27 and	No University Exercises.
Tuesday	September 28	
Wednesday	October 6	No University Exercises.
Thursday	October 7	Final date for registration.
Monday	October 11	No University Exercises.
Wednesday	October 13	Final date for changing program without \$10.00 fine.
Monday	October 18	No University Exercises.
Wednesday	October 20	Final date for adding courses with \$10.00 fee.
Thursday	November 11	No University Exercises.
Thursday	November 25 and	No University Exercises.
Friday	November 26	
Wednesday	December 1	Final date for dropping courses with \$10.00 fee.
Friday	December 3	Final date for February degree candidates to submit final drafts of dissertations to department chairmen. Final date for February degree candidates to submit "Application for Degree" to Graduate School Office.
Friday	December 17	Winter Recess begins after last class.
Monday	January 3	Classes resume. Final date for February degree candidates to submit Master's theses to department chairmen.
Friday	January 7	Final date for faculty certification that February M.A. candidates have satisfactorily completed degree requirements. Final date for faculty certification that February Ph.D. candidates have satisfactorily completed and defended dissertations.
Monday	January 10 and	Registration for Spring Term for all students in residence. Resident students will be fined \$10.00 for later registration.
Tuesday	January 11	
Friday	January 14	Final date for February degree candidates to discharge all financial indebtedness to the University.
Monday	January 17	No University Exercises.
Tuesday	January 18 through	Midyear examinations.
Friday	January 28	
Thursday	January 27 and	Registration for students entering in the Spring Term. New students who register at a later date will be fined \$10.00.
Friday	January 28	
Friday	January 28	Final date for admission to candidacy for the Ph.D. and completion of residence and language requirements for all students expecting to have the Ph.D. conferred in June 1966. Final date for deposit of Ph.D.



		dissertations by February degree candidates with the Dean of the Graduate School. Final date for reporting incomplete grades for Spring Term 1964-65.
Friday	February 4	Grades due for all Fall Term courses.
<b>Spring Term</b>		
Wednesday	February 2 and	Opening days of instruction in all courses.
Thursday	February 3	
Monday	February 14	Final date for changing program without \$10.00 fine.
Tuesday	February 22	No University Exercises.
Wednesday	February 23	Final date for adding courses for credit with \$10.00 fee.
Tuesday	March 1	Final date for registered students to file "Application for Financial Assistance" for 1966-67.
Friday	April 1	Final date for dropping courses with \$10.00 fee. Spring Recess begins after last class. Final date for June Ph.D. candidates to submit final drafts of dissertations to department chairmen. Final date for all June degree candidates to file "Application for Degree" with Graduate School Office.
Wednesday	April 13	Classes resume.
Friday	April 15	Final date for faculty certification that M.A. and M.F.A. candidates have completed language requirements.
Monday	May 16	Final date for faculty certification that June Ph.D. candidates have satisfactorily completed and defended dissertations. Final date for faculty certification of Master's theses. Final date for certification that June M.A. candidates have passed qualifying examinations.
Friday	May 20 through	Final examinations.
Friday	June 3	
Wednesday	May 25 and	No University Exercises.
Thursday	May 26	
Monday	May 30	No University Exercises.
Monday	June 6	
		Grades due for June degree candidates. Final date for deposit of Ph.D. dissertations with the Dean of the Graduate School. Final date for reporting incomplete grades for Fall Term 1965-66. Final date for June degree candidates to discharge all financial indebtedness to the University.
Friday	June 10	Grades due for all Spring Term and full year courses. Final date for admission to candidacy for the Ph.D. and completion of residence and language requirements for students expecting to have the Ph.D. degree conferred in February 1967.
Saturday	June 11	Baccalaureate.
Sunday	June 12	Commencement.



# Brandeis University



Brandeis University has set itself to develop the whole man, the sensitive, cultured, open-minded citizen who grounds his thinking in facts, who is intellectually and spiritually aware, who believes that life is significant, and who is concerned about society and the role he will play in it.

The University will not give priority to the molding of vocational skills, nor to developing specialized interests at the expense of a solid general background. This does not mean that what is termed practical or useful is to be ignored; Brandeis merely seeks to avoid specialization unrelated to our basic heritage—its humanities, its social sciences, its sciences and its creative arts. For otherwise, fragmented men, with the compartmentalized point of view that has been the bane of contemporary life, are created.

A realistic educational system must offer adequate opportunity for personal fulfillment. Education at Brandeis encourages this drive for personal fulfillment, but only within the framework of social responsibility. Thus Brandeis seeks to educate men and women who will be practical enough to cope with the problems of a technological civilization, yet mellowed by the values of a long historical heritage; self-sufficient to the point of intellectual independence, yet fully prepared to assume the responsibilities society imposes.

Brandeis University came into being because of the desire of American Jewry to make a corporate contribution to higher education in the tradition of the great American secular universities that have stemmed from denominational generosity. By choosing its faculty on the basis of capacity and creativity, and its students according to the criteria of academic merit and promise, the University hopes to create an environment which may cause the pursuit of learning to issue in wisdom.



*The Famed Three Chapels*

This initial and unwavering commitment to excellence has earned early acceptance for the University within academic circles. Full accreditation came to Brandeis at the earliest possible moment. In 1961, Phi Beta Kappa granted permission for a chapter (Mu of Massachusetts) to be formed on its campus. Most recently the Ford Foundation assessed the record and potential of the University and buttressed their belief in its future with two major challenge grants to Brandeis, an accolade accorded to only five universities in the nation.

## University Organization

Brandeis is one of the few small universities in the United States. The academic programs, described below, are each limited in size to encourage quality and integrity of intellectual achievement. There is constant interaction between college, graduate and professional schools, and institutes. The accomplishments of one set automatic pace for the others, and the interchange benefits all, creating an intellectual environment of decided vitality. Additionally, the organic richness of the extensive research activity fertilizes the undergraduate root of the institution no less than the graduate and professional programs.

### The College of Arts and Sciences

In keeping with its general objectives, Brandeis attaches the greatest of importance to the liberal arts curriculum. It is designed to offer full academic opportunities for those students planning to pursue graduate or professional studies as well as those whose educational objective is the baccalaureate degree.

The College of Arts and Sciences offers instruction in the Schools of Creative Arts, Humanities, Social Science and Science. Regularly matriculated students pursuing courses of instruction under the Faculty of Arts and Sciences may, upon satisfactory completion of the first year, continue as candidates for the Bachelor of Arts degree.

Established in 1948, full accreditation was received by Brandeis' College of Arts and Sciences from the New England Association of Colleges and Secondary Schools in 1953.

(Full information is available in the catalog of the College of Arts and Sciences).

### The Graduate School of Arts and Sciences

The Graduate School is designed to educate broadly as it trains professionally. It is sensitive to the fact that as specialization increases within society, the traditional boundaries between the Ph.D. and advanced professional degrees are gradually losing their distinctions. It seeks to achieve a spirit of informality, without sacrificing work disciplines.

The Graduate School of Arts and Sciences offers courses of study leading to the master's and doctor's degrees. Graduate areas include Anthropology, Astro-Physics, Biochemistry, Biology, Biophysics, Chemistry, Contemporary Jewish Studies, English and American Literature, History of American Civilization, History of Ideas, Mathematics, Mediterranean Studies, Music, Near Eastern and Judaic Studies, Philosophy, Physics, Psychology and Sociology. Theatre Arts and Politics will be added as graduate areas in the academic year, 1966-67.

### The Florence Heller Graduate School for Advanced Studies in Social Welfare

The Florence Heller Graduate School for Advanced Studies in Social Welfare, made possible through the generous grant of Mrs. Florence Heller of Chicago, was established at Brandeis University in 1959. Applicants are required to have earned the degree of Master of Social Work at an accredited school and, preferably, to have had experience on a professional level. The program of study leads to the doctorate and is designed to qualify graduates for administrative and consultative roles in established areas of social work, as well as newly emergent areas such as international social work, inter-group organization, labor, industry and government. Emphasis is placed upon community organization, social work administration, and research, making full use of the social sciences.

(Full information is available in the catalog of the Heller Graduate School).

## Related Academic Programs

### *Wien International Scholarship and Fellowship Program*

The Wien International Scholarship Program, created in 1958 by the Lawrence A. and Mae Wien Fund, is designed to further international understanding, to provide foreign students with opportunities for study in the United States, and to enrich the intellectual and cultural life of the Brandeis campus.

The Program permits the University to offer scholarships and fellowships covering tuition, room, board and, in rare instances, travel costs, to students from foreign nations. Awards, made for the academic year, may be renewed for a subsequent year. All applicants must possess a thorough knowledge of the English language.

All Wien Scholars study within the regularly organized curriculum, which is supplemented by special seminars, conferences and field trips, planned to provide a broad understanding of many facets of American society.

The Wien Program endorses the participation of accepted students in accredited summer orientation programs, especially in the Boston Area International Seminar, a cooperative effort by Boston College, Brandeis, Boston University, Harvard University, and Massachusetts Institute of Technology. Wien Scholars are also encouraged to participate in the Homestay Program of the Experiment in International Living and in similar authorized programs designed to make the foreign student at home in his new environment.

In 1963 the Wien Program was expanded to include graduate students. A limited number of Wien Fellowships are available to highly qualified advanced degree candidates. Inquiries should be addressed to the Dean of the Graduate School or to the Director of the Wien Program, stating specifically interest in a particular field of graduate study.

### *Jacob Hiatt Institute in Israel*

The University conducts, with the co-operation and support of the United States Department of State, an annual semester Institute in Israel. Open to college and university juniors and selected seniors who have completed introductory courses in political science, sociology, or social psychology, the Institute offers instruction in modern Jewish and Israel history; Israel political and social institutions and the Hebrew language.

The Institute, which is located in Jerusalem and directed by Brandeis faculty, is unique in that it emphasizes first-hand investigation. Formal classroom work is supplemented by seminars with persons prominent in Israel's political and economic life, and fieldwork is conducted at on-the-spot locations such as factories, seaports, labor councils, agricultural settle-

ments, Arab and Christian communities, army training centers and mineralogical exploration points in the Negev Desert.

Enrollment in the Hiatt Institute is also open to a limited number of qualified students from other colleges and universities.

#### *The Sarah and Gersh Lemberg Nursery School*

The Lemberg Laboratory-Nursery School was established, as a unit of the Psychology department, in the fall of 1961 through the generosity of Samuel and Lucille Lemberg. Both indoor and outdoor facilities and equipment accommodate some 30 youngsters. Brandeis students enrolled in the education sequence, and students from Tufts University and Wheelock College, serve as practice teachers.

#### *Rubin Anthropology Program*

A grant from the Samuel Rubin Foundation led to an intensive and diversified program of training and field work in foreign lands, and also provided for an undergraduate program which included summer field work training for honors candidates and a fully subsidized scholarship program.

#### *Rosenstiel Biochemistry Program*

The graduate and research program in biochemistry is supported by a grant from the Dorothy H. and Lewis Rosenstiel Foundation made "in support of research in the natural sciences with primary emphasis in biochemistry."

The Rosenstiel Biochemistry Program, established in 1957, includes more than 70 graduate and postgraduate research fellows. Among the agencies co-operating in sponsoring research are the National Science Foun-

*A classroom session in the nursery school*



dation, National Institutes of Health, Office of Naval Research, American Cancer Society, Atomic Energy Commission, the Eli Lilly Company, Howard Hughes Foundation, Rockefeller Foundation, National Dental Institute, and the Damon Runyon Memorial Fund.

### Professorships and Lectureships

#### *Jacob Ziskind Professorships*

To implement its philosophy of education, the University brings to the campus distinguished academic figures from sister universities both in the United States and abroad who serve as Ziskind Visiting Professors. This program, made possible by the Jacob Ziskind Endowment Fund, enables the University to supplement its regular teaching staff with the presence of academicians drawn from other major streams of educational thought. Inclusion of distinguished foreign academicians serves to challenge and stimulate faculty and students with the introduction of new concepts and new educational viewpoints, thus strengthening the entire educational process.

#### *Harry B. Helmsley Lecture Series*

Established to reduce barriers that separate different races, creeds and nationalities, this annual public lecture series has, since its inauguration, featured leading philosophers, educators, government officials and religious leaders in discussions and seminars that relate to intergroup understanding.

#### *The Martin Weiner Distinguished Lectureships*

The income from this endowment fund permits the designation of several Weiner Distinguished Lecturers each year. Lecturers receiving these appointments are selected not only from the academic world, but also include figures drawn from the fields of religion, government, international affairs, letters, science, and the business world. The Weiner Distinguished Lecturers enrich the University's curriculum by participating in regular academic seminars and symposia and, in addition, University convocations and public events.

#### *Stephen S. Wise Memorial Lecture*

This annual lecture was established by the late Nathan Straus to bring to the University each year a distinguished representative of the liberalism that was basic to the outlook of Dr. Wise.

#### *Abba Eban Lectureship*

Also through the generosity of Nathan Straus this endowment permits an annual lecture by a statesman or scholar on some phase of Middle Eastern affairs.





*Art Exhibit in Slosberg Music Center*

### *Ludwig Lewisohn Memorial Lectures*

Sponsored by the students of the University in tribute to their late teacher, this annual series presents noted literary figures drawn from the fields of criticism and creative writing.

### *George and Charlotte Fine Endowment Fund*

Created to supplement chamber music programs given under the auspices and direction of the Department of Music, the Fine Endowment Fund makes possible the engaging of visiting artists to perform with members of the Brandeis faculty.

### **Special Academic Programs**

#### *Poses Institute of Fine Arts*

Established by Jack I. and Lillian Poses, to supplement the University's curriculum program in the Fine Arts, by:

1) Exhibiting paintings, sculpture, artifacts and other expressions of contemporary and traditional art in the University's museum and many gallery



*"In honoring, we are honored."*

halls; 2) Sponsoring lecture series and symposia with notable art historians, critics and practitioners of the Fine Arts, for the widest possible benefit of the community; 3) Establishing annual institutes, organized around basic issues in the arts and contemporary life; 4) Providing funds for commissions and grants-in-aid for young artists of talent who have completed the formal years of their education and are seeking to establish themselves as practicing artists.

*Philip W. Lown Institute of Contemporary Jewish Studies*

A grant from Philip W. Lown has established a center for training men and women who are concerned with contemporary Jewish scholarship or with a career in institutional Jewish service. The Institute cooperates with the regular departments of the University and with the Florence Heller Graduate School for Advanced Studies in Social Welfare. It is administered by a director and an interdisciplinary faculty committee. A limited number of fellowships are available to help subsidize these studies.

An additional grant has established a research center as an adjunct to the Lown Institute. It will examine the problems of contemporary Jewish life and intensify the Institute's lecture series. Initial effort for the research center is a program, beginning in September, 1965, to explore the status of Soviet Jewry.

### *The Morse Communication Research Center*

The Communication Research Center of the University is engaged in a program of sponsored research studies, institutes and publications which explore and evaluate many aspects of communications in our society. Essential to these ongoing programs is the simultaneous development of basic resource material. This involves the study of the impact of communications upon many aspects of contemporary life—social structures, political organizations, international relations, education and the formation of individual and group attitudes.

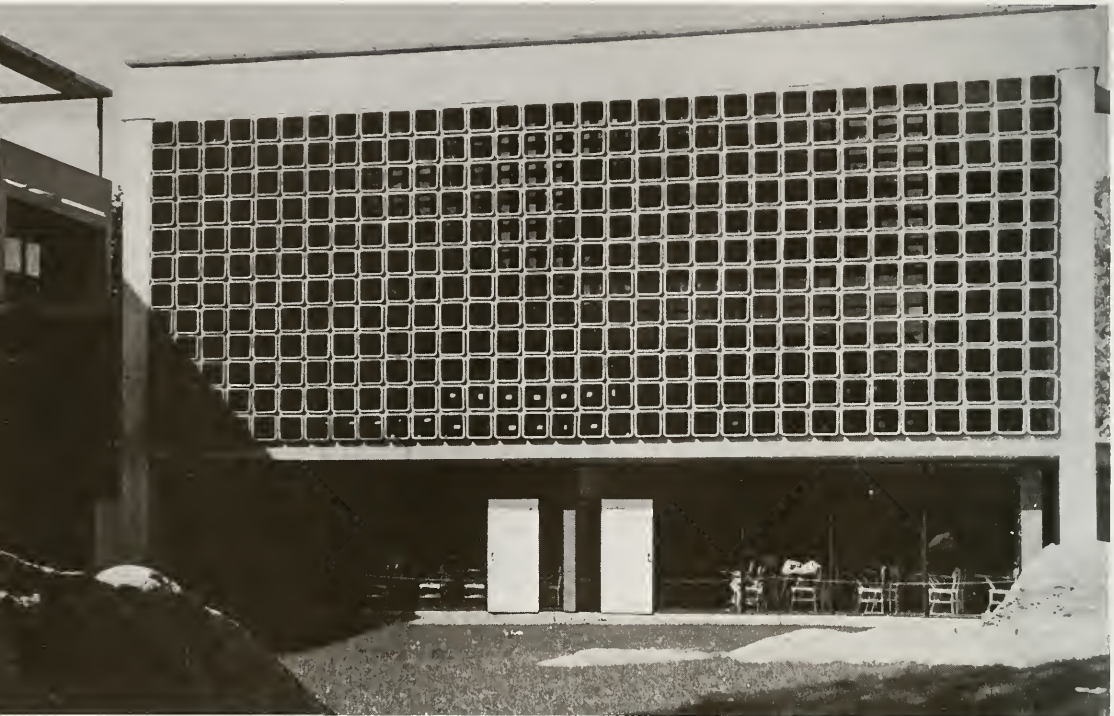
Among the programs undertaken have been annual quantitative studies of the programming content of educational television stations in the United States; a multi-national mass communication study program for representatives of newly emerging nations in cooperation with the United States Department of State; and a national conference on the role and economics of educational television in cooperation with the American Academy of Arts and Sciences, with the support of the United States Department of Health, Education and Welfare.

The Center is primarily underwritten by a major grant from Lester S. and Alfred L. Morse of Boston.

### *Peace Corps Training Program*

Under contracts with the United States Peace Corps, Brandeis University has served for several years as a training center for Peace Corps volunteers. Training on the Brandeis campus has included preparation for work in areas of public health, community development, university education and secondary schools.





*Schwartz Hall*

## Community Services

### *Lowell Institute Cooperative Broadcasting Council*

Brandeis University is a member of the Lowell Institute Cooperative Broadcasting Council, which sponsors the educational radio station WGBH-FM and Boston's educational TV station WGBH-TV, Channel 2. Brandeis, along with Boston College, the Boston Symphony Orchestra, Boston University, Harvard University, Lowell Institute, MIT, the Museum of Fine Arts, the New England Conservatory of Music, Northeastern University, and Tufts University, makes its teaching facilities available for use by WGBH-FM and its television affiliate, WGBH-TV. One of the significant programs of the University's educational broadcasting was "The Prospects of Mankind," organized by the late Mrs. Eleanor Roosevelt, which appeared on both educational and commercial TV stations, in the United States and abroad. This program was sponsored by the National Educational Television Center, and was produced by WGBH-TV, in cooperation with Brandeis University.

### *Brandeis University Creative Arts Awards*

The establishment of the Brandeis University Creative Arts Awards was announced by the University during 1956. Awards are presented annually in the areas of Theatre Arts, Music, Poetry or Fiction and Painting or Sculpture. In each of these fields of the arts, two types of awards are bestowed. Achievement medals are conferred upon successful artists for outstanding accomplishments during the year; and grants-in-aid are awarded to young talented persons, in recognition of their creative ability and encouragement for future study and training. Special juries are appointed annually in each of the fields to judge the competition.

### *Office of Adult Education*

To provide adults with the opportunity to pursue courses of instruction in areas of particular interest to them, the Office of Adult Education sponsors daytime seminars, and evening and Sunday-morning lecture courses, all directed by members of the Brandeis faculty, and all consistent with the quality of Brandeis academic offerings. In addition, the office plans and presents a variety of special public lecture programs throughout the academic year.

### *Summer Institutes for Adults*

The Summer Institutes for Adults seek to broaden the University's academic scope by offering a unique residence program to adults from all sections of the country. Participants may spend either one or two weeks of intensive, uninterrupted study, directed by Brandeis faculty members and supplemented by guest lecturers, on topics broadly concerned with the problems and trends of contemporary civilization.

### *Themis House*

Through the generosity of Mr. and Mrs. Boice Gross of San Francisco, Brandeis has acquired the use of a large estate—within a few minutes drive of the campus—consisting of nine acres of land and an attractive English Tudor mansion where it is possible to house, feed and accommodate 30-40 persons. "Themis House" is the setting for significant academic institutes, conferences and training programs sponsored by the University. In exceptional instances, it is made available to cooperating educational or civic agencies.

### *The Computer Center*

Established under an initial grant from the National Science Foundation, the University's computer center employs an IBM 1620 machine in work supporting research in the social and life sciences. Plans are presently underway for substantial expansion of equipment and facilities.

## General Description

Brandeis University, on the southwest outskirts of Waltham, Massachusetts, is ten miles west of Boston, adjacent to Wellesley and near historic Lexington and Concord.

From the eastern Charles River boundary, University grounds sweep upward to New England's famed Boston Rock, where Governor Winthrop and his Massachusetts Colony explorers first surveyed the region that is today Greater Boston.

By automobile, the campus may be reached as follows: *From the south and west* take Exit 14 of the Massachusetts Turnpike and follow signs to Route 128 North, then Exit 51, left turn at end of exit ramp and follow signs to Brandeis. *From the north:* Route 128 south to Exit 51, then follow signs. *From Boston:* Massachusetts Turnpike Extension to Exit 15, follow signs towards Route 30 and Weston, right turn at Route 30, left turn at traffic light; or, follow Commonwealth Avenue (Route 30), until the intersection just west of the Route 128 overpass; follow signs to Brandeis.

By public transportation: The campus is adjacent to the Roberts Station of the Boston and Maine Railroad (West Concord Line), from which trains run on a frequent schedule to and from downtown Boston (North Station) and Cambridge. Rapid Transit facilities terminate at the Riverside Station of the Massachusetts Bay Transportation Authority (MBTA), 3 miles from campus. Public bus and taxi service operate between Riverside and Brandeis.





*Center for the University's Administrative Offices*

Long distance bus travellers will find that it is much easier to alight at Riverside rather than Park Square, Boston. All Trailways and Greyhound through and express buses stop there. Train travellers from the South should de-train at Boston, but train travellers from the west should get off at Newtonville, a 20-minute ride from campus on the Roberts bus. From Logan Airport, the easiest route is by taxi to North Station and from there to the Roberts stop (check train schedule first). Rapid Transit is also available from Logan to North Station.

## Academic and Administrative Buildings

### Abelson Physics Building

Completed in 1965, the Abelson Physics Building houses teaching and research laboratories of the Physics Department. It also includes a major physics lecture and demonstration hall.

### Administration Center

Overlooking the main entrance to the campus, the Brandeis University Administration Center houses the offices of the president, deans, student administration, university administration and the National Women's Committee. Conference room facilities serve the Board of Trustees, faculty and administrative staff. The Center comprises Bernstein-Marcus Administration Center, Gryzmish Academic Center and the Julius and Matilda Irving Presidential Enclave.

### Bass Physics Building

A unit of the newly completed Science Quadrangle, the Bass Physics Building includes research facilities for the Physics Department as well as departmental offices.

### Bassine Biology Center

The newly opened Bassine Biology Center houses all of the research activities of the Biology Department. It includes environmental growth chambers and greenhouses in addition to laboratories, laboratory support areas, preparation rooms, and seminar facilities for the use of Biology faculty and research personnel.

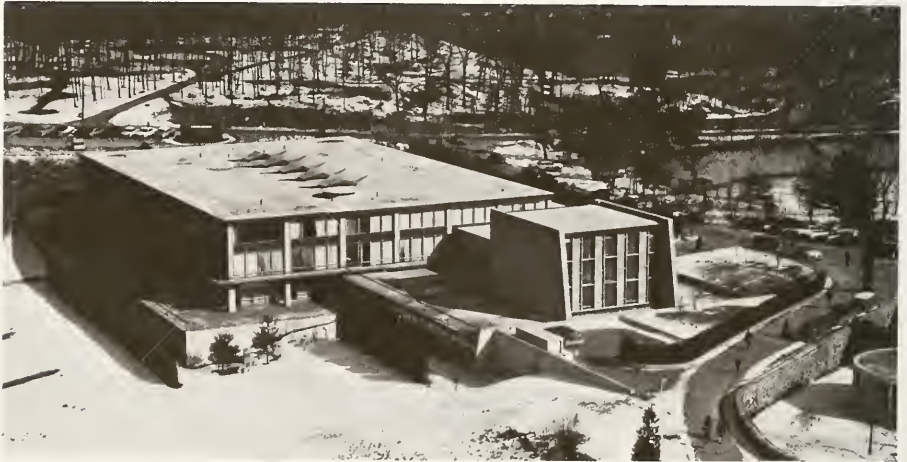
### Brown Social Science Center

Adjacent to the library, the Brown Social Science Center includes three structures.

The central building houses the Sociology, Anthropology, Psychology and Economics Departments. It contains classrooms, seminar rooms, faculty offices, laboratories and a small anthropology museum. Glass walls overlook an attractively landscaped quadrangle which the Social Science Center encloses.

Schwartz Hall houses a 300-seat lecture auditorium, classrooms and a spacious lounge. Millions of viewers across the nation have watched television programs recorded in the main auditorium, specially equipped for use as a television studio. The lounge contains a permanent exhibit of Oceanic Art and Ethnographic objects donated to the University by Mrs. Helen S. Slosberg.

### *The Faculty Center*







*The Goldfarb Library*

Lemberg Hall is the home of the Lemberg Laboratory-Nursery School, operated by the Department of Psychology. Classrooms with specially constructed walls of one-way glass enable students to observe youngsters in the nursery school and to record their development from the observation room. Lemberg Hall also houses the Psychological Counseling Center.

#### **Brown Terrarium**

Brown Terrarium, a completely equipped experimental greenhouse, located between the Faculty Center and Sydean Hall, provides facilities for botanical research.

#### **Harry Edison Chemistry Building**

A new center for research in Chemistry, completed in 1965, the Harry Edison Chemistry Building includes laboratories and research offices for faculty, postdoctoral research fellows and other research personnel of the Chemistry Department.



*Goldman-Schwartz Fine Arts Center*

### Faculty Center

On the south campus is the Faculty Center, containing club facilities, lounges, the faculty dining room, a private dining room for faculty meetings, and apartments for visiting faculty and lecturers.

### Ford Hall

Near the central campus, Ford Hall contains classrooms, laboratories, faculty offices and Seifer Hall, an auditorium seating 500, which is used for lectures, large student meetings, and major conferences.

### Friedland Research Center

Joined to Kalman Science Center by an overhead corridor of glass and stainless steel, Friedland Research Center provides four stories of modern laboratories which house research in biochemistry and related life sciences.

### Gerstenzang Library of Science

The central structure of the newly completed Science Quadrangle is the Gerstenzang Library of Science. This building includes a science library and lecture-demonstration auditoria. The library contains stacks for 250,000 volumes, along with facilities for preparation and use of microfilms, a periodical room and journal reading area, office and other library administration facilities. The lecture-demonstration halls are constructed as amphitheatres, one seating 300 and the other 100. This unit is connected to all other buildings in the University's Science Complex.

### Goldfarb Library Building

Near the center of the campus, Goldfarb Library Building is a brick, limestone and glass structure with an ultimate capacity of 750,000 volumes. On the periphery of its open stacks are student study carrels and faculty studies. Seminar rooms are provided for those courses requiring intimate and immediate access to library resources in specific research and reference areas. The library also contains audio-visual aids, specialized reading rooms, typing rooms and lounge facilities. Works of art from the University collection are on constant display in the many galleries of the building.

### Golding Judaic Center

Overlooking the campus from the northeast corner of the Academic Quadrangle, Golding Judaic Center contains classrooms devoted to the study of the Near East, Judaics and related subjects. Classrooms and faculty offices ring its large, central lecture hall.

### Goldman-Schwartz Art Studios

The Goldman-Schwartz Art Studios provide classrooms, faculty offices and sculpture areas for the Department of Fine Arts and studios for faculty, advanced students and artists-in-residence. Its completion marks a major step in fulfilling the master plan for a unified creative arts enclave extending across the southwest campus.

### Goldsmith Mathematics Center

Completed in 1965 as a unit of the newly erected Science Quadrangle, the Goldsmith Mathematics Center provides classrooms, seminar rooms, research offices, faculty offices and a mathematics library for the use of the Mathematics Department.

*A Lecture in Rose Art Museum*



### Hayden Science Court

The Charles and J. Willard Hayden Court, comprising several acres in the central campus area, is the site of present and projected science facilities of the University. This area has been set aside as a memorial to two generous benefactors, whose pioneer gift stimulated the extensive scientific programs of the University.

### Kalman Science Center

The University's first structure devoted entirely to science, Kalman Science Center continues to be the key facility in the growth of the University's science facilities. This center contains instructional and research laboratories for the undergraduate School of Science and for the advanced work of the Graduate School of Arts and Sciences.

### Kosow Biochemistry Building

A unit of the new Biochemistry Research Center located to the east of the existing Friedland Research Center and joined to the building on all floors, this building provides additional modern laboratories where research in Biochemistry and related life sciences is conducted.

### Lecks Chemistry Building

Adjoining the existing Kalman Science Center, the Lecks Chemistry Building provides new modern laboratories and research spaces for the expanding chemistry research program of the University.

### *Shiffman Humanities Center*



### **Olin-Sang American Civilization Center**

On a hillside overlooking the library and Three Chapels Area, the Olin-Sang American Civilization Center provides unique seminar-classroom halls which include display areas for the placement of original manuscripts and source materials relating to the courses offered. Included are the Diplomatic Studies, Human Rights, Lincoln, Presidential, Washington, Judicial, Legislative, Ethnic Studies and Slater Halls. The Shapiro Forum, which is the building's lecture auditorium, is patterned after the United Nations General Assembly hall.

### **Rabb Graduate Center**

A circular lounge, walled in glass, is a unique architectural feature of Rabb Graduate Center. Its main building contains classrooms and offices for the staff of the Graduate School of Arts and Sciences.

### **Rapaporte Treasure Hall**

Adjacent to Goldfarb Library Building, and joined to it by a glass-enclosed lobby, Rapaporte Treasure Hall is the repository for rare books, incunabula and other library treasures. The upper level serves as the main exhibition area and the lower level stores the University's growing collection and includes a specially constructed vault with provision for the protection of these rare items against the ravages of time, temperature, humidity, fire or theft.

### **Rose Art Museum**

Located within the Creative Arts enclave, the Rose Art Museum is the focal point for the University's rapidly burgeoning art collection. On permanent display are portions of the noted ceramic collection of Mr. and Mrs. Edward Rose. Major loan exhibitions are placed on display during the academic year as well as selections from the University's permanent collection. The wishing pool on the lower level is both a pleasant setting for quiet reverie and the objective of coin-tossing students before examinations.

### **Segal Physics Building**

A unit of the newly completed science research center, the Segal Physics Building includes research offices for theoretical physicists, laboratories for research in physics, and newly developed research areas for investigations in high energy physics.

### Shiffman Humanities Center

Atop a hillside where its glass walls reveal spectacular views of the campus and the country north of Boston, Shiffman Humanities Center employs a new academic concept in educational architecture. Original manuscripts, portraits, and source materials related to courses being offered are displayed in the seminar rooms. The latest in electronic language teaching facilities are employed in the building's language laboratory. Included are the Language and Phonetics, English and American Literature, Classics, Philosophy, Renaissance, Germanic and Asian Studies Halls.

### Slosberg Music Center

Recently completed construction doubles the office, classroom and practice room space in Slosberg Music Center at the entrance to campus. It has its own library and a recital hall which seats 250 with carefully designed acoustical treatment. Slosberg Recital Hall is the location for the University's rich program of chamber music concerts and solo performances.

### Spingold Theatre Arts Center

The Spingold Theatre Arts Center is a unique and imaginative concept translated into exciting design. With a theatre auditorium as its hub, the circular Center includes areas for every facet of the teaching and performing arts; workshops, design rooms, costume preparation and storage areas, rehearsal and dressing rooms, a little theatre and a dance studio. Spacious areas are equipped as classrooms and offices, and the great lobby has been envisioned for displays of painting, sculpture and other treasures. The Center's location on the southwest campus places it at the hub of Brandeis' creative arts teaching facilities.

### Sydeman Hall

This annex to Ford Hall houses laboratories, classrooms and faculty offices.

### Ullman Amphitheatre

Utilizing a natural bowl below the grape arbor and science buildings, the Amphitheatre has a complete stage with full lighting equipment and orchestra pit, classrooms and faculty offices. It is the colorful setting for University convocations and commencements.

### Wolfson-Rosensweig Biochemistry Building

A unit of the new Biochemistry Research Center located to the east of the existing Friedland Research Center and joined to that building on all floors, this building provides additional modern laboratories where research in Biochemistry and related life sciences is conducted.

*Sherman  
Student Center*



### Woodruff Hall

Situated in the center of the campus, this white brick building temporarily houses the Florence Heller Graduate School for Advanced Studies in Social Welfare.

## Athletic Facilities

### Memphis Tract

A twenty-six acre area on the east edge of the campus, Memphis Tract contains the Shapiro Athletic Center, Marcus Field, Gordon Field and Rieger Tennis Courts.

### Gordon Field

One of the nation's most modern tracks rings Gordon Field where the University's track and field squad plays host to teams from throughout the east. The central area provides playing fields for the University's intramural football teams and specialized accommodations for intercollegiate field events.

### Marcus Playing Field

Brandeis' international student body has won respect for its soccer prowess on Marcus Playing Field, which also contains the varsity and practice baseball diamonds and a softball diamond.

### Shapiro Athletic Center

Throughout the school year the main gymnasium operates day and night with varsity and intramural competition as well as physical education activities. The gymnasium is also used for public lectures, student dances, and major conferences. In addition, classrooms, offices for the physical education faculty, team, and physiotherapy rooms and dressing rooms are included in Shapiro Athletic Center.

### Rieger Tennis Courts

The Rieger Tennis Courts are the scene of informal as well as intramural and intercollegiate tennis competition. They are located to the rear of the Shapiro Athletic Center.

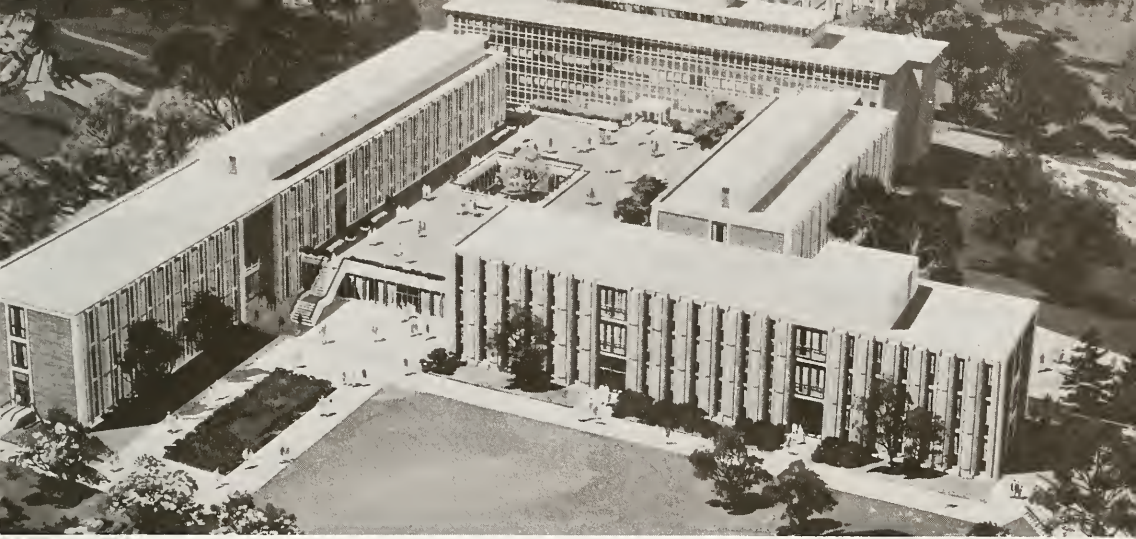
### Residence Halls

Campus living accommodations consist predominantly of double rooms, some single rooms and larger quarters. Each residence hall has its own lounge or lounges. Modern laundry and other conveniences are available to all students. Each resident student should bring blankets, lamps and such rugs and decorations as are desired. Arrangements for linen and towel service may be made through the University.

*East Quadrangle Residence Halls*







*Gerstenzang Quadrangle . . . opens September, 1965*

### East Quadrangle

The most recently completed residence halls on campus are those in the East Quadrangle. These include Hassenfeld House, Rubenstein Hall, Pomerantz Hall, Krivoff House and Shapiro Brothers Hall. A large central lounge serves all of these buildings, and the entire area is complemented by the Benjamin and Mae Swig Student Center which includes a dining hall and lounge facilities.

### Leon Court

Leon Court, a residence area, has four dormitories and a large student center-dining hall grouped around an attractive, wooded quadrangle. Each dormitory unit contains fully equipped student rooms, a lounge and large recreation room. Dormitories in this quadrangle have been designated the Scheffres, Gordon, Cable and Reitman Halls. The student dining hall is Milton and Hattie Kutz Hall.

### Massell Quadrangle

Consisting of Shapiro, DeRoy, Renfield and Usen Residence Halls, and the Sherman Student Center, this is a major housing and recreational area. Each unit has functionally equipped rooms with maximum living and closet space. Ground floor lounges overlook the central quadrangle and the walks encircling Anne J. Kane Reflecting Pool.

### Ridgewood Quadrangle

Emerman, Fruchtman, Danciger, Allen and Rosen Residence Halls comprise the University's living areas for students on the south campus. Each hall has two lounges opening on the quadrangle.

### The Castle

An imposing structure designed after medieval architecture and completed a decade before Brandeis was founded, the Castle has been remodelled into single, double, and larger rooms for women. Its ground floor houses the University Snack Bar and the student-operated coffee shop, *Cholmondeley's*.

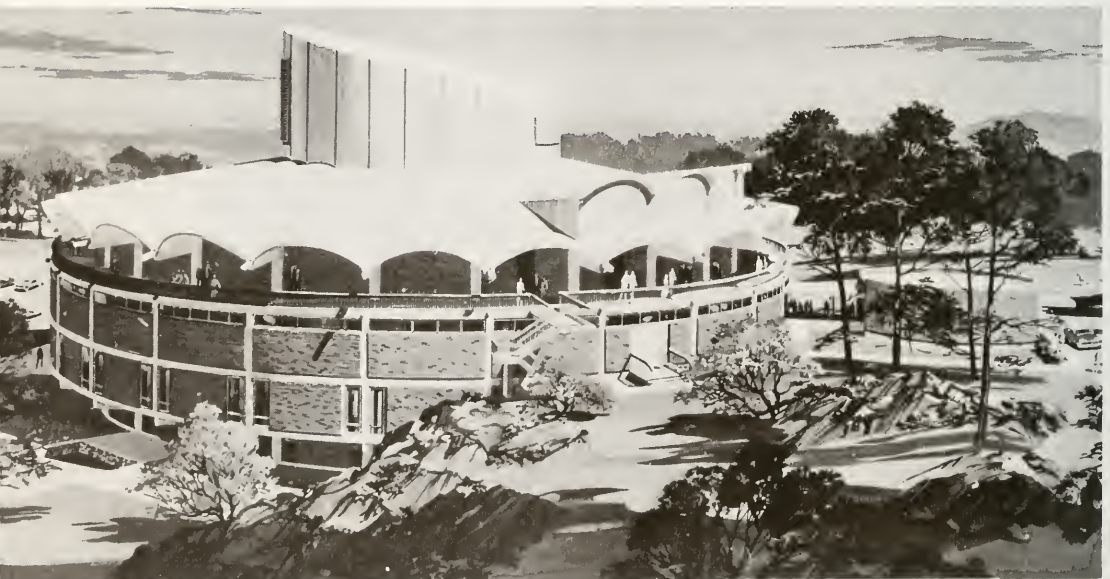
### Schwartz Residence Hall

This companion structure to the Castle houses women. Its lounge, a retreat for reading, relaxation and entertainment, is furnished in contemporary style.

### Sherman Student Center

The glass walls of Sherman Student Center rise from the ground level to roof, overlooking Massell Quadrangle and the Kane Reflecting Pool. Its ground floor dining hall serves several hundred students daily and is frequently utilized as a banquet hall for major University functions. Along the upper level are located a large lounge, game room and two smaller dining rooms. Bulletin boards of these rooms serve as the major communications center for student activities and the walls frequently are hung with special art exhibits. Dances, parties and meetings often occupy the entire building on busy evenings.

*Spingold Theatre . . . opens September, 1965*



### Themis House

Special seminars, conferences and symposia are housed at Themis House, located in Weston, Mass., a few minutes from the campus. Thirty to forty participants may be accommodated for food and lodging at this University conference site, made available by Mr. and Mrs. Boice Gross.

### Feldberg Lounge

Spacious and comfortable, this glass and brick walled lounge is used for informal discussions, lectures, songfests and conferences and is a favorite meeting place between classes. Works of art by student and professional artists are on constant exhibit.

### Kutz Hall

A towering ceiling, attractive furnishings, a site overlooking Greater Boston, make Kutz Hall a versatile and popular student dining hall. Banquets seating 500 are held on its main floor. An outdoor terrace and commodious balcony provide unusual settings for receptions and student social activities. Folding walls under the balcony permit creation of private rooms for dinner meetings of student or faculty groups. The towering north wall of Kutz Hall mirrors the rest of Leon Court in its more than 8000 square feet of glass.

### Swig Student Center

The attractively furnished Swig Student Center, in the East Quadrangle, provides dining facilities for 330 students as well as lounge and terrace for student receptions and social activities. It also includes a private dining room for dinner meetings of student groups. The Swig Student Center is connected to the dormitories of the East Quadrangle by an overhead walk.

### Mailman Hall

This striking glass, brick and granite structure provides spacious lounges, modern recreational rooms and facilities for the display of painting and sculpture. A recently completed addition to this building includes student publication offices, the campus radio station, offices and meeting rooms for the Student Council and other student organizations. Designs are now being completed for transforming a substantial portion of this building into studios and demonstration classrooms for the University's newly established Learning Resources Program.

### Usen Commons

Greater Boston spreads out in a panoramic view from the windows of Usen Commons, a circular, conservatory style lounge on the second level of the Castle. Since the earliest days of the University, this lounge has been familiar to Brandeis students as ideal for small dances and social functions.

### Dining Halls

University dining halls are located in Kutz Hall, Swig Student Center and Sherman Student Center. A separate kitchen is maintained in Sherman Student Center for those wishing special dietary meals. In addition, light refreshments are provided in the Castle Snack Bar and *Cholmondeley's*.

### Stoneman Infirmary

On the forward slope of the campus, near the Castle, the Infirmary houses a first aid treatment room, lounge, out-patient clinic, four consulting suites, and rooms for twenty-four bed patients. A new wing increased patient capacity by fifty percent.

### The Three Chapels

Assuming that worship is a matter of mood and spiritual climate, not limited to words or ceremonies, the University's Harlan, Berlin and Bethlehem Chapels serve the Protestant, Jewish and Catholic faiths. A centrally located pulpit serves a large outdoor area where shared functions such as Baccalaureate are celebrated. Student organizations responsible for services are the B'nai B'rith Hillel Foundation, Newman Club and Student Christian Association. Each has its own chaplain.

### Campus Landscape Architecture

Under a special grant from David and Irene Schwartz, funds have been provided for a systematic landscaping of the campus to achieve a harmony between the terrain's natural beauty and the building architecture as conceived and executed by some of the nation's noted architectural figures.

### Facilities Under Construction

#### Heller School Facilities

A new structure, the Florence Heller Building, currently under construction, will house the administrative, faculty and teaching activities of the Florence Heller Graduate School for Advanced Studies in Social Welfare.

A major research center, the Ben Brown Building, also under construction, will provide research offices and work rooms for the multifaceted research programs being conducted by the Heller School.

### Projected Facilities

#### Linsey Sports Center

Planned for construction during 1965-66, The Joseph Linsey Sports Center will include an Olympic size swimming pool, squash courts, fencing strips

and other athletic teaching facilities. Connected to the Athletic Center, the Sports Center will provide facilities for substantial enhancement of the University's physical education and intercollegiate athletic programs.

### Student Union

Now being designed is a Student Union Complex which will consolidate student social and recreational facilities in a central location in mid-campus within easy distance of major teaching facilities and residence halls. The Student Union Complex will consist of a main structure housing such facilities as an assembly and banquet hall, the University Bookstore, Mailroom, bowling alleys, lounges and food service areas. Other components will house student organizations, student social and recreational areas, alumni offices and student service offices. The main building of the Student Union has been underwritten by Mr. and Mrs. Samuel Lemberg of New York in honor of their daughter and son-in-law, Mr. and Mrs. Nathaniel H. Usdan. Other units have been provided through generous grants from Mr. and Mrs. Joseph Gluck of New York City; Mr. Ben Tobin of Hollywood, Florida; Mrs. H. W. Winer of Brookline, Massachusetts, in memory of her late husband, Mr. Hy Winer; and the Wuliger Family of Medina, Ohio, in memory of their parents, Helen K. and Frank Wuliger.





# The Graduate School of Arts and Sciences



## General Information

### History and Organization

The Graduate School of Arts and Sciences was formally established in 1953 when the University Board of Trustees authorized graduate study in the Departments of Chemistry, Music, Psychology, and Near Eastern and Judaic Studies. The first Master of Arts degree was conferred in 1954; the first Master of Fine Arts degree, in 1954; and the first Doctor of Philosophy degree in 1957.

The general direction of the Graduate School is vested in a Graduate Council of the Faculty composed of the President and the Dean of Faculty, ex officio; the Dean of the Graduate School; and one representative, usually the chairman, of each of the several University departments and committees offering graduate instruction. The members of the Graduate Council are appointed by the President on the recommendation of the Dean of the Graduate School. The functions of the Graduate Council, exercised in consonance with University policy, are to determine requirements for admission; to provide programs of study and examinations; to establish and maintain requirements for graduate degrees; to approve candidacy for degrees; to make recommendations for degrees; to make recommendations for new areas of graduate study; to lay down such regulations as may be considered necessary or expedient for governing the Graduate School; and to exercise a general supervision over its affairs. The Dean of the Graduate School is the chairman of the Graduate Council and the chief executive officer of the Graduate School.

### Objectives

The underlying ideal of the Graduate School is to assemble a community of scholars, scientists and artists, in whose company the student-scholar can pursue studies and research as an apprentice. This objective is to be at-

tained by individualizing programs of study, restricting the number of students accepted, maintaining continual contact between students and faculty, and fostering the intellectual potential of each student.

Degrees will be granted on the evidence of intellectual growth and development, rather than solely on the basis of formal course credits. Fulfillment of the minimum requirements set forth below cannot, therefore, be regarded as the sole requisite for degrees.

## Areas of Graduate Study

During the academic year 1965-66, graduate programs will be offered in the following areas:

- |                                     |                                     |
|-------------------------------------|-------------------------------------|
| 1. Anthropology                     | 10. Mathematics                     |
| 2. Biochemistry                     | 11. Mediterranean Studies           |
| 3. Biology                          | 12. Music                           |
| 4. Biophysics                       | 13. Near Eastern and Judaic Studies |
| 5. Chemistry                        | 14. Philosophy                      |
| 6. Contemporary Jewish Studies      | 15. Physics and Astrophysics        |
| 7. English and American Literature  | 16. Psychology                      |
| 8. History of American Civilization | 17. Sociology                       |
| 9. History of Ideas                 |                                     |

Details of the programs and courses offered in these areas are given below. In succeeding years, the graduate program will be extended to cover other areas.

Graduate study in Social Welfare is offered by the Florence Heller Graduate School for Advanced Studies in Social Welfare. For information concerning this area of study, see the catalog of that school.

## Graduate School Office

The Graduate School office is located in the Rabb Graduate Center, room 104 and rooms 107 to 111. The office is open Monday through Friday from 9 A.M. to 5 P.M. All requests for information, catalogs and application forms should be addressed to the Dean of the Graduate School of Arts and Sciences, Brandeis University, Waltham, Massachusetts 02154.

## Housing

The University does not have on-campus housing for graduate students. The Off-Campus Housing Bureau, located in Gryzmish Academic Center, attempts to serve as a clearinghouse for rooms, apartments and houses available in Waltham and near-by Greater Boston communities.



## Dining Facilities

Graduate students may sign for the twenty-one meal contract or the fifteen-meal contract in either Kutz Hall or the Sherman Student Center Dining Hall. Arrangements must be made with the Steward's Office. A separate kitchen is maintained in the Sherman Student Center for those wishing kosher meals. Individual meals may be purchased at either dining hall. Light snacks are served at the Castle Snack Bar.

## Office of Career Planning

The Office of Career Planning assists undergraduates, seniors, graduate students and alumni with their graduate and career plans. Information on graduate and professional school fellowships and scholarships; graduate and professional catalogs; lists of on- and off-campus part-time employment; lists of summer employment, and individual listings of permanent positions including academic and research openings; civil service opportunities and work and travel opportunities abroad are on file for the use of all students and alumni.

The Office of Career Planning will assist any graduate student who seriously needs and desires part-time work. Students seeking part-time employment should register with this office. New students will not be assigned to part-time positions prior to arrival on campus. Students are cautioned against working more than eight to ten hours a week.

No graduate student who receives financial assistance from the University may accept part-time employment without the prior approval of the chairman of his department and the Dean of the Graduate School.

The on-campus part-time student rate of pay is from \$1.20 to \$1.70 an hour for graduate students depending upon skill, and upon the amount of time worked for a department. Students can expect to earn from \$200 to \$500 in the course of a year. Temporary jobs are often available on a day-to-day basis.

## The University Health Office

The Medical Director and his staff are responsible for the physical well-being of students, including the establishment and enforcement of infirmary regulations. Payment of the required medical fee entitles students to treatment available in the David Stoneman Infirmary and to participate in the Student Health Plan.

New students in the College as well as the Graduate Schools are responsible for submission of a health examination report and meeting all requirements of the Health Office. These include a certificate of inoculation against smallpox, evidence of tetanus immunization and, if possible,

complete immunization against poliomyelitis. Since students are not permitted to register until these requirements have been satisfied, it is strongly recommended that reports be submitted at least two months before registration. All new students must report for physical examinations at the beginning of each academic year. This is in addition to the pre-entrance physical examination by the student's family physician or physician of his choice.

The health insurance program helps defray expenses for a period of one year, commencing September 1, 1965, for treatment beyond the scope of the Health Office. A brochure outlining the details of this program is distributed to each student at registration and copies are mailed to parents. Students and parents are urgently requested to read this brochure and keep it for reference. It should be noted here, however, that coverage is not provided for pre-existing conditions, optical and dental services or special drugs.

Within the limitations of the insurance coverage, fees of outside doctors, laboratories, and hospitals will be processed for payment only when consultations, laboratory or x-ray studies or hospitalization have been authorized by the University Health Office in advance on a form provided for this purpose. The University is not responsible for off-campus medical and hospital care sought by students or their parents on their own initiative, or for outside care or consultation which has not previously been authorized by the Health Office. The only exception to this is in case of real emergency, or illnesses or injuries occurring while away from the university, when such prior authorization is not feasible.

## Admission

As a general rule only well-qualified men and women who have completed the normal four-year program leading to the Bachelor's degree will be considered for admission to the Graduate School. Graduates of foreign schools and others who have completed the equivalent of a Bachelor's degree program may apply, describing the educational program they have completed.

## Testing

Applicants for admission to the graduate areas in biochemistry, biophysics, chemistry, history of American civilization and psychology are required to take the Graduate Record Examination, including the aptitude test portion, and preferably one advanced test in a field related to the proposed area of graduate study. Applicants for admission to the graduate area in

psychology must also take the Miller Analogies Test. All other applicants for admission are urged to take the Graduate Record Examination. Information concerning the Graduate Record Examination is available from the Educational Testing Service, 200 Nassau Street, Princeton, New Jersey, or 1947 Center Street, Berkeley 4, California.

Foreign students, regardless of graduate area of study, are required to take the Test of English as a Foreign Language (TOEFL) unless English is their first language. This includes comprehensive testing in auditory comprehension, reading comprehension, writing, vocabulary, and grammar. Applications for admission to the test should be made to TOEFL, Educational Testing Service, Princeton, New Jersey, U.S.A. The test is administered at various established centers abroad.

## Application

Specific requirements established by each area of study are to be found below. Each applicant should consult these requirements prior to filing an application. One who seeks admission to the Graduate School should write to the Dean of the Graduate School of Arts and Sciences, stating which area of study he or she wishes to pursue. A catalog and appropriate forms will be forwarded to the applicant. The "Application for Admission" and, if needed, the "Application for Financial Aid" should be completed and returned in duplicate as soon as possible. The closing date for receipt of applications for admission is the first business day in March, though exceptions may be made. Applicants requesting financial aid should file as early as possible. Applications for admission for the Spring Term must be filed by December 15. Students are not usually admitted at midyear, and those who do gain admission are not normally eligible for financial aid.

The applicant is required to arrange for forwarding official transcripts, in duplicate, of all undergraduate work and graduate work, if any. In addition, he must have forwarded, on forms provided by the Graduate School, two letters of recommendation, preferably from professors with whom the applicant has studied in the field of his proposed area of study. An applicant who has engaged in graduate study elsewhere should request at least one of the recommendations from a professor with whom he has done graduate work.

Applicants for admission to the Graduate Department of Music in the field of composition and to the graduate Department of English and American Literature must also submit samples of their written work.

All applications for admission must be accompanied by an application fee of \$10.00, payable by check or money order to Brandeis University. No application will be processed until this fee is paid.

## Admission Procedure

All applications are considered on a competitive basis. The number of students who are admitted each year in each department is limited so that the Graduate School may operate effectively under its distinctive principles of individualized study and apprenticeship. Consequently, admission may sometimes be denied to qualified persons. The minimum standards of admission merely determine whether the applicant will qualify for a place in the group from which final selections will be made. Selections are based on the applicant's ability to do graduate work of high quality, as shown by the distinction of his previous record, particularly in his proposed area of study; by the confidential letters of recommendation submitted in support of his application; and by his adaptability to the particular graduate programs offered by Brandeis University. In addition, knowledge of foreign languages, relevant practical experience in the field, samples of work, the results of the Graduate Record Examination, and indications of character are considered. In order for the results of the Graduate Record Examination to be considered, the applicant should take the examination no later than January, 1966.

Each application for admission with all supporting records is first examined by the department or committee responsible for the graduate area to which the applicant seeks admittance. The department or committee recommends to the Dean of the Graduate School which applicants should be selected for admission and for financial aid. The Dean, in association with the Faculty Committee on Admissions and Awards, reviews all applications in the light of departmental recommendations, and, on behalf of the Committee on Admissions and Awards, informs each applicant of the results of the competition. Applicants for admission will be notified usually by April 1.

## Acceptance

A student who has been accepted for admission to the Graduate School will be notified by a letter specifying the date by which he must accept the offer of admission and awards, if any. If a student selected for admission indicates that he does not intend to accept the offer, or if he fails to reply by the date specified, his admission offer becomes void and another applicant may be accepted in his place.

Brandeis University subscribes to the "Resolution Regarding Scholars, Fellows, and Graduate Assistants" of the Association of Graduate Schools of North America. The resolution states:

"In every case in which a graduate assistantship, scholarship, or fellowship for the next academic year is offered to an actual or prospective

graduate student, the student, if he indicates his acceptance before April 15, will have complete freedom through April 15 to submit in writing a resignation of his appointment in order to accept another graduate assistantship, scholarship, or fellowship. However, an acceptance given or left in force after April 15 commits him not to accept another appointment without first obtaining formal release for the purpose."

Students who are accepted must provide the Graduate School Office with an official final transcript of their undergraduate record and of any graduate work in progress at the time of acceptance. In addition, students who are accepted are required to complete and return a Medical Questionnaire and a health insurance form, which will be sent with notification of acceptance. All acceptances are conditioned on subsequent approval by the University Health Office. All persons admitted to the Graduate School must give evidence of their physical and psychological capacity to carry on their studies.

If, after having been admitted, a student cannot attend, he should notify the Dean of the Graduate School as soon as possible. If such a student wishes to be admitted for a subsequent academic year, he must request reactivation of his application at the appropriate time, and bring it up to date.

An applicant who has been denied admission may reapply in a later year, particularly if he has had further training which would strengthen his application or if he can submit additional letters of recommendation.

Admission to the Graduate School does not imply that the successful applicant has been accepted as a candidate for a graduate degree. Superior performance at Brandeis University is essential. Admission to candidacy for the M.A. or M.F.A. is granted by the graduate department or committee administering the program of study. Admission to candidacy for the Ph.D. is granted by the Graduate Council on the recommendation of the Department or Committee administering the program of study.

## Readmission

Admission is valid only for one academic year. A student's record is reviewed annually, and he may be denied readmission. Students completing the requirements for the M.A. or M.F.A., and students who already hold a Master's degree but who have not yet been admitted to candidacy for the doctorate, must make formal application for readmission by the first business day in April of each year if not requesting financial aid, or by the first business day in March if requesting financial aid. The application for readmission must be filed with the Graduate School Office.

## Foreign Students

Graduates of foreign colleges and universities who have completed the equivalent of an American bachelor's degree may apply for admission and for financial assistance. Foreign applicants should enclose with the official "Application for Admission" original documents or official certified copies indicating the nature and scope of their formal educational background.

A student whose native language is not English should not apply unless he can read, write, and understand English with enough competence to pursue a regular program of graduate study at an American university. Evidence of such competency is required through submission to the Graduate School the results of the TOEFL examination. Nor should a foreign student apply for admission unless he has the financial ability to support himself in the United States. For this purpose the sum of at least \$2,500 will be necessary for the nine-month academic year, exclusive of expenses for travel, summer, or vacation.

Of the large number of foreign applicants who apply annually, financial assistance is available to only a few of the outstanding. Scholarships cover only tuition costs. Fellowships and teaching assistantships are helpful in meeting subsistence expenses. The total assistance offered, however, is usually sufficient to cover only a portion of the student's total expenses. A foreign applicant who has not had training in an American institution of higher learning will be at a disadvantage in competing for scholarships and fellowships. Teaching assistantships are rarely awarded to foreign applicants in their first year of graduate study.

A limited number of foreign applicants are accepted through the Wien International Scholarship Program, which provides financial assistance to highly qualified graduate degree candidates. A complete description of this program may be found on page 14 of this catalog.

It would be wise for foreign applicants who are not in the United States at the time of application to seek the assistance of the Institute of International Education. The Institute has access to funds for the aid of foreign students and helps place them at suitable universities. For information write to the Institute of International Education, 809 United Nations Plaza, New York, New York 10017. Students from Great Britain may apply through the English Speaking Union, whose central office is in London. The Fellowship Commission of the United States Information Service and the local American Embassy have information on travel grants for foreign students. In any case, foreign applicants are advised to apply to several American universities.

An application fee of \$10.00 should accompany the foreign student's "Application for Admission." No application will be processed until the application fee is paid. A foreign student who is registering in the Graduate School for the first time or reregistering after a leave of absence must see the adviser for foreign students before registration and must present to her for inspection his passport and visa. The adviser will assist in all matters connected with U.S. immigration regulations.

The office of the adviser for foreign students is located in Gryzmish Academic Center, Room 106.

A foreign student who enters the United States on a student "F" visa is expected to register at the college or university which admitted him and is the destination for which his visa was obtained. Should a foreign student be admitted to the Graduate School of Brandeis University from another American university, he must visit the District Immigration Office in the area of the school from which he is transferring and present a letter from that school stating that he has been successfully pursuing a full course of study and that there is no objection to the transfer. He must also present his acceptance letter from the Graduate School of Brandeis University.

Employment may be granted to an "F" visa student during the school year in three situations: (1) if he has been granted permission for on-campus employment as a condition of admission, as indicated on the original Form I 20A provided by the University; (2) if his employment consists of practical training in his field of study; or (3) if his financial situation has changed since his admission, and he has been granted permission for employment, with the approval of the University, by the Immigration and Naturalization Service. Each year the Immigration and Naturalization Service delegates to the University the privilege of granting permission, on the basis of economic necessity, to "F" visa students for employment during the summer vacations. Permission for employment cannot be granted to Exchange Visitor "J" visa students, unless the employment is practical training that is part of the program of instruction.



# Academic Regulations

## Registration

Every resident student must register in person at the beginning of each semester, whether the student is attending regular courses of study, carrying on research or independent reading, writing a thesis or dissertation, or utilizing any academic service or facility of the University. Students who have completed their residence requirements and who wish to utilize any academic service or facility of the University must also register.

There is a charge of \$10.00 if registration is not completed at the time specified in the Academic Calendar for the Graduate School.

Registration consists of payment of all fees for the semester and filing a program card and other required forms duly completed.

## Program of Study

Before filing his Program Card, the student should plan his program of study in consultation with the chairman of his department. All courses for which the student registers for credit must be listed on the Program Card.

Audited courses must also be listed, noted as "audit," and the Program Card must be signed by instructors of such courses.

A graduate student may not normally register for an undergraduate course (numbered below 100) in his own area for degree or residence credit unless he secures the signed approval of both the instructor of that course and his department chairman. The student must then petition the Dean of the Graduate School for the desired credit, and must receive his approval before or at the time of registration. Credit will not be given for undergraduate courses taken to make up deficiencies in the student's preparation for a graduate program of studies, nor will credit ordinarily be given for language courses that are not part of the student's program of studies. Under no circumstances may a student receive credit toward completion of degree or residence requirements for courses undertaken to aid in the completion of language requirements. Scholarship students may not apply their scholarships toward the remission of tuition for undergraduate courses taken to remedy deficiencies. The completed Program Card must be signed by the department chairman before submission at registration, and the department chairman will certify whether the program of study is full-time or part-time and, if part-time, whether one-quarter, one-half, or three-quarters time. Full-year courses must be re-entered on the program card at Spring Registration, and ordinarily they may not be dropped at midyear. A student wishing to drop a full-year course at midyear must petition the Dean of the Graduate



School for permission, after receiving the written approval of the instructor of the course and of the chairman of his department. No student may register at midyear for a full-year course without the written approval of the instructor of the course and his department chairman.

## Auditing Courses

The privilege of auditing courses without fee is extended to all regularly enrolled graduate students except those classified as special students. Special students may audit courses by paying for them at the same rate as those taken for credit. No course may be audited without the permission of the instructor. An auditor is merely a listener. He may not participate in any class work, nor take examinations, nor receive evaluation from the instructor; no credit is granted for an audited course.

## Change of Program

A registered student who wishes to drop or add a course or alter his program of study must obtain a Course Change Card from the Graduate School Office and return it when properly filled out. Credit will not otherwise be given for the courses changed. In addition, a student must change his program within the specified time limits stated in the current academic calendar, or he will be subject to a \$10.00 fine.

Students may not drop courses after December 1 in the first term or after April 1 in the second term of the academic year.

## Registration in Terms of Time

An advanced student—one who has completed one full year of residence, either by graduate work at Brandeis or by receiving credit for graduate work done elsewhere—may register in terms of time, subject to the signed approval of his department chairman. His Program Card must indicate that he is registering full-time or a specific fraction thereof (one-quarter, one-half, or three-quarters).

Registration in terms of time is a device that helps to individualize programs of study and permits increased freedom for independent research for the advanced graduate student. Registration in terms of time frees the student to pursue a program of study that partially accepts or bypasses altogether the system of formal courses, although a student registering in terms of time will usually register for an advanced research or dissertation course. His time will be spent in such research and reading as will be most beneficial to his development as a scholar.

## Absence from Examinations

A student who is absent from a midyear or final examination without an accepted excuse will receive a failing grade for that examination. No student may be excused from such examination unless for emergency or medical reasons, nor may he be excused if he was able to notify the instructor in advance and failed to do so. Cases involving absence are referred to the chairman of the department. The department will decide whether a make-up examination shall be allowed. If a make-up examination is allowed, the instructor will notify the Dean of the Graduate School, who will arrange for its administration.

## Grades and Course Standards

Graduate students are expected to maintain records of distinction in all courses. Letter grades will be used in all courses in which grading is possible. In thesis or research courses, if a letter grade cannot be given at the end of every semester or academic year, "Credit" or "No Credit" may be used. "No Credit" and any letter grade below "B-minus" are unsatisfactory grades in the Graduate School. A course in which the student receives an unsatisfactory grade will not be counted toward graduate credit. Courses graded "Non-credit" are those which carry no credit but are required of the student. At the end of each academic year the Graduate School will issue to all registered students a report of their grades and of degree requirements that have been satisfactorily completed.

## Incompletes

A student who has not completed the research or written work for any course may receive a grade of "Inc." (incomplete) or a grade of failure at the discretion of the instructor in the course. A student who receives a grade of "Inc." must satisfactorily complete the work of the course in which the "Inc." was given in order to receive credit for the course and a letter grade. An "Inc.," unless given by reason of the student's failure to attend a final examination, must be made up no later than the end of the term following the term in which it was received. When failure to take a final examination has resulted in an "Inc.," resolution of that grade to a letter grade must occur within six weeks of the beginning of the next academic semester or the potential course credit will be lost. If a student requires additional time to settle an incomplete grade, he may petition the Dean of the Graduate School for an extension of time, provided the petition is signed by the instructor of the course and by the department chairman. Such a petition must be filed prior to the expiration of the deadline for making up an incomplete.

## Credit for Work Done Elsewhere

Graduate work taken elsewhere may not be counted toward fulfillment of the residence requirement at Brandeis University for the degree of Master of Arts, although a department may accept work taken elsewhere in partial fulfillment of specific course requirements for the degree. Not more than one semester of residence credit for work taken elsewhere may be counted toward fulfillment of the residence requirement for the degree of Master of Fine Arts. Not more than one year of residence credit for work taken elsewhere may be counted toward fulfillment of the residence requirement for the degree of Doctor of Philosophy.

A student admitted to a Ph.D. program at Brandeis University who has done graduate work elsewhere may file an application to have his work at that institution counted toward fulfillment of residence requirements. However, language requirements, qualifying and comprehensive examinations, the dissertation and the final oral examination, and other such requirements, must be fulfilled while enrolled at Brandeis.

To be eligible to receive credit toward fulfillment of residence requirements for work taken elsewhere, a student must complete at least one semester's residence at Brandeis as a full-time student. He may then file an "Application for Credit for Graduate Work Done Elsewhere." The completed application should be submitted to the Graduate School Office, which will advise the student of the action taken on his application. An applicant will not necessarily be given the credit he requests. Each department reserves the right to require of any student work in excess of its minimum standards to assure thorough mastery of his area of study. In any case, every candidate for the Ph.D. degree must complete at least one year in residence at Brandeis as a full-time student, or the equivalent thereof in part-time study.

## Residence Requirements

Residence requirements for all graduate degrees are computed by determining the amount of registration for credit and the tuition charges. Part-time students and teaching assistants pursuing part-time programs of study for credit complete their residence requirement when their fractional programs (one-quarter, one-half, three-quarters) total the amount required of a full-time student for any given degree.

### Master of Arts

The minimum residence requirement for all students is one academic year on a full-time graduate credit program at the full tuition rate, or the equivalent thereof in part-time study.

### Master of Fine Arts

The minimum residence requirement for all students is three academic semesters on a full-time graduate credit program for each semester, at the full tuition rate for each semester, or the equivalent thereof in part-time study.

### Doctor of Philosophy

The minimum residence requirement for all students is two academic years on a full-time graduate credit program for each year, at the full-tuition rate for each year, or the equivalent thereof in part-time study.

## Full-Time Resident Students

A full-time student is one who devotes his entire time, during the course of the academic year, to a program of graduate work at Brandeis University, to the exclusion of any occupation or employment. In exceptional cases, however, a student may accept outside employment with the approval of his department chairman.

A full-time program may include a combination of teaching and research assistance, work leading to the fulfillment of degree requirements, such as preparation for qualifying, comprehensive, and final examinations, or supervised reading and research, or the writing of M.A. theses and Ph.D. dissertations, as well as regular course work.

A full-time resident student may take as many courses for credit in any semester as are approved by his department chairman, but no student may receive credit for, nor be charged for, more than a full-time program in any semester. Thus the minimum residence requirement for any degree may not be satisfied by an accelerated program of study nor by payment of more than the full-time tuition rate.

Ph.D. candidates and students for whom the M.A. and M.F.A. degrees are terminal degrees may continue as full-time students on completion of their residence requirements by registering at the post-residence fee (see p. 59).

## Part-Time Resident Students

A part-time student is one who devotes less than his entire time to a program of graduate work at Brandeis University. He may register for a credit program of one-quarter, one-half, or three-quarters time. A part-time student may engage in outside employment with the permission of his department chairman, who may restrict the time permitted for such employment.

Students wishing to pursue part-time resident study leading to a gradu-

ate degree must explain in writing, at the time they seek admission, why full-time study is not possible. An enrolled student receiving financial aid from the University, who wishes to change his status from a full-time to a part-time resident, must file with the Graduate School Office an explanation of why full-time study is no longer possible.

## Post-Resident Students

A graduate student who has completed residence requirements and who registers in order to utilize academic services or University facilities while completing degree requirements is a post-resident student.

## Special Students

On occasion, properly qualified persons who wish to audit or to take courses without working for a degree will be admitted. Special students are not eligible for University loans, scholarships, fellowships, teaching or research assistantships, nor will they be considered for resident counsellorships. A special student who later wishes to change his status to that of a part-time or full-time student working for a degree must apply for admission as a resident student. He must also file a special petition if he wishes credit to be accepted for any courses taken at Brandeis as a special student. Credit for such course work may be granted in exceptional cases.

## Leave of Absence

Students who have not completed their residence requirements may petition for leave of absence. The petition must have the approval of both the chairman of the department and the Dean of the Graduate School. Leave of absence up to one year will normally be granted to students in good academic standing who present compelling personal reasons or need to do work off campus in connection with their graduate studies.

If for any reason a student must extend a leave of absence, he must request such extension in writing before his leave of absence expires. Failure to do so will result in being automatically dropped from the Graduate School roster.

## Continuation

A graduate student who has completed residence requirements and who is not registered during the period in which he is completing degree requirements is considered a Continuation Student. A student in this category is not eligible for a leave of absence.

## Withdrawal

A student who wishes to withdraw from the Graduate School at any time before the end of the academic year must give immediate written notice to his department chairman and to the Dean of the Graduate School. Failure to comply with this procedure for withdrawing may subject the student to dishonorable discharge, refusal of readmission, cancellation of the privilege of securing an official transcript of his record, and, in the case of a student withdrawing within 30 days of the beginning of classes, loss of eligibility for partial refund of tuition. Such a student must pay tuition for the full semester. Permission to withdraw will not be granted if the student has not discharged all financial indebtedness to the University or has not made arrangements for subsequent payment to the satisfaction of the Office of University Finance.

## Exclusion, Dismissal or Expulsion

The University reserves the right to dismiss or exclude at any time any student whose character, conduct, academic standing or financial indebtedness it regards as undesirable, and without assigning any further reason therefor; neither the University nor any of its Trustees or officers shall be under any liability whatsoever for its disciplinary action, exclusion or dismissal.

The University also reserves the right to revoke, cancel or reduce at any time any financial or honorific award made to any graduate student, for character, conduct, academic standing or financial indebtedness regarded by the University as undesirable, and without assigning any further reason therefor; neither the University nor any of its Trustees or officers shall be under any liability whatsoever for cancelling, revoking or reducing any award.

## General Degree Requirements

The following general requirements apply to the awarding of graduate degrees in all areas of study. For the specific requirements of each area of study, students should consult the appropriate section of this catalog.

### Master of Arts

In order to qualify for a Master's degree, the student must complete the equivalent of one full year of graduate study at Brandeis University, ordinarily computed at a minimum of twenty-four semester hours of approved study. Each course meeting three hours per week grants three credits per semester. Certain departments may at their option require more than

twenty-four hours of graduate study. All departments offering Master's programs require that the candidate demonstrate a reading knowledge of at least one foreign language and pass satisfactorily a general or qualifying examination which, at the department's discretion, may be in one or more parts and may be written, oral, or both. Where a thesis is required for the Master's degree, two copies must be submitted to the department chairman in final form no later than January 7 for a February degree or May 1 for a June degree.

The Master's degree must be earned within four years from the inception of graduate study at Brandeis University.

### Master of Fine Arts

In order to qualify for the degree of Master of Fine Arts in Music, the candidate must complete with distinction thirty-six semester hours of work at the graduate level, and must meet the language and other requirements for the degree outlined on pages 127-130. Two copies of the thesis must be submitted to the department chairman in final form no later than January 7 for a February degree or May 1 for a June degree.

The Master of Fine Arts degree must be earned within five years from the inception of graduate study at Brandeis University.

### Doctor of Philosophy

In order to qualify for the degree of Doctor of Philosophy, a student must ordinarily complete a minimum of three years of graduate study, including two full years of residence and a third year devoted to the preparation of a doctoral dissertation. Under certain conditions credit for advanced standing will be granted for work taken in residence in graduate schools of other universities. Each Department or Committee reserves the right to require prospective candidates for the degree to perform work in excess of its minimum standards to assure thorough mastery of the area.

Prospective candidates, except in American Civilization, Philosophy and Psychology, must demonstrate proficiency in at least two foreign languages. In all areas of study the student must satisfactorily pass a general or qualifying examination which, at the department's discretion, may be in one or more parts and may be written, oral, or both. In addition, all prospective candidates must write a doctoral dissertation and defend it in a final oral examination.

To be eligible for the receipt of the Ph.D. degree in any given year, the student must have (1) been admitted to candidacy for the doctorate, (2) completed all residence requirements, and (3) passed all language and qualifying examinations, by the close of the semester preceding the semester in which the degree will be conferred. Doctoral dissertations must be sub-

mitted to department chairmen by December 3 for February degrees, and April 1 for June degrees. In addition, notification that the doctoral dissertation has been approved and that the dissertation examination has been passed must have been communicated to the Dean of the Graduate School no later than January 7 in the case of February degrees or May 15 in the case of June degrees.

Students entering Brandeis University with no previous graduate work must earn the Doctor's degree within eight years from the inception of study. Students who enter Brandeis University with a Master's degree shall be required to complete the Ph.D. in seven years.

### Language Requirements

A reading knowledge of at least one foreign language is required of all students engaged in programs of study leading to the M.A. degree. A reading knowledge of at least two foreign languages is required of all students engaged in programs of study leading to the M.F.A. A reading knowledge of at least two foreign languages except in History of American Civilization, Philosophy and Psychology, is required of all students engaged in programs of study leading to the Ph.D. degree. Candidates for the Ph.D. degree in Music are required to have a reading knowledge of three foreign languages. Graduate departments may require degree candidates to demonstrate proficiency in additional languages. Each department determines which languages are acceptable as satisfying the foreign language requirements.

Students are expected to satisfy the language requirements as soon as possible. The completion of the language requirements at another university does not exempt the candidate from the Brandeis requirements. The student should present himself for at least one language examination during his first year of residence.

A student who has not passed an examination in at least one foreign language by the end of his first year of study will not be eligible for financial aid from the University for the second year.

All Ph.D. candidates must pass their second language examination no later than the semester preceding the semester in which the degree is to be conferred.

Many departments require that language examinations be passed at an earlier time than specified in these provisions. Special requirements will be found in the departmental statements included in this catalog.

### Admission to Candidacy

A student who (a) has demonstrated a knowledge and mastery of the subject matter of his field at a level satisfactory to his Department or



Committee; (b) has passed all departmental qualifying examinations; (c) has indicated a capacity for independent research of high quality; and (d) has satisfactorily completed all specific Department or Committee requirements for admission to candidacy may, at the recommendation of the Department or Committee, be admitted by the Graduate Council to candidacy for the degree of Doctor of Philosophy. In order to be eligible for the award of the degree, the student must be admitted to candidacy at least one semester before the degree is awarded.

### Application for Graduate Degrees

Candidates for the M.A., M.F.A., and Ph.D. degrees must file with the Graduate School Office an application for the degree no later than December 3 for a February degree and no later than April 1 for a June degree of the academic year in which the degree is to be conferred. Upon the written recommendation by a candidate's Department or Committee that his application be approved, his record will be reviewed by the Graduate Council which recommends him to the University's Board of Trustees for the degree. In case of failure or withdrawal from candidacy in any year, the student must reapply by filing a new application in a later year.

### Dissertation and Final Oral Examination

Two copies of the doctoral dissertation, as well as an abstract of the dissertation not to exceed six hundred words in length, should be submitted to the department or committee chairman no later than December 4 for a February degree and April 1 for a June degree of the academic year in which the Ph.D. degree is to be conferred. The style and format of all dissertations are determined by the respective departments. The chairman will then appoint two or more readers, besides the principal supervisor, to read the candidate's dissertation. Certification of the approval of the dissertation by these readers will be communicated to the Dean of the Graduate School and to the chairman of the Department or Committee. The chairman will then schedule a final oral examination and notify both the Dean of the Graduate School and the candidate of the time and place of the examination at least three weeks prior to the scheduled date of the dissertation defense.

The dissertation, when approved by the readers, must then be deposited in the Office of the Graduate School, where it will be available to all interested members of the faculty for at least two weeks prior to the final oral examination.

The Dean of the Graduate School will publish in the *University Gazette* the time and place of a candidate's final oral examination and the



title of his doctoral dissertation. The final oral examination will be open to any member of the faculty engaged in graduate instruction and to invited faculty members of other institutions.

The Examining Committee, recommended by the department chairman and approved by the Dean of the Graduate School must be composed of at least three members of the faculty. At least one member of the examining committee shall be from a graduate area outside the student's own, though preferably from a related area.

The examination may be restricted to a defense of the dissertation, or may cover the whole field of the dissertation. The candidate will be notified by his Department or Committee of his responsibility for coverage at the examination.

A report, signed by the Examining Committee, certifying the candidate's successful performance on the final oral examination, will be submitted to the Dean of the Graduate School no later than January 7 for a February degree or May 16 for a June degree of the year in which the degree is to be conferred.

### Deposit and Publication of Dissertation

By January 28 for February degree candidates, or June 6 for June degree candidates, the candidate must deposit two copies of his finished dissertation, including the original typescript, in a state suitable for microfilm and Xerox publication. Both copies of the dissertation must have the signed approval of the dissertation supervisor and readers. One copy will be retained by the library, the other by the department, both in bound form. The candidate must also submit two copies of an abstract of the dissertation, not exceeding 600 words, which has been approved by the dissertation supervisor.

A detailed statement of the Graduate School publication regulations is available from the Graduate School Office. See also the statement in this catalog, under *Fees*, on the Final Doctoral Fee.

## Fees

All fees are payable on the dates they are due. In exceptional cases, students may make prior arrangements with the Office of University Finance for installment payments. A candidate for a June degree must pay any outstanding indebtedness to the University by June 1, just prior to Commencement, or his name will be stricken from the rolls of degree candidates. Candidates for February degrees must pay any outstanding indebtedness by January 15 of the year in which the degree is conferred.

Payment of tuition and other fees due on the day of registration is a part of the registration procedure. A student who is not prepared to pay such fees on the day of registration and who has not made alternative arrangements for payment with the Office of University Finance will be refused the privilege of registration. A registered student who defaults in the payment of indebtedness to the University shall be subject to suspension, dismissal and refusal of a transfer of credits or issuance of a transcript. A student who has been suspended or dismissed for nonpayment of indebtedness to the University may not be reinstated until such indebtedness is paid in full.

*Application Fee: \$10.00.* Payable by all applicants for admission at the time the application for admission is submitted and is not refundable. Checks and money orders should be made payable to the order of Brandeis University. No application for admission will be processed until this fee is paid. This fee is not required of Brandeis graduates.

*Tuition Fee:* The fees for tuition in the Graduate School for 1965-66 are as follows:

Full-time resident students: \$1,650 per year, or \$825 per semester.

Part-time resident students:

<i>Per Semester</i>	<i>Per Year</i>	<i>Fraction Program of Study</i>
\$618.75	\$1,237.50	Three-quarters
\$412.50	\$ 825.00	One-half
\$206.25	\$ 412.50	One-quarter

Special Students: \$206.25 per course per semester.

*Post-Residence Fee:* Students who have completed their residence requirements and who wish to continue in residence to utilize any academic service or University facility must register at the usual tuition rates. Graduate students whose tuition is not being paid from scholarship or fellowship funds awarded by the University or other sources may petition the Dean of the Graduate School for a reduction of the post-residence fee to \$250. Students who continue to utilize any academic service or University

facility after having completed residence, but who have failed to register, are subject to disciplinary action by the Dean of the Graduate School. A student who is eligible for registration on the post-residence basis may file a program card for full-time study, in terms of courses or in terms of time or any combination thereof, provided his department chairman approves of the program of study as being a full-time program and signs the program card.

*Mixed Tuition Fee:* In the event that a student needs to register for only a part-time program (one-quarter, one-half, or three-quarters) in order to complete his residence requirements, but wishes to register for additional courses or take a fuller program of study, he shall be charged for the part-time program needed to complete his residence, plus the post-residence fee.

*Summer Tuition Fee:* Brandeis University does not conduct a regular summer school session, however, special courses of study on an individual basis may be arranged for regular students. The tuition for graduate students who remain in residence for special summer programs of a twelve week duration is \$500.00, and of an eight week duration, \$350.00.

*Late Registration Fee: \$10.00.* Payable for failure to complete registration at the time announced by the Graduate School Office. (Consult the Academic Calendar.)

*Change-of-Program Fee: \$10.00.* Payable by any graduate student who wishes to change his program of study later than two weeks after the first meeting of classes in each semester.

*Continuation Fee: \$10.00.* Payable annually by graduate students who have completed residence requirements and who are not registered during the period in which they are preparing for the completion of degree requirements. Students in this category are not eligible for leave of absence.

*Master's Fee: \$50.00.* A candidate for the M.A. or the M.F.A. who is subject to the Continuation Fee and who submits a Master's thesis or takes a qualifying examination in any semester following one in which he has not been in residence, shall pay the Master's Fee. The fee is chargeable only once. The Continuation Fee will be applied toward payment of the Master's Fee.

*Final Doctoral Fee: \$250.* This fee covers all costs for the year in which the Ph.D. degree will be conferred, including the costs for the microfilm publication of the doctoral dissertation, the publication of the abstract of the dissertation in *Dissertation Abstracts*, copyright protection for the author if desired, issuance of a Library of Congress number and appropriate library cards, binding two copies of the dissertation for use in the University Library, and the Xerox-printed copies in book form for the author.

The Final Doctoral Fee also covers the rental expenses for academic robes for the candidates at graduation and the cost of the diploma. Students who have been in residence in their final year may deduct any tuition charges which they may have paid to the University in that final year. Students who have paid the Continuation Fee in the final year may deduct that fee from the Final Doctoral Fee.

*NOTE:* All candidates for the Ph.D. degree must pay the \$250 Final Doctoral Fee prior to the receipt of their degrees. A candidate may, however, elect not to contract for the Xerox publication of his dissertation, and in lieu thereof may separately arrange for its publication either as a book or as articles in scholarly journals within twenty-four months following the award of the degree. On due evidence that the work has been published or is scheduled for publication within the required time, a rebate of \$150 of the Final Doctoral Fee may be authorized.

*Reinstatement Fee: \$10.00.* Payable by a student who, after suspension or dismissal, has been reinstated with the consent of the Dean of the Graduate School.

*Transcript Fee: \$1.00.* Students, former students and graduates who request official transcripts of their records in the Graduate School are charged \$1.00 for each copy issued after the first one, which is issued free of charge. Requests by mail for transcripts must be accompanied by a check in the correct amount, payable to Brandeis University.

*Diploma Fee: \$10.00.* Payable by candidates for the M.A. and M.F.A. degrees.

*Student Health Plan Fee: \$55.00.* Payment of the mandatory Health Plan Fee entitles the graduate student to utilize the facilities of the Health Office during the academic year and to participate in the benefits of the Health Insurance Program. The fee is payable at registration and no portion is refundable.

*Waiver of Fee:* A waiver of the insurance coverage only and a rebate of \$25.00 may be granted upon presentation by the student of a statement from his insurance company, which certifies that similar coverage is in effect. This statement must be presented at the time of registration or the student will be included automatically under the University Student Health Plan and will be billed \$55.00. Request for such waiver should be made by the student on the "Student Health Insurance" form mailed by the University with each notification of admission and readmission.

*Exceptions:* The University Student Health Plan is optional for special students.

*Dependent Coverage:* Although the health services offered at Stone-man Infirmary are not extended to dependents of students, insurance coverage is available for the following additional fees:

Dependent spouse of insured student: \$52.00

One or more dependent children of insured student: \$15.00

Special students are not eligible for coverage for dependents.

## Refunds

The only fee which may be refundable, in part, is the tuition fee. No refund of the tuition fee will be made because of illness, absence or dismissal during the academic year. If a student withdraws within 30 days from the beginning of classes, he may petition the Office of University Finance for a partial refund of tuition. A refund may be denied without any reason for such denial being stated.



## Financial Assistance

To help students whose records indicate scholarly promise, the University makes available a variety of awards and work opportunities. No student is eligible for aid unless he files with the Graduate School Office an "Application for Financial Assistance" by the first business day in March. In exceptional circumstances applications received from prospective students later than this date may be given consideration. All scholarships and fellowships are granted for one academic year; therefore, a registered student who holds a scholarship or fellowship must apply for a renewal by filing the "Application for Financial Assistance" by the first business day in March.

Applicants for Jack Cohn Memorial Science Fellowships and for Charles Revson Science Fellowships must file their "Applications for Financial Assistance" by the first business day in February.

All awards are granted and accepted with the understanding that they may be revoked or reduced at any time for conduct or academic standing that may be regarded as undesirable.

No student may hold a fellowship, scholarship, or teaching assistantship for more than two years of study for the M.A. degree, for more than three years of study for the M.F.A. degree, or for more than four years of study for the Ph.D. degree. No student may receive a scholarship, fellowship, or teaching assistantship after one year of study at the post-residence fee. Part-time students are ineligible for fellowship awards, and are not ordinarily considered for scholarship awards. Teaching assistants who are part-time students may apply for scholarships. Priority in making awards is given to full-time students and teaching assistants.

## Scholarships

A scholarship is an award, on grounds of scholarly ability and need, of financial credit that may be used exclusively for remission of tuition fees. Full scholarships in the value of \$1,650 and partial scholarships are available. Scholarship students are liable for all fees, but tuition fees in the amount of a scholarship award shall not be charged.

## Fellowships

A fellowship is an academic award of honor to outstanding students of good character to help them in furthering advanced study and research. Fellowships carry stipends ranging up to \$2,000 in the graduate programs in the humanities and social sciences and up to \$4,000 in the graduate science programs. The amount of the stipend depends on the quality of

the student's record and performance; need is also considered in most cases. A fellowship recipient must pay tuition fees unless he is also awarded a scholarship in an amount covering tuition. No services are required of students for fellowship or scholarship awards.

### Jack Cohn Memorial Science Fellowships

Jack Cohn Fellowships, established in the memory of the founder of Columbia Pictures Corporation, provide full tuition and fees (excluding the Health Insurance and Infirmary fees), and a twelve month stipend up to \$3,000 for graduate students in the life sciences.

Annual awards will be made to science applicants with outstanding academic records and unusual promise of achievement in research connected with the life sciences. Jack Cohn Fellows will be selected by the President of the University and the Dean of the Graduate School from nominees recommended by a committee of distinguished scientists from the Brandeis faculty.

Special application forms are not necessary; only the regular Graduate School application for admission and financial aid need be filed.

### Charles Revson Science Fellowships

Charles Revson Fellowships, established by the founder and president of Revlon, Inc., range in value from \$12,550 to \$15,550 over a three year period of graduate study. In addition to full tuition and fees (excluding the Health Insurance and Infirmary fees), annual stipends of \$3,000 for a twelve month tenure will be awarded to unmarried Revson Fellows and up to \$4,000 for married Fellows with children. Fellows will be appointed by the President of the University and the Dean of the Graduate School from nominees recommended by screening panels of outstanding scientists on the Brandeis faculty and at other institutions. Only students of the highest rank and greatest potential will be eligible for selection. Revson Fellowships will be awarded in the following areas of graduate study: biochemistry, biology, biophysics, chemistry, mathematics, physics and psychology. Normally three year appointments will be made for students beginning graduate study, although every Fellow's performance will be evaluated annually to determine whether his award shall be renewed. In exceptional cases, fellowships may be renewed for a fourth year of study. Graduate students who were not awarded Revson Fellowships at the time of matriculation at Brandeis may earn appointment. All students being considered for appointment will be interviewed. Special application forms are not necessary; only the regular Graduate School application for admission and financial aid need be filed.



## Teaching Assistantships

Teaching assistants are resident students in the Graduate School who do part-time teaching as part of their training and are paid a stipend in return for services rendered. The University has established teaching assistantships to enable distinguished graduate students to gain teaching experience while continuing their studies. Stipends, which vary with the hours of teaching and degree of responsibility, may reach a maximum of \$2,750. Teaching assistants are eligible for other awards, including scholarships and fellowships.

A full-time student who is a teaching assistant receives residence credit for, and is charged tuition for, that fraction of his program spent as a student in fulfillment of degree and residence requirements. No teaching assistant may carry more than a one-half time teaching assignment. A one-quarter time teaching assignment consists of about six hours of laboratory supervision per week or three hours of classroom instruction per week, or the equivalent. A graduate student who has not completed his residence requirement and is assigned to a one-quarter time teaching assignment must register for at least a three-quarter program of study for credit in order to be considered a full-time student. A student who has not completed his residence requirement and is assigned less than a one-quarter time teaching assignment must register for a full-time program of study to be considered a full-time student. A one-half time teaching assignment requires that the student who has not completed his residence requirement must register for a one-half time program of study for credit in order to be considered a full-time student. Ordinarily, only graduate students who have completed their residence requirement will be considered eligible for one-half time teaching assignments. A student who needs to register for only a partial program of study to complete his residence requirement and who is assigned a teaching assistantship is regarded as a full-time student. A teaching assistant who has completed his residence requirement may register as a full-time student and may pursue whatever program of study and research seems necessary and desirable, subject to the signed approval of his department chairman, without payment of tuition fees.

First-year graduate students are eligible for appointment as teaching assistants in the sciences. In other areas, however, first-year students are rarely appointed. Foreign students are not normally eligible for appointment as teaching assistants in their first year of graduate work unless they have had training at another American university.

Teaching assistantship appointments are made by the President of the University on the recommendation of the Dean of the Graduate School who, in turn, acts on the recommendation of a student's department chair-

man. A graduate student who is interested in being appointed as a teaching assistant should write or see his chairman. Appointments are made for periods of one year or one semester, but are renewable. All awards of teaching assistantships to incoming students are conditioned on an interview with a University representative, prior to registration. The University reserves the right to terminate any appointment at any time for due cause. Conduct, character or academic standing that is regarded as undesirable may constitute cause, but the University need not assign any reason for the termination of an appointment at any time. All teaching assistantship appointments are made and accepted with this understanding, and neither the University nor any of its Trustees or officers shall be under any liability whatsoever for the summary termination of a teaching assistantship.

In the case of a student receiving financial aid from Brandeis University, whether in the form of a teaching assistantship, scholarship or fellowship, the approval of the Dean of the Graduate School is required, in addition to the approval of the department chairman, before the student may engage in outside employment. Approval is not normally granted in the case of full-time students receiving financial aid from the University.

## Research Assistantships

Research assistantships, which sometimes carry stipends in excess of \$4,000, are available in the science areas, though first-year graduate students are not normally eligible for appointment. Application should be made to the chairman of the Department or Committee administering the graduate program.

## Loan Funds

Applications for University loans may be made to the Office of University Finance, with the prior approval of the Dean of the Graduate School.

Brandeis University participates in the National Defense Education Act Student Loan Fund. Application for N.D.E.A. loans are made in the same manner as University loans.

Normally, graduate students are ineligible for loan funds until they have completed one semester in residence. Part-time and special students are not eligible for loan funds.

## Resident Counsellorships

Resident counsellorships, providing room, board and remission of tuition are available to both men and women. Interested applicants should apply to the Office of the Dean of Students, Gryzmish Academic Center, no later than the first business day in March. Appointments are made by the Dean of Students on the recommendation of the Dean of the Graduate School.

## Employment

On occasion the University offers part-time employment to specially trained persons. Inquiries should be addressed to the Office of Career Planning, Gryzmish Academic Center.

## Areas of Study and Courses

All courses meet for three hours a week unless the course description indicates otherwise. The presence of "a" in the course number indicates a half course given in the Fall Term; "b" indicates a half course given in the Spring Term; "aR" indicates a course given in the Spring Term, "bR," courses given in the Fall Term which is identical with "a" or "b" courses of the same number given in the Fall and Spring Terms respectively; the use of "c" after a course number indicates that the course is given as a half course but meets throughout the year.

Half courses normally carry three credits and full courses six. Exceptions are noted under the individual course descriptions. Additional credits are given for laboratory hours, as indicated in the course descriptions.

The University reserves the right to make any necessary changes in the offerings without prior notice.

## American Civilization

*See History of American Civilization (page 104).*

## Anthropology

### Objectives

The graduate program in anthropology is designed primarily to train students at the doctoral level. The objective is to provide the student with a broad understanding of the four major fields of anthropology, with particular stress on ethnology and social anthropology, and to prepare the student for independent research and scholarship. Accordingly, there is a strong emphasis on training in comparative work and fieldwork, which are integral parts of the doctoral program.

### Admission

The general requirements for admission to the Graduate School, given in an earlier section of this catalog, apply to candidates for admission to this area of study. Students need not have an undergraduate major in anthropology or sociology-anthropology. If admitted, however, the student without previous training in anthropology may be required to take additional courses, as determined by the department, to complete his residence requirements. Students should have a reading knowledge of one foreign language.

## Faculty

Professor ROBERT A. MANNERS, *Chairman*: Africa. The Caribbean. Modern cultures.

Professor HELEN CODERE: North America. Africa. Political systems. Method and theory.

Associate Professor JOEL M. HALPERN: Eastern Europe. Southeast Asia. Developing areas.

Assistant Professor GEORGE L. COWGILL: New World archaeology. Physical anthropology. Statistics.

Assistant Professor RICHARD FOX: India. Markets and marketing. Immigrant enclaves.

Assistant Professor DAVID KAPLAN: Mexico. Economics. Method and theory.

Assistant Professor KARL REISMAN: Linguistics. Caribbean. Folk literature.

Assistant Professor MARGUERITE ROBINSON: Social organization. South Asia. Oceania.

Assistant Professor BENSON SALER: Middle America. Culture and personality. Primitive philosophies and religion. Formal analysis.

Assistant Professor ALEX WEINGROD: Social organization. Community development. Culture change.

## Degree Requirements

### Master of Arts

Students are required to complete a minimum of twenty-four course credits and to demonstrate proficiency in one foreign language and in the following subject areas: archaeology, cultural anthropology, linguistics, statistics. All first year students will be expected to pass a written qualifying examination in archaeology and cultural anthropology upon completion of one year in residence. Proficiency in the remaining subject areas may be demonstrated by passing the required courses with a grade of "B" or better or by passing a special qualifying examination in these areas which may be taken at the student's option either at the end of the first or second year in residence. A research paper based on the summer field training exercise or, for those students who have been excused from the summer program, a paper based on a subject chosen by the student in consultation with his adviser will be required.

The M.A. degree will be conferred upon satisfactory completion of these requirements. Students will be required to take for credit or audit Anthropology 300 for at least two semesters; the choice of credit or auditing and of timing is made by the department.

### Doctor of Philosophy

*Admission to the Program.* Students who complete the M.A. requirements at Brandeis at a high level will be admitted to the Ph.D. program. Students with an M.A. in anthropology from other institutions, or with a minimum of a full academic year of graduate course work in anthropology from other institutions, may come to Brandeis as prospective candidates for the Ph.D. degree. After a minimum of one semester's work, the department may, at its discretion, grant the student transfer credit of up to one year toward the Ph.D. residence requirements. In most instances, transfer students will be required to meet the departmental requirements described for the Master's program, but at the discretion of the department these may be waived.

*Program of Study.* Ph.D. candidates must complete two years of residence at Brandeis, and a minimum of forty-eight hours of credits. Work toward the M.A. at Brandeis may be counted as a part of residence, as may work done elsewhere, as stipulated above and in the general rules of the Graduate School. At least thirty-six course credits must be in anthropology. Students will be required to take for credit or audit Anthropology 202 for at least two semesters, the choice of credit or audit, timing, and number of semesters is made by the Department.

*Language Requirements.* A reading knowledge of two acceptable foreign languages is required of all Ph.D. candidates. Proficiency in at least one of these languages must be demonstrated in the first year of residence. At its discretion the department may require proficiency in two languages prior to beginning dissertation research.

*Summer Training Program.* Students are required to participate in a summer field training program under the direction of a faculty member. Students will not be admitted to the summer program until they have passed those parts of the qualifying examination dealing with cultural anthropology and archaeology. The materials from the field trip will be submitted as a written report satisfactory to the department. This training program may be waived, at the discretion of the department, if there is evidence of satisfactory field training prior to the student's coming to Brandeis.

*Admission to Candidacy.* A student is admitted to candidacy on satisfactory completion of the following: the general qualifying examination (where required); the summer field training session; the written report on the summer fieldwork; an examination in at least one foreign language; forty-eight hours of course credits; and a predoctoral examination which may cover any aspects of anthropology and will test the scope of the student's knowledge and his ability to integrate that knowledge.

*Field Work for the Dissertation.* As soon as possible after qualifying for candidacy for the Ph.D., the candidate will be expected to begin a full year of field research, which will ordinarily form the basis of his dissertation.

*Dissertation and Defense.* The degree of Ph.D. will be awarded only after successful defense of the dissertation.

### Courses of Instruction

#### ANTHROPOLOGY 102a. Anthropological Linguistics I

Training in the recording and analysis of spoken languages. Consideration of some major theories of language. Role of language in nature and culture.

*Mr. Reisman*

#### ANTHROPOLOGY 102b. Anthropological Linguistics II

Historical relations among languages. Linguistic evidence in the study of prehistory. Language contact. Study of speech communities and ethnography of speaking. Semantic analysis. Expressive language, paralinguistics, kinetics, speech surrogates.

*Mr. Reisman*

#### ANTHROPOLOGY 103b. Language and Culture

Language and thought; speech differences within societies; processes of change; expressive language and poetics; problems of translation; extension of linguistic methods to other modes of communication. No previous training in linguistics is necessary.

*Mr. Reisman*

#### ANTHROPOLOGY 110b. Physical Anthropology

An introduction to the major fields of physical anthropology; human evolution, genetics, anatomy, and modern views of race.

*Mr. Cowgill*

#### \*ANTHROPOLOGY 112a. Culture and Biology

A bio-cultural exploration of population genetics and human evolution.

#### ANTHROPOLOGY 121a. Quantitative Techniques in Anthropology

An introduction to the use of statistics and related techniques in anthropological research, emphasizing non-parametric methods and cross-cultural sampling.

*Mr. Cowgill*

#### ANTHROPOLOGY 122a. Archaeological Methods

An introduction to archaeological methods, including field and laboratory procedures; scientific apparatus useful in detection, dating, and analysis of prehistoric materials; problems in the processing and presentation of archaeological data; and the nature of archaeological theory.

*Mr. Cowgill*

#### \*ANTHROPOLOGY 125a. Old World Archaeology

Development of prehistoric cultures of Eurasia, Africa and Oceania from Pleistocene hunting and gathering cultures to the emergence of Bronze Age civilization.

#### ANTHROPOLOGY 126b. New World Archaeology

A survey of prehistoric and early historic native cultures of North, Middle and South America. The content and development of these cultures will be presented

\*Not to be given in 1965-66.

both in time-space perspective and from the point of view of their relevance to culture theory. *Mr. Cowgill*

**ANTHROPOLOGY 127b. Origins of Early Civilizations of the World**

The development of the earliest food-producing communities and the rise of the earliest civilizations of the Old and New World, based on archaeological data. The emphasis is comparative and theoretical. *Mr. Cowgill*

**\*ANTHROPOLOGY 128b. Civilizations of Middle America**

Development of Prehispanic cultures of Middle America from the earliest agricultural settlements through Olmec, Teotihuacan and Classic Maya to the Aztec state.

**\*ANTHROPOLOGY 129a. Civilizations of South America**

Development of Prehispanic cultures of the Andes from the first agricultural settlements to the Inca Empire.

**ANTHROPOLOGY 133b. Peoples and Cultures of Africa**

An examination of the indigenous organization of representative African societies in their ecological and historical settings. *Mr. Manners*

**\*ANTHROPOLOGY 134b. Tribe and Nation-State in Africa**

Seminar on the background and problems of independence in selected African areas.

**ANTHROPOLOGY 135a. Peoples and Cultures of India**

An examination of institutions of representative Indian peoples and their relationship to the wider Indian society. *Mrs. Robinson*

**ANTHROPOLOGY 136b. Cultures of the Far East**

China, Japan, and Korea. Problems of evolution and development in a context of diverse influences. *Mrs. Robinson*

**ANTHROPOLOGY 137a. Cultures of Southeast Asia**

Survey of civilizations and tribal peoples in the area between India and China. Emphasis on cultural interrelationships in the framework of both historical and contemporary problems. *Mr. Halpern*

**ANTHROPOLOGY 138b. Cultures of Eastern Europe and the Soviet Union**

Social organization, religion, class structure and other topics dealing with the various ethnic groups in Eastern Europe and the U.S.S.R., both past and present. Agricultural, nomadic and urban societies in this area, including central Asia, will be studied. *Mr. Halpern*

**ANTHROPOLOGY 139b. Peoples and Cultures of the Mediterranean**

A comparative analysis of contemporary rural peoples in the Mediterranean region (Europe, North Africa, Middle East) and their relationships to urban settings. *Mr. Weingrod*

**ANTHROPOLOGY 141b. The American Indian**

A survey of the peoples and cultures of aboriginal North America. *Miss Codere*

\*Not to be given in 1965-66.

\*ANTHROPOLOGY 142b. Peoples and Cultures of the Caribbean

History, ecology, and culture of the Circum-Caribbean from earliest European contact to the present.

ANTHROPOLOGY 143b. Modern Cultures of Middle America

Contemporary Indian and Ladino societies.

*Mr. Saler*

ANTHROPOLOGY 151a. Social Organization

Theories of social organization, the interrelations of social institutions, current anthropological methods of interpretation and analysis.

*Mr. Weingrod*

ANTHROPOLOGY 151b. Social Organization

A continuation of 151a. This course will emphasize structural analysis. Designed primarily for advanced undergraduate and graduate students.

*Mrs. Robinson*

ANTHROPOLOGY 152a. Economic Anthropology

Economic institutions of non-industrial societies.

*Miss Codere*

\*ANTHROPOLOGY 153b. Primitive Art

An introduction to art forms and their social meaning in pre-literate societies.

ANTHROPOLOGY 154a. Primitive Religion

An exploration of belief and behavior in societies of non-literate peoples with reference to theories concerning the origins and functions of religion.

*Mr. Saler*

ANTHROPOLOGY 155b. Culture and Personality

An examination of the relationships between sociocultural systems and individual psychological processes with a critical evaluation of selected theories and studies bearing on this problem.

*Mr. Saler*

\*ANTHROPOLOGY 156a. Political Anthropology

Politics, government, law, crime and warfare in primitive societies.

\*ANTHROPOLOGY 157b. Cultural Evolution

The general evolution of culture and its technological bases; the adaptations of cultures to particular natural and cultural environments.

\*ANTHROPOLOGY 158b. Folk Literature

Geographical and structural analysis of forms of verbal art: proverb, myth, folktale, etc. Discussion of their role in specific social institutions and in everyday speech behavior. Problems of literature in colonial areas and emerging nations.

ANTHROPOLOGY 159b. Cultural Ecology

An analysis and criticism of various theories of cultural ecology, and the application of cultural ecological concepts to specific research problems.

*Mr. Fox*

\*ANTHROPOLOGY 160a. Applied Anthropology

An examination of the theory and practice of directed social change. Case material will be drawn from technical assistance, village development, mental health and other programs.

\*Not to be given in 1965-66.



**ANTHROPOLOGY 161b. Culture and Cognition**

An exploration of formal techniques utilized by anthropologists in the attempt to discover and analyze systems of meaning and categorization. *Mr. Saler*

**\*ANTHROPOLOGY 162b. Infra-human Social Behavior**

An exploration of social behavior in phylogenetic perspective.

**\*ANTHROPOLOGY 163a. Community Studies in Anthropology**

Seminar on problems and limitations of anthropological analysis of modern communities. Intensive study of cases from contemporary anthropological materials.

**ANTHROPOLOGY 164b. Nationality and Culture Change**

Exploration of the relationship between the cultural concept of nationality and the processes of economic development in communist and other societies.

*Mr. Halpern*

**ANTHROPOLOGY 165a. Social Stratification in Pre-Industrial Societies**

The nature and function of inequalities of status and/or wealth, and the relation of these factors to other aspects of the culture.

*Mr. Fox*

**\*ANTHROPOLOGY 166b. Social and Cultural Change**

Selected case studies and theories bearing on the problem of change in culture and society.

**ANTHROPOLOGY 167b. Modernization and Modernization Movements**

A comparative analysis of programs of economic, political and social reforms. Emphasis is placed upon national government-sponsored modernization programs, particularly as they become articulated within local village communities. Materials will be drawn from Asia, India, the Middle East and Latin America. *Mr. Weingrod*

**ANTHROPOLOGY 175a. Pro-Seminar in Anthropological Method and Theory: I**

Analysis of representative classics in anthropology.

*Miss Codere and Mr. Reisman*

**ANTHROPOLOGY 175b. Pro-Seminar in Method and Theory in Cultural Anthropology: II**

The development of anthropological theory, major present-day trends and their relation to problems of research.

*Mr. Kaplan*

### Primarily for Graduate Students

**ANTHROPOLOGY 205a. Comparative Agrarian Societies**

Representative agrarian cultures will be dealt with in detail, with particular emphasis on the interrelationship between the city, the rural community and the state.

*Messrs. Kaplan and Weingrod*

**ANTHROPOLOGY 226. Readings and Research in Archaeology**

*Mr. Cowgill*

**ANTHROPOLOGY 227. Readings and Research in Linguistics**

*Mr. Reisman*

**ANTHROPOLOGY 228. Advanced Readings in Method and Theory**

*Mr. Kaplan*

**ANTHROPOLOGY 229. Guided Comparative and Historical Research**

*Mr. Weingrod*

\*Not to be given in 1965-66.

- ANTHROPOLOGY 230. Readings and Research on Cultures of Hunters and Gatherers  
*Mr. Saler*
- ANTHROPOLOGY 235. Readings and Research in Oceania  
*Mr. Fox*
- ANTHROPOLOGY 236. Readings and Research on East and South Asia *Mrs. Robinson*
- ANTHROPOLOGY 237. Readings and Research in African Cultures *Mr. Manners*
- ANTHROPOLOGY 238. Readings and Research in Southeast Asian Cultures  
*Mr. Halpern*
- ANTHROPOLOGY 239. Readings and Research in North American Indian Cultures  
*Miss Codere*
- ANTHROPOLOGY 240. Readings and Research in Cultures of the Caribbean  
*Mr. Reisman*
- ANTHROPOLOGY 241. Readings and Research on European Communities *Mr. Halpern*
- ANTHROPOLOGY 300a and b. Graduate Seminar in Anthropology  
Consideration of selected field studies.  
*Required of all graduate students.* *Mr. Reisman, 1st sem.*  
*Mr. Manners, 2nd sem.*
- ANTHROPOLOGY 302. Summer Research Training  
Field work for three months during the summer under the supervision of a member of the staff. *6 credits.* *Mr. Manners*
- ANTHROPOLOGY 305. Anthropological Colloquium  
*Staff*
- ANTHROPOLOGY 400-408. Dissertation Research  
Independent research for the Ph.D. degree.
- |                         |                           |
|-------------------------|---------------------------|
| 400. <i>Miss Codere</i> | 405. <i>Mr. Reisman</i>   |
| 401. <i>Mr. Cowgill</i> | 406. <i>Mrs. Robinson</i> |
| 402. <i>Mr. Halpern</i> | 407. <i>Mr. Saler</i>     |
| 403. <i>Mr. Kaplan</i>  | 408. <i>Mr. Weingrod</i>  |
| 404. <i>Mr. Manners</i> |                           |

## Biochemistry

### Objectives

The graduate program in biochemistry leading to the degree of Doctor of Philosophy is designed to equip the student with a broad understanding of the chemistry involved in biological processes and to train him to carry out independent original research. Although the student will be primarily responsible for a comprehensive understanding of biochemical phenomena, he will be encouraged to acquaint himself with the disciplines of biology and chemistry. Research and experimental projects rather than formal course training will be emphasized. The student will, however, be required to register for basic biochemistry, biochemical techniques, intermediary metabolism, and biochemistry seminars. The choice of advanced biochemistry courses and those of other scientific disciplines (i.e., organic chemistry, genetics, embryology, etc.) are subject to the student's particular interests.

The choice of research programs should be in areas under investigation by the faculty; some of these fields include intermediary metabolism in normal and also tumor tissues, enzymology, immunochemistry, radiobiology, biochemical genetics, protein chemistry, plant and virus metabolism, problems in growth and differentiation, photobiology, microbial metabolism, and organic biochemistry.

### Admission

The general requirements for admission to the Graduate School, given in an earlier section of the catalog, apply to candidates for admission to this area of study. Applicants for admission to the Biochemistry Department are also required to take the Graduate Record Examination. The student's undergraduate curriculum should include some fundamental courses in biology and chemistry which will be subject to final staff approval.

### Faculty

Professor NATHAN O. KAPLAN, *Chairman*: Intermediate metabolism. Biochemical basis of chemotherapy. Anti-enzyme action. Molecular heterogeneity of enzymes. Changes in structure of enzymes during adaptation, differentiation, mutation, and development.

Adjunct Professor ABRAHAM GOLDIN: Cancer chemotherapy. Synergistic action of drugs. Biochemical effects of transplantable tumors.

Professor WILLIAM P. JENCKS: Mechanisms of reactions catalyzed by enzymes, coenzymes, and by chemical catalysts. Effects of salts and denaturing agents on proteins. Mechanisms, catalysis and equilibria of reactions of "energy-rich" compounds of importance in biochemistry and chemistry.

Professor LAWRENCE LEVINE: Immunochemistry. Effect of antigenic conformation on the antigen-anti-body reaction.

Visiting Professor WILLIAM F. LOOMIS: Biochemistry of differentiation and growth with special reference to primitive animal systems. Role of  $p\text{CO}_2$  in biological systems. Relationship of hydra to single cell systems in tissue culture.

Associate Professor ROBERT ABELES: Mechanism of enzyme action, with particular reference to the mechanism of action of reactions involving derivatives of Vitamin B-12 and the mechanism of isomerizations.

Associate Professor GERALD D. FASMAN: Conformation of biological macromolecules. Protein models, synthesis, conformational studies and biological properties of polyamino acids. Polyribonucleic acids conformational studies.

- Associate Professor LAWRENCE GROSSMAN: Nucleic acid metabolism in normal, tumor and virus-infected cells. Problems in biochemical replication. Action of pyrimidine analogs in chemotherapy.
- Associate Professor MARY ELLEN JONES: Biosynthetic mechanisms. Role of carbamyl phosphate in microbial and mammalian systems. Metabolic pathways in differentiation.
- Associate Professor JOHN M. LOWENSTEIN: Metabolic regulation of carbohydrate utilization and fat synthesis. The interaction of metabolic pathways. Enzymatic and non-enzymatic reactions of nucleoside triphosphates.
- Adjunct Associate Professor FARAHE MALOOF: Biochemical pharmacology. Biochemistry of the thyroid. Effects of  $I^{131}$  irradiation on thyroid tissue.
- Associate Professor GORDON H. SATO: Specialized function of cultured mammalian cells.
- Associate Professor MORRIS SOODAK: Aspects of the metabolism of the thyroid gland. Mechanism of iodination and the mode of action of the goitrogenic drugs are being investigated in cell-free preparations of thyroid tissues.
- Associate Professor HELEN VAN VUNAKIS: Protein structure of enzymes and viruses. Mechanisms of viral infectivity. Photodynamic action of dyes on nucleic acids. Conversion of zymogens to enzymes.
- Assistant Professor THOMAS C. HOLLOCHER, JR.: Free radicals in biological systems. Study of model free radical systems related to enzyme reactions. Biological oxidation. Nuclear magnetic resonance.
- Assistant Professor WILLIAM T. MURAKAMI: Biochemistry of virus infection. Metabolism of virus-infected cells. Purification and characterization of animal viruses.

## Degree Requirements

### Doctor of Philosophy

*Program of Study.* Each doctoral candidate must satisfactorily complete the following fundamental courses: advanced biochemistry, biochemical techniques, history of biochemistry, physical biochemistry and radiobiology, biochemical research problems, and at least four of the biochemistry seminars.

*Language Requirements.* A reading knowledge of French and German is required. One of the language requirements must be satisfactorily completed prior to the oral qualifying examination. The second language

requirement must be satisfactorily completed before the end of the second year of study.

*Qualifying and Cumulative Examination.* An oral qualifying examination must be taken, generally at the end of the first year. In this examination, the student will be asked to defend or refute two propositions. One proposition will be related to the research he selects for his dissertation and the second will be an assigned proposition concerned with a different area of biochemistry.

A series of one-hour cumulative examinations will be given every month and the student is required to pass six such examinations before he may present his dissertation.

*Admission to Candidacy.* The qualifying examination must be passed at a level satisfactory for this degree. Admission to candidacy usually takes place at the end of the second year of study.

*Dissertation and Defense.* A dissertation will be required which summarizes the results of an original investigation of an approved subject and demonstrates the competence of the candidate in independent research. A final oral examination based on the dissertation will be held.

## Courses of Instruction

### BIOCHEMISTRY 100a. Introductory Biochemistry

Chemistry and metabolism of compounds of biological importance, introduction to enzyme reactions, energy metabolism, cellular function and differentiation.

*Prerequisite:* Chemistry 25a and b. *Messrs. Kaplan, Loomis and Soodak*

### BIOCHEMISTRY 101. Advanced Biochemistry

A discussion of enzyme reactions including energetics, kinetics, and reaction mechanism. Metabolism of carbohydrates, lipids, amino acids, nucleic acids, vitamins and coenzymes, hormones and inorganic substances. Coupled enzyme reactions, such as oxidative phosphorylation, and the synthesis of macromolecules such as glycogen, protein and the nucleic acids.

*Prerequisites:* Chemistry 25a and b, Biochemistry 100a or their equivalent. Some background in elementary physical chemistry is recommended but not required. *Miss Jones and Staff*

### BIOCHEMISTRY 103. History of Biochemistry

A discussion of significant discoveries which have led to present-day concepts of biochemistry.

*Prerequisite:* Biochemistry 100a. *Mr. Kaplan and Staff*

### BIOCHEMISTRY 200a and b. Biochemistry Techniques

Students registered for this course will participate for a period of approximately one month in several research programs being conducted by the staff members.

*Prerequisite:* Biochemistry 100a (may be taken concurrently) and consent of the department. *Mr. Levine and Staff*

**BIOCHEMISTRY 201. Physical Biochemistry and Radiobiology**

Kinetics of enzyme reactions; measurement of free energy, heat and entropy values in biological systems; transition state theory; elements of data analysis; problems in physical techniques; isotope techniques and radiation effects.

*Prerequisite:* Biochemistry 100a (may be taken concurrently).

*Mr. Hollocher and Staff*

**\*BIOCHEMISTRY 202b. Chemistry of Enzyme-Catalyzed Reactions**

A discussion of the chemistry of certain enzyme-catalyzed reactions compared to the corresponding uncatalyzed or chemically catalyzed reactions. Some consideration of the mechanisms through which enzymes may exert their catalytic effects.

*Prerequisites:* Chemistry 131 and Biochemistry 100a, or equivalent, taken previously or concurrently.

**\*BIOCHEMISTRY 203a. Metabolic Regulation**

Regulation of rates of enzyme reactions, regulation of enzyme levels, rate determining steps in metabolic pathways, control phenomena such as the Pasteur effect and the regulation of fat synthesis.

**BIOCHEMISTRY 204b. Metabolism in Relation to Function**

This course is to introduce the student to physiology. Circulation, digestion, excretion, excitation and homeostatic control mechanisms will be discussed. Where possible, physiological function will be related to cellular metabolism.

*Prerequisite:* Biochemistry 100a. *Mrs. Leeman and Messrs. Dawson and Maloof*

**\*BIOCHEMISTRY 205a. Biochemical Genetics**

Recent advances in the chemistry of inheritance will be discussed with emphasis on recombination, transformation and transduction phenomena in microorganisms. The problem of gene function, and enzyme formation and function, will be considered together with the contribution of microbial and animal mutants to the study of metabolic pathways.

*Prerequisite:* Biochemistry 100a (may be taken concurrently).

**\*BIOCHEMISTRY 206a. The Nucleic Acids**

Chemical and physical properties of the nucleic acids and monomeric units will be examined. Current chemical and enzymatic polymerization pathways and the biochemical roles of nucleic acids in protein synthesis, virus replication and genetic coding will be discussed.

*Prerequisite:* Biochemistry 100a, 101a and b.

**BIOCHEMISTRY 207b. Immunochemistry**

Mode and mechanism of antigen-antibody interaction; application of immunochemical methods to the estimation and characterization of proteins, polysaccharides, nucleic acids and natural proteins with biological activity such as enzymes and hormones.

*Mr. Levine*

**\*BIOCHEMISTRY 208a. Comparative Biochemistry**

Differences in metabolites, metabolic intermediates, enzymes and cofactors in the various species of plants and animals will be presented. Particular attention will be given to the genesis of the more important biosynthetic and metabolic

\*Not to be given in 1965-66.

process in the evolutionary scale. Phylogenetic variations will be related, where possible, to the environmental requirements of the organism.

*Prerequisite:* Biochemistry 100a.

**\*BIOCHEMISTRY 209b. Physiology of the Mammalian Cell**

Factors influencing the growth, multiplication and metabolism of animal cells grown from single cell isolations will be presented. Genetic aspects of these cells will be discussed. Studies will be summarized on the infection of these cells by animal viruses from both genetic and biochemical viewpoints.

*Prerequisite:* Biochemistry 100a.

**BIOCHEMISTRY 210a. Protein Chemistry**

The following will be discussed: chemical and physical properties of proteins, peptides, and amino acids; methods of determination of molecular weight, purity, and structure and isolation techniques.

*Prerequisite:* Biochemistry 100a and one year of physical chemistry.

*Miss Van Vunakis and Mr. Fasman*

**\*BIOCHEMISTRY 212a. Neurochemistry**

The special chemistry and biochemistry of nervous tissue, both central and peripheral, will be discussed. Carbohydrate, lipid, protein, and nucleic acid metabolism of nervous tissue; nerve conduction; vision; the effects of neurotoxic agents on the enzymatic mechanisms of the brain will be presented.

*Prerequisite:* Biochemistry 100a (may be taken concurrently).

**\*BIOCHEMISTRY 214a. Biochemistry of Viruses**

The course will deal with animal, plant, insect and bacterial viruses with emphasis on biochemical mechanisms of virus DNA replication and protein synthesis. Physical, chemical, immunochemical and genetic characterization of viruses and virus components will be discussed, as will the biochemistry of the mammalian tissue cells that support the growth of animal viruses.

*Prerequisite:* Biochemistry 100a (may be taken concurrently).

**Seminars**

One or two seminars will be given each semester. Each student will present an oral and written report on one aspect of the following topics:

**\*BIOCHEMISTRY 215a. Structure and Functional Specificity of Macromolecules**

**BIOCHEMISTRY 216a. Biochemical Aspects of Differentiation and Growth**

*Messrs. Loomis and Sato*

**\*BIOCHEMISTRY 217a. Nucleic Acids**

**\*BIOCHEMISTRY 218a. Biochemical Studies with Mammalian Viruses and Cultured Cells**

**BIOCHEMISTRY 219b. Selected Topics on Enzyme Action** *Messrs. Abeles and Jencks*

**\*BIOCHEMISTRY 220a. Biochemical Basis of Chemotherapy**

**\*BIOCHEMISTRY 221b. Biochemical Processes Involving Hemes**

**BIOCHEMISTRY 222a. Oxidative Phosphorylation** *Messrs. Hollocher and Kaplan*

**\*BIOCHEMISTRY 223a. Structure, Metabolism, and Function of Hormones**

**\*BIOCHEMISTRY 225a. Biochemical Genetics**

\*Not to be given in 1965-66.

**BIOCHEMISTRY 400-413. Biochemical Research Problems**

Independent research for the Ph.D. degree.

- 400. *Mr. Kaplan*
- 401. *Mr. Jencks*
- 402. *Mr. Levine*
- 403. *Mr. Loomis*
- 404. *Mr. Abeles*
- 405. *Mr. Fasman*
- 406. *Miss Jones*
- 407. *Mr. Lowenstein*
- 408. *Mr. Maloof*
- 409. *Mr. Sato*
- 410. *Mr. Soodak*
- 411. *Miss Van Vunakis*
- 412. *Mr. Hollocher*
- 413. *Mr. Murakami*

**Journal Club, Colloquia, and Research Clubs**

In addition to the formal courses announced above, all graduate students are encouraged to participate in the department's Journal Club and colloquia. The Journal Club is an informal meeting of the students, staff and post-doctoral fellows, where recent publications are discussed. Colloquia are general meetings of the department in which both speakers from the department and guest speakers will present their current investigations. Research clubs are organized by various research groups of the department.

## Biology

### Objectives

The graduate program in biology is designed to give the student an understanding of the fundamental nature of living processes, and to train him to undertake original research.

The department rarely admits a graduate student who desires a Master's degree. Such candidates may, however, be admitted at the discretion of the faculty as exceptional cases. A Master of Arts degree may be granted on completion of a designated program to be arrived at after consultation with the graduate adviser.

### Admission

The general requirements for admission to the Graduate School, given in an earlier section of this catalog, apply to candidates for admission to this area of study. The student's undergraduate record should ordinarily include courses equivalent to those required of undergraduates concentrating in



biology at this institution. These are: general biology, genetics, cell physiology, developmental biology, and at least two additional elective courses. Students who are deficient in some of these subjects, but whose records are otherwise superior, may make up their deficiencies while they are enrolled as graduate students. In exceptional cases, students may be excused from some of these requirements. Students with serious deficiencies must, however, expect to add additional time to their graduate program in order to satisfy the deficiencies.

It is strongly recommended that applicants take the Graduate Record Examination.

On being admitted to the Biology Department, each graduate student will report to the temporary graduate student adviser who will assist the student with his formal entry into the department and later with his program.

An important part of graduate training consists of laboratory experience. Since the summer months provide an opportunity for such work, unbroken by courses and other responsibilities, it is customary for graduate students to spend their summers doing research. In recognition of this, the Biology Department provides summer stipends for its full-time graduate students.

## Faculty

Professor MARTIN GIBBS, *Chairman*: Photosynthesis and plant physiology.

Professor HERMAN T. EPSTEIN: Radiation biology. Virus genetics.

Professor ALBERT KELNER: Genetics. Microbial genetics. Radiation biology.

Professor MAURICE SUSSMAN: Microbiology. Cellular differentiation. Microbial genetics.

Professor EDGAR ZWILLING: Vertebrate development. Tissue interactions.

Associate Professor JEROME A. SCHIFF: Plant biochemistry and physiology. Intracellular development. Sulphur metabolism.

Assistant Professor CHANDLER FULTON: Invertebrate development. Cellular differentiation.

Assistant Professor ATTILA O. KLEIN: Plant physiology and metabolism.

Assistant Professor GJERDING OLSEN: Animal physiology. Endocrinology.

Assistant Professor HENRY E. SCHAFFER: Population genetics.

Assistant Professor MIRIAM F. SCHURIN: Biochemical cytology. Cytogenetics.

Assistant Professor PHILIP A. ST. JOHN: Invertebrate physiology. Regeneration in invertebrates.

## Degree Requirements

### Master of Arts

*Program of Study.* The program leading to the M.A. degree in biology focuses primarily on the research capability of the student. Specifically, the primary requirement for the degree is the completion of a thesis based on original laboratory work which is acceptable to the department. In general, the preparation for an original research problem will necessitate the enrollment of a student in course work. The specific number and types of courses will vary, depending on the ultimate research problem, and will be prescribed by the department. The candidate must, however, complete the equivalent of one full year of graduate study at Brandeis University, ordinarily computed at a minimum of twenty-four semester hours of approved study.

By the end of the first year, each graduate student will choose a specific field of interest and will apply to the chairman of the department for a permanent adviser to be assigned by the department. This adviser will serve as the chairman of a committee of at least three departmental staff members, which will advise the student on courses to be taken and guide him throughout the thesis problem.

The thesis requirement may be waived under exceptional circumstances and only with the approval of the department staff.

*Language requirements.* All candidates are required to demonstrate a reading knowledge of French or German, or another foreign language acceptable to the department. An examination demonstrating reading ability in the foreign language must be taken prior to the completion of thesis work.

*Qualifying Examination.* At the discretion of the student's advisory committee, a qualifying or comprehensive examination may be required.

### Doctor of Philosophy

*Program of Study.* All students will be expected to obtain a knowledge of the principles and techniques of the areas of genetics, morphology, physiology and development before taking the qualifying examination. The background a student is expected to have in these areas is equivalent to the course contents of Biology 101a, 101b, 102a, 103b, 104b, and Biochemistry 100a, 101. The student will be expected also to have additional background in his area of specialization as well as experience in seminar and research courses to be designated.

Each student will choose his specific field of interest and will apply to the chairman of the department for a permanent adviser to be assigned by the department before the end of the second year. The adviser will assist the student in planning a well-balanced program in his specific field of interest. In addition, the adviser will ordinarily serve as the chairman of the student's proposition committee, proposition examining committee and dissertation examining committee.

*Language requirement.* A reading knowledge of French and German, or another language acceptable to the department, is required. At least one of these requirements must be met before the student completes the first year of graduate study and before he is admitted to candidacy.

*Qualifying Examination.* Ordinarily this examination will be taken on the recommendation of the student's adviser and should be completed before active dissertation work is initiated. The student's major adviser will appoint two other faculty members to serve as the student's proposition committee. The student will submit seven propositions encompassing the four core areas with no more than two propositions in any one area. Each proposition should be a proposal or hypothesis subject to debate. The proper form in which the propositions are to be submitted will be designated by the department. (See department secretary for suggested format and instructions.) The student will be examined orally on at least three of the seven acceptable propositions by the three members of the propositions committee plus two additional faculty members.

*Admission to Candidacy.* To be admitted to candidacy, the student must have (a) passed at least one foreign language examination, (b) passed the qualifying examination, (c) shown a capacity for independent research, (d) been accepted by a graduate adviser.

*Dissertation.* Each student will conduct an original investigation. *It is strongly recommended that the dissertation research be deferred until the student has fulfilled requirements for admission to candidacy.* With the approval of the student's adviser, however, research courses may be elected at any time. After admission to candidacy, a dissertation committee will be appointed by the chairman of the department. It will consist of at least three staff members headed by the student's permanent adviser. This committee must approve the candidate's subject of research, will guide his research activities toward the doctoral dissertation and, in addition, will read and evaluate the completed dissertation. After submission of the dissertation, the candidate will be expected to present the principal results of his work and its significance during an examination in defense of the dissertation.

## Courses of Instruction

### \*BIOLOGY 101a. General and Comparative Physiology of Animals

After an introduction to acquaint students with current experimental findings using animal cells and tissues, the course will turn to an intensive comparison of physiological processes operating in both invertebrates and vertebrates. Particular emphasis will be placed on co-ordinating and integrating mechanisms.

*Prerequisites:* Chemistry 25, Biology 31b (may be taken concurrently).

Three classroom and three laboratory hours a week. *4 credits.*

Laboratory fee: \$15.

### \*BIOLOGY 101b. Comparative Physiology of Plants

A discussion of those areas of physiology and biochemistry to which plants lend themselves as experimental objects. Conspicuous examples are photosynthesis, photomorphogenesis, nitrogen fixation, and the biosynthesis of natural products such as anthocyanins, flavonoids, isoprenoids, phenols, terpenes, etc.

*Prerequisites:* Chemistry 25, Biology 31b (may be taken concurrently).

Three classroom hours a week. *3 credits.*

### BIOLOGY 103b. Physical Basis of Cell Function

Implications of the physical parameters of cellular organization in the biochemical activities of cells. Starting from the properties of elements and water, there will be an examination of the interrelations of structure and function at the levels of (1) metabolic geography, (2) cellular activity, and (3) genetic control.

*Prerequisites:* Biology 30a, 31b; Physics 10 or 11; Chemistry 10 and 25.

Three classroom hours a week. *3 credits.*

*Mrs. Schurin*

### \*BIOLOGY 105b. Invertebrate Physiology

This course will deal with a comparative study of the physiology of receptor-effector and regulatory systems in the invertebrate animals. Nervous, digestive, endocrine, muscle, osmoregulatory, respiratory and circulatory functions will be considered.

*Prerequisites:* Biology 21a and Chemistry 25.

Two lectures and six laboratory hours per week. *4 credits.*

Laboratory fee: \$15.

### BIOLOGY 106b. Developmental Plant Biology

The physiology and biochemistry of morphogenetic events in the life cycle of higher plants. Differentiation and growth of organs examined in terms of changing metabolic patterns. Results of modern experimental approaches such as cell, tissue and organ culture and radiation studies will be evaluated.

*Prerequisites:* Biology 31b (may be taken concurrently), Biology 10 and 11.

Three classroom and three laboratory hours a week. *4 credits.*

Laboratory fee: \$15.

*Mr. Klein*

### BIOLOGY 111a. Microbial Genetics

Fundamental principle of genetics as exemplified by modern research with microorganisms. Some informal laboratory experiments may be included.

*Prerequisites:* Genetics 30a, or its equivalent; some background in microbiology equivalent to Biology 32a is advisable, but not required.

Three classroom hours a week. *3 credits.*

*Mr. Kelner*

**\*BIOLOGY 120b. Advanced Microbiology**

Enrichment and isolation of representative bacteria. Discussion of the biology of these forms.

*Prerequisites:* Biology 31b, 32a; Chemistry 25.

Two classroom hours, four laboratory hours a week. *4 credits.*

Laboratory fee: \$15.

**\*BIOLOGY 124a. Virology**

Biology of plant, animal and bacterial viruses.

*Prerequisites:* Biology 32a or the equivalent.

Three classroom hours.

**BIOLOGY 131a. Problems in Animal Morphogenesis**

A discussion of problems concerning mechanisms of development of multicellular animals. The classical experiments of embryology will be re-evaluated in light of recent advances made with modern approaches.

Three classroom hours. Laboratory to be arranged. *4 credits.*

Laboratory fee: \$15.

*Mr. Zwilling*

**BIOLOGY 141b. Physical Biology**

Physical methods; treatment of experimental data; physical aspects of vision and hearing; introduction to radiobiology and theoretical biology; forces involved in biological events.

*Prerequisite:* Satisfactory grades in full year courses in biology, chemistry, mathematics, and physics.

Three classroom hours.

*Mr. Epstein*

**\*BIOLOGY 145b. Optical Methods in Biology**

Theory of image formation and resolution; lens aberrations; phase contrast, interference, polarization, X-ray and electron microscopy; optical rotation; spectrophotometry and related techniques; review of X-ray diffraction methods.

*Prerequisite:* Elementary work in physics, mathematics and biology.

Two hours of lecture and one of demonstration per week. *3 credits.*

**BIOLOGY 150 or 150a and b. Physical and Mathematical Bases of Molecular Biology**

The application of principles of physics, physical chemistry and mathematics to problems of biological interest including thermodynamics, kinetics, photochemistry, radiochemistry, statistics and related numerical methods.

*Prerequisites:* Mathematics through calculus, some acquaintance with physics and physical chemistry. Students are advised to consult the instructor regarding prerequisites.

Three classroom hours each semester. *3 credits each semester.*

*Mr. Epstein and Staff*

**\*BIOLOGY 200b. Comparative Physiology**

The physiological and biochemical distinctions among living organisms will be presented and the origins of these differences will be discussed from the viewpoint of biochemical evolution. An attempt will be made to define basic metabolic processes common to all organisms as well as the evolution of special pathways in certain groups.

Three classroom hours.

\*Not to be given in 1965-66.

**BIOLOGY 202a. Gene Structure and Function**

The development of the gene concept. Contemporary investigations of the nature of genetic material and its involvement in cell structure and function.

*Prerequisite:* Biology 30a.

Three classroom hours. *3 credits.*

*Mr. Fulton*

**BIOLOGY 204b. The Cellular Basis of Development**

Phenomic variation and interaction at the cellular level will be considered. Developmental events in microbial cultures, morphogenetically complex Protista, Matazoa and Metaphyta will be analyzed in terms of the cellular mechanisms involved.

Three classroom hours. *3 credits.*

*Mr. Sussman*

**\*BIOLOGY 212a. Cytogenetics**

Correlation of genetic data with chromosomal aberration. Study of classical methods and recent findings.

*Prerequisites:* Biology 102a and 103b.

Three classroom hours. Laboratory to be arranged. *4 credits.*

Laboratory fee: \$10.

**\*BIOLOGY 214b. Experimental Methods in Microbial Genetics**

Introduction to the study of microbial variations, including spontaneous and induced mutations; recombination, transduction and other phenomena, using bacteria and bacterial viruses.

Laboratory hours to be arranged.

Laboratory fee: \$20.

**\*BIOLOGY 222b. Microbial Metabolism**

Nutrition and intermediary metabolism of microorganisms.

*Prerequisite:* Biochemistry 100a or the equivalent.

Three classroom hours.

**\*BIOLOGY 223b. Experimental Methods in Microbial Metabolism**

An introduction to specialized techniques as applied to the study of microbial metabolism, including manometry, chromatography, spectrophotometry, tracer techniques, etc.

Laboratory hours to be arranged.

Laboratory fee: \$20.

**BIOLOGY 245a. Selected Topics in Plant Metabolism**

Three classroom hours a week. *2 credits.*

*Mr. Schiff*

**BIOLOGY 245b. Selected Topics in Plant Metabolism**

Three classroom hours a week. *2 credits.*

*Mr. Gibbs*

**BIOLOGY 400. Research in Genetics and Microbiology**

Laboratory hours and credits to be arranged.

Laboratory fee: \$25.

*Mr. Epstein*

**BIOLOGY 401. Research in Genetics and Microbiology**

Laboratory hours and credits to be arranged.

Laboratory fee: \$25.

*Mr. Kelner*

\*Not to be given in 1965-66.

- \*BIOLOGY 402. Research in Microbiology and Physiology  
Laboratory hours and credits to be arranged.  
Laboratory fee: \$25.
- BIOLOGY 403. Research in Genetics and Cytology  
Laboratory hours and credits to be arranged.  
Laboratory fee: \$25. *Mrs. Schurin*
- BIOLOGY 404. Research in Physiology  
Laboratory hours and credits to be arranged.  
Laboratory fee: \$25. *Mr. Olsen*
- BIOLOGY 405. Research in Invertebrate Development  
Laboratory hours and credits to be arranged.  
Laboratory fee: \$25. *Mr. Fulton*
- BIOLOGY 406. Research in Plant Physiology  
Laboratory hours and credits to be arranged.  
Laboratory fee: \$25. *Mr. Schiff*
- \*BIOLOGY 407. Research in Invertebrate Physiology  
Laboratory hours and credits to be arranged.  
Laboratory fee: \$25.
- BIOLOGY 408. Research in Differentiation and Genetics  
Laboratory hours and credits to be arranged.  
Laboratory fee: \$25. *Mr. Sussman*
- BIOLOGY 409. Research in Vertebrate Development  
Laboratory hours and credits to be arranged.  
Laboratory fee: \$25. *Mr. Zwilling*
- BIOLOGY 410. Research in Plant Physiology  
Laboratory hours and credits to be arranged.  
Laboratory fee: \$25. *Mr. A. O. Klein*
- \*BIOLOGY 411. Research in Electron Microscopy  
Laboratory hours and credits to be arranged.  
Laboratory fee: \$25.
- Biology 412. Research in Plant Metabolism  
Laboratory hours and credits to be arranged.  
Laboratory fee: \$25. *Mr. Gibbs*

### Biology Journal Clubs

There will be a number of informal Journal Clubs which will deal with various topics of concern to the various specialties. These will meet regularly under the auspices of staff members. Students, depending upon their individual needs, may be required to attend.

\*Not to be given in 1965-66.

## Biophysics

### Objectives

The interdepartmental graduate program in biophysics, leading to the degree of Doctor of Philosophy, is designed to give the student a broad understanding of the physico-chemical nature of living processes and to train him to carry out independent research. In addition to basic courses in cellular biology, the student will be expected to obtain a broad background in the supporting disciplines of biochemistry, biology, chemistry, physics, and mathematics. After completion of this program, the student's remaining course work will be in an area of biophysics in which a faculty member is doing research. Some areas in which research is now being actively pursued are photobiology, radiobiology, virus reproduction and muscle contraction.

### Admission

The general requirements for admission to the Graduate School, given in an earlier section of this catalog, apply to applicants for admission to this area of study. Applicants are also required to take the Graduate Record Examination. The student's undergraduate program should, ideally, include organic and physical chemistry, atomic and nuclear physics, differential equations, and courses in cellular biology. Inasmuch as most students will be deficient in some respects, it is expected that deficiencies may be made up by taking the appropriate courses while in Graduate School. If a petition is approved, the successful completion of some of these courses may be credited as part of the graduate program. On being admitted to study in biophysics, the student will be assigned to a member of the Biophysics Committee, who will advise the student on a program of courses. This program should be submitted for approval to the committee by the beginning of the second term of residence.

### Faculty

Professor HERMAN T. EPSTEIN, *Chairman*; Professors NATHAN O. KAPLAN (Biochemistry), ALBERT KELNER (Biology); Assistant Professors THOMAS C. HOLLOCHER, JR. (Biochemistry), DANIEL J. KLEITMAN (Physics), KENNETH KUSTIN (Chemistry).

### Degree Requirements

#### Doctor of Philosophy

*Program of Study.* The following are five areas in which competency at more than a minimal level is expected of a candidate for a Ph.D. in Biophysics:



1. Biology—competency to include at least one area of biology in which the candidate could be presumed to be capable of doing independent work.
2. Modern physics through the basic ideas of quantum mechanics.
3. Physical chemistry including thermodynamics.
4. Biochemistry.
5. Mathematics through elementary differential equations.

*Language Requirements.* A reading knowledge of German and French is required. Russian may be substituted for one of these languages if the advisory committee determines that it is useful for a student in his particular field of research.

*Qualifying Examination.* A student should have completed the program of study not later than the end of his second year in residence so that he may be able to take a qualifying examination covering this material.

*Dissertation and Defense.* Upon passing this examination, the student will select a dissertation supervisor and formally initiate research and course study in the research area of his supervisor. An additional twelve credits are to be taken from among the courses listed above or from other graduate courses and seminars as approved by the student's advisory committee. This committee will be appointed by the dissertation supervisor, subject to the approval of the Biophysics Committee. When the student and the dissertation supervisor have agreed on the research project, a brief description of the project must be filed with each of the members of the advisory committee.

After completing the research and the dissertation, the candidate will present and discuss the results and significance of his work during an examination in defense of his dissertation.

## Courses of Instruction

### BIOPHYSICS 300a and b. Biophysical Techniques

All entering students normally register for this course and will thereby participate for periods of about six weeks in the research programs of each of the six to eight staff members.

Staff

## Chemistry

### Objectives

The graduate program in chemistry is designed to lead to a broad understanding of this subject. All students will be required to demonstrate knowledge in advanced modern areas of inorganic, organic and physical chemistry. They will be required also to demonstrate proficiency in selected experimental techniques which are used in chemical research. Advanced

courses are offered, satisfactory completion of which will constitute partial fulfillment of these requirements. Members of the chemistry staff are currently investigating mechanisms of organic reactions, chemistry of free radicals, stereochemistry and molecular geometry, chemistry of organophosphorus compounds, chemotherapy, mechanisms of enzyme reactions, structure and biogenesis of natural products, chemical kinetics of elementary reactions, statistical theory of atomic and molecular structure, properties of non-aqueous solutions, photochemistry, mechanisms of photosynthesis, ultra-fast proton transfer steps in acid base reactions; dispersion forces between adjacent molecules in liquids; lifetimes of hydrogen-bonded complexes in solution, solid state chemistry, electron paramagnetic resonance, rapid reactions by relaxation spectrometry, structure of organic and inorganic compounds by X-ray diffraction, kinetics of reactions in the gas phase.

To avoid excessive specialization, related advanced work in mathematics, physics, and biology may be offered to fulfill degree requirements.

### Admission

The general requirements for admission to the Graduate School, given in an earlier section of this catalog, apply to candidates for admission to this area of study. In addition, the undergraduate curriculum of applicants should include courses in physics and mathematics (differential and integral calculus), and courses in general, analytical, organic and physical chemistry.

Admission to advanced courses will be based upon results of a qualifying examination in each of these areas of chemistry, which will be taken upon entrance. These examinations will determine whether the student will be required to make up deficiencies in preparation. The qualifying examinations will be given three times a year; (1) during the two-week period ending with the first week of the Fall Term, (2) in February, and (3) in April. The results of the qualifying examinations will be considered in the assignment of awards for the subsequent years of graduate study.

### Faculty

PROFESSOR SAUL G. COHEN, *Chairman*: Chemistry of free radicals; organic photochemistry; stereospecificity and mechanism of reactions of enzymes.

Adjunct Professor ORRIE M. FRIEDMAN: Biorganic chemistry; degradation studies of DNA; organic phosphorus compounds; synthesis of anti-tumor agents.

Professor SIDNEY GOLDEN: Quantum statistical theory of chemical kinetics; many body problems and atomic and molecular structure; statistical mechanics of ion solvation.

Professor ERNEST M. GRUNWALD: Ultra-fast proton transfer steps in acid base reactions; dispersion forces between adjacent molecules in liquids; life-times of hydrogen-bonded complexes in solution.

Professor HENRY LINSCHITZ: Reactions of excited molecules; stabilization of free radicals; photo-ionization in solution and properties of solvated electrons; physical mechanisms of photosynthesis and vision.

Associate Professor PAUL B. DORAIN: Electron paramagnetic resonance studies on metastable oxidation states; exchange interactions in crystals; crystal field splittings in actinides.

Associate Professor JAMES B. HENDRICKSON: Chemistry of natural products, particularly alkaloids and sesquiterpenes; chemical plant phylogeny; stereochemistry and molecular geometry.

\*Associate Professor MYRON ROSENBLUM: Reaction mechanisms; thermally induced rearrangements; the chemistry of ferrocene and related compounds.

\*\*Associate Professor ROBERT STEVENSON: Isolation and structure of natural products; lignan synthesis; molecular rearrangements in triterpenoids and steroids.

Associate Professor THOMAS R. TUTTLE, JR.: Electron distribution in ion radicals by electron spin-resonance; molecular motions in solutions; properties of metal solutions in ammonia and other solvents.

Assistant Professor ROBERT F. HUTTON: Chemical models for enzymatic reactions; nuclear magnetic resonance spectroscopy.

Assistant Professor PETER C. JORDAN: Irreversible statistical mechanics and quantum chemistry.

Assistant Professor KENNETH KUSTIN, (*Graduate Student Adviser*): Study of fast reactions in solution by relaxation techniques; mechanisms of inorganic reactions; enzyme kinetics.

Assistant Professor THOMAS N. MARGULIS: Structure of organic and inorganic compounds by X-ray diffraction.

Assistant Professor COLIN STEEL: Chemistry of excited molecules and radicals; the kinetics and mechanisms of photochemical and thermal reactions.

## Degree Requirements

### Master of Arts

*Qualifying Examinations.* The qualifying examinations must be passed by the end of the first year of graduate study.

\*On Leave, 1965-66

\*\*On Leave, Fall Term.

*Program of Study.* Each candidate for the Master's degree is required to complete satisfactorily:

1. Not less than *eighteen semester hours of lecture course work* in inorganic, organic and physical chemistry. Graduate courses in related fields may be offered to fulfill the chemistry requirements on petition to the department. The petition must be approved prior to registration for such courses.

2. *Six semester hours of advanced laboratory work.* This requirement may be met by graduate credit in laboratory work in courses numbered over 100.

3. Chemistry 130a—Introduction to Organic Research or Chemistry 110b—Analytical Chemistry may be offered in partial fulfillment of lecture course requirements or of laboratory course requirements for the M.A. degree.

*Residence Requirement.* The minimum residence requirement for this degree is one year. While generally this will be fulfilled in two semesters and one summer, it may in certain instances be met in two semesters.

*Language Requirements.* A reading knowledge of German and an elementary knowledge of French or Russian is required.

### Doctor of Philosophy

*Program of Study.* Each candidate for the Doctor's degree is required to complete satisfactorily:

1. The qualifying examinations which must be passed at a level satisfactory for this degree by the end of the first year of graduate study.

2. The program of study described for the degree of Master of Arts in Chemistry, or its equivalent.

3. Not less than nine additional semester hours of lecture course work in Chemistry selected from those in the 200 series.

4. Final examinations. After a student has been admitted to the Ph.D. program he begins to take final examinations, normally in the second year of graduate study, in his major field, organic or physical chemistry. In organic chemistry these examinations are administered twice a year, at the end of each semester, and are based on assigned readings. Students must pass three of these examinations and must maintain satisfactory progress toward this end. In physical chemistry, generally during the third semester of graduate work, the student is assigned a set of four propositions. On one proposition a three-hour examination is written and on the remaining three propositions the student is examined orally for a two-hour period by faculty members. The student is graded on his overall performance on both parts, i.e., written and oral, of the examination.

*Residence Requirements.* The minimum residence requirement for this degree is two years. Ordinarily, three years of full-time study will be necessary for the completion of the course work and the preparation of an acceptable thesis.

*Language Requirements.* A reading knowledge of German and either French or Russian is required.

*Admission to Candidacy.* The student may be recommended for admission to candidacy upon the recommendation of his dissertation adviser, and the completion of the following requirements: the qualifying examinations, twenty-one hours of graduate lecture course credit, the language examinations and one final examination.

*Dissertation and Defense.* A thesis is required which summarizes the results of an original investigation and which demonstrates the competence of the candidate in independent investigation, critical ability, and effectiveness of expression. The topic of the thesis must receive approval of the department. An oral defense of the dissertation will be held.

## Courses of Instruction

### CHEMISTRY 110bR. Analytical Chemistry

Principles and techniques involved in modern chemical analysis. Application of modern instrumental methods to the study of chemical and physical processes. Techniques used include polarography, spectroscopy, chromatography.

*Prerequisites:* Chemistry 41, which may be taken concurrently.

Two classroom and six laboratory hours a week. *4 credits.*

Laboratory fee: \$10.

*Mr. Steel*

### CHEMISTRY 121aR. Inorganic Chemistry

Introduction to the principles of chemical binding; valence theory, periodic properties, molecular structures. Application to the chemistry of the lighter elements.

Inorganic synthesis and analysis; synthetic techniques include vacuum line, high temperature, non-aqueous and electrochemical preparations. Instrumental methods of analysis.

*Prerequisites:* Chemistry 41 or consent of the instructor.

Three classroom hours a week, *3 credits*; six laboratory hours a week, *2 credits.*

Laboratory fee: \$10.

*Mr. Kustin*

### CHEMISTRY 130a. Introduction to Organic Research

Systematic determination of structures of organic molecules utilizing micro-techniques and instrumental methods as a preparation for research. Some synthetic work in connection with degradations of unknowns will emphasize choice of reactions and conditions.

*Prerequisites:* Chemistry 25.

Two classroom hours and two three-hour laboratory periods a week. *4 credits.*

Laboratory fee: \$10.

*Mr. Hutton*

**CHEMISTRY 131a. Advanced Organic Chemistry**

Stereochemistry, molecular rearrangements, kinetics and mechanisms of organic reactions.

*Prerequisites:* Satisfactory grades in Chemistry 25 and 41 or the equivalent. Chemistry 41 may be taken concurrently. *Mr. Cohen*

**\*CHEMISTRY 132b. Synthetic Methods**

A survey of several newer organic reactions of theoretical and synthetic interest including a discussion of their application, scope, specificity and mechanism.

*Prerequisites:* Satisfactory grade in Chemistry 131a or the equivalent.

**CHEMISTRY 141a. Advanced Physical Chemistry**

A unified introduction to chemical thermodynamics, statistical mechanics and elementary wave mechanics.

*Prerequisite:* Chemistry 41 or equivalent. *Mr. Tuttle*

**CHEMISTRY 141b. Advanced Physical Chemistry**

Continuation of Chemistry 141a.

*Prerequisite:* Satisfactory grade in Chemistry 141a. *Mr. Jordan*

**\*CHEMISTRY 144a. Chemical Crystallography**

Introduction to chemical crystallography including descriptive crystallography; theory of symmetry; structure determination by means of X-ray, neutron and electron diffraction.

*Prerequisites:* Chemistry 41 or the equivalent.

**CHEMISTRY 145b. Chemical Kinetics**

Kinetics of homogeneous and heterogeneous chemical change.

*Prerequisite:* Satisfactory grade in Chemistry 41 or equivalent. *Mr. Steel*

**CHEMISTRY 200. Advanced Chemistry Laboratory**

*Staff*

**\*CHEMISTRY 221b. Advanced Inorganic Chemistry I**

Inorganic reaction mechanisms: Substitution, exchange, polymerization, redox, hydrolytic and solvolytic reactions; inorganic stereochemistry.

*Corequisite:* Chemistry 145b.

**CHEMISTRY 222bR. Advanced Inorganic Chemistry II**

Theoretical inorganic chemistry: Atomic structure and the application of group theory to inorganic compounds, particularly the transition metals; ligand field theory.

*Prerequisites:* Chemistry 141a;

*Corequisite:* Chemistry 141b.

*Mr. Dorain*

Chemistry 221b and Chemistry 222b are given in alternate years.

**CHEMISTRY 230b. Advanced Organic Chemistry**

A continuation of Chemistry 131a.

*Prerequisite:* Satisfactory grade in Chemistry 131a.

*Mr. Cohen*

**CHEMISTRY 231c. Selected Topics in Organic Chemistry**

Required of graduate students in organic chemistry who must audit this course each year and may receive three credits after participating for two years and presenting two seminar talks. *Messrs. Hendrickson and Stevenson*

\*Not to be given in 1965-66.

**\*CHEMISTRY 232b. Chemistry of Heterocyclic Compounds**

A systematic survey of the principal oxygen, nitrogen and sulfur heterocycles of five and six membered and fused ring systems, including their synthesis, chemical reactions and aromatic character.

*Prerequisite:* Satisfactory grade in Chemistry 131a.

**\*CHEMISTRY 233b. Chemistry of Alkaloids**

Study of principal alkaloids belonging to the pyrrolidine, piperidine, pyrrolizidine, quinolizidine, quinoline, isoquinoline and indole groups, including degradation, total synthesis and biogenetic relationships.

*Prerequisite:* Satisfactory grade in Chemistry 132b.

**\*CHEMISTRY 235a. The Chemistry of Natural Products I**

Structure elucidation, synthesis and biogenesis of steroids and triterpenoids.

*Prerequisites:* Satisfactory grades in Chemistry 131a and 230b or the equivalent.

**CHEMISTRY 236aR. The Chemistry of Natural Products II**

Isolation, structure elucidation, degradation, synthesis and classification of selected classes of natural products.

*Prerequisites:* Satisfactory grades in Chemistry 131a and 230b or the equivalent.

*Mr. Stevenson*

**CHEMISTRY 241c. Selected Topics in Physical Chemistry**

A seminar course. Required of graduate students in physical chemistry who must audit this course each year and may receive three credits after participating for two years and presenting two seminar talks.

*Prerequisites:* Satisfactory grades in Chemistry 141a and 121a or 145b or the equivalent.

*Messrs. Golden and Linschitz*

**\*CHEMISTRY 243b. Statistical Thermodynamics**

Elementary statistical mechanics of systems in equilibrium; Boltzmann, Fermi-Dirac and Bose-Einstein statistics; microcanonical, canonical and grand canonical ensembles; applications to thermodynamic systems.

**CHEMISTRY 244b. Selected Topics in Solvation Theory**

Statistical thermodynamic properties of ionic solutions; ion-solvent interactions; ion-ion interactions.

*Mr. Golden*

**CHEMISTRY 245bR. Physical Organic Chemistry**

A quantitative discussion of rates and equilibria of organic reactions.

*Mr. Grunwald*

**\*CHEMISTRY 247a. Quantum Chemistry**

Quantum mechanics and applications to problems in atomic and molecular structure and chemical binding.

**\*CHEMISTRY 248b. Topics in Quantum Theory****Courses in Research****CHEMISTRY 400. Organic Chemistry and Physical Organic Chemistry**

Reaction mechanisms; free radicals; photochemistry; enzyme reactions.

*Mr. Cohen*

**CHEMISTRY 401. Organic Chemistry**

Chemistry of natural products; steroids, triterpenoids, lignans.

*Mr. Stevenson*

\*Not to be given in 1965-66.

**CHEMISTRY 403. Organic Chemistry**

Non-benzenoid aromatics; molecular rearrangements; reaction mechanisms; organometallics. *Mr. Rosenblum*

**CHEMISTRY 404. Organic Chemistry**

Chemistry of natural products; stereochemistry and molecular geometry; development of new synthetic reactions. *Mr. Hendrickson*

**CHEMISTRY 405. Physical Chemistry**

Chemical kinetics of elementary reactions; statistical theory of atomic and molecular structure; statistical mechanics of electrolytic solutions. *Mr. Golden*

**CHEMISTRY 406. Physical Chemistry**

Reactions of excited molecules; luminescence; mechanism of photosynthesis; heavy-metal complexes. *Mr. Linschitz*

**CHEMISTRY 407. Physical and Inorganic Chemistry**

Electron paramagnetic resonance; solid state chemistry. *Mr. Dorain*

**CHEMISTRY 408. Physical Chemistry**

Electron spin resonance; structure of free radicals; diffusion in liquid solutions; chemistry of electrolytic solutions. *Mr. Tuttle*

**CHEMISTRY 409. Physical and Inorganic Chemistry**

Kinetics and mechanisms of inorganic reactions; experimental study of fast reactions including enzyme catalysis by the temperature-jump and other relaxation techniques. *Mr. Kustin*

**CHEMISTRY 410. Physical Chemistry**

Structure of organic and inorganic compounds by X-ray diffraction. *Mr. Margulis*

**CHEMISTRY 411. Physical Chemistry**

Chemistry of excited molecules and radicals; the kinetics and mechanisms of photochemical and thermal reactions. *Mr. Steel*

**CHEMISTRY 412. Physical and Physical Organic Chemistry**

Ultra-fast proton transfer steps in acid base reactions; dispersion forces between adjacent molecules in liquids; lifetimes of hydrogen-bonded complexes in solution. *Mr. Grunwald*

**CHEMISTRY 413. Physical Chemistry**

Statistical mechanics; irreversible processes; theory of fluids; quantum chemistry. *Mr. Jordan*

**Chemistry Colloquium**

Lectures by faculty and invited speakers. Required of all graduate students. *Non-credit.*

**Contemporary Jewish Studies****Objectives**

The graduate program in Contemporary Jewish Studies offers training on the Master of Arts level in various disciplines relating to the history, soci-



ology and literature of contemporary Jewry. It is designed both for students who intend to devote themselves to teaching and research in contemporary Jewish studies and for those who plan careers in the field of Jewish communal and educational service.

### Admission

The general requirements for admission to the Graduate School, as specified in an earlier section of this catalog, apply to candidates for admission to the Contemporary Jewish Studies program.

### Faculty Executive Committee

- \*Associate Professor HAROLD WEISBERG, *Chairman*: Philosophy.
- \*Professor ALEXANDER ALTMANN: Near Eastern and Judaic Studies.
- Professor NAHUM N. GLATZER: Near Eastern and Judaic Studies.
- \*\*Professor VICTOR HARRIS: English and American Literature.
- Professor ROBERT A. MANNERS: Anthropology.
- Professor ABRAHAM H. MASLOW: Psychology.
- Professor ROBERT MORRIS: Social Planning.
- Professor MORRIS S. SCHWARTZ: Sociology.
- Associate Professor ARNOLD GURIN: Social Administration.
- Associate Professor BENJAMIN HALPERN: Near Eastern and Judaic Studies.
- \*\*Associate Professor MARIE SYRKIN: English.
- Assistant Professor BERNARD S. SOBEL: Sociology.
- MR. LEONARD ZION: Lecturer in Near Eastern and Judaic Studies.

### Degree Requirements

#### Master of Arts

*Program of Study.* The program of study leading to the degree of Master of Arts will consist of six half-courses (three each term), and one Master's paper each term in lieu of a thesis. The six half-courses must include Contemporary Jewish Studies 105b, 160a, 160b, and 170b. The remainder of the course requirements may be fulfilled within the Contemporary Jewish Studies program or, with the approval of the Committee, within the Departments of Anthropology, Near Eastern and Judaic Studies, Psychology, Sociology, or the Florence Heller School for Advanced Studies in Social Welfare.

\*On Leave, Fall Term.

\*\*On Leave, 1965-66.

It is expected that the Master of Arts degree will be earned in one year; in exceptional cases two years will be allowed.

*Residence Requirement.* The minimum residence requirement for the Master of Arts degree is one year.

*Language Requirement.* The candidate must demonstrate proficiency in one foreign language, ordinarily Hebrew or Yiddish.

## Courses of Instruction

### CJS 103a. The Sociology of Religion

Sociological analysis of contemporary and historical religious institutions and experiences. Religious leaderships and followerships; conversion; sect, denomination and church; religion, society and politics; leading contemporary schools of theology. *Mr. Sobel*

### CJS 105b. The Sociology of Modern Anti-Semitism

Sociological analyses of contemporary forms of anti-Semitism. Various theories, both past and present, attempting to explain the phenomenon will be critically examined. *Mr. Sobel*

### CJS 110b. Jewish Education: Applied Theory

Some of the major problems of teaching in the Jewish school will be considered along with an exploration of possible effective and creative approaches to them. (*N.B. This is a non-credit course.*) *Mr. Lukinsky*

### \*CJS 115b. The Sociology of the American Churches

The major sociological and theological characteristics of the American churches; church membership and church organization; the relationship of the churches to the power structure and to each other; Catholics and Jews; the "majority" churches in a pluralistic society.

### CJS 126b. History of the Jews in Modern Times

The emancipation of the Jews in western Europe; the Haskalah movement. The great migrations to the West. Renaissance of Hebrew culture. Anti-semitism. Zionism. Problems of contemporary Jewish life in the United States. *Mr. Halpern*

### CJS 160a. American Jewish Institutional History

Social history of American Jewry from colonial times to the Second World War. Emphasis on the development of communal institutions. *Mr. Halpern*

### \*CJS 165a. The American Jewish Novel

Works of fiction dealing explicitly with Jewish themes and characters will be studied, beginning with Cahan's *The Rise of David Levinsky* to the recent work of Philip Roth and Bernard Malamud. The course will concentrate on changes in theme and literary treatment.

### \*CJS 165b. The Jewish Image in World Literature

Beginning with the Shylock stereotype, the course will concentrate on the complex role of Jewish figures in such writers as Joyce, Proust and Thomas Mann. Minor writers will also be discussed.

\*Not to be given in 1965-66.

**\*CJS 166a. Modern Jewish Intellectual History to 1870**

Jewish ideologies and movements from the Enlightenment to the rise of political anti-semitism.

**\*CJS 166b. Modern Jewish Intellectual History Since 1870**

Jewish ideologies and movements from the rise of political anti-semitism to the present.

**CJS 167a. Historical Theories in Modern Jewish Thought**

This course surveys the emergence of modern Jewish historiography and its relationship to Jewish thought. The works of Krochmal, Zunz, Geiger, Jost, Graetz, Hermann Cohen and Franz Rosenzweig will be discussed. *Mr. Fleischmann*

**CJS 168a. Judaism and Contemporary Social Issues**

An examination of relationships of Jewish ideologies to critical problems within organized labor and management, work and leisure, community renewal, war and peace, church and state, public policy and individual freedom. *Mr. Zion*

**\*CJS 170a. The Contemporary American Jewish Community**

Survey of Jewish organizational activity in the United States and Canada. Structure and functions of religious and philanthropic institutions. Patterns of co-ordination and community planning. Interrelationship of local, national, and international programs. Trends and problem issues in regard to demographic changes, Jewish identification, rationale for sectarian services, inter-group relations, financing.

**CJS 260b. Topics in American Jewish History**

A research seminar.

*Mr. Halpern*

## English and American Literature

### Objectives

The graduate program in English and American literature is designed to offer training in the interpretation and evaluation of literary texts with some attention to the related scholarly disciplines, particularly history and linguistics. It also offers for candidates who have some ability in writing an opportunity to pursue this interest as a normal part of the graduate program.

### Admission

Candidates for admission should have a Bachelor's degree, preferably with a major in English and American literature, and a reading knowledge of French, Italian, German, Greek, or Latin. The general requirements for admission to the Graduate School, as specified in an earlier section of this catalog, apply to candidates for admission to this area of study.

\*Not to be given in 1965-66.

## Faculty

Professor ROBERT O. PREYER, *Chairman*: Victorian literature.

Visiting Professor OWEN BARFIELD: Romantic and modern criticism.

Professor J. V. CUNNINGHAM: Renaissance literature. Creative writing.

\*Professor VICTOR HARRIS: Seventeenth century literature.

Professor MILTON HINDUS: American literature. Contemporary literature.

Professor GRAHAM HOUGH (as of September 1966): Nineteenth century literature. Contemporary literature.

Professor LOUIS KRONENBERGER: Comparative literature.

Visiting Professor JOHN LAWLOR: Medieval literature. Renaissance literature.

Professor HOWARD NEMEROV (as of September 1966): Contemporary literature. Creative writing.

Professor EDWIN B. PETTET: Dramatic criticism.

Professor PHILIP RAHV: American literature. Criticism.

Associate Professor BENJAMIN B. HOOVER: Eighteenth century literature.

Visiting Associate Professor JOHN H. SMITH: Renaissance literature.

Associate Professor PETER SWIGGART: American literature.

Associate Professor AILEEN WARD: Nineteenth century literature.

Assistant Professor BARBARA GELPI: Victorian literature.

Assistant Professor ALLEN GROSSMAN: Contemporary literature. American literature.

Assistant Professor S. JAY KEYSER: Linguistics. Medieval literature.

Assistant Professor IRA KONIGSBERG: English novel. Eighteenth century literature.

Assistant Professor ALAN LEVITAN: Renaissance literature.

DR. JOHN BURT WIGHT: Teacher training.

MRS. KAREN W. KLEIN: Medieval literature. Linguistics.

MR. RICHARD ONORATO: Romantic literature.

## Degree Requirements

### Master of Arts

*Program of Study.* The program of study leading to the degree of Master of Arts will consist of six half-courses (three a semester), and one Master's paper each term (290a and b). The six half-courses will normally include Introduction to Literary Study; at least one seminar a semester; Old English, Middle English, or History and Structure of the English Language; and may include a half-course in advanced writing. Students who are deficient in training will, however, in most cases need additional course work.

\*On Leave, 1965-66.

*Residence Requirement.* The minimum residence requirement is one year, though students with inadequate preparation may require more.

*Language Requirements.* Each student must have a reading knowledge of a major European language, ancient Greek, or Latin.

*Qualifying Examinations.* The student must pass the written part of the Ph.D. qualifying examination (see below).

### Doctor of Philosophy

*Program of Study.* The program of study in the second year of graduate work will consist of six half-courses. These normally will include at least two seminars, the English Seminar (301b), and may include a half-course in advanced writing. The program in the third year of doctoral study will normally consist of 321a and b, 322a and b, and in most cases 311. Students who are deficient in training may require more formal course work.

*Language Requirements.* Each student must have a reading knowledge of two languages. He may choose to be examined in any major European language, ancient Greek, and Latin.

*Residence Requirement.* The minimum residence requirement is one year beyond the Master's degree or two years beyond the Bachelor's, but students will normally take three or four years.

*Qualifying Examinations.* The qualifying examination will consist of two parts, written and oral. The written examination will test the student's ability to interpret and evaluate a number of major texts distributed over the various kinds and periods of English and American literature. This examination will be scheduled in September and May. The oral will be given within the two week period following the written examination; it will test the student on his critical and scholarly competence with three major works (e.g., *Hamlet*, *Tristram Shandy* and *The Prelude*) of his own selection. During the oral, the student may also be examined on his Master's papers and the first part of his qualifying examination. In his third year of graduate study the student must pass examinations in four fields of English and American literature (321a and b, 322a and b). Three of these will be written examinations on a limited number of major authors in fields in which the student's formal training has been deficient. The fourth will be an oral on the student's entire field of specialization: the student will be writing his dissertation in this field and may specialize in a period of English or American literature, or the history of a genre. These examinations will be given on specified dates during the university examination periods in the Fall and Spring Terms.

*Admission to Candidacy.* A student may be admitted to candidacy for the Ph.D. degree when he has (1) completed residence requirements, (2)

passed the qualifying examinations for the Ph.D. degree, (3) passed one foreign language, and (4) presented his public lecture.

*Dissertation and Defense.* The candidate will explore with a member of the faculty a topic for his dissertation. He will then submit a formal proposal to the chairman of the department, who will appoint a committee to confer with the student, and approve, modify, or reject the proposal.

Finally, the candidate must submit an acceptable monograph or some comparable contribution to learning, on a topic and in a form approved by the committee at his thesis conference, and must defend it at a final oral examination.

### Courses of Instruction

In addition to the following courses, graduate students in English and American Literature, with the permission of the chairman of the department, may take for credit any Humanities and Comparative Literature courses in the 100 series. For description of such courses refer to the undergraduate catalog.

#### ENGLISH 121a and b. Old English

An introduction to Old English grammar, with special attention to the rapid attainment of skill in reading. Texts of prose and the shorter poems will be read in the first semester; *Beowulf* in the second semester. *Mrs. Klein*

#### ENGLISH 122a. The Medieval Lyric

The development of lyric poetry in England, France and Germany in the Middle Ages, with special attention to the Middle English lyric. *Mrs. Klein*

#### \*ENGLISH 142b. Elizabethan and Jacobean Drama

A survey of English drama from 1590 to 1640.

#### ENGLISH 145b. English Religious Poetry in the Seventeenth Century

A study of the religious poetry of Donne, Herbert, Vaughan, Traherne, Crashaw, Marvell, and including the early poems of Milton. *Mr. Grossman*

#### ENGLISH 150b. The Classical Background of English Literature

*Mr. Mueller*

#### ENGLISH 155a. Romantic Poetry

*Mr. Onorato*

#### ENGLISH 172a. The Nineteenth Century Novel

*Mr. Preyer*

#### \*ENGLISH 173a. The English Novel, 20th Century: British, 1930-1960

Waugh, Greene, Powell, Snow, Golding, Murdock, Amis, and others.

#### ENGLISH 180b. Continuity and Change in Modern Literature

*Mr. Rahv*

#### \*ENGLISH 185a. The Literature of Transition: Classical to Romantic

#### ENGLISH 187a. History of Criticism: Plato to Dryden

*Mr. Cunningham*

#### ENGLISH 188b. History of English Criticism: Romantic and Modern

*Mr. Barfield*

\*Not to be given in 1965-66.

**ENGLISH 192b. History and Structure of the English Language**

A study of the linguistic structure of modern English and of the historical processes through which it developed.

*Mr. Keyser*

**ENGLISH 201a. Introduction to Literary Study**

*Mr. Hoover*

**Pro-Seminars**

Pro-seminars, numbered between 202 and 210, are courses designed for graduate students to enable them to make up deficiencies in various fields and subjects, and prepare them for seminar work.

**ENGLISH 204b. Pro-Seminar in Medieval Drama**

*Mr. Lawlor*

**ENGLISH 205a. Pro-Seminar in Elizabethan Drama**

*Mr. Levitan*

**ENGLISH 206a. Pro-Seminar in Eighteenth Century Poetry**

*Mr. Konigsberg*

**ENGLISH 207b. Pro-Seminar in the Nineteenth Century: Romantic Poetry and Criticism**

A survey of the poetry and criticism of the period, focused on the major poets.

*Miss Ward*

**ENGLISH 208b. Pro-Seminar in Victorian Prose**

*Mrs. Gelpi*

**Seminars****ENGLISH 212b. Seminar in the Novel**

An investigation of the theory and technique of the novel.

*Mr. Konigsberg*

**ENGLISH 213a. Seminar in Criticism**

Literary criticism in America: Poe to Wilson.

*Mr. Rahu*

**ENGLISH 215a. Seminar in Renaissance Literature**

Tudor prose and poetry, More to Donne and Jonson.

*Mr. Cunningham*

**ENGLISH 215b. Seminar in Renaissance Literature**

*Mr. Smith*

**ENGLISH 216b. Seminar in the Eighteenth Century Novel**

*Mr. Hoover*

**ENGLISH 217a. Seminar in Romantic Poetry: William Blake**

*Miss Ward*

**ENGLISH 217b. Seminar in the Romantic Period**

Coleridge and the Imagination.

*Mr. Barfield*

**ENGLISH 218a. Seminar in the Victorian Novel**

*Mr. Preyer*

**ENGLISH 219a. Seminar in the American Novel**

Hawthorne, James, and Faulkner.

*Mr. Swiggart*

**ENGLISH 261a. Seminar in Anglo-Irish Literature**

Yeats, Synge, and Joyce.

*Mr. Grossman*

**ENGLISH 290a and b. Directed Research**

Candidates for the Master's degree will enroll in this course for two semesters.

*Miss Ward and Mr. Konigsberg*

**ENGLISH 301b. The English Seminar**

Each student will deliver a fifty minute public lecture.

*Required of second year candidates for the doctoral degree. Mr. Hoover*

**ENGLISH 311. Seminar in Teaching**

For Teaching Assistants in English. *Non-credit. Messrs. Wight and Swiggart*

**ENGLISH 321a and b. Earlier English Literature**

Special fields.

*Required of third year candidates for the doctoral degree.*

*Messrs. Hoover and Grossman*

**ENGLISH 322a and b. Later English Literature and American Literature**

Special fields.

*Required of third year candidates for the doctoral degree.*

*Mr. Swiggart and Miss Ward*

**ENGLISH 400a and b. Research**

*Staff*

**ENGLISH COMPOSITION 102a and b. Directed Writing: Poetry**

*Mrs. Stone*

**HUMANITIES 65b. Existentialism and European Fiction**

Kierkegaard, Sartre, Camus and Kafka.

*Mr. Swiggart*

## History of American Civilization

### Objectives

The graduate program in the History of American Civilization, leading to the degree of Doctor of Philosophy in History, has been designed to train scholars and teachers with both intensity and breadth. Historical in emphasis and organization, the curriculum will reach out into other disciplines such as political science, economics, philosophy, literature, psychology, and sociology for insights and techniques that illuminate the American experience. A small, select student body will work in close cooperation with the faculty, and a great deal of reliance will be placed on the development of individual programs of study.

### Admission

The general requirements for admission to the Graduate School, given in an earlier section of the catalog, apply to candidates for admission to this area of study. Normally, the student's undergraduate curriculum should include some fundamental courses in American history, politics, or literature, but need not show a concentration in American studies. Applicants are required to take the Graduate Record Examination.



## Faculty

Executive Committee: Professor MORTON KELLER, *Chairman*; Professors RAYMOND S. GINGER, LEONARD W. LEVY, MARVIN MEYERS, JOHN P. ROCHE.

### Staff:

- \*Professor LAWRENCE H. FUCHS: Political institutions. Ethnic studies.
- Professor RAYMOND S. GINGER: Economic and social history. Reform movements.
- Professor EVERETT C. HUGHES: Educational sociology. Sociology of occupations. Sociology of race relations.
- Professor MORTON KELLER: Political history. Entrepreneurial history.
- Professor MAX LERNER: Social institutions. Political economy. Contemporary history.
- \*Professor LEONARD W. LEVY: Constitutional history, the South. Colonial period.
- Professor NORTON LONG: Social theory. Urban studies.
- Professor MARVIN MEYERS: Intellectual history. The early republic.
- Professor PHILIP RAHV: American and comparative literature.
- \*Professor JOHN P. ROCHE: Political theory. Constitutional history. Contemporary history.
- Associate Professor PETER SWIGGART: American literature.
- Assistant Professor JEROLD AUERBACH: Recent history. Labor history.
- Assistant Professor DAVID H. FISCHER: Early American history.

## Degree Requirements

### Master of Arts

No one will be accepted in the program who is not a doctoral candidate. However, the M.A. degree in History may be awarded after completion of twenty-four course credits, the oral qualifying examination, and demonstration of proficiency in one foreign language.

### Doctor of Philosophy

*Program of Study.* Doctoral candidates must complete two years in residence at Brandeis, and a minimum of forty-eight course credits. The Committee may, at its discretion, grant a student transfer credit of up to one year toward the Ph.D. residence requirement for work done elsewhere; application for such credit shall be considered only after a student has completed one semester's residence in a full-time program.

*Language requirement.* A high level of reading proficiency in one foreign language is required of all Ph.D. candidates.

\*On Leave, 1965-66.

*Qualifying Examination.* Each doctoral candidate must be prepared for examination in the following fields: American history (with specialization in one period); an area of modern European history; a related discipline in the social sciences or the humanities. Programs of study and concentration will be formulated for each student, subject to the approval of the Executive Committee.

*Admission to Candidacy.* A student may be admitted to candidacy for the Ph.D. degree upon satisfactory completion of the following: course and residence requirements, demonstration of a high level of proficiency in one foreign language, and a general qualifying examination.

*Dissertation and Defense.* The candidate will be required to prepare a prospectus for his dissertation to be submitted for approval to the Committee. When the dissertation is accepted by the committee, a final oral examination will be scheduled at which the candidate must successfully defend his dissertation before the Committee and other members of the faculty who may participate. After a candidate has successfully defended his dissertation, he will give a public lecture.

### Courses of Instruction

\*HISTORY 150b. The Age of the Democratic Revolution 1760-1830

HISTORY 151a. American Colonial and Revolutionary History

An investigation of three selected topics in early American history; the Puritans in seventeenth century New England; political, economic, social, religious and cultural development in eighteenth century America; the American Revolution.

*Mr. Fischer*

HISTORY 151b. The New Republic

A study of five problems in American history, 1788-1815; the development of nationalism and sectionalism; the growth of political democracy; foreign affairs; economic expansion; and the transition from the Enlightenment to Romanticism.

*Mr. Fischer*

HISTORY 152b. Jacksonian Democracy

An examination of the interpretations of democratic society and politics in the Jacksonian era, from Tocqueville to the present.

*Mr. Meyers*

\*HISTORY 154a. The Rise of Modern America

HISTORY 154b. Modern America

Significant historical developments in the United States since 1914; business and economic, political, constitutional, diplomatic, social and intellectual.

*Mr. Ginger*

\*HISTORY 156a. History of American Constitutional Law and Theory

\*HISTORY 156b. History of American Constitutional Law and Theory

\*HISTORY 157b. American Industrial Growth

\*Not to be given in 1965-66.

**HISTORY 160. American Education**

Within the limits of American history, education is broadly conceived as the transmission of culture from Europe to the new world and from an agrarian colonial society to urban, industrial America. Emphasis is placed upon the family as an educational institution. *Mr. Fischer*

**HISTORY 164. History of American Political Institutions to 1865**

An examination of American politics that stresses its relationship to the culture at large. *Mr. Keller*

**\*AMERICAN CIVILIZATION 170b. Americans Overseas****\*AMERICAN CIVILIZATION 172a. The Presidency and the People**

**AMERICAN CIVILIZATION 200a. Pro-Seminar: An Introduction to the History of American Civilization** *Mr. Fischer*

**AMERICAN CIVILIZATION 252a. Seminar on the Problems in the History of American Thought: The Early Republic** *Mr. Meyers*

**\*AMERICAN CIVILIZATION 254a. Seminar on the United States in the Twentieth Century**

**AMERICAN CIVILIZATION 254b. Seminar on the History of American Institutions: The Gilded Age** *Mr. Keller*

**\*AMERICAN CIVILIZATION 256a. Seminar on American Constitutional History: The Bill of Rights****\*AMERICAN CIVILIZATION 256b. Seminar on American Constitutional History: The Fourteenth Amendment**

**AMERICAN CIVILIZATION 258b. Seminar on American Industrial Growth** *Mr. Ginger*

**AMERICAN CIVILIZATION 300. Readings in the History of American Civilization** *Staff*

Students may also draw from course listings in Anthropology, English and American Literature, Near Eastern and Judaic Studies, Philosophy and Sociology. Other courses relevant to the program include the following:

**ECONOMICS 170a. Monetary and Fiscal Policy**

The role of monetary and fiscal policy in achieving economic goals of the United States. Existing institutions and proposed reforms are studied. *Mr. Hartman*

**FINE ARTS 122. American Painting and Architecture**

An historical, philosophical interpretation of American painting and architecture from the beginning to the present. *Mr. de Leiris*

**POLITICS 121a. Problems in Community Government**

An examination of the evolution and problems of state, local, and regional governmental units. *Mr. Long*

\*Not to be given in 1965-66.

## POLITICS 121b. Seminar in Community Government

*Prerequisite:* Politics 121a.*Mr. Long*

## POLITICS 128a. Public Administration and Public Policy

A study of the dynamics and problems of policy formation and administration in the Federal government.

*Mr. Woll*

## POLITICS 152a. Political Parties

The role of political parties in the governmental process. The modern mass party contrasted with electoral and legislative parties. Party structure—organization, membership and leadership—will be examined with particular reference to social bases.

*Mr. Nordlinger*

## POLITICS 152b. Methodology of Political Science

The theory and method of political analysis, with special attention to the logic of explanation, empirical theories, models, and the role of values.

*Mr. Meehan*

## POLITICS 154b. Seminar in Government Planning

The theory and practice of modern government planning. The problems of planning in a democracy. Democracy and the role of the expert.

*Mr. Long*

## \*POLITICS 170a. American Political Thought

## \*POLITICS 170b. American Political Thought

## POLITICS 172a. Contemporary Europe: Problems in Politics, Arms, Culture and Society

Currents and problems of contemporary Europe: the struggle to give political direction to Western Europe; movements toward economic, military and political integration; the cultural unities in European history and the new European society in their bearing on Europe's future; critical evaluation of a "United States of Europe," an Atlantic partnership, a "Europe de Patrie," a single Europe based on an East-West detente.

*Mr. Lerner*

## POLITICS 197a. Contemporary Political Theory

A systematic analysis of contemporary problems in political theory.

*Mr. Meehan*

## AMERICAN CIVILIZATION 400. Dissertation Research

*Mr. Keller and Staff*

## History of Ideas

### Objectives

The program in the History of Ideas, leading to the degrees of Master of Arts and Doctor of Philosophy in History, aims to prepare historians of thought in two areas: (1) the *History of Philosophy*, in relation to ideas in cognate fields of thought (religion, science, literature); and (2) the *History of Political and Social Thought*, in relation to political and social developments.

\*Not to be given in 1965-66.

The endeavor throughout is to examine the interrelations of ideas in various disciplines, the interconnections between theoretical and practical activities, and the reciprocal influence of ideas and historical events.

A student trained in the program is expected to have a good general grasp of the history of philosophy *and* of the history of political and social thought; a special competence in dealing systematically as well as historically with major texts and problems in *either* the history of philosophy *or* the history of political and social thought; and a familiarity with the general history of the period in which he is concentrating.

### Admission

In addition to the general requirements for admission to the Graduate School specified in an earlier section of this catalog, applicants who wish to specialize in the History of Philosophy should present an undergraduate major in philosophy or classics; applicants who plan to specialize in the History of Political and Social Thought should present an undergraduate major in political science, sociology, or history.

### Faculty

Executive Committee: Associate Professor PETER DIAMANDOPOULOS, *Chairman*; Professors HENRY DAVID AIKEN, LEWIS A. COSER, NAHUM N. GLATZER, NORTON LONG, STEPHEN TOULMIN; Associate Professors HEINZ M. LUBASZ, FREDERIC SOMMERS.

### Staff:

Professor HENRY DAVID AIKEN: Ethics. American philosophy. Social philosophy.

\*Professor ALEXANDER ALTMANN: History of Jewish philosophy and mysticism. Medieval philosophy.

\*Professor DAVID BERKOWITZ: Historiography.

Professor LEWIS A. COSER: Political sociology. Sociological theory.

Professor NAHUM N. GLATZER: Jewish history. Hebrew historiography. Eschatology.

Professor CYRUS H. GORDON: Cuneiform. Egypto-Semitic, and Mediterranean studies.

Professor NORTON LONG: Community government.

Professor MORRIS S. SCHWARTZ: Social psychology. Applied sociology. Social psychiatry.

Professor STEPHEN TOULMIN: Philosophy of science. History of science.

Professor JOHN VAN HEIJENOORT: Logic. History of logic.

\*On Leave, Fall Term.

- Professor KURT H. WOLFF: Sociological theory. Sociology of knowledge.
- Associate Professor PETER DIAMANDOPOULOS: History of ancient philosophy. History of science.
- Associate Professor HEINZ M. LUBASZ: German intellectual history.
- Associate Professor RAMSAY MACMULLEN: Ancient history.
- Associate Professor EUGENE J. MEEHAN: Political theory.
- Associate Professor DAVID NEIMAN: Biblical studies. Ancient Near East.
- Associate Professor FREDERIC SOMMERS: Philosophy of language. Metaphysics. History of philosophy.
- Associate Professor MAURICE R. STEIN: Communities. Sociology of literature. Social psychiatry.
- Associate Professor HAROLD WEISBERG: Philosophy of the social sciences. Social philosophy. Philosophy of religion.
- Assistant Professor KENNETH BARKIN: Modern European history.
- Assistant Professor DANIEL C. BENNETT: Philosophy of mind. History of philosophy. Social philosophy.
- Assistant Professor THOMAS HEGARTY: Russian history.
- Assistant Professor ARYEH L. MOTZKIN: Arabic language and literature. History of Islam.
- Assistant Professor GERASIMOS X. SANTAS: History of ancient philosophy. Ethics.
- Assistant Professor BERNARD Z. SOBEL: Sociology of religion. Sociology of the Jews.
- DR. EUGENE J. FLEISCHMANN: Jewish philosophy.

### Degree Requirements

All programs of study will be worked out in consultation with the student's adviser.

#### Master of Arts

*Program of Study.* The program for the Master of Arts consists of eight half-courses which are to be distributed among the various groups indicated below as follows:

1. Introduction to the History of Ideas (Group I) two half-courses.
2. History of Philosophy or History of Political and Social Thought (Group II) three half-courses.

3. Systematic Analysis (Group III) two half-courses:
  - a. For students concentrating in the History of Philosophy, two half-courses in Philosophy.
  - b. For students concentrating in the History of Political and Social Thought, two half-courses in Sociology or Politics.
4. One half-course in History (Group IV): one half-course in the history of the period in which the student is concentrating. This requirement must be met with a reading course when no formal course has been offered.

*Language Requirement.* A proficient reading knowledge of either French or German is required. The examination must be taken no later than the second term of the first year in residence. Students who fail the examination may apply for re-examination at the end of the third term in residence. Failure to pass the language examination at this time will result in severance from the program.

*Qualifying Examinations.* To qualify for the Master's degree, the candidate must:

1. By May 1 of his first year in residence, submit to the chairman a substantial paper on a topic upon which he has concentrated during the year;
2. Pass *one* of the following three qualifying examinations:
  - a. A three-hour written examination in general and intellectual history of the period in which he is concentrating (ancient, medieval, early modern or later modern).
  - b. A three-hour written examination in a systematic area within the fields of philosophy, political theory, sociology or one of the natural sciences.
  - c. A three-hour written examination in *either* the History of Philosophy *or* the History of Political and Social Thought *or* the History of Scientific Thought.

Students whose course work, research paper and qualifying examination are considered satisfactory will be recommended for the award of the Master's degree. Only those students whose work is outstanding will be permitted to continue toward the Ph.D. degree.

A candidate who fails the qualifying examination may take it again in September of the second year in residence.

### Doctor of Philosophy

To be eligible to continue study toward the Ph.D. degree, the student must complete course work for the Master's degree with distinction (B+ or higher), he must pass the three qualifying examinations listed above with

distinction, and, in the judgment of the History of Ideas Executive Committee, he must have demonstrated a capacity for independent specialized work in the area of his choice.

*Program of Study.* The student must complete at least eight half-courses beyond the program of study for the Master's degree. They must be chosen from the following areas:

1. Four half-courses in the History of Philosophy or in the History of Political and Social Thought (Group II).
2. One half-course in Systematic Analysis (Philosophy, Politics or Sociology) (Group III).
3. One half-course in History (Group IV).
4. Two half-courses in electives (Group V).

*Language Requirements.* Proficiency in reading both French and German is required of all doctoral candidates. Examinations in both languages will be given at the beginning of each term. The examination in the student's second language must be taken not later than the beginning of the fifth term in residence, however, students are strongly urged to take it at an earlier date. Students who fail to pass the examination at a date earlier than the fifth term may apply for re-examination at the beginning of the fifth term. Failure to pass the second language examination within the prescribed time limits will render the student ineligible for further study in the program.

Students who intend to do research in a field requiring a language other than French or German may, with the approval of the Chairman of the Executive Committee, substitute this language for either French or German.

*Admission to Candidacy.* A student may be admitted to candidacy for the Ph.D. degree when (1) he has passed the Master's qualifying examinations with distinction, (2) he has satisfactorily completed one year's residence beyond the M.A. program, (3) he has completed a second language examination, and (4) the subject of his dissertation has been approved by the Executive Committee.

*Dissertation and Final Oral Examination.* The dissertation will be accepted in partial fulfillment of the requirements for the Ph.D. degree in consultation with the student's adviser and after a majority approval by a committee of readers appointed by the Chairman of the Executive Committee. One member of this committee shall be from either the Philosophy or Sociology Department.

An oral defense of the dissertation must be given before an examining committee including members from the History of Ideas Program, the Departments of Philosophy, Politics, Sociology, and History.



## Courses of Instruction

### Group I Introduction to the History of Ideas

#### HISTORY OF IDEAS 200a. Historical Transformation of Ideas: The Character of Intellectual Revolutions

The internal development of intellectual systems; the dynamics of intellectual growth, as reflecting the aims and methods of systematic inquiry. *Mr. Toulmin*

#### HISTORY OF IDEAS 200b. The Historical Interpretation of Ideas: The Idea of Nature in Ancient Greece

An intensive study of selected texts from the Pre-Socratics, Plato, Aristotle, and the early Stoics dealing with the concept of nature. *Mr. Diamandopoulos*

#### HISTORY OF IDEAS 201a. The Role of Ideas in General History: Intellectual History of the French Revolution

*Mr. Lubasz*

#### HISTORY OF IDEAS 201b. Philosophy and Ideology: Conceptions of Morals, Society and the State in the Nineteenth Century

Special topics to be arranged in consultation with the instructor. *Mr. Aiken*

### Group II History of Philosophical and Scientific Thought and History of Social and Political Thought

#### HISTORY OF IDEAS 210a. Pre-Socratic Philosophy

An intensive study of the fragments of the Pre-Socratics. A study of the transition from myth to philosophy. *Mr. Diamandopoulos*

#### HISTORY OF IDEAS 211a. Plato

An introduction to Plato's thought through an intensive reading of several major dialogues. Among the topics discussed will be the Socratic method, Socratic and Platonic ethics, Plato's conception of the soul, knowledge and existence.

*Mr. Santas*

#### HISTORY OF IDEAS 212b. Aristotle

Lectures on Aristotle's views on Knowledge, Being, the Cosmos, the Soul, and human life. Extensive reading from *Organon*, *Metaphysics*, *Physics*, *De Anima*, *Ethics* and *Politics* will be required. *Messrs. Diamandopoulos and Sommers*

#### HISTORY OF IDEAS 216b. Introduction to Islamic Philosophy

The rise of Greek philosophy among the Arabs. Farabi, Avicenna, Ghazzali, Averroes. Selection in translation will be read and discussed. *Mr. Motzkin*

#### HISTORY OF IDEAS 217b. Medieval Jewish Philosophy

A survey of the various phases of Jewish philosophy from the 10th century until the Renaissance. *Mr. Altmann*

#### HISTORY OF IDEAS 218b. Readings in Medieval Jewish Philosophy

*Mr. Altmann*

#### \*HISTORY OF IDEAS 220b. Continental Rationalism: The Philosophy of Descartes

An intensive study of selected texts from Descartes, Spinoza and Leibnitz.

\*Not to be given in 1965-66.

## HISTORY OF IDEAS 221a. Spinoza

A presentation of the major trends in Spinoza's thought, his ethics, politics and criticism of religion. *Mr. Fleischmann*

## HISTORY OF IDEAS 222b. British Empiricism

Intensive study of selected texts from Locke, Berkeley and Hume. *Mr. Weisberg*

## \*HISTORY OF IDEAS 223b. Kant

Intensive study of the basic concepts of Kant's *Critique of Pure Reason* and their subsequent development in German idealism.

## HISTORY OF IDEAS 225a. Seminar in Ancient Philosophy

*Mr. Santas*

## \*HISTORY OF IDEAS 225b. Seminar in Modern Philosophy

## HISTORY OF IDEAS 226b. Seminar on the History of Logic

*Mr. van Heijenoort*

## HISTORY OF IDEAS 227a. The Idea of Historical Development

Transformations in ideas about the antiquity, and the patterns of change of society and of nature, with special reference to the period 1700-1875. *Mr. Toulmin*

## \*HISTORY OF IDEAS 229a. History of American Philosophy

An historical survey and analysis of the pragmatic tradition in American philosophy. Selected texts of Peirce, James, Dewey and C. I. Lewis will be discussed.

## \*HISTORY OF IDEAS 235a. Problems in Sixteenth Century Political Theory

## \*HISTORY OF IDEAS 236a. Classical Political Theory

## HISTORY OF IDEAS 237a. Contemporary Political Theory

A systematic analysis of contemporary problems in political theory. *Mr. Meehan*

## \*HISTORY OF IDEAS 241a. Social Causation

The nature and significance of causal inquiry, especially into social phenomena. Explanation, understanding, interpretation. Case study and generalization. Social causation and social change.

## HISTORY OF IDEAS 242. Classical Sociological Theory

Study of major sociologists, such as Comte, Spencer, Marx, Durkheim, Pareto, Weber, Simmel, Ward, Ross, Sumner, Park, Mannheim, in their historical setting, with special attention to their substantive concerns and methodologies.

*1st sem., Mr. Stein  
2nd sem., Mr. Coser*

## \*HISTORY OF IDEAS 243a. Advanced History of Sociological Theory

Sociological theory from the late 18th century to the present.

\*Not to be given in 1965-66.

**\*HISTORY OF IDEAS 245a. Ideology and Social Movements**

Effect of political events and social processes on political thought and action in the twentieth century. Social functions of political ideologies. Structure and orientation of organizations intending to cause social change.

**HISTORY OF IDEAS 246b. Aspects of Social Control in Religious and Secular Utopian Movements**

An analysis of the sociological structure of utopian communities demonstrating similarities and differences between the secular and religious types and their relationships to the broader societal contexts from which they emerge. The course will emphasize a discussion of the modes and processes of social control developed by the various movements. *Messrs. Schwartz, Seeley and Stein*

**HISTORY OF IDEAS 247b. The Social Context of Natural Science**

The interaction between intellectual systems and the social environment; the importance of rational factors on the dynamics of intellectual growth. *Mr. Toulmin*

**Group III Systematic Courses in Philosophy, Politics, Sociology****HISTORY OF IDEAS 250b. Intermediate Logic**

Informal and axiomatic development of quantification theory. Notions of consequence, theorem, proof. Semantics of quantification, semantical completeness of the theory. Naive set theory, the nature of formal systems. *Mr. van Heijenoort*

**\*HISTORY OF IDEAS 251b. Ethical Theory**

An examination of the main types of contemporary ethical theories, including naturalism, intuitionism, and emotivism. Analysis of ethical concepts. Elements of normative systems. Varieties of relativism.

**HISTORY OF IDEAS 252a. Theory of Knowledge**

Such questions as the nature of truth, the reliability of sense perception, and the problem of *a priori* knowledge will be discussed. *Mr. Bennett*

**HISTORY OF IDEAS 252b. Metaphysics**

An examination of ontological categories, their structure and formation.

*Mr. Sommers*

**HISTORY OF IDEAS 253b. Philosophy and the Idea of Nature**

The roots of philosophical problems in natural science, with particular reference to the seventeenth and eighteenth centuries. *Mr. Toulmin*

**HISTORY OF IDEAS 256a. Social and Political Philosophy**

The problem of justifying social and political beliefs, including a critical examination of leading attempts to justify such beliefs by appeal to history, natural law, human nature and theology. *Mr. Bennett*

**\*HISTORY OF IDEAS 256b. Seminar in the Philosophy of History and the Social Sciences****HISTORY OF IDEAS 257b. Methodology and Political Science**

The theory and method of political analysis, with special attention to the logic of explanation, empirical theories, models and the role of values. *Mr. Meehan*

\*Not to be given in 1965-66.

**HISTORY OF IDEAS 258b. Seminar in Problems of Government Planning**

The theory and factors of modern government planning. The problems of the organization and the planning process. *Mr. Long*

**HISTORY OF IDEAS 260a. Sociology of Knowledge**

History and historical interpretation of the sociology of knowledge, with particular emphasis on German and recent American literature. *Mr. Wolff*

**HISTORY OF IDEAS 261b. Sociology of Literature**

The relations between society and literary forms in selected historical periods. Emphasis on the relations between problems and methods in inquiry as presented by sociological and humanistic students of man. *Mr. Stein*

**HISTORY OF IDEAS 262a. Sociology of Religion**

Sociological analysis of contemporary and historical religious institutions and experiences. Religious leadership and followership; conversion; sect, denomination, and church; religion, society and politics; leading contemporary schools of theology. *Mr. Sobel*

**HISTORY OF IDEAS 263b. Philosophy of the Social Sciences**

Sociological aspects of sociology. Relations between philosophical and methodological problems of sociology. Conditions of constructing sociological theory.

Major background readings for student papers: Maurice Natanson, ed., *Philosophy of the Social Sciences*; Alfred Schutz, *Collected Papers*, Vols. I and II.

**HISTORY OF IDEAS 265a or b. Readings in Sociological Theory and History***Mr. Wolff**Mr. Schwartz and Staff***Group IV Institutional History****HISTORY 106a. The Changing Greek City-State**

Reading of sources, especially Thucydides, with modern commentary, covering the period 431 to 323 B.C. (Pro-seminar.) *Mr. MacMullen*

**HISTORY 107b. Studies in the Decline of the Roman Empire**

Intensive study of government, society, and culture of the fourth century.

*Mr. MacMullen***\*HISTORY 123a. Europe in the Early Middle Ages****\*HISTORY 123b. Europe in the Later Middle Ages****\*HISTORY 128. The Renaissance and Reformation in Europe****HISTORY 129b. The Renaissance and Reformation in Sixteenth Century England**

The development of institutions and outlooks in sixteenth century England under the impact of Renaissance and Reformation currents. *Mr. Berkowitz*

**HISTORY 134a. History of Europe 1789-1848**

This course surveys European history from the French Revolution to the mid-nineteenth century. It stresses the changes which followed the revolution and the different national forms. *Mr. Barkin*

\*Not to be given in 1965-66.

**HISTORY 134b. History of Europe: 1848-1914**

This course surveys European history from 1848 to the first World War and emphasizes the quest for political, economic and social stability in the major European states.  
*Mr. Barkin*

**HISTORY 143a. History of Russia to 1825**

Pro-Slavic developments, the establishment of the Kievan state, invasion and internal decline; appanage Russia and the rise of regional centers, Muscovite Russia and the growth of the autocracy and Imperial Russia and the impact of Western Europe.  
*Mr. Hegarty*

**HISTORY 143b. History of Russia: 1825 to the Present**

Russian *Rechtstaat* at its height. Modernization of Russia; Russian industrialization under the Romanovs; roots of the Russian revolution; early Bolshevik state; NEP and the rise of Stalin; collectivization and industrialization; Soviet foreign policy and international Communism; the Khrushchev era and prospects for the future.  
*Mr. Hegarty*

**\*HISTORY 144b. Modern Britain: 1867 to the Present****HISTORY 145a. History of Germany: 1848-1945**

The economic, political and diplomatic history of Germany inclusive of Austria-Hungary from the revolution of 1848 to the collapse of National Socialism in 1945.  
*Mr. Barkin*

**HISTORY 145b. The Weimar Republic**

A seminar dealing with economic, political and intellectual developments between World War I and the assumption of office by Hitler.  
*Mr. Barkin*

**Group V General Intellectual History****HISTORY OF IDEAS 270a. History of the Mediterranean from 3000 to 300 B.C.**

The lectures will follow the sequence of topics in C. H. Gordon's *The Ancient Near East* (1965), with constant reference to the published fascicles of the new edition of *Cambridge Ancient History*.  
*Mr. Gordon*

**HISTORY OF IDEAS 271b. The Book of Job and the Problem of Evil**

A reading of the Book of Job (in English translation) and a discussion of the role of the book in the literature and thought of the Western world; the problem of evil in Judaism and Christianity.  
*Mr. Glatzer*

**HISTORY OF IDEAS 273. Intellectual History of Europe**

European thought in its social and political context. Lectures and reading of selected texts.  
*Mr. Lubasz*

**HISTORY OF IDEAS 277b. Social and Intellectual History of Russia**

The impact of Western European thought on Russian intellectuals including Radischchev, Chaadaev, Belinsky, Herzen, Pisarev, Mikhaelovsky and Plekhanov.  
*Mr. Hegarty*

**\*HISTORY OF IDEAS 279. Modern Jewish Intellectual History**

\*Not to be given in 1965-66.

**HISTORY OF IDEAS 280b. History of Historical Literature and Historical Method**

Lectures, readings and reports dealing with the development of the practice of historical investigation, the problem of historical method, and the contemporary modes of historical expression.

*Mr. Berkowitz*

**HISTORY OF IDEAS 300. Readings in the History of Ideas**

*Staff*

**HISTORY OF IDEAS 400. Dissertation Research**

Independent research for the Ph.D. degree.

400. *Mr. Altmann*

401. *Mr. Berkowitz*

402. *Mr. Coser*

403. *Mr. Diamandopoulos*

404. *Mr. Lubasz*

405. *Mr. Weisberg*

## Mathematics

### Objectives

The graduate program in mathematics is designed primarily to lead to the Doctor of Philosophy degree. The formal course work is devoted to giving the student a broad foundation for work in modern pure mathematics. An essential part of the program consists of seminars on a variety of topics of current interest in which mathematicians from greater Boston often participate. In addition, the Brandeis-Harvard-M.I.T. Mathematics Colloquium gives the student an opportunity to hear the current work of eminent mathematicians from all over the world.

### Admission

The general requirements for admission to graduate work in mathematics are the same as those for the Graduate School as a whole. The department has available a variety of fellowships and scholarships for well qualified students. To be considered for such financial support the student should submit application by February 1, 1965.

### Faculty

Professor JOSEPH J. KOHN, *Chairman*: Analysis and Differential Geometry.

Professor MAURICE AUSLANDER: Algebra and Homological Algebra.

\*Professor EDGAR H. BROWN, JR.: Algebraic Topology.

\*Professor DAVID A. BUCHSBAUM: Algebra and Homological Algebra.

\*\*Professor TERUHISA MATSUSAKA: Algebraic Geometry.

\*On Leave, 1965-66.

\*\*On Leave, Fall Term, 1965-66.

- Professor RICHARD S. PALAIS: Differential Topology.  
 Associate Professor WILLIAM L. HOYT: Algebraic Geometry.  
 Associate Professor HAROLD I. LEVINE: Algebraic Topology.  
 \*Associate Professor HUGO ROSSI: Analysis.  
 Associate Professor ROBERT T. SEELEY: Analysis.  
 Assistant Professor ALPHONSE VASQUEZ: Algebraic Topology.  
 DR. WILLIAM HAMMOND: Algebraic Geometry.  
 DR. THOMAS SHERMAN: Topological Groups and Group Representations.  
 DR. WEISHU SHIH: Differential Topology.  
 DR. MICHAEL SPIVAK: Algebraic Topology.

## Degree Requirements

### Master of Arts

1. One year's residence as a full-time student.
2. Successful completion of an approved schedule of courses.
3. Satisfactory performance on the General Examination which is normally taken by all degree students at the beginning of their second year.
4. Proficiency in reading French or German.

### Doctor of Philosophy

1. Residence as a full-time student for two years.
2. Successful completion of an approved schedule of courses.
3. Superior performance on the General Examination.
4. Doctoral dissertation approved by the department.
5. Final examination consisting of the defense of dissertation.
6. Proficiency in reading both French *and* German.

*Program of Study.* Each student must complete a schedule of courses approved by his adviser. The normal first year of study consists of Mathematics 101, 111, and 121. Students are expected to attend seminars of their choice in addition to Mathematics 199 which is required. The first year's work should be followed by three courses in the 200 series. After the second year, advanced courses, seminars and independent reading are offered to prepare the student for work on a dissertation.

*General Examination.* After successful completion of his first year courses, the student must pass a written examination and participate in a seminar in his second year.

The written examination will be given in October and March. It will cover the material of the syllabi; these lists of topics and references in algebra, analysis and topology will be distributed to the students at the beginning of their first year.

\*On Leave, 1965-66.

In the summer after his first year, each student will prepare a topic in mathematics, which he will present in a seminar during his second year. The topics chosen will be more advanced than those in the syllabi and must be approved by the faculty.

*Admission to Candidacy.* To be admitted to candidacy for the Ph.D. degree in Mathematics, the student must demonstrate a superior performance on the General Examination and must be recommended for candidacy by the department.

*Dissertation and Defense.* The doctoral degree will be awarded only after the submission and acceptance of an approved dissertation and after the successful defense of that dissertation.

### Courses of Instruction

The 100, 200, and 300 courses meet three hours per week for the entire year and carry six credits. The seminar courses meet one hour per week and are non-credit courses.

#### MATHEMATICS 101a and b. Algebra I

Groups, rings, fields, Galois theory, representations and modules.

*Mr. Auslander*

#### MATHEMATICS 111a and b. Analysis I

Fundamental existence theorems for several real variables, manifolds and Riemann surfaces.

*Mr. Seeley*

#### MATHEMATICS 121a and b. Point Set Topology

Set theory, topological spaces, function spaces and covering spaces.

*Mr. Vasquez*

#### MATHEMATICS 140. Analysis

Real numbers, metric spaces, Weierstrasse approximation theorem, fundamental existence theorems, implicit function theorem, complex variables and Fourier theory.

*To be announced*

#### MATHEMATICS 199. Problem Seminar

A seminar required of all first year graduate students.

*Staff*

#### MATHEMATICS 201. Algebra II

Function fields and commutative rings.

*Mr. Hoyt*

#### \*MATHEMATICS 202a and b. Algebraic Geometry I

Introduction to algebraic geometry.

#### \*MATHEMATICS 203a and b. Algebraic Number Theory I

Ideal class group, Dirichlet's units theorem, L-function, Galois cohomology, local and global class field theory.

#### \*MATHEMATICS 204a or b. Homological Algebra I

\*Not to be given in 1965-66.



**\*MATHEMATICS 211. Analysis II**

Singular integral operator on  $L^p$  spaces, for Euclidean space and for manifolds, with applications to the study of elliptic partial differential equations on manifolds with or without boundary.

**\*MATHEMATICS 212a. Functional Analysis**

Topological vector spaces, Banach spaces, compact operators, integral equations, distributions.

**\*MATHEMATICS 212b. Harmonic Analysis**

Elementary Banach algebras, topological groups, Plancherel theorem, Pontryagin duality, group representations.

**MATHEMATICS 213a and b. Harmonic Integrals**

The purpose of this course is to study representations of various cohomology theories by solutions of systems of partial differential equations. The course presupposes only the first year courses. It will contain an introduction to elliptic systems, calculus of variations, boundary value problems and related topics.

*Mr. Kohn*

**MATHEMATICS 221a and b. Algebraic Topology I**

Sheaves, homology theory, and homotopy theory.

*Mr. Shih*

**\*MATHEMATICS 222. Differential Geometry**

Introduction to differentiable manifolds.

**MATHEMATICS 291. Algebra Seminar**

*Messrs. Auslander and Rim*

**MATHEMATICS 292. Analysis Seminar**

*Messrs. Kohn, Rossi and Seeley*

**MATHEMATICS 293. Topology Seminar**

*Messrs. Palais and Vasquez*

**MATHEMATICS 301a. Homological Algebra**

*Mr. Auslander*

**\*MATHEMATICS 302a and b. Algebraic Geometry II****\*MATHEMATICS 303a and b. Algebraic Number Theory II****\*MATHEMATICS 311a or b. Fourier Analysis****\*MATHEMATICS 312a. Selected Topics in Complex Variables****\*MATHEMATICS 312b. Selected Topics in Complex Variables****\*MATHEMATICS 313. Group Representation and Analysis of Groups****\*MATHEMATICS 321a or b. Algebraic Topology II****MATHEMATICS 322a and b. Differential Topology**

*Mr. Levine*

**\*MATHEMATICS 323a or b. Lie Algebras****MATHEMATICS 324a. Lie Groups**

*Mr. Sherman*

**\*MATHEMATICS 325a or b. Complex Manifolds****MATHEMATICS 332. Differential Topology and Non-linear Analysis**

*Mr. Palais*

\*Not to be given in 1965-66.

**MATHEMATICS 401-411. Research**

Independent research for the Ph.D. degree.

- 401. *Mr. Auslander*
- 402. *Mr. Brown*
- 403. *Mr. Buchsbaum*
- 404. *Mr. Hoyt*
- 405. *Mr. Kohn*
- 406. *Mr. Levine*
- 407. *Mr. Maisusaka*
- 408. *Mr. Palais*
- 409. *Mr. Rim*
- 410. *Mr. Rossi*
- 411. *Mr. Seeley*

**Mediterranean Studies****Objectives**

The graduate program in Mediterranean Studies aims at inducting the student into the investigation of major problems involving the meeting of different peoples in and around the Mediterranean Sea, where Western civilization was first created and then developed. The instruction will train the student to master the primary sources as he learns the broad synthesis. Master of Arts as well as Doctor of Philosophy candidates are expected to show a grasp of the problem as a whole, as well as the ability to work in a variety of different sources. Doctor of Philosophy candidates will be required to demonstrate also a capacity for original research.

The scope of the department embraces Mediterranean developments from Antiquity and down to, but not including Modern Times. Students will be trained in history and archaeology as well as in the languages and literatures.

Courses will normally involve two or more interrelated sources. While it is desirable for the student to know as many of the sources as possible in advance, no student is expected to come ideally equipped with complete linguistic preparation. If a course requires the use of a source that the student has not already studied, he will ordinarily be permitted to enroll, provided that he is concurrently taking a basic language course to make up the deficiency.

**Admission**

The general requirements for admission to the Graduate School, given in an earlier section of this catalog, apply to candidates for admission to this area.

Students planning to enter this department should take as much Hebrew, Greek and Latin as possible during their undergraduate course of study.

## Faculty

Professor CYRUS H. GORDON, *Chairman*: Cuneiform, Egypto-Semitic, and Mediterranean studies.

Visiting Professor PROPHYRIOS DIKAIOS: Mediterranean archaeology.

Associate Professor DWIGHT W. YOUNG: Egypto-Semitic and Cuneiform studies.

Assistant Professor HARRY A. HOFFNER, JR.: Hittite, Helleno-Semitic studies.

DR. ANDRAS HAMORI: Semitic linguistics.

## Degree Requirements

### Master of Arts

*Program of Study.* Each candidate for the Master's degree is required to complete satisfactorily not less than twenty-four semester hours of course work in the department, plus any courses outside the department that the major professor may prescribe. The candidate must also show a command of either Latin or Greek, and of Hebrew or Arabic, plus at least one other Oriental language (such as Akkadian, Ugaritic, or Egyptian).

*Language Requirement.* A reading knowledge of one modern foreign language (ordinarily French or German) is required.

*Qualifying Examinations.* The student must demonstrate, in written and oral examinations, proficiency in the sources of two major areas of the program and an ability to synthesize them. A broad grasp of the Mediterranean origins of Western Civilization will be required of all candidates, beyond the specific topics covered in courses.

### Doctor of Philosophy

The requirements are the same as for the Master of Arts degree, plus twenty-four additional semester hours of course work in the department, a reading knowledge of two modern foreign languages (ordinarily French and German), and a doctoral dissertation.

*Admission to Candidacy.* A student shall be eligible for admission to candidacy upon completing his language requirements and satisfactorily passing his written and oral examinations. Proficiency in those examinations must be demonstrated in three major areas of the program; e.g., Assyrian, Greek, and Hebrew (texts and history), or Egyptian, Ugaritic, and Arabic.

*Dissertation and Defense.* The dissertation should be a significant and original contribution to scholarship and should demonstrate a capacity for independent research based on primary sources. After submission of the dissertation, the candidate will be expected to defend it in a final oral examination.

### Courses of Instruction

MEDITERRANEAN STUDIES 100a. History of the Mediterranean from 3000-300 B.C.

The lectures will follow the sequence of topics in C. H. Gordon's *The Ancient Near East* (1965), with constant reference to the published fascicles of the new edition of *Cambridge Ancient History*. Mr. Gordon

\*MEDITERRANEAN STUDIES 101a. History of the Mediterranean in the Early Bronze Age

To be given in 1966-67.

\*MEDITERRANEAN STUDIES 102b. History of the Mediterranean in the Second Millennium B.C.

To be given in 1966-67.

\*MEDITERRANEAN STUDIES 103a. History of the Mediterranean in the First Millennium B.C.

To be given in 1967-68.

\*MEDITERRANEAN STUDIES 103b. History of the Mediterranean in the First Millennium A.D.

To be given in 1967-68.

MEDITERRANEAN STUDIES 110. Archaeology of the East Mediterranean  
A survey of methods, discoveries and interpretation. Mr. Dikaios

\*MEDITERRANEAN STUDIES 111a. Archaeology of the West Mediterranean

To be given in 1966-67.

\*MEDITERRANEAN STUDIES 112b. Archaeology of Canaan

To be given in 1966-67.

\*MEDITERRANEAN STUDIES 113a. Archaeology of Egypt

To be given in 1967-68.

\*MEDITERRANEAN STUDIES 114b. Archaeology of Mesopotamia

To be given in 1967-68.

\*MEDITERRANEAN STUDIES 115a. Archaeology of Anatolia

To be given in 1966-67.

\*MEDITERRANEAN STUDIES 122a. Prophetic Books of the Bible

To be given in 1966-67.

---

\*Not to be given in 1965-66.

**MEDITERRANEAN STUDIES 127. Biblical Books of the Heroic Age**

In 1965-66, selections from the Pentateuch will be read with constant reference to the Heroic Age of Greece.

*Prerequisite:* A basic knowledge of Hebrew.

*Mr. Hamori*

**MEDITERRANEAN STUDIES 130. Elementary Akkadian**

A study of Ungnad's Grammar and readings in the Annals of the Sargonid Kings.

*Mr. Hoffner*

**MEDITERRANEAN STUDIES 138. Elementary Ugaritic**

Grammar and poetic texts. C. H. Gordon's *Ugaritic Textbook*, 1965, will be used.

*Prerequisite:* A knowledge of biblical Hebrew.

*Mr. Hamori*

**MEDITERRANEAN STUDIES 140. Elementary Middle Egyptian**

Gardiner's *Egyptian Grammar* supplemented with reading simple narratives such as *The Shipwrecked Sailor*.

*Mr. Young*

**\*MEDITERRANEAN STUDIES 150. Homeric Epic**

To be given in 1966-67.

*Prerequisite:* A knowledge of Attic or N. T. Greek.

**\*MEDITERRANEAN STUDIES 151. Hesiod and the Epic Cycle**

To be given in 1966-67.

**\*MEDITERRANEAN STUDIES 152. Greek Historiography**

To be given in 1967-68.

**\*MEDITERRANEAN STUDIES 153. Mycenaean Greek Tablets in Linear B.**

To be given in 1966-67.

**\*MEDITERRANEAN STUDIES 154. The Septuagint**

To be given in 1967-68.

**\*MEDITERRANEAN STUDIES 160. The Aeneid with Reference to its Homeric, Punic and Other Backgrounds**

To be given in 1966-67.

**\*MEDITERRANEAN STUDIES 161a. The Poenulus of Plautus**

To be given in 1967-68.

**\*MEDITERRANEAN STUDIES 162b. The Vulgate**

To be given in 1967-68.

**MEDITERRANEAN STUDIES 216. Archaeological Pro-Seminar**

In 1965-66, Neolithic and Bronze Age Cyprus will be studied intensively.

*Mr. Dikaios*

**MEDITERRANEAN STUDIES 221b. Historical Books of the Bible**

In 1965, Chronicles will be examined in Hebrew, Greek and Latin with special attention to the pronunciation of Hebrew names in Greek and Latin transliteration. All of the Minoan texts, and all of the Phoenician and Punic texts in Greek and Latin letters, will be read and correlated.

*Prerequisite:* A basic knowledge of Hebrew, Latin and Greek.

*Mr. Gordon*

\*Not to be given in 1965-66.

- \*MEDITERRANEAN STUDIES 223b. Old Testament Hagiographs  
To be given in 1966-67.
- \*MEDITERRANEAN STUDIES 224a. Semitic Inscriptions of the Mediterranean  
To be given in 1966-67.
- \*MEDITERRANEAN STUDIES 231. Intermediate Akkadian  
To be given in 1966-67.  
*Prerequisite:* Mediterranean Studies 130.
- \*MEDITERRANEAN STUDIES 232. Akkadian Poetry  
To be given in 1966-67.
- \*MEDITERRANEAN STUDIES 233. Akkadian Texts from the West  
To be given in 1966-67.
- MEDITERRANEAN STUDIES 234. Akkadian Letters and Diplomatic Texts  
In 1965-66, tablets from Mari will be read.  
*Prerequisite:* Mediterranean Studies 231. Mr. Hoffner
- \*MEDITERRANEAN STUDIES 235. Sumerian  
To be given in 1966-67.
- MEDITERRANEAN STUDIES 236. Elementary Hittite  
A study of the grammar along with readings in prose cuneiform texts.  
*Prerequisite:* Students must have completed, or be taking concurrently, Mediterranean Studies 130. Mr. Hoffner
- \*MEDITERRANEAN STUDIES 237. Advanced Hittite  
To be given in 1966-67.
- MEDITERRANEAN STUDIES 238a. Ugaritic  
A study of the newly published texts (Nos. 2001-2123). C. H. Gordon's *Ugaritic Textbook*, 1965, will be used.  
*Prerequisites:* A knowledge of Hebrew and one other Semitic language. Mr. Gordon
- MEDITERRANEAN STUDIES 241a. Middle Egyptian Romances  
Rapid reading of texts such as *The Romance of Sinuhe* and *The Eloquent Peasant*.  
*Prerequisite:* Mediterranean Studies 140. Mr. Young
- MEDITERRANEAN STUDIES 242b. Late Egyptian Stories  
Rapid reading in texts such as *The Two Brothers*, *The Misadventures of Wenamon*, *The Taking of Joppa* and *Horus and Seth*.  
*Prerequisite:* Mediterranean Studies 140. Mr. Young
- \*MEDITERRANEAN STUDIES 243. The Pyramid Texts  
To be given in 1966-67.  
*Prerequisite:* Mediterranean Studies 241a and 242b.

---

\*Not to be given in 1965-66.

**MEDITERRANEAN STUDIES 244. Coptic**

In 1965-66, Saidic and the other Coptic dialects will be studied comparatively, with readings in the *Apophthegmata Patrum* and various Gnostic texts.

*Prerequisite:* Students must have completed, or be taking concurrently, Mediterranean Studies 140. *Mr. Young*

**\*MEDITERRANEAN STUDIES 263. Pro-Seminar on Roman Historiography**

To be given in 1966-67.

**MEDITERRANEAN STUDIES 270. Linguistic Pro-Seminar**

In 1965-66, South Semitic will be investigated.

*Mr. Hamori*

**\*MEDITERRANEAN STUDIES 325b. West Semitic Seminar**

To be given in 1967-68.

**\*MEDITERRANEAN STUDIES 339. Cuneiform Seminar**

To be given in 1966-67.

**\*MEDITERRANEAN STUDIES 345. Egyptian Seminar**

To be given in 1967-68.

**MEDITERRANEAN STUDIES 371b. Egypto-Semitic Seminar**

In 1965-66, the relation between Akkadian and Egyptian will be examined. Texts in both languages will be read and used as the basis for linguistic analysis and comparison.

*Prerequisite:* A knowledge of Akkadian and Middle Egyptian. *Mr. Gordon*

**MEDITERRANEAN STUDIES 400-403. Dissertation Research**

Independent research for the Ph.D. degree.

400. *Mr. Gordon*

401. *Mr. Young*

402. *Mr. Hoffner*

403. *Mr. Dikaios*

## Music

### Objectives

The graduate program in Music, leading to the degrees of Master of Fine Arts and Doctor of Philosophy, is designed to provide a command of the craft of composition and an understanding of the nature, structural basis, and historical development of music.

Three general fields of study are offered in music:

1. *Music Composition.* This program leads to the degree of Master of Fine Arts.

2. *Music Composition and Theory.* This program leads to the degrees of Master of Fine Arts and Doctor of Philosophy.

3. *History of Music.* This program leads to the degrees of Master of Fine Arts and Doctor of Philosophy.

Students must specialize in one of these areas but are expected to acquire a background in all three.

\*Not to be given in 1965-66.

## Admission

Only a limited number of students will be accepted. The general requirements for admission to the Graduate School, as specified in an earlier section of this catalog, apply to candidates for admission to this area of study.

Applicants for study in Musical Composition or Music Theory are required to submit, in addition to a transcript of their undergraduate records, evidence of qualification in the form of examples of original work in musical composition and advanced work in musical theory. Applicants for admission in the History of Music should submit examples of their prose writing on music as evidence of their ability to handle the language and specialized vocabulary. Undergraduate theses or term papers will be satisfactory. This work should be submitted together with the formal Application for Admission.

All applicants are expected to have some proficiency at the piano or on an orchestral instrument. Information about this should be furnished when making formal application.

Admission is granted for one academic year at a time. Students in residence must make formal application for readmission to the department between March 1 and March 15. Readmission will be refused in cases where students have not demonstrated a capacity for acceptable graduate work.

## Faculty

Professor HAROLD SHAPERO, *Chairman*; Professors ARTHUR BERGER, KENNETH J. LEVY (*Student Adviser*); Visiting Professor ALEXEI HAIJEFF (Fall Term); Associate Professors PAUL H. BRAINARD, ROBERT L. KOFF, CALDWELL TITCOMB; Assistant Professor MARTIN BOYKAN; MISS MADELINE FOLEY; MESSRS. EUGENE LEHNER, ALVIN LUCIER, JOEL SPIEGELMAN.

## Degree Requirements

### Master of Fine Arts

#### *Language Requirements.*

Group A: French, German, Italian.

Group B: Spanish, Latin, Hebrew, Greek (and other languages at the discretion of the Music faculty).

A reading knowledge of a language from Group A is normally required of all applicants for admission to a graduate program in music.

Candidates for the Master's degree specializing in Musical Composition must possess a reading knowledge of two of the above languages, of which



at least one must be from Group A. (The combination of Italian and Spanish will not be approved).

Candidates for the Master's degree specializing in Music Theory or in History of Music must possess a reading knowledge of two languages in Group A.

Foreign language course credits will not in themselves constitute fulfillment of the language requirements for advanced degrees. All candidates must pass language examinations set by the Music faculty and offered periodically during the academic year. Students are urged to take these examinations at the earliest feasible date. In case of failure, an examination may be taken more than once.

The language examinations are designed to test the students' ability to make ready and accurate use of critical and literary works. Normally each examination will contain three passages for written translation into idiomatic English: (1) classical or modern prose; (2) classical or modern poetry, often poetry that has been set to music; and (3) critical prose dealing with music. Dictionaries may be used in these examinations.

*Instrumental Proficiency.* At least moderate proficiency at the piano is required of all candidates for advanced degrees.

*Residence Requirements.* Six full courses or the equivalent in half-courses at the graduate level, completed with distinction, and a thesis are required of all candidates.

The department normally allows credit for no more than one full course taken at another institution.

In general, the program is completed in two academic years. Students should take no more than four full courses in any one year. It is suggested, however, that students pursue no more than three full courses during the year in which they take general examinations and submit a thesis. Students holding teaching assistantships may reduce their load to two courses.

*Examinations.* Early in March of their first year of study, graduate students will be expected to pass an examination in the standard literature of music from the early eighteenth century to the present. Upon admission, each candidate will receive a list of works to guide his listening.

When their program of study is completed, candidates for the degree of Master of Fine Arts must pass with distinction written general examinations in theory and history, one of which will be their major field, the other their minor field.

*Thesis.* Candidates for the degree of Master of Fine Arts in Music are required to submit a thesis. For candidates in Musical composition this will consist of a musical composition, its scope to be approved by the Music faculty. For candidates in the History of Music or in Music Theory and

Composition it will be an analytical or historical study on a topic acceptable to the Music faculty. Part of this requirement in Music Theory and Composition may be met by an original musical composition.

### Doctor of Philosophy

*Residence Requirements.* A minimum of eight full courses or the equivalent in half-courses at the graduate level, completed with distinction, are required of all candidates.

In general, the program will be completed in three academic years.

Applicants who have done graduate work elsewhere may apply for transfer of credit for such work; a maximum of one year of residence may be granted.

*Instrumental Proficiency.* At least moderate proficiency at the piano is required of all candidates.

*Language Requirements.* Candidates for the Doctor's degree in Music must possess a reading knowledge of all three languages in Group A. (In exceptional cases, the Music faculty may accept a language in Group B in lieu of Italian).

*Examinations.* Candidates will be expected to pass with unusual distinction the written general examination for the M.F.A. After meeting their language and residence requirements they must pass the special oral qualifying examination. Upon completion of their dissertation they will be expected to defend it in an oral examination.

*Admission to Candidacy.* Students will be admitted to candidacy for the Ph.D. degree upon successful completion of the written and oral qualifying examinations, fulfillment of the language requirements, and the approval of a dissertation topic.

*Dissertation.* Candidates for the degree of Doctor of Philosophy in the History of Music or in Music Theory and Composition must submit an acceptable written dissertation on a subject approved by the Music faculty. In certain cases, and with the prior approval of the department, qualified candidates for the degree in Theory and Composition may meet a part of the dissertation requirement with an original composition.

Written dissertations should demonstrate the competence of the candidate as an independent investigator, his critical ability, and his effectiveness of expression. Upon completion of the dissertation the candidate will be expected to defend it in an oral examination.

### Courses of Instruction

Except in the rarest circumstances, graduate credit is not allowed for courses numbered below Music 165.

**MUSIC 165aR. Elementary Orchestration**

The instruments of the orchestra; their construction, ranges and playing techniques, with a consideration of their use by major composers; the methods of writing effectively for present-day instruments, individually and in combination; the mechanics of reading and writing a score.

Written exercises, analysis of scores, study of recorded performances and live demonstrations. *Mr. Lucier*

**MUSIC 166a. Seminar in Advanced Orchestration***Mr. Haieff***\*MUSIC 167. Composition in Traditional Forms**

The melodic phrase; types of accompaniment; studies in harmonic rhythm; trio forms, rondo forms, sonata forms, variation forms, and free forms. Analysis and exercises.

**\*MUSIC 171b. History and Practice of Music Criticism**

An examination of music criticism from the Baroque to the present day, with special attention to important nineteenth and twentieth century critics.

*Prerequisite:* A knowledge of music history and theory.

**MUSIC COLLOQUIUM**

Discussions of special topics led by the faculty and occasional guests. Some of the sessions will include performances of new works. Required of all graduate students. *Non-credit.*

*Staff and Visiting Lecturers***MUSIC 180. Ethnomusicology***Mr. Titcomb***MUSIC 200. Materials of Research**

This course will acquaint the student with the main tools and materials of research, so as to enable him readily to pursue musicological, critical, and analytical projects in music both old and new.

*Mr. Titcomb***\*MUSIC 201. Collegium Musicum**

Studies in music history through coordinated research and performance. Source and notational problems of selected historical examples will be treated in detail. Course members will be able to participate, together with members of the staff, in studio performances. Whenever possible, the course material will be integrated with that of one or more concurrent advanced courses in music history.

**MUSIC 203. Advanced Musical Analysis**

Special analytic problems of structural interpretation with emphasis on total form and intrinsic relation rather than upon the conventions (sonata, rondo, etc.). Intensive and detailed analysis of scores in terms of such considerations as the premises of the tonal system. Schenker's concept of musical unity, serial organization, and the properties of subcollections of the total available pitch material as formal constraints. Questions of methodology and terminology raised by the "new theory."

*Mr. Berger***\*MUSIC 222. Seminar in Medieval and Renaissance Music**

A comprehensive survey of the history of music from early Christian times through the end of the sixteenth century.

\*Not to be given in 1965-66.

\*MUSIC 223. Seminar in Baroque Music

Studies in historical developments in music of the seventeenth and eighteenth centuries. Typical full-year projects will include: the cantatas of J. S. Bach; seventeenth century keyboard music; history of cantata and oratorio in the seventeenth century; sonata, suite, concerto; Baroque opera.

MUSIC 224. Seminar in Pre-Classical and Classical Music

Study of historical problems in the music of the middle and late eighteenth century. Sample topics include: transitional sonata forms through early Haydn and Mozart; Beethoven's sketch books; stylistic interactions among the Viennese Classicists; opera from Pergolesi to Mozart. *Mr. Brainard*

\*MUSIC 225. Seminar in Romantic Music

Selected topics in music from Beethoven, Weber, and Schubert to Strauss, Mahler, and Sibelius. Some consideration will be given to Impressionism and to the relations between music and the other arts.

MUSIC 228. Seminar in Twentieth Century Techniques

Exercises in composition employing musical materials and organizational methods developed since about 1900, accompanied by analysis of works of composers from Debussy to the present. *Mr. Shapero*

MUSIC 232. Problems in Early Notation

Trouvère notation; modal and mensural notations of the thirteenth century; French and Italian notations of the *ars nova*; white notation of the fifteenth century; introduction to Byzantine and Gregorian paleography; readings from the Medieval theorists. *Mr. Levy*

\*MUSIC 233b. Problems in Fifteenth and Sixteenth Century Music

\*MUSIC 238. Studies in Contemporary Music

Seminars devoted to the intensive study of important twentieth century compositions. Particular attention will be given to systematic approaches to the most essential problems of structure.

\*MUSIC 263. Canon and Fugue

Principles governing the construction of invertible counterpoint, various kinds of canon, strict and free fugues. Analysis of classic and modern fugues and detailed study of Johann Sebastian Bach's *Art of the Fugue*. Written exercises.

MUSIC 292. Seminar in Composition

Group meetings and individual conferences. Opportunities for the performance of student works will be provided. *Messrs. Berger, Haieff and Shapero*

\*MUSIC 295b. Problems in Electronic Music

MUSIC 299. Individual Research and Advanced Work

Individual research and advanced work in musical literature, musical history and in special problems of musical analysis, esthetics, theory and criticism. *Staff*

\*Not to be given in 1965-66.

**MUSIC 400-405. Dissertation Research**

*Required of all doctoral candidates.*

- 400. Mr. Berger
- 401. Mr. Brainard
- 402. Mr. Levy
- 403. Mr. Shapero
- 405. Mr. Tilcomb

**Electronic Music Studio**

The facilities of the studio for electronic music, established in 1961, are available to qualified student composers and provide equipment for magnet-tape manipulation appropriate to the composition of electronic music and *musique-concrète*.

**Near Eastern and Judaic Studies****Objectives**

The graduate program in Near Eastern and Judaic Studies, leading to the Master of Arts and Doctor of Philosophy degrees, is designed to train scholars and teachers in the various cultures of the Near East and of the classical and modern Judaic civilization, and to do further research in these areas. This work is done mainly through study of the relevant languages and literatures and interpretation of historical sources.

**Admission**

The general requirements for admission to the Graduate School, as specified in an earlier section of this catalog, apply to candidates for admission to this department.

**Faculty**

Professor NAHUM NORBERT GLATZER, *Chairman*: Jewish history. Literature of the Second Commonwealth. Hebrew historiography. Eschatology.

\*Professor ALEXANDER ALTMANN: History of Jewish philosophy and mysticism. Medieval philosophy. Classical Bible commentaries.

Associate Professor BENJAMIN HALPERN: Modern Near East history. Political and social history of Palestine and Israel. Modern Jewish history.

Associate Professor DAVID NEIMAN: Biblical studies. Ancient Near East.

Associate Professor NAHUM M. SARNA: Biblical studies.

Assistant Professor BARUCH A. LEVINE: Semitic languages. Classical Hebrew literature. Dead Sea Scrolls.

Assistant Professor ARYEH L. MOTZKIN: Arabic language and literature. History of Islam.

Visiting Lecturer EUGÉNE J. FLEISCHMANN: Jewish philosophy.

DR. NORMAN GOTTWALD: Biblical Apocrypha. Biblical archaeology.

\*On Leave, Fall Term.

## Program of Study

Among the main fields in the area of Near Eastern and Judaic Studies in which courses are being given in the Graduate School are:

Semitic Languages and Literatures (Akkadian, Arabic, Aramaic, Egyptian, Hebrew, Syriac).

History of Ancient Near East.

Islamic Studies.

Biblical Studies.

Jewish History.

Medieval Jewish Philosophy and Mysticism.

The Modern Near East.

Contemporary Jewish Studies.

Fields of study not listed here may be approved.

## Degree Requirements

### Master of Arts

*Residence Requirements.* The student is required to complete four full courses in the department. Programs of study are kept flexible; the department will consider the needs and interests of each student and advise him in outlining a program of study—this program may be modified later by the department. Students may be required to take courses given by other departments. A student who can, on admission, give evidence of satisfactory competence in one Semitic language or in one particular field of Near Eastern and Judaic Studies, will be able to complete the program for his degree in one year. Additional resident study may be required of less advanced students.

*Language Requirements.* Every candidate for the Master of Arts degree must show proficiency in one Semitic language, and in French or German. In special cases, another modern foreign language may be substituted for one of the two listed here. The foreign language requirements are to be satisfied by examination not later than eight weeks before a candidate is to receive his degree.

*Examination.* An oral examination is given at the conclusion of the student's residence. The examination is organized around two major subjects chosen from the fields of study undertaken by the student and is designed to test the student's knowledge in those subjects as well as his ability to relate his information to the large area to which those subjects belong. A student who fails to pass the examination, or any part of it, may apply for re-examination, which will take place not earlier than one semester after the date of the first examination.

*Thesis.* In certain cases, the student is advised to write a thesis which must be submitted no later than May 1 of the year in which the degree is to be conferred. In such cases, the student registers in the Dissertation Colloquium (NEJS 400) which then counts as one of the required four courses.

### Doctor of Philosophy

*Residence Requirement.* The residence normally required of a Ph.D. student who is the holder of an M.A. degree is one year (four courses); a longer residence will be required for part-time students and students holding teaching assistantships. The main emphasis, however, is placed on the students' individual research.

*Language Requirements.* A candidate for the Doctor of Philosophy degree in this area must show proficiency in two Semitic languages and in two modern foreign languages, as required by his special field of research. The candidate must satisfy his language requirements no later than at the completion of his required residence in the Graduate School.

*Examinations.* A written or an oral comprehensive examination in three areas of study (the scope being determined at a conference with the examining board) is given at the conclusion of the student's residence. A student who fails to pass the examination, or any part of it, may apply for a re-examination, which will take place not earlier than one semester after the date of the first examination.

*Admission to Candidacy.* A student registered for studies leading to the Ph.D. degree becomes a candidate for that degree when he has fulfilled his residence requirements, when the subject and synopsis of his dissertation have been accepted by the department, when he has passed the comprehensive examinations, and fulfilled the language requirements.

*Dissertation and Defense.* The student will discuss his plans for a dissertation with the chairman of the department and the dissertation supervisor. The conferences on the planning and the program of the dissertation take place in the Dissertation Colloquium (NEJS 400), a course in which the candidate is to register. Normally, the candidate will continue working on his dissertation after the completion of his residence, i.e., as a nonresident student. The dissertation must demonstrate the candidate's thorough knowledge of the field and his competence in independent research, and must constitute an original contribution to knowledge. Two copies of the dissertation, one of which must be the original typescript, are to be deposited in the office of the department chairman not later than April 1 of the year in which the candidate plans to take the degree. A defense of the dissertation will be held.

## Courses of Instruction

### NEJS 101. Basic Arabic

An introduction to literary Arabic (classical and modern). Grammar. Reading of graded texts. Drills in pronunciation.

Open to students who have not previously had instruction in Arabic.

### NEJS 102. Intermediate Arabic

*Mr. Motzkin*

Advanced grammatical study coupled with selected readings from representative classical and modern texts.

*Prerequisite:* NEJS 101 or its equivalent. Consent of instructor prior to enrollment.

*Mr. Motzkin*

### NEJS 104a. Aramaic Dialectology

Texts in Biblical, Elephantine, Galilean, and Jewish Babylonian Aramaic will be studied, introducing the student to the Aramaic culture of Antiquity. No previous knowledge of Aramaic is required.

*Prerequisite:* Competence in Biblical Hebrew.

*Mr. Levine*

### \*NEJS 105a. Syriac

Introductory course. Grammar and simple texts.

### NEJS 106. Ugaritic

See Mediterranean Studies 138.

*Mr. Hamori*

### \*NEJS 109a. Archaeology and the Bible

Palestinian archaeology in the context of Near Eastern archaeology and Israelite history. Contribution of archaeology to the solution of Biblical problems.

### NEJS 111a. Biblical Apocrypha

The non-canonical books of Judaism examined in their historical setting. Consideration of their importance to the Dead Sea Sect and early Christianity.

*Mr. Gottwald*

### NEJS 111b. History of the Biblical Text

An account of the growth of the Biblical text and the ancient versions of the Bible.

*Mr. Sarna*

### \*NEJS 112a. Biblical Hebrew: Languages

A systematic introduction to Biblical grammar (including syntax). A selection of pertinent texts will be read.

### \*NEJS 112b. Biblical Hebrew: Readings of Texts

A continuation of NEJS 112a.

### NEJS 115b. The Five Megillot

The texts will be studied in the original, applying philological and exegetical methods of critical analysis.

*Prerequisite:* Competence in Biblical Hebrew.

*Mr. Levine*

### NEJS 116b. The Book of Job and the Problem of Evil

A reading of the Book of Job (in English translation) and a discussion of the role of the book in the literature and thought of the Western world; the problem of evil in Judaism and Christianity.

*Mr. Glatzer*

\*Not to be given in 1965-66.



**NEJS 118a. The Priestly Writings of the Pentateuch**

The literary and historical traditions of the priestly writings in Exodus, Leviticus and Numbers will be examined with attention to relevant archaeological finds and extra-Biblical sources from the ancient Near East. *Mr. Levine*

**NEJS 119a. The Prophecies of Ezekiel**

A reading of the Book of Ezekiel. The nature of Israelite prophetic experience. Readings in other Biblical books relevant to Ezekiel. *Mr. Sarna*

**NEJS 119b. The Minor Prophets**

A reading of Nahum, Habakkuk, and Zephaniah and an examination of the concepts underlying their prophecies. *Mr. Sarna*

**NEJS 120b. Readings in Talmudic Literature**

Selections from the Tractate Gittin studied in the original with emphasis on the history of Rabbinic legal institutions. *Mr. Levine*

**\*NEJS 121a. Introduction to Jewish Mysticism**

An analysis of the stages of the development of Jewish mysticism from the Tannaitic period to the appearance of the *Zohar* and down to Hasidism.

**\*NEJS 121b. Selected Texts from Genesis Rabba**

A study of the earliest documents of midrashic speculation on cosmological and kindred problems. Tracing of Hellenistic, especially Gnostic sources. The origins of Jewish mysticism.

**\*NEJS 122a. Classical Bible Commentaries**

Selected texts, primarily from Rashi, ibn Ezra, Nahmanides, and David Kimhi's commentaries. Introduction to the history of the medieval interpretation of the Bible. A knowledge of Hebrew is required.

**NEJS 126a. History of the Jews in Antiquity and the Middle Ages**

The organization and function of the Jewish community; intellectual developments and changes in religious doctrine; mysticism; Messianic movements; the Jewish community in European economic life. *Mr. Glatzer*

**NEJS 126b. History of the Jews in Modern Times**

The emancipation of the Jews in Western Europe; the Haskalah movement. The great migrations to the West. Renaissance of Hebrew culture; anti-Semitism, Zionism. Problems of contemporary Jewish life in the United States. *Mr. Halpern*

**\*NEJS 135a. Maimonides' Guide to the Perplexed**

A study of selected chapters as focal points in the development of medieval Jewish philosophy. A knowledge of Hebrew is required.

**NEJS 135b. Medieval Jewish Philosophy**

A survey of the various phases of Jewish philosophy from the 10th century until the Renaissance. *Mr. Altmann*

\*Not to be given in 1965-66.

## NEJS 137a. Spinoza

A presentation of the major trends in Spinoza's thought, his ethics, politics, and criticism of religion. See Philosophy 137a. *Mr. Fleischmann*

## \*NEJS 138a. Modern Hebrew Poetry

Extensive readings in the poetry of H. N. Bialik and Saul Tchernichowsky in the context of contemporary European literature.

## \*NEJS 138b. Modern Hebrew Prose

An examination of ideological and formal problems of the modern Hebrew short story through selected readings.

## NEJS 139a. Ahad Haam and His Time

Reading and discussion of essays of Ahad Haam, Berdichevsky, Bialik, Brenner, A. D. Gordon, and Klatzkin. A seminar.

Reading knowledge of Hebrew is required.

*Mr. Halpern*

## \*NEJS 142a. History of Islam

History of the medieval Islamic World from its inception up to the decline of the Mamluks and ascendancy of the Ottoman Turks. The social, economic and intellectual development will be outlined with special emphasis on relations with the medieval West.

## NEJS 143a. Islamic Institutions

Basic trends of the religious, political and social developments in classical Islam. Qur'an and tradition. Scholastic theology. Mysticism. The legal systems. State, cities, religious brotherhoods, guilds. Islam and the modern world.

*Mr. Motzkin*

## NEJS 146b. Nationalism in the Near East

A comparative historical analysis of the theory and practice of nationalism in the Ottoman Empire and its successor states from 1800 to 1920. The Balkan, North African, Turkish, Egyptian and Arab movements compared with European models.

*Mr. Halpern*

## NEJS 151b. Introduction to Islamic Philosophy

The rise of Greek philosophy among the Arabs. Farabi, Avicenna, Ghazzali, Averroes. Selections in translation will be read and discussed.

*Mr. Motzkin*

## NEJS 160a. American Jewish Institutional History

Social history of American Jewry from colonial times to the Second World War. Emphasis on the development of communal institutions.

*Mr. Halpern*

## \*NEJS 166a. Modern Jewish Intellectual History to 1870

Jewish ideologies and movements from the Enlightenment to the rise of political anti-Semitism.

## \*NEJS 166b. Modern Jewish Intellectual History since 1870

Jewish ideologies and movements from the rise of political anti-Semitism to the present.

\*Not to be given in 1965-66.

**NEJS 167a. Historical Theories in Modern Jewish Thought**

This course surveys the emergence of modern Jewish historiography and its relationship to Jewish thought. The works of Krochmal, Zunz, Geiger, Jost, Graetz, Hermann Cohen, and Franz Rosenzweig will be discussed. *Mr. Fleischmann*

**\*NEJS 225b. North-West Semitic Inscriptions**

Selected readings of inscriptions in their historical context.

**\*NEJS 258b. Studies in Eschatological Theories**

Messianic and Apocalyptic concepts in the Old Testament prophets. Apocrypha and the Dead Sea writings in post-Biblical Judaism and early Christianity; Messianic movements in the Middle Ages.

**NEJS 260b. Topics in American Jewish History**

A research seminar.

*Mr. Halpern*

**\*NEJS 263b. Pro-Seminar on the History of Modern Palestine and Israel**

Topics in the diplomatic history of the region. Bibliography, problems, methods of research.

**NEJS 320. Readings in Jewish History**

*Mr. Glatzer*

**NEJS 321. Readings in the History of the Ancient Near East**

*Mr. Neiman*

**NEJS 322b. Readings in Medieval Jewish Philosophy**

*Mr. Altmann*

**NEJS 325. Readings in Biblical Texts**

*Messrs. Levine, Neiman and Sarna*

**NEJS 326. Readings in Islamic Civilization**

*Mr. Motzkin*

**NEJS 327. Readings in Syriac Literature**

*Mr. Levine*

**NEJS 329. Readings in Modern Near East and Modern Jewish History**

*Mr. Halpern*

**\*NEJS 360a. Source Studies in Jewish History: Second Commonwealth**

Source studies in the history and culture of Palestine from 538 B.C. to 70 A.D.

**\*NEJS 375a. The Zohar: Selected Texts****\*NEJS 380a. Moses Mendelssohn and Beginnings of Modern Jewry**

A seminar studying the transition of Jews from the Ghetto into the European world. Analysis of important literary documents of the period.

**NEJS 400-405. Dissertation Colloquium**

Independent research for the Ph.D. degree.

400. *Mr. Altmann*

401. *Mr. Glatzer*

402. *Mr. Halpern*

403. *Mr. Levine*

404. *Mr. Neiman*

405. *Mr. Sarna*

\*Not to be given in 1965-66.

## Philosophy

### Objectives

The graduate program in philosophy is designed to prepare students for careers in philosophy as scholars and teachers. It places traditional emphasis on logic, epistemology, metaphysics, value theory and the history of philosophy. The number of students admitted to the program is small and the most important part of a student's work is done in small seminars and tutorials under close faculty supervision.

### Admission

In addition to the general requirements for admission to the Graduate School as specified in an earlier section of this catalog, applicants for admission to the graduate program in philosophy should have had at least one year of history of philosophy and at least one course in logic.

### Faculty

Associate Professor FREDERIC SOMMERS, *Chairman*: Philosophy of language. Metaphysics. History of philosophy.

\*Professor NELSON GOODMAN: Cognitive studies. Epistemology.

Professor HENRY DAVID AIKEN: Ethics. American philosophy. Social philosophy.

Professor STEPHEN TOULMIN: Philosophy of science. History of science.

Professor JOHN VAN HEIJENOORT: Logic. History of logic.

Associate Professor PETER DIAMANDOPOULOS: History of ancient philosophy. History of science.

\*\*Associate Professor HAROLD WEISBERG: Philosophy of the social sciences. Social philosophy. Philosophy of religion.

Assistant Professor DANIEL C. BENNETT: Philosophy of mind. History of philosophy. Social philosophy.

Assistant Professor GERASIMOS X. SANTAS: History of ancient philosophy. Ethics.

### Degree Requirements

All programs will be worked out in consultation with the student's adviser.

#### Master of Arts

Generally only candidates for the Ph.D. degree are accepted, although

\*On Leave, 1965-66

\*\*On Leave, Fall Term.

in some cases an M.A. degree will be awarded upon satisfactory completion of the following requirements:

1. One year's residence as a full time student.
2. Successful completion of a prescribed schedule of courses.
3. Passing qualifying examinations in logic, history of philosophy, and a special text examination.
4. Demonstration of proficiency in either French *or* German.

### Doctor of Philosophy

The degree requirements for the Ph.D. degree are as follows:

1. Residence as a full-time student for two years.
2. Successful completion of a prescribed schedule of courses.
3. Passing all qualifying examinations with distinction.
4. Demonstration of proficiency in either French *or* German.
5. Admission to candidacy.
6. Submission of a doctoral dissertation approved by the department.
7. Successful defense of the dissertation.

*Program of Study.* Each student will be assigned a tutor who will advise him on his course of study and guide him in his preparation for the qualifying examinations. First year students are required to take the pre-seminar in philosophy (Philosophy 200) and six additional semester courses, four of which must be within the Philosophy Department. Second year students are required to take two semester courses from the 200 series and six additional semester courses. The student is also encouraged to take some work in a field other than philosophy that is related to his area of concentration. Such work may be taken in the first or second year and will count toward the fulfillment of the residence and course requirements for the Ph.D. It must have the prior approval of the student's adviser and the department chairman. A second year student may not take more than two semester reading courses in the 300 series; these must also be approved by his adviser and the department chairman.

*Qualifying Examinations.* Qualifying examinations are given each fall and spring in logic, epistemology and metaphysics, value theory, history of philosophy and on a philosophical text. The title of the text will be announced four months before the examination is given. The text examination and the examination in logic and epistemology must be taken in the spring of the first year of study. All examinations must be passed with distinction within thirty months of initial enrollment in order to qualify for the Ph.D. degree. No examination may be taken more than twice.

*Language Requirement.* A proficient reading knowledge of either French or German is required. A student must take an examination in either language by the spring term of his first year in residence and must meet the language requirement no later than the beginning of his fifth term in residence. Language examinations will be given early in the fall and spring terms. The department reserves the right to establish additional language requirements when necessary for a student's doctoral research.

*Admission to Candidacy.* A student may be admitted to candidacy for the Ph.D. degree when he has completed his residence requirement, has passed with distinction all of the qualifying examinations, has fulfilled the language requirement and when the subject of his dissertation has been approved by the department.

*Dissertation Topic Oral Examination.* To meet the final requirement for admission to candidacy, a student must have departmental approval of a thesis prospectus and must pass with distinction an oral examination in the general area of his proposed topic.

*Dissertation and Defense.* When a student has been admitted to candidacy, the department chairman will appoint a dissertation adviser and a dissertation committee. The dissertation will be written under the supervision of this committee and when it has been read and accepted by the committee a final oral examination will be scheduled wherein the candidate will defend his dissertation.

## Courses of Instruction

### PHILOSOPHY 104a. Pre-Socratic Philosophy

An intensive study of the fragments of the Pre-Socratics. A study of the transition from myth to philosophy. *Mr. Diamandopoulos*

### PHILOSOPHY 105a. Plato

An introduction to Plato's thought through an intensive reading of several major dialogues. Among the topics discussed will be the Socratic method, Socratic and Platonic ethics, Plato's conception of the soul, knowledge, and existence.

*Mr. Santas*

### PHILOSOPHY 105b. Aristotle

Lectures on Aristotle's views on Knowledge, Being, the Cosmos, the Soul, and human life. Extensive reading from *Organon*, *Metaphysics*, *Physics*, *De Anima*, *Ethics* and *Politics* will be required. *Messrs. Diamandopoulos and Sommers*

### PHILOSOPHY 115b. Intermediate Logic

Informal and axiomatic development of quantification theory. Notions of consequence, theorem, proof. Semantics of quantification, semantical completeness of the theory. Naive set theory, the nature of formal systems. *Mr. van Heijenoort*

**\*PHILOSOPHY 117b. Ethical Theory**

An examination of the main types of contemporary ethical theories, including naturalism, intuitionism, and emotivism. Analysis of ethical concepts. Elements of normative systems. Varieties of relativism.

**PHILOSOPHY 118b. Philosophy and the Idea of Nature**

The roots of philosophical problems in natural science, with particular reference to the seventeenth and eighteenth centuries. *Mr. Toulmin*

**PHILOSOPHY 119a. Theory of Knowledge**

Such questions as the nature of truth, the reliability of sense perception, and the problem of a priori knowledge will be discussed. *Mr. Bennett*

**PHILOSOPHY 121a. Foundations of Mathematics**

Formal systems. Godel's theorems and consequences. Consistency proofs of arithmetic. Introduction to the theory of recursive functions. Hilbert's program and intuitionism. *Mr. van Heijenoort*

**\*PHILOSOPHY 131a. Theory of Symbols**

Types and functions of symbols and symbolic schemes in perception and cognition, and in the arts and sciences. Languages and notations; discursive, digital, and analog systems. Representation, expression, description. Models and metaphors.

**PHILOSOPHY 133b. Contemporary Philosophy**

A review of recent philosophical thought. *Mr. van Heijenoort*

**PHILOSOPHY 137a. Spinoza**

A presentation of the major trends in Spinoza's thought, his ethics, politics, and criticism of religion. *Mr. Fleischmann*

**\*PHILOSOPHY 143a. Continental Rationalism**

Intensive study of selected texts from Descartes, Spinoza and Leibnitz.

**PHILOSOPHY 143b. British Empiricism**

Intensive study of selected texts from Locke, Berkeley and Hume. *Mr. Weisberg*

**PHILOSOPHY 144b. Medieval Philosophy**

A survey of the development of philosophy from the Patristic Age to High Scholasticism. *Mr. Altman*

**\*PHILOSOPHY 147a. American Pragmatism**

An historical survey and analysis of the pragmatic tradition in American philosophy. Selected texts of Peirce, James, Dewey and C. I. Lewis will be discussed.

**PHILOSOPHY 151b. Social and Political Philosophy**

The problem of justifying social and political beliefs, including a critical examination of leading attempts to justify such beliefs by appeal to history, natural law, human nature and theology. *Mr. Bennett*

\*Not to be given in 1965-66.

## PHILOSOPHY 158b. Metaphysics

An examination of ontological categories, their structure and formation.

*Mr. Sommers*

## \*PHILOSOPHY 167b. Kant

## PHILOSOPHY 200. Pro-Seminar

*Required of all first year students.*

*Mr. Sommers and Staff*

## \*PHILOSOPHY 205a. Seminar in Modern Philosophy

## PHILOSOPHY 205b. Seminar in Ancient Philosophy

*Mr. Santas*

## PHILOSOPHY 215b. Seminar on the History of Logic

*Mr. van Heijenoort*

## PHILOSOPHY 222a. Seminar in Ethics

*Mr. Aiken*

## \*PHILOSOPHY 225b. Seminar in the Philosophy of History and the Social Sciences

## PHILOSOPHY 226a. The Idea of Historical Development

Transformations in ideas about the antiquity, and the patterns of change of society and of nature, with special reference to the period 1700-1875. *Mr. Toulmin*

## \*PHILOSOPHY 232b. Logical Structure of Experience

## \*PHILOSOPHY 245b. Seminar in the Philosophy of Science

## PHILOSOPHY 256a. Seminar in the Philosophy of Mind

*Mr. Bennett*

## \*PHILOSOPHY 257a. Seminar in the Theory of Knowledge

## \*PHILOSOPHY 258b. Seminar in Metaphysics

## PHILOSOPHY 300a and b. Readings in Philosophy

*Staff*

## PHILOSOPHY 400-408. Dissertation Research

Independent research for the Ph.D. degree.

400. *Mr. Sommers*

401. *Mr. Aiken*

402. *Mr. Weisberg*

403. *Mr. Diamandopoulos*

404. *Mr. Toulmin*

405. *Mr. Bennett*

406. *Mr. van Heijenoort*

407. *Mr. Santas*

408. *Mr. Goodman*

## Philosophy Colloquium

The Philosophy Colloquium meets monthly and attendance is required. Distinguished visitors read papers and discuss their current work at these colloquia.

\*Not to be given in 1965-66.



## Physics

### Objectives

The graduate program in physics is designed to equip the student with a broad understanding of all major fields of physics and to train him to carry out independent original research. This objective is to be attained by formal course work and supervised research projects. As the number of students who are accepted is limited, a close contact between students and faculty is maintained, permitting close supervision and guidance of each student.

Advanced degrees will be granted upon evidence by the student of his knowledge, understanding and proficiency in classical and modern physics, and in mathematics. The satisfactory completion of advanced courses will constitute partial fulfillment of these requirements. Research upon which theses may be based, with residence at Brandeis, can be carried out in the following areas:

*Theoretical Physics:* Quantum theory of fields; meson theory; quantum electrodynamics; elementary particle physics; general theory of relativity; nuclear physics; quantum statistical mechanics; thermodynamics of irreversible processes; quantum theory of the solid state; the many-body problem; kinetic theory of ionized gases; plasma physics; theoretical astrophysics.

*Astrophysics:* Stellar constitution; stellar and galactic evolution; radiative transfer; cosmology and cosmogony; stellar mechanics.

*Experimental Physics:* Nuclear physics; high energy experimental physics, primarily work with bubble chambers on the properties of the strange particles; atomic and molecular beams; optical pumping; solid state physics; nuclear magnetic resonance; phase transition phenomena; low temperature physics.

### Admission

As a rule, only candidates for the Ph.D. degree will be accepted. The general requirements for admission to the Graduate School apply to candidates for admission to the graduate area in physics. Admission to advanced courses in physics will be granted following a conference with the student at entrance.

### Faculty

Professor SILVAN S. SCHWEBER, *Chairman:* Quantum theory of fields. Elementary particle physics. Quantum theory of multiparticle systems.

Professor STEPHAN BERKO: Atomic physics. Nuclear physics. Properties of solids. Magnetism.

- Professor STANLEY DESER: Quantum theory of fields. Elementary particles. General relativity.
- Professor DAVID L. FALKOFF: Classical and quantum statistical mechanics. Irreversible processes. Quantum theory of solids.
- Professor EUGENE P. GROSS: Quantum theory of multiparticle systems. Quantum theory of solids. Kinetic theory. Plasma physics.
- Visiting Professor OSKAR KLEIN (*Jacob Ziskind Visiting Professor*): General relativity. Cosmology. Elementary particles.
- Professor EDGAR LIPWORTH: Atomic and molecular beams. Optical pumping. Lasers.
- Professor RAYMOND A. LYTTLETON, F.R.S. (*Jacob Ziskind Visiting Professor from St. John's College, Cambridge, England*): Cosmology. Astrophysics. Origin of the solar system.
- Associate Professor MAX CHRÉTIEN: Experimental high energy physics. Elementary particles.
- Associate Professor of Astrophysics JACK S. GOLDSTEIN, *Director, Astrophysics Institute*: Astrophysics. Radiative transfer. Stellar interiors.
- Associate Professor MARCUS T. GRISARU: Field theory. Mathematical physics. Elementary particles.
- Visiting Professor MINORU NISHIDA (*Kyoto University*): Astrophysics. Stellar evolution.
- Associate Professor HOWARD SCHNITZER: Nuclear theory. Elementary particle theory.
- Associate Professor SANFORD E. WOLF: High energy experimental physics.
- Visiting Assistant Professor STEVE P. HEIMS: Solid state theory.
- Assistant Professor PETER HELLER: Solid state experimental physics. Nuclear magnetic resonance.
- Assistant Professor CHRISTOPH HOHENEMSER: Experimental atomic and nuclear physics.
- Assistant Professor DANIEL J. KLEITMAN: Theory of fields and particles.
- Assistant Professor HUGH N. PENDLETON III: Elementary particles. S-matrix theory. Quantum theory of atoms, molecules and solids.
- Assistant Professor MARCEL SCHNEEBERGER: High energy experimental physics.
- Visiting Assistant Professor of Astrophysics MUMTAZ ZAIDI (*from University of Nebraska*): Atomic physics. Many-body problem and statistical mechanics.
- DR. ASHER ADLER: Experimental atomic and nuclear physics.

## Degree Requirements

*Program of Study.* The requirements for advanced degrees in the Department of Physics are as follows:

### Master of Arts

1. One year's residence as a full-time student.
2. Eighteen semester hours of advanced courses in physics.  
A thesis on an approved topic may be accepted in place of a semester course.
3. Reading knowledge of French, German, or Russian.
4. Satisfactory performance in the General Examination.

### Doctor of Philosophy

1. Two years' residence as a full-time student.
2. Twenty-seven semester hours of advanced courses in physics.
3. Reading knowledge of two foreign languages chosen from French, German and Russian. (Italian may be substituted for French.) A knowledge of computer programming may be substituted for a *second* language.
4. Outstanding performance in the General Examination.
5. Passing of an Advanced Examination in topics related to the student's thesis subject. This examination will normally be taken after preparatory studies in the prospective field of research.
6. Doctoral thesis and final oral examination.

*Program of Study and Course Requirements.* Normally, first year graduate students will elect lecture courses from the 100 series; second year students from the 200 series. To obtain credit toward residence for a graduate course taken at Brandeis, a student must achieve a final grade of "A" or "B" in that course. A student who obtains a grade lower than "B" or an "Incomplete" in two or more courses in any term will not be allowed to continue his studies beyond the end of that academic year. (A course from which a student withdraws after midterm will be considered as "Incomplete.")

A student may obtain credit for advanced courses taken at another institution provided their level corresponds to the level of the graduate courses at Brandeis and that he obtained an honor grade in these courses.

*Residence Requirements.* A student may obtain up to one year's residence credit toward the Ph.D. requirements for graduate studies taken at another institution. No transfer residence credit will be allowed toward fulfillment of the Master's requirements.

*Language Examinations.* The language examination consists of a written translation of a scientific text into English. It is arranged informally

between the student and the foreign language examiner. The computer programming examination consists of three parts:

In Part 1 a student is given a problem which will require a reasonably complete knowledge of Fortran and some non-trivial logic. The student will be expected to know how to punch the cards, assemble the program ("debug" if necessary), check correctness of calculation, etc., and present printed results to the examining committee.

In Part 2 the above procedure is repeated on a different problem; however, SPS programming must be used.

Part 3 consists of an oral examination in which the student should demonstrate a general knowledge of computers (their usefulness, logical and memory capacity speeds, etc.).

For further information concerning the computing examination, consult the Director of the Computer Center.

*General Examination.* The General Examination will be given twice a year, during the week preceding each semester and should be taken by all degree students by the end of their third term. One language examination must be taken before the General Examination.

The General Examination is designed to test whether a student has understood and integrated the material of his undergraduate and first year graduate studies. It consists of a series of written three-hour examinations and of an oral examination. Its contents are not related to particular lectures at Brandeis. To prepare for the General Examination the student is advised to study the questions asked in previous examinations, copies of which are available in the department office.

The General Examination should be taken before the *fourth term* of study at Brandeis. Qualified students are encouraged to take it earlier. Students with a Master's degree from another university *must* take it within a year after entering Brandeis.

Outstanding performance on the General Examination qualifies a student for a Master's degree and allows him to present himself for the Advanced Examinations. Satisfactory but not outstanding performance qualifies a student for the Master's degree. The student may present himself, within a year, for re-examination on those parts of the General Examination in which his performance was not outstanding. In the case of unsatisfactory performance a student may either be asked to withdraw from the University or he may be allowed, within a year, to take the General Examination again.

*Advanced Examination.* The Advanced Examination is designed to test the student's knowledge and abilities in his chosen field of research. After passing the General Examination, the student begins work with an

adviser who guides his research program. The adviser should be a member of the Brandeis faculty but in special circumstances may be a physicist associated with another research institution. The adviser will work out a program of study to familiarize the student with current research in his field and to explore possible dissertation topics. The Graduate Committee of the Physics Faculty will then appoint a dissertation committee, to which the student must submit a written progress report at the end of each term. The student's dissertation adviser will be the chairman of the dissertation committee. The Advanced Examination will cover the student's field of research, as well as closely related topics, and will be taken on a date set by the adviser within three terms of passing the General Examination. It will be administered by the dissertation committee, which will determine its content and form (written or oral). Depending upon the recommendation of his adviser and his performance in the Advanced Examination, the committee will recommend the student for admission to candidacy for the doctorate, allow him a second attempt, or request him to withdraw from the University.

*Dissertation and Final Oral Examination.* The doctoral dissertation must represent a piece of original research of a standard acceptable to a faculty committee (dissertation committee) appointed for each Ph.D. candidate. The final oral examination, or defense, is an examination in which the student will be asked questions pertaining to his dissertation research.

## Courses of Instruction

### PHYSICS 100a. Theoretical Mechanics

Mechanics of point systems. Lagrangian and Hamiltonian methods. Small vibrations. Transformation theory. Integral invariants. Kinematics and dynamics of rigid bodies. Perturbation theory. Relativistic mechanics. *Mr. Goldstein*

### PHYSICS 100b. Continuum Mechanics

The mechanics of continuous media. Hydrodynamics; non-linear phenomena; shock waves. *Mr. Golden*

### PHYSICS 101a and b. Electromagnetic Theory

Electrostatics, magnetostatics, boundary value problems. Maxwell's Equations. Quasi-stationary phenomena. Radiation. *To be announced*

### PHYSICS 102a and b. Quantum Mechanics

A critical review of the experiments leading to the quantum hypothesis. Representations, pictures, operator methods. Schrödinger equation and applications. Spin. Addition of angular momenta; helium spectrum. Pauli Principle. Atomic and molecular structure. Elementary scattering theory: atomic and nuclear scattering. *Mr. Grisar*

**PHYSICS 103a. Low Energy Nuclear Physics**

Experimental methods. Phenomenology of nuclear properties. Two-nucleon problem. Models for nuclear structure. Radioactivity. *Mr. Chrétien*

**PHYSICS 103b. High Energy Nuclear Physics**

High energy accelerators and particle detectors. Relativistic kinematics. Classification schemes of elementary particles. *Mr. Wolf*

**\*PHYSICS 104a. Modern Atomic and Molecular Physics**

Microwave spectroscopy, NMR, atomic beams, optical pumping, masers and lasers.

**\*PHYSICS 104b. Solid State Physics**

Thermal, electric and magnetic properties of solids. Lattice vibrations. Specific heat. Band theory of solids. Fermi surface.

**PHYSICS 109a and b. Advanced Laboratory**

*2 credits.*

*Mr. Hohenemser*

**PHYSICS 110a. Mathematical Physics**

Linear vector spaces: matrices, operators, Hilbert spaces. Orthogonal functions. Probability theory. *Mr. Deser*

**PHYSICS 110b. Mathematical Physics**

Complex variables. Differential equations. Boundary value problems. Special functions. Integral equations. Numerical methods. *To be announced*

**PHYSICS 200a. Special Theory of Relativity**

Foundations of the special theory. Lorentz transformations. Four-dimensional formulation of physics. Relativistic mechanics. Classical theory of fields. *Mr. Klein*

**PHYSICS 200b. General Theory of Relativity**

Physical background—the equivalence principle. Mathematical background—tensor analysis, affine spaces, Riemann manifolds. The Einstein field equations and their physically important special solutions. Experimental verification. The gravitational field as a dynamical system; application of field theoretical methods. *Mr. Deser*

**\*PHYSICS 201a. Thermodynamics and Kinetic Theory**

Thermodynamics. Chemical reactions. Irreversible processes. Kinetic theory. Diffusion. Boltzmann equation.

**\*PHYSICS 201b. Statistical Mechanics**

Ensembles and phase space. Maxwell-Boltzmann distribution. Boltzmann's H-theorem. Bose-Einstein and Fermi-Dirac distributions. The quantum mechanical H-theorem. Statistical explanation of thermodynamics. Applications: theory of condensation, low temperature phenomena.

**PHYSICS 202a and b. Advanced Quantum Mechanics**

Formal theory of scattering. Relativistic one particle equations. Elementary quantization of radiation field. Feynman positron theory and applications.

*Messrs. Schnitzer and Schweber*

---

\*Not to be given in 1965-66.

**\*PHYSICS 203a. Nuclear Physics**

Low energy nuclear phenomena. Nuclear forces. Theory of nuclear reactions. Beta-decay. Liquid drop model. Shell model, collective model.

**PHYSICS 203b. Elementary Particle Physics**

Pair production. Compton effect, Bremsstrahlung. Cosmic ray phenomena. High energy meson and nuclear phenomena. *Mr. Pendleton*

**PHYSICS 204a. Solid State Physics**

Adiabatic approximation. Molecular structure. Electronic structure of solids. Specific heats. Theory of electric and thermal conductivity of solids. Electron-lattice interactions. Superconductivity. Collective interactions in solids. *Mr. Gross*

**\*PHYSICS 208a. Astrophysics**

Hertzsprung-Russell diagram. Classification of stellar systems. Physics of stellar interiors. Radiative transfer problems. Abundances of the elements. Magneto hydrodynamics. Physics of the interstellar medium.

**\*PHYSICS 208b. Gas Dynamics and Magneto Gas Dynamics****\*PHYSICS 209. Laboratory Seminar**

Analysis of some important recent experiments (such as molecular beams, cyclotron, etc.) to understand apparatus and techniques. *1 credit.*

**\*PHYSICS 302b. Quantum Theory of Fields**

The theory of interacting quantized fields. Quantum electrodynamics. Mesodynamics. Field theoretical description of the weak and strong interactions.

**PHYSICS 303b. Quantum Theory of Solids**

The application of the principles of quantum mechanics to the solid state.

*Messrs. Berko and Falkoff*

**PHYSICS 310a,b. Group Theory and Applications**

The application of group theory to problems in quantum mechanics and elementary particle physics.

*Messrs. Grisar and Kleitman*

**PHYSICS 321. Seminar in Special and General Relativity**

*Messrs. Klein and Deser*

**\*PHYSICS 323. Seminar in Quantum Theory of Fields****\*PHYSICS 324a. Seminar in Advanced Statistical Mechanics****PHYSICS 325a. Seminar in Astrophysics**

Various topics in astrophysics, including theories of formation of the solar system. *Mr. Lyttleton*

**Research Courses**

**PHYSICS 401. Experimental Atomic and Molecular Physics** *Messrs. Berko and Lipworth*

**PHYSICS 402. Theoretical Atomic and Molecular Physics** *Mr. Pendleton*

**PHYSICS 403. Experimental Nuclear Physics** *Messrs. Berko and Hohenemser*

**PHYSICS 404. Theoretical Nuclear Physics** *Messrs. Gross and Schnitzer*

**PHYSICS 405. Experimental Elementary Particle Physics**

*Messrs. Chrétien, Schneeberger and Wolf*

\*Not to be given in 1965-66.

- PHYSICS 406. Theoretical Elementary Particle Physics  
*Messrs. Deser, Grisaru, Pendleton, Schnitzer and Schweber*
- PHYSICS 407. Experimental Solid State Physics  
*Messrs. Berko, Heller and Hohenemser*
- PHYSICS 408. Theoretical Solid State Physics  
*Messrs. Falkoff and Gross*
- PHYSICS 409. Relativity  
*Mr. Deser*
- PHYSICS 410. Mathematical Physics  
*Messrs. Deser, Grisaru, Kleitman, and Schweber*
- PHYSICS 411. Statistical Physics  
*Messrs. Falkoff and Gross*
- PHYSICS 412. Astrophysics  
*Messrs. Goldstein, Nishida and Zaidi*

## Politics

A new graduate program in Politics, leading to the degree of Doctor of Philosophy, will begin operation in the academic year 1966-67.

Detailed information may be had by writing to the Dean, Graduate School of Arts and Sciences, Brandeis University, Waltham, Massachusetts 02154.

## Psychology

### Objectives

The graduate program in psychology leading to the degree of Doctor of Philosophy is designed for students of promise in the field of general psychology. Theoretical, historical and experimental studies and research projects rather than formal course training will be emphasized. Courses and seminars in special areas, such as clinical psychology, are offered to all graduate students, but no specialized training or special degrees are given. Graduate programs will be arranged individually in consultation with faculty members.

All regular graduate students must pursue programs leading to the Ph.D. degree. Special students, who are not candidates for a degree, may occasionally be admitted; such admissions are for one year at a time. Candidates for the degree of Master of Arts are not admitted, although that degree may be granted when such an action seems in the best interest of the student. In these cases, the degree is based on the successful completion of a year of regular graduate work, the demonstration of a reading proficiency in one foreign language, and the completion of a Master's thesis. A paper presented before a learned society or one accepted for publication by a learned journal may be accepted in lieu of a Master's thesis. A qualifying examination may also be required.



## Admission

The general requirements for admission to the Graduate School, as specified in an earlier section of this catalog, apply to candidates for admission to this area of study.

An undergraduate major in psychology is not required, although it will be favored. Students with inadequate preparation may make up their deficiencies during their first year, but without residence credit. Preference will be given to students who have completed, in addition to basic courses in theoretical and experimental psychology, a broad liberal arts program with some training in the natural and social sciences. Students will be admitted on a competitive basis which will include evaluation of previous academic record and the results of the Graduate Record Examinations (Advanced, Aptitude and Profile Tests), and the Miller Analogies Test.

## Faculty

Professor RICARDO B. MORANT, *Chairman*: Experimental psychology. Developmental psychology. Perceptual mechanisms. Sensation and perception.

Professor EUGENIA HANFMANN: Clinical psychology. Personality theory.

Professor RICHARD M. JONES: Educational psychology. Social psychology. Psychotherapy.

Professor GEORGE A. KELLY: Personality theory. Theory of personal constructs. Clinical psychology.

\*Professor ABRAHAM H. MASLOW: Personality theory. Transcendence theory. Experiential approaches to personality.

Professor HARRY RAND: Clinical practice and training.

Associate Professor JAMES B. KLEE: Motivation and emotion. Symbolic and cognitive processes. Human and animal learning.

\*Associate Professor ULRIC NEISSER: Experimental psychology. Human and animal learning. Cognitive processes.

Associate Professor MARIANNE L. SIMMEL: Sensory physiology. Cognitive processes. Perception.

Assistant Professor HARVEY LONDON: Social psychology. Group dynamics.

Assistant Professor MELVIN SCHNALL: Child and developmental psychology.

Assistant Professor MARK SPIVAK: Social psychology. Group psychodynamics. Social psychiatry.

Assistant Professor JEROME WODINSKY: Comparative psychology. Learning theory. Sensory physiology.

Adjunct Lecturer DONALD B. GIDDON: Physiological psychology. Psychosomatic relations.

---

\*On Leave, 1965-66.

## Degree Requirements

### Doctor of Philosophy

Four years of full-time graduate study are usually required for the Ph.D. An individual program will be arranged in consultation with each student. During the first two years, the student will carry fifteen credit units per semester. The ordinary program includes (a) three units in Psychology 300 (Departmental Colloquium); (b) three units in Psychology 200 (Research); (c) Psychology 290-297 (Readings); and (d) three units in each of two other seminars or courses at the 100 level or above. In addition, students may audit any other courses or seminars with the permission of the instructor.

*Evaluation of Proficiency.* A. Students are expected to achieve a thorough knowledge of fundamentals in certain areas of psychology during their first three years. Two general areas and six special areas have been defined by the faculty as follows:

a. *General Areas:*

1. History and Systems
2. Statistical Methods

b. *Special Areas:*

*Group A: Experimental Areas*

1. Sensation and Perception
2. Learning and Thinking
3. Physiological and Comparative Psychology

*Group B: Dynamic Areas*

4. Personality and Motivation
5. Psychopathology and Clinical Psychology
6. Child and Social Psychology

The student's level of proficiency in the two general areas will be determined by written examinations. In addition, the student will select three areas, two from one of the groups, A or B, listed above and one from the other group, B or A, in which he will be examined by a committee of the faculty. These latter examinations may be oral or written, at the option of the student.

Some competence is required also in the areas not selected for examination. Successful completion of a relevant undergraduate or graduate course or seminar will ordinarily satisfy this requirement, but a formal paper or examination may be requested.

Examinations may be taken separately. Written examinations will ordinarily be offered three times a year, in October, January and May. Oral examinations will be offered throughout the academic year and summer by individual arrangement with the faculty. Students wishing to take oral or

written examinations should register with the department secretary three weeks before the examination is to be scheduled.

Examinations will be based on the content covered in the reading lists prepared by the faculty each year. A designated faculty member will be available for consultation concerning preparation for any given examination. This preparation may take the form of a reading course.

Students are expected to take at least two examinations prior to the end of their third term in residence, and to fulfill all requirements described in this section by the end of the third year in residence.

*Individual Research.* Each student is expected to engage in collaborative or independent research, with the aim of developing competence in the planning, practice, and evaluation of research. Research work should begin during the first year of residence.

*Teaching.* Each student, whether or not he receives remuneration as a teaching assistant, is expected to do some undergraduate teaching to develop competence in teaching. Psychology 201c is designed to further the student's understanding of the teaching process.

*Language Requirement.* The demands of the field of the dissertation will determine the foreign languages that the student is expected to master. Reading proficiency in at least one foreign language is required for the Ph.D. degree. This language must be one in which substantial psychological literature exists. Language examinations are offered by the department four times a year, usually in September, December, February and May. Students are expected to satisfy the language requirement as soon as possible. By regulation of the Graduate School, a student who has not passed an examination in at least one foreign language by the end of his first year of study will not be eligible for financial aid from the university for the second year.

*Admission to Candidacy.* A student may be admitted to candidacy for the doctorate when he has passed all departmental qualifying examinations.

*Dissertation and Defense.* Following the completion of all examinations, and before the student begins to concentrate on dissertation research, he will prepare a prospectus of the proposed study, in consultation with a faculty dissertation sponsor. Upon approval by the faculty, a dissertation committee of three or more faculty members will be appointed, including the dissertation adviser. The committee will advise the student in his dissertation work and from time to time will report his progress to the faculty.

The student may, if he wishes, ask the department for *formal acceptance* of his prospectus. A prospectus that is to be formally accepted must provide a detailed outline of the experimental work to be done (if any)

and of its theoretical basis. Such a prospectus will be voted upon by all members of the department. Once the department has formally accepted a prospectus, it will consider itself bound to accept the resulting dissertation as well, regardless of the experimental results, provided that the proposed work has been carried out.

When the student has presented a dissertation prospectus, whether or not he asks for formal acceptance, his dissertation committee will be responsible for evaluating his competence in the field of psychology within which the dissertation falls. This field will ordinarily include more than one of the areas defined above and may include such related areas as sociology, linguistics, one or more physical sciences, etc. The committee may, at its discretion, require a written examination in the thesis field as a whole or in any part of it.

The dissertation should provide evidence of originality, scholarship and research ability. It should be a contribution to knowledge, ordinarily an experimental research, but not necessarily so. Upon submission to the chairman of the department of a copy of the thesis, signed by all three members of the thesis committee, and a successful defense of the thesis before all members of the department, the award of the Ph.D. will be recommended to the Faculty Council of the Graduate School.

### Courses of Instruction

#### \*PSYCHOLOGY 115a. Experiential Approaches to Personality

Self-analyses, dream and symbol psychology, peak and mystic experiences, archaic, mythic and pre-rational cognition.

#### PSYCHOLOGY 118a. Physiological Psychology

Those aspects of physiology most relevant to psychological investigation: the anatomy and physiology of receptor and effector organs, the neuron and synapse, sensory and motor neural pathways, the integrative activity of the central nervous system, the autonomic nervous system and the action of hormonal factors.

*Mr. Giddon*

#### PSYCHOLOGY 119b. Comparative Psychology

Comparison of the behavior of various species, including man, in an evolutionary perspective.

*Mr. Wodinsky*

#### PSYCHOLOGY 120a. Experimental Psychology

Individual or group research carried out under supervision. Techniques of experimentation, experimental design. *4 credits.*

*Mr. Morant*

#### \*PSYCHOLOGY 121. History of the Concept of Human Nature

Ideas on the nature of man developed in western society since the end of the seventeenth century.

\*Not to be given in 1965-66.

**\*PSYCHOLOGY 130a. Psychology of Problem Solving and Learning**

A study of the creative process, its background and consequences and its relation to perception and learning theory.

**PSYCHOLOGY 131b. Psychology of Symbolic Processes**

Culture as studied primarily from the frame of reference of psychology. Dreams, myths, and art as created, expressed, and as used in language, the humanities, and sciences will be studied as psychological data. The place of psychology in relation to the humanities and the other sciences will be evaluated.

Enrollment limited to fifteen students.

*Mr. Klee*

**PSYCHOLOGY 132b. Psychology of Emotions**

A consideration of the value dimension of the individual's dynamic relation to the world about him in both its positive and disruptive aspects.

*Mr. Klee*

**PSYCHOLOGY 133a. Choice, Will and the Ego**

A reevaluation of the "active person." Choice, freedom, and responsibility will be considered as psychological problems. A study will be made of the relevance to choice and action of hedonics, knowledge, reason, and religion, and of man's relation to his perception of good and evil, sickness and health. An assessment of the individual's role in disease and conflict.

Enrollment limited to twenty students.

*Mr. Klee*

**PSYCHOLOGY 134a. Behavior Pathology**

A socio-psychological and dynamic approach to behavior pathology with emphasis on current theories of pathogenic family structure.

*Mr. Spivak*

**\*PSYCHOLOGY 135a. Applications of Psychoanalytic Concepts**

Psychoanalytic theory will be explored in its application to literature, biography and the creative process.

**PSYCHOLOGY 137b. Personality**

The study of personality through the combined use of personality scales and experiments. Topics emphasized will be Machiavellian authoritarianism and sociopathy.

*Mr. London*

**PSYCHOLOGY 138b. Theories of Personality**

A survey of current personality theories and their implications for research, for human development and for social institutions. The preliminary formulation of the student's own personality theory, both on implicit and explicit levels.

*Mr. Kelly*

**\*PSYCHOLOGY 139b. The Self and Identity****PSYCHOLOGY 140a. Learning and Behavior**

Current theories of learning will be explored in the light of experimental evidence derived from human and animal studies.

Enrollment limited to fifteen students.

*Mr. Wodinsky*

**PSYCHOLOGY 141a. Biological Bases of Motivation**

Topics to be treated include hunger, thirst, migration, sexual behavior and parental behavior. Evidence from biology, neurophysiology and endocrinology will be evaluated.

Enrollment limited to fifteen students.

*Mr. Wodinsky*

**PSYCHOLOGY 142b. Psychosomatics**

The interrelationships of psychological, social and cultural factors in physical disease. Topics include psychophysiological mechanisms in disease, physiological correlates of mental disease and "somato-psychic problems."  
*Mr. Giddon*

**PSYCHOLOGY 143a. Cognitive Processes**

Experiments in human learning, thinking problem solving.  
*Prerequisite:* Psychology 50b or permission of the instructor.  
Enrollment limited to fifteen students.

*Miss Simmel***PSYCHOLOGY 144b. The Psychology of Language**

Language development; names, concepts and symbols; expressive language; metaphor; grammar and syntax; problems of translation; pathology of language.  
Enrollment limited to fifteen students.

*Miss Simmel***PSYCHOLOGY 145a. Psychopathology in Childhood**

Theoretical and therapeutic implications of disorders in childhood, focusing on mental retardation and childhood psychosis.

Enrollment limited to fifteen students.

*Mr. Schnall***\*PSYCHOLOGY 145aR. Psychopathology in Childhood**

See Psychology 145a.

**PSYCHOLOGY 146a. Psychopathology and Cognition**

Alterations of perceptual and conceptual processes in schizophrenia, in brain injury, under the influence of drugs, and under conditions of so-called sensory isolation.

Enrollment limited to fifteen students.

*Miss Simmel***\*PSYCHOLOGY 147b. Systematic Psychology**

A seminar focusing on the validity and purpose of contemporary theoretical formulations.

**\*PSYCHOLOGY 148a. Advanced Child Psychology**

The dynamic aspects of child behavior and development will be studied, discussed and applied in demonstrations.

Enrollment limited to fifteen students.

**\*PSYCHOLOGY 148aR. Advanced Child Psychology**

See Psychology 148a.

**\*PSYCHOLOGY 149b. Phenomenological Psychology**

The implications of a phenomenological viewpoint for problems in personality, perception and cognition. Cassirer's philosophy of symbolic forms will be studied to see how a radical phenomenology can be grounded in epistemological and ontological principles.

**\*PSYCHOLOGY 150b. The Psychology of Religious Experience**

A study of selected examples of religious experience, both contemporary and historical.

\*Not to be given in 1965-66.

**\*PSYCHOLOGY 151a. Political Behavior**

This seminar will focus on several psychosocial variables related to political behavior. An empirical project related to the 1964 presidential election will be required of all students.

Enrollment limited to fifteen students.

**PSYCHOLOGY 152b. Group Dynamics**

A consideration of classical and current experimental approaches to the study of human interaction.

Enrollment limited to fifteen.

*Mr. London*

**PSYCHOLOGY 153b. Developmental Approaches to Cognition**

Examination of major developmental principles and descriptive systems and their utility in the examination of perception, language and thought. Emphasis on the work of Werner and Piaget.

Enrollment limited to fifteen.

*Mr. Schnall*

**PSYCHOLOGY 154a. The Psychology of Personal Constructs**

The structure, development and potentialities of personal construct theory. The theory's philosophical substructure. Utilization of the theory in personal and social affairs.

Enrollment limited to fifteen students.

*Mr. Kelly*

**\*PSYCHOLOGY 155b. Advanced Educational Psychology**

Dynamic psychology as applied to educational practice.

For seniors enrolled in the Education Program or others with the consent of the instructor.

Enrollment limited to fifteen students.

**\*PSYCHOLOGY 159b. Perception**

Study of the history and implications of selected problems in current research in perception.

Enrollment limited to fifteen students.

**\*PSYCHOLOGY 161. Field Work in Clinical Psychology****PSYCHOLOGY 200a, b, and c. Individual Research Projects**

*Mr. Morant and Staff*

**\*PSYCHOLOGY 201c. Seminar in the Teaching of Psychology****\*PSYCHOLOGY 206a. Seminar in Learning****PSYCHOLOGY 207b. Seminar in Perception**

*Mr. Morant*

**PSYCHOLOGY 208a. Seminar in Cognition**

*Miss Simmel*

**\*PSYCHOLOGY 209a. Seminar in Physiological and Comparative Psychology****\*PSYCHOLOGY 210a. Advanced Psychological Statistics****PSYCHOLOGY 212b. Methodology for Research in Personality**

Modes of observation, simple experimental intervention, the basic methods of experimental control, the interview, the formulation and testing of hypotheses, use of personal experience, the function of prediction and the implications of confirmation and disconfirmation.

*Mr. Kelly*

\*Not to be given in 1965-66.

- \*PSYCHOLOGY 213. Introduction to Projective Techniques
- \*PSYCHOLOGY 214a. History of Psychological Thought
- \*PSYCHOLOGY 215b. Psychoanalytic Theory
- PSYCHOLOGY 216a. Selected Clinical Topics *Miss Hanfmann*
- \*PSYCHOLOGY 217b. Research Seminar in Clinical Psychology
- PSYCHOLOGY 218a. Seminar in Social Psychology *Mr. London*
- PSYCHOLOGY 219a. Approaches to Psychotherapy *Mr. Jones*
- PSYCHOLOGY 220. Supervised Individual Field Work *Mr. Jones and Staff*
- PSYCHOLOGY 221. Clinical Psychopathology *Mr. Rand*
- PSYCHOLOGY 222a. Seminar in Conflict and Frustration *Mr. Klee*
- PSYCHOLOGY 290-297. Readings in Psychological Literature *Mr. Morant and Staff*
- 291-2 Learning and Higher Processes
- 291-3 Physiological and Comparative Psychology
- 292-1 Personality and Motivation
- 292-2 Psychopathology and Clinical Psychology
- 293-1 Genetic and Child Psychology
- 293-2 Social Psychology and Anthropology
- 294 Advanced Readings in Methodology and Systematics
- 295 Advanced Readings in Experimental Psychology
- 296 Advanced Readings in Dynamic Psychology
- 297 Advanced Readings in Psychology and Related Fields
- PSYCHOLOGY 300. Department Colloquium and Research Seminar *Mr. Maslow and Staff*
- \*PSYCHOLOGY 301. Seminar in Advanced Psychological Topics I
- PSYCHOLOGY 400-407. Dissertation Research
- Independent research for the Ph.D. degree.
- |                           |                         |
|---------------------------|-------------------------|
| 400. <i>Miss Hanfmann</i> | 404. <i>Mr. Maslow</i>  |
| 401. <i>Mr. Jones</i>     | 405. <i>Mr. Morant</i>  |
| 402. <i>Mr. Kelly</i>     | 406. <i>Mr. Neisser</i> |
| 403. <i>Mr. Klee</i>      | 407. <i>Miss Simmel</i> |

## Sociology

### Objectives

The graduate program in sociology is primarily a doctoral program and is designed for students who intend to devote themselves to teaching and research in sociology. The student may, by satisfying certain requirements, receive the M.A. degree during his course of study. The general objective is to educate students in the major areas of sociology with specialization in several of them.

\*Not to be given in 1965-66.



## Admission

The general requirements for admission to the Graduate School, as specified in an earlier section of this catalog, apply to candidates for admission to the Sociology Department.

In addition, all prospective students are encouraged to arrange for an interview with a member of the Sociology faculty and to submit written material (papers, etc.) representative of their best work, which need not be, however, of a sociological nature.

## Faculty

Professor JOHN R. SEELEY, *Chairman*: Sociological theory. Social psychology. Social research.

Professor LEWIS A. COSER: Sociological theory. Political sociology.

Professor EVERETT C. HUGHES: Social organization. Race and ethnic relations. Occupations and work systems.

Professor MORRIS S. SCHWARTZ: Social psychology. Social psychiatry. Applied sociology.

Professor KURT H. WOLFF: Sociological theory. Sociology of knowledge.

\*Associate Professor PHILIP E. SLATER: Family. Small groups.

\*\*Associate Professor MAURICE R. STEIN: Communities. Sociology of literature. Social psychiatry.

Associate Professor ROBERT S. WEISS: Methodology. Sociology of occupations.

Assistant Professor GORDON FELLMAN: Social psychology. Stratification. Comparative sociology.

Assistant Professor SAMUEL E. WALLACE: Field methods. Violence.

Assistant Professor BERNARD Z. SOBEL: Sociology of religion. Sociology of the Jews.

Assistant Professor IRVING K. ZOLA: Deviance. Sociology of health and illness.

Visiting Lecturer ALVIN ZALINGER: Personality and social structure. African studies.

In addition to the general fields represented by the above instructors, there are two special training programs: one in Field Research and a second in the Social Organization of Medical Care. For further information, please write to the Sociology Department.

## Degree Requirements

### Doctor of Philosophy

*Program of Study.* All entering students are expected to enroll in

\*On Leave, Spring Term.

\*\*On Leave, Fall Term.

courses prescribed for the first year. If credit is granted for graduate work done at other institutions, normally it will be applied to the second year. In exceptional circumstances, the student may request departmental approval to substitute credit for work done elsewhere for the courses required in the first year. Substitution may depend upon examination in the course to be waived.

The program for the Ph.D. degree is ordinarily completed in three stages:

*First Year*

Fall Term: Sociology 200a; Sociology 203a; Sociology 125a.

Spring Term: Sociology 200b; Sociology 203b; Sociology 210b.

During the first year, the student is allowed, in addition to the above program, *one* elective half-course which may be taken in either term.

*Second Year*

Sociology 300c and six elective half-courses, three of which should be seminars or reading courses.

During the second year, after the student has passed one language examination and has completed three terms in residence at full-time, he may petition the department chairman for admission to candidacy for the M.A. degree. If the department judges that preparation for the degree has been sufficient, the student will be invited to submit to the department two papers written during this period for approval as Master's papers.

*Third Year*

Sociology 400: Dissertation Research.

*Residence Requirement.* The minimum residence requirement for the degree of Doctor of Philosophy is two years. It is expected that the Ph.D. will be earned within five years.

*Language Requirements.* Candidates for the Doctor's degree must demonstrate proficiency in two foreign languages, ordinarily French and German. Another language may, upon petition to the department, be substituted for either French or German.

*Qualifying Examinations.* All graduate students will be required to take qualifying examinations during their third year in the program with the exception of those students who have received credit for work done elsewhere. Those students will take the qualifying examinations during the second year in the program. The examinations are designed to test competence in three broad fields of sociology. The choice of fields will be determined by the student in consultation with his advisor and will be subject to departmental approval.

Except in the case of transfer students where a special date may be set, the initial choice of fields should be made by March 15 of the second year

in residence. After the fields have been approved and an examining committee appointed, the student will meet with the committee to determine the literature for which he will be held responsible. This initial meeting shall take place at least six months prior to the examination. The examination itself will be a written one which will be completed on a take-home basis.

*Admission to Candidacy.* A student shall be eligible for admission to candidacy when he has fulfilled his residence requirements, demonstrated proficiency in two foreign languages, passed the departmental qualifying examination, and had his dissertation proposal approved.

*Dissertation and Final Oral Examination.* The candidate will be required to prepare a prospectus for his dissertation before he begins concentrated work. This prospectus must be prepared within six months after he has passed the qualifying examinations and must be approved by the student's advisory committee and by the department.

When the dissertation is accepted by the department, a final oral examination will be scheduled, wherein the candidate must successfully defend his dissertation before the department members and at least one member of the faculty engaged in graduate instruction outside the department.

## Courses of Instruction

### SOCIOLOGY 100a. Sociology of the Community

The contrast between the pre-industrial and the modern industrial community. The institutional structure of community life, its internal structure and external sources of control and domination. Emphasis on the psychological and social foundations of modern community life. Illustrations from European and American communities.

*Mr. Stein*

### \*SOCIOLOGY 101a. Sociology of Conflict and War

The functions of social conflict in different types of societies and different institutional settings, in large social structures and smaller groups. Racial and ethnic conflicts, marital conflicts, political conflicts, war.

### \*SOCIOLOGY 102a. Social Psychiatry

The interplay between the social formation of the self and institutional participation. The processes by which the individual incorporates through language and action the personal styles available to his experience and assessment; types of personal identity and mechanisms of defense in stable and changing societies, with emphasis on Western personality.

### SOCIOLOGY 103a. Sociology of Religion

Sociological analysis of contemporary and historical religious institutions and experiences. Religious leadership and followership; conversion; sect, denomination, and church; religion, society and politics; leading contemporary schools of theology.

*Mr. Sobel*

\*Not to be given in 1965-66.

**\*SOCIOLOGY 104b. Sociology of Education**

Functional bases of educational systems; their formal and informal organization; their relations to family, economy, polity, and social classes.

**SOCIOLOGY 105b. Sociology of Modern Anti-Semitism**

Sociological analysis of contemporary forms of anti-Semitism. Various theories, both past and present, attempting to explain the phenomenon will be examined critically.

Admission by consent of instructor.

*Mr. Sobel*

**SOCIOLOGY 106b. Sociology of Literature**

The relations between society and literary forms in selected historical periods. Emphasis on the relations between problems and methods in inquiry as presented by sociological and humanistic students of man.

*Prerequisite:* Permission of the instructor.

*Mr. Stein*

**SOCIOLOGY 107a. Advanced Social Psychology**

Human behavior from a combined psychodynamic and sociological point of view, with special emphasis on socialization and the relations between the individual and the collectivity.

*Mr. Schwartz*

**\*SOCIOLOGY 109a. Social Causation**

The nature and significance of causal inquiry, especially into social phenomena. Explanation, understanding, interpretation. Case study and generalization. Social causation and social change.

**SOCIOLOGY 110a. Sociology of Knowledge**

History and historical interpretation of the sociology of knowledge, with particular emphasis on German and recent American literature.

*Mr. Wolff*

**\*SOCIOLOGY 111a. Political Sociology Seminar**

The political community in seventeenth century England; symbolic expression; moral and intellectual foundations; social and economic forces; the interpretation of transition.

**SOCIOLOGY 112b. Social Stratification**

Bases of stratification and types of class systems. Variables which place an individual within a class, mobility between classes; influences of class subcultures on the personality; the dynamics of change in social-class systems.

*Mr. Fellman*

**\*SOCIOLOGY 114a. Modern Bureaucracy**

**\*SOCIOLOGY 115b. Sociology of the American Churches**

The major sociological and theological characteristics of the American churches; church membership and church organization; the relationship of the churches to the power structure and to each other; Catholics and Jews; the "majority" churches in a pluralistic society.

**SOCIOLOGY 116b. Racial and Cultural Contacts**

Comparative study of multi-racial (cultural, ethnic, religious) societies in various parts of the world, but with emphasis on the United States. Their structures; problems and conflicts of personal identity; relations among people of various categories; ideologies; conflict, movements and change.

*Mr. Hughes*

\*Not to be given in 1965-66.

**SOCIOLOGY 117a. Sociology of Work and Occupations**

A comparison of work and occupational systems in various cultures. Social organization of occupations and the place of work in the life of the individual.

*Mr. Hughes*

**\*SOCIOLOGY 118a. Social Institutions**

Development and changes of various institutions characteristic of North American society, with some attention to other societies. Their origins, the contingencies to which they are subject, and their interrelations. Field work.

**\*SOCIOLOGY 122a. Sociology of Power**

Sociological analysis of power relations and systems, exploring the literature on the theory and practice of power, with special attention to statements by the major social theorists.

**\*SOCIOLOGY 122b. Comparative Political Sociology**

Sociological analysis of power systems and political communities with special attention to systems based on violence and organized fear.

**\*SOCIOLOGY 123a. Ideology and Social Movements**

Effect of political events and social processes on political thought and action in the twentieth century. Social functions of political ideologies. Structure and orientation of organizations intending to cause social change.

**SOCIOLOGY 125a. Quantitative Methods in Research**

The uses of statistics in the organization, interpretation, and presentation of research data, with emphasis on the ideas underlying the development and use of statistical techniques.

*Mr. Weiss*

**\*SOCIOLOGY 126a. Sociology of Deviance**

Deviance as a social process, its nature and conception, its functional as well as dysfunctional aspects. Survey of theory and research. Concentration on selected instances of individual and social pathology.

**\*SOCIOLOGY 126b. The Institutions of Social Control**

An examination of the formal and informal control of what society has labeled "deviant." Consideration in turn of the law, selected social forms of punishment and reward, the caretakers and agents of social control, the treatment and custodial organizations.

**SOCIOLOGY 130b. The Family**

The family in relation to its societal context and the personality development of the child. Cross-cultural materials will be emphasized.

*Mr. Slater*

**SOCIOLOGY 132a. American Social Patterns**

The general types of role relationships developed in the course of an individual's life, including relationships with strangers, work associates, friends, kin will be discussed. Attention will be directed to the structures within which these relationships take place, their assumptions, and their typical emotional content. Also to be discussed will be typical dramas and dilemmas encountered within these relationships.

*Mr. Weiss*

\*Not to be given in 1965-66.

**SOCIOLOGY 135a. Group Process**

Interpretation of interpersonal behavior and group development, based in part on observation of the discussion group itself. Readings will include material from psychology and social anthropology as well as sociology. *Mr. Slater*

**SOCIOLOGY 135b. Advanced Group Process**

A continuation of Sociology 135a.

Open to students who have taken Sociology 135a or with permission of the instructor. *Mr. Slater*

**SOCIOLOGY 190b. Social Organization of Medical Settings**

An analysis of the structural arrangements of medical practice and of medical settings. Problems of communication and role relationships among professionals and between patients and medical personnel will be examined. The impact of structures and role relationships on quality and quantity of medical care and on use of resources will be analyzed. *Mr. Zola and Staff*

**SOCIOLOGY 191a. Health, Community, and Society**

An exploration into the interrelationships of the nature of society and societies on the existence and treatment of health and illness. Topics include: conceptions of health and illness, patient careers, treatment institutions and practices, and the place of social science in medicine. *Mr. Zola and Staff*

**\*SOCIOLOGY 192. Sociology of the Medical Professions**

This course will provide an analysis of the key occupational groups in medicine, as well as of quasi and marginal practitioners. The selection, recruitment and training of those groups will be examined and the strategic points in their careers will be considered.

**SOCIOLOGY 193b. Demographic, Ecological, and Economic Factors in Medical Care**

Community health programs and the current emphases of public health practice will be described. The structure and provision of health services in other cultures will be considered and compared with those in the United States. *Mr. Miller and Staff*

**\*SOCIOLOGY 194. Methods of Social and Economic Research in Medical Care**

The utility and application of sociological, economic and epidemiological methods will be discussed. Problems of measurement, design and analysis will be examined as well as the practical problems in implementing studies in the field of medical care.

**SOCIOLOGY 195. Field Work in Medical Settings**

Credit hours to be arranged.

*Mr. Zola and Staff*

**SOCIOLOGY 200. Classical Sociological Theory**

Study of major sociologists, such as Comte, Spencer, Marx, Durkheim, Pareto, Weber, Simmel, Ward, Ross, Sumner, Park, Mannheim, in their historical setting, with special attention to their substantive concerns and methodologies.

*1st sem., Mr. Stein*

*2nd sem., Mr. Coser*

**SOCIOLOGY 203. Field Methods in Sociological Research**

Field study with opportunity for individual and group research. Students will collect their own data and analyze them. *Messrs. Fellman, Hughes, Slater and Zola*

**SOCIOLOGY 210b. Survey of Research Methods**

This course will discuss: a philosophy of science useful for understanding social research; conceptual models available for organizing data; research strategies, including the case study, exploratory approaches, survey research, and possible experimental designs. *Mr. Weiss*

**\*SOCIOLOGY 215a. Sociology of the Intellectuals**

Institutional settings for intellectual life since the eighteenth century. The salon, the coffeehouse, the scientific society, the reading public, the commercialization of writing, bohemia, reviews and little magazines. The men of knowledge and the men of power. The modern intellectual in the world of bureaucracy.

**\*SOCIOLOGY 223b. Sociology of Poverty****SOCIOLOGY 224b. Aspects of Social Control in Religious and Secular Utopian Communities**

An analysis of the sociological structure of utopian communities demonstrating similarities and differences between the secular and religious types and their relationships to the broader societal contexts from which they emerge. The course will emphasize a discussion of the modes and processes of social control developed by the various movements. *Messrs. Coser and Sobel*

**SOCIOLOGY 225a. Applied Sociology Seminar**

The application of social science principles to the solution of practical problems in such fields as community organization, technological change, urban and rural development, industrial relations, mental and public health.

Admission by consent of instructor. *Messrs. Schwartz, Seeley and Stein*

**\*SOCIOLOGY 226b. Seminar in Social Psychology**

Major problems and issues in the field of social psychology; recent research; contemporary theoretical developments.

**SOCIOLOGY 227b. Seminar on Occupations**

Problems in the social organization of work, with emphasis on research on the professions in modern society. *Messrs. Hughes and Weiss*

**SOCIOLOGY 228b. Some Pre-theoretical Problems of Sociology**

Sociological aspects of sociology. Relations between philosophical and methodological problems of sociology. Conditions of constructing sociological theory.

Major background readings for student papers: Maurice Natanson, ed., *Philosophy of the Social Sciences*; Alfred Schutz, *Collected Papers*, Vos. I and II.

*Mr. Wolff*

**\*SOCIOLOGY 229. Research Seminar: The Social and Personal Determinants of Illness**

Examination of ongoing research stressing the application and integration of sociological and psychological levels of analysis. Individual projects utilizing the available data on physical and mental illness will be carried out.

\*Not to be given in 1965-66.

SOCIOLOGY 230-235. Readings in Sociological Literature *Mr. Schwartz and Staff*

230a and b. Theory and History

231a and b. Methodology

232a and b. Institutions (Political Sociology, Communities, Bureaucracy, Education, Occupations, Religion)

233a and b. Social Psychology and Psychiatry

234a and b. Sociology of Intellectual Life (Sociology of Literature, Sociology of Knowledge)

235a and b. Social Processes (Causation, Change, Conflict, Control, Stratification; Racial and Cultural Relations)

SOCIOLOGY 300c. Colloquium

The purpose of the colloquium is to give staff members, sociologists from other institutions, and post-M.A. students the opportunity to present current research, tentative hypotheses, and more general ideas and positions concerning the study of society.

*Mr. Schwartz*

SOCIOLOGY 301c. Advanced Field Research

A second year course in methods of field research. Students will be placed as participant observers in a number of different institutions and will be individually supervised in their field work.

*Messrs. Hughes, Slater and Zola*

SOCIOLOGY 400-410. Dissertation Research

Independent research for the Ph.D. degree.

400. *Mr. Coser*

401. *Mr. Fellman*

402. *Mr. Hughes*

403. *Mr. Schwartz*

404. *Mr. Seeley*

405. *Mr. Slater*

406. *Mr. Sobel*

407. *Mr. Stein*

408. *Mr. Weiss*

409. *Mr. Wolff*

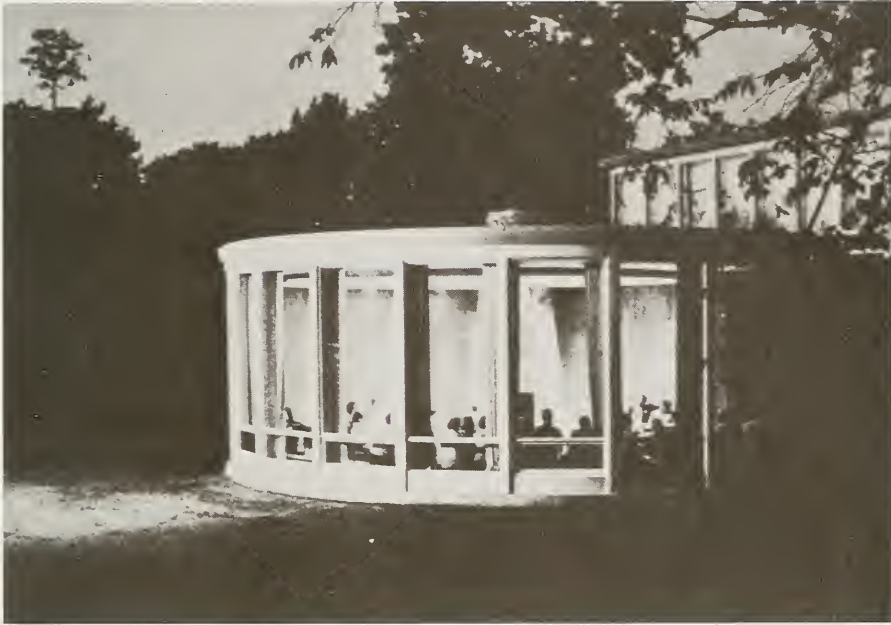
410. *Mr. Zola*

## Theatre Arts

A new graduate program in Theatre Arts, leading to the degrees of Master of Fine Arts and Doctor of Philosophy in Theatre Arts, will begin operation in the academic year 1966-67.

Detailed information may be had by writing to the Dean, Graduate School of Arts And Sciences, Brandeis University, Waltham, Massachusetts 02154.





## Fellowships

*Maxwell and Fannie Abbell Teaching Fellowship in Judaic Studies* (1954) Created by the late Maxwell Abbell of Chicago, Illinois, to support a teaching fellowship in the field of Judaic Studies.

*Allied Chemical Foundation Fellowship* (1964) Established by the Allied Chemical Foundation of New York. This Fellowship will be awarded, at the University's discretion, to an outstanding graduate student, a citizen of the United States or Canada, who is concentrating in the field of Chemistry, and who has demonstrated an aptitude for research in science.

*Alpha Epsilon Phi Sorority Foundation Fellowship* (1959) Established in honorary tribute to the Founders of this Sorority, for fellowship subsidy in the School for Advanced Studies in Social Welfare.

*Jeannette and Louis Altschul Fellowship Fund* (1946) Established by the late Jeannette and Louis Altschul of New York City to help subsidize the education of gifted students to complete their graduate program.

*Bernard Aronson Teaching Fellowship* (1964) Established by Mr. Bernard Aronson of New York, New York, to provide teaching fellowships for graduate students who are concentrating in the sciences.

*Charles C. Bassine Fellowship* (1961) Established in honor of Mr. Charles C. Bassine of New York City by the Trustees of the Long Island Jewish Hospital on the occasion of his induction as a Fellow of the University, to be used to provide fellowship assistance for outstanding graduate students.

*Beatrice Foods Company Fellowship* (1962) Established through the gener-

osity of the Beatrice Foods Company of Chicago, Illinois, to provide fellowship aid for gifted graduate students.

*Beech-Nut Life Savers, Inc. Fellowship* (1962) Established to support fellowship assistance for deserving graduate students through a grant from Beech-Nut Life Savers, Inc. of New York City.

*Allan I. Bluestein Fellowship* (1960) Established by Allan I. Bluestein through the Jacob Bluestein Foundation, Inc. of New York, to assist deserving students in the field of the humanities, particularly in literature, history and language.

*Jacob and Rachel Bluestein Memorial Fellowship* (1960) Established by Allan I. Bluestein through the Jacob Bluestein Foundation, Inc. of New York, in memory of his parents, to assist gifted students in the field of the humanities.

*David Brenner Fellowship Fund* (1961) An annual fellowship for a deserving graduate student in the social sciences, preferably from abroad and from a newly developing area or country.

*Otto and Mynette Bresky Fellowship Endowment* (1962) Established by Mr. and Mrs. Otto Bresky of Newton, Massachusetts, the income of which will help to subsidize the graduate education of a gifted and worthy student.

*Harry and Esther Brown Fellowship* (1963) Established by Mr. and Mrs. Harry Brown of Haverhill, Massachusetts, to provide assistance to a graduate student in the Lown Institute for Contemporary Jewish Studies.

*Morris Burg Teaching Fellowship* (1957) Established by Mrs. Mildred H. Burg of Brookline, Massachusetts, in memorial tribute to her husband, to support a teaching fellowship in the area of human relations.

*Campbell Soup Fellowship* (1961) Four tuition fellowships established by Campbell Soup Co. as part of its Aid to Education Program and assigned to gifted students in the Florence Heller School for Advanced Studies in Social Welfare.

*Sol Cantor Fellowship* (1963) Established as a memorial tribute to his mother, Mrs. Pearl Cantor, by Sol Cantor of New York. This fund will provide assistance to needy and promising graduate students.

*Aida Coburn Fellowship* (1964) Established in honor of his wife by the late Abbott Coburn of Chicago, Illinois. This fellowship will provide partial assistance to a deserving graduate student.

*Dora K. Cohn Fellowship in Social Welfare* (1959) Set up as a memorial by Mr. Ruby P. Cohn of St. Louis, Missouri, to subsidize graduate study in the School for Advanced Studies in Social Welfare.

*Jack Cohn Memorial Science Fellowships* (1962) Established by the Artists Foundation, Inc., of New York City, (Nathan J. Cohn, President) in memory of the late Jack Cohn, to provide for the next five years for the annual award of three fellowships of \$4,500 each on the basis of merit and need to students enrolled in the Graduate School in the area of science.

*Combined Jewish Appeal of Greater Boston-Associated Jewish Philanthropies Fellowship* (1959) A \$5,000 fellowship to be awarded to a student pursuing graduate work in social welfare.

*Leon J. Coslov Fellowship* (1957) Established by Mr. Leon J. Coslov of Glassport, Pennsylvania, to support a teaching fellowship.

*Dan Danciger Graduate Fellowship Trust Fund* (1958) Established through a \$250,000 bequest from the estate of the late Dan Danciger of Fort Worth, Texas,

to provide fellowship assistance for graduate students of outstanding academic potential to enable them to pursue academic careers regardless of financial limitations.

*Durkee Graduate Fellowship in Biochemistry* (1962) A graduate fellowship established by the Durkee Famous Foods of Bethlehem, Pennsylvania (The Glidden Company), for support of a deserving graduate student in Biochemistry. This fellowship will provide a grant to the student, payment of tuition and an allowance for each dependent.

*Eagle Food Centers Foundation Fellowship* (1962) Established through the generosity of the Eagle Food Centers Foundation of Rock Island, Illinois, to subsidize gifted graduate students.

*Ida and Mark A. Edison Teaching Fellowship* (1955) Established as a memorial to Ida and Mark A. Edison by the Shapiro brothers of Auburn, Maine, to support a teaching fellowship.

*Harry E. Eisenrod and Mel Dorfman Graduate Fellowship* (1964) Established by Mr. Harry E. Eisenrod and Mr. Mel Dorfman through the Household Manufacturing Company of Los Angeles, California, to provide assistance to deserving graduate students.

*Max and Frances Elkon Fellowship Endowment* (1962) Established by Mr. and Mrs. Max Elkon of New York City. The income to be used to provide fellowship assistance for gifted graduate students.

*Esso Education Foundation Teaching Fellowship* (1956) A grant from the Esso Education Foundation of Standard Oil Company (New Jersey), assigned as a teaching fellowship, to assist in the undergraduate educational program.

*Meyer Factor Fellowship* (1963) Established by Harold E. Factor of Chicago, Illinois to provide fellowship assistance to gifted and needy graduate students.

*Federation of Jewish Philanthropies of New York Fellowship* (1962) Established by the Federation of Jewish Philanthropies of New York, for the support of a deserving student from the New York metropolitan area, at the Florence Heller School for Advanced Studies in Social Welfare.

*Nathan and Vivian Fink Fellowship* (1963) Established by Mr. and Mrs. Nathan Fink of New York, to help subsidize a gifted graduate student in the Lown Institute for Contemporary Jewish Affairs.

*Jacob Finkelstein and Sons, Inc. Fellowship* (1963) Established by the Finkelstein Family of Woonsocket, Rhode Island, to provide fellowship assistance over a three year period for a deserving graduate student.

*M. B. and Fannie Finkelstein Foundation Research Fellowship Grant* (1961) Established by the trustees of the M. B. and Fannie Finkelstein Foundation of Houston, Texas, to help subsidize an outstanding student who wishes to go into graduate research work.

*Harry K. and Emma R. Fox Charitable Foundation Fellowship* (1962) Established by the Harry K. and Emma R. Fox Charitable Foundation of Cleveland, Ohio, to support a partial fellowship for a deserving graduate student who, without this assistance, would be unable to complete his advanced studies.

*General Foods Fund Fellowship Grant* (1961) Established by the General Foods Fund Inc. of New York City, for fellowship assistance to outstanding graduate students who are concentrating in the area of the life sciences.

*Leo Gerstenzang Science Fellowship Endowment Fund* (1962) Established by Mrs. Leo Gerstenzang of New York City and Palm Beach, Florida, in memory of her late husband. The income will be used for fellowships to subsidize graduate education and research for deserving graduate students in the field of science.

*Gillette Graduate Teaching Fellowship* (1961) Established by the Gillette Company of Boston, Massachusetts, for an annual graduate teaching fellowship.

*Harry and Elka Gitlow Fellowship Endowment in Humanistic Studies* (1959) Established by Mr. Albert Gitlow of New York City and members of the family as a memorial tribute.

*Albert A. Glassman Fellowship* (1962) Established by a bequest of Albert A. Glassman, late of Cleveland, Ohio. This fund will be used for research in the field of medicine or biochemistry.

*Herman Golanty Memorial Fellowship* (1956) Established by Mr. George C. Golanty of Detroit, Michigan.

*Beatrice I. and Jacob Goldberg Fellowship Endowment Fund* (1962) Established by Mr. and Mrs. Jacob Goldberg of Brookline, Massachusetts, in honor of their fiftieth wedding anniversary. The income from this fund is to be used to support fellowships.

*Mollie Goldberg Memorial Fellowship Endowment* (1963) Established as a memorial tribute by Isadore J. Goldberg of Chicago, and Milton D. Goldberg of Glencoe, Illinois. The income will be used to provide an annual fellowship for a deserving student in the Florence Heller Graduate School for Advanced Studies in Social Welfare.

*Charles Goldman Teaching Fellowship* (1963) Established to honor the induction of Charles Goldman as a Fellow of the University by his friends and associates. The income from this fund will provide assistance for a deserving graduate student.

*Alexander Goldstein Teaching Fellowship in Social Science* (1950) The income from this \$25,000 fund will be used to support a teaching fellowship in the field of social science. Established as a memorial to her brother by the late Miss Lutie Goldstein of San Francisco, California.

*Edward Goldstein Teaching Fellowship* (1954) A grant from Mr. Edward Goldstein of Boston, Massachusetts, to support a teaching fellowship.

*Abraham Goodman Fellowship Endowment Fund* (1962) Established by Mr. and Mrs. Abraham Goodman of Waban, Massachusetts. Temporarily, all income will be used to subsidize graduate fellowships. Once a permanent identification has been made the capital fund will be transferred for that purpose.

*Mr. and Mrs. Ben Gordon Fellowship* (1963) Established by Mr. and Mrs. Ben Gordon of Harrison, New Jersey to provide fellowship assistance for deserving graduate students.

*Anna C. Greenstone Memorial Fellowship* (1952) Established by her children, Mr. Charles R. Greenstone of San Francisco, California, the late Mr. Stanford M. Green of San Francisco, California, and Mrs. Simon Rubin of New Bedford, Massachusetts.

*Gulf Oil Corporation Fellowship* (1959) A grant from the Gulf Oil Corporation's Aid to Education Program, to be assigned for fellowship assistance in the School for Advanced Studies in Social Welfare.

*Edward Hano Fellowship Endowment* (1958) The income from this fund is to provide supplementary fellowship assistance to gifted graduate students enrolled in the School for Advanced Studies in Social Welfare. A tribute to the late Edward Hano, of Granby, Massachusetts, by his wife and members of the family.

*Louis H. Harris Teaching Fellowship* (1955) Established by Mrs. Max S. Hillson and the late Mr. Hillson of New York City, in honor of Louis H. Harris, to support a teaching fellowship.

*Hartog of California Graduate Fellowship Fund* (1961) Established by Hartog of California, to help a graduate student interested in the field of "The History of Ideas."

*Dr. Maurice B. Hexter Fellowship* (1961) Established as a tribute to Dr. Maurice B. Hexter of New York City by his friends. This fellowship is to be given to a deserving student at the Florence Heller School for Advanced Studies in Social Welfare.

*M. Z. and Hannah Holland Fellowship Endowment* (1964) Established by the family and friends of Mr. and Mrs. M. Z. Holland of Chicago, Illinois, to honor their fiftieth wedding anniversary and, also, Mr. Holland's seventy-seventh birthday. The income from this fund will offer assistance to deserving graduate students.

*Imperial Oil Graduate Research Fellowships* (1963) Established by Imperial Oil Limited of Toronto, Canada from a fellowship fund set up by the Company in 1946, which provides graduate school opportunities to worthy and deserving students from Canadian universities.

*Peter A. Isaacson Fellowship in the Lown Institute for Contemporary Jewish Studies* (1963) Established by Mr. Peter A. Isaacson of Lewiston, Maine for gifted students concentrating in the field of Judaic studies.

*Eddie Jacobson Memorial Foundation Fellowship* (1957) Two fellowships in the amount of \$2,000 each for gifted students from Israel, who are preparing themselves at Brandeis University for a more effective career of service in the State of Israel. Established by friends of the late Eddie Jacobson of Kansas City, under the chairmanship of former President Truman and Mr. George Roth.

*Jewish Community Center of Hunts Point, Bronx, New York* (1962) Established by the Trustees of the Jewish Community Center of Hunts Point, New York, so that the income may be used for gifted and worthy graduate students who are concentrating in the history and literature of traditional Judaism. Preference is given to students who come from the metropolitan New York area.

*Jewish Community Federation of Cleveland Fellowship* (1962) Established by the Jewish Community Federation of Cleveland for the support of a deserving student from the Cleveland, Ohio area, at the Florence Heller School for Advanced Studies in Social Welfare.

*Max Kagan Fellowship* (1962) Established by Mr. Max Kagan of Bangor, Maine, in support of a deserving graduate student at the Philip W. Lown Institute of Advanced Judaic Studies.

*Robert E. and Harry A. Kangesser Fellowship Trust* (1951) Established by Messrs. Robert E. and Harry A. Kangesser of Cleveland, Ohio, the income to be used for teaching fellowships.

*Henry Kaufmann Fellowship in Group and Community Development* (1964) Established by the Henry Kaufmann Foundation, Judge Joseph M. Proskauer,

Norman S. Goetz, and Samuel Lemberg, all of New York City. The income from this endowed fellowship will support the teaching activities of a faculty member whose doctoral students are specializing in the problems of small groups, neighborhood organizations, and group and community development.

*Myer and Ida Kirstein Fellowship Endowment Fund* (1963) Established by Mr. and Mrs. Myer Kirstein of Swampscott, Massachusetts, to provide aid to worthy graduate students in any field of concentration.

*Richard Kramer Memorial Fellowship* (1961) Established in memory of their son, Richard, by Mr. and Mrs. Louis Kramer of Philadelphia, Pennsylvania, to help subsidize a graduate student concentrating in the field of biochemistry.

*Lillian Kratter Fellowship* (1960) Established in her honor by her husband, Mr. Marvin Kratter of New York City, to be assigned to a female student concentrating in the Graduate School of Music.

*Marvin Kratter Fellowship* (1960) Established in his honor by his wife, Mrs. Lillian Kratter of New York City, to be assigned to a male student concentrating in the graduate area of biology.

*Hyman Kuchai Fellowship* (1963) Established by Mr. Hyman Kuchai of Harrison, New York to provide fellowship assistance for deserving graduate students.

*William Lakritz Fellowship Endowment in Chemistry* (1962) Established by the daughters of William Lakritz of New York City and their husbands, Mr. and Mrs. Jack N. Friedman of Glencoe, Illinois, and Dr. and Mrs. Henry Graham, Los Angeles, California, to be used in partial subsidy of graduate students who concentrate in the field of Chemistry.

*Ida S. Latz Foundation Fellowship* (1959) Established by this Foundation to make available a fellowship to a disabled veteran for study at the School for Advanced Studies in Social Welfare.

*LCK Fellowship in Social Science* (1957) Established by an anonymous friend of the University to support a fellowship in the area of the social sciences, with preference in the field of economics.

*Mathus Lemberg Fellowship Endowment* (1962) Established by Bernard Lemberg of Old Stone Bridge, New Jersey, and Leon Lemberg of Coral Gables, Florida, in memory of their beloved father so that the income may serve as tuition subvention for graduate students.

*Levinson Teaching Fellowship in Biology* (1951) Established by the James and Rachel Levinson Foundation of Pittsburgh, Pennsylvania.

*Minnie Lewis Fellowship* (1963) Established by Mr. George I. Lewis of Portland, Maine, to provide assistance to a deserving graduate student in the Lown Institute for Contemporary Jewish Studies.

*Dr. Meno Lissauer Teaching Fellowship in Natural Science* (1957) Set up through a major gift by the late Dr. Meno Lissauer of New York City and the birthday tributes of his colleagues in the Metals and Mining Industry.

*P. Lorillard and Company Fellowship* (1962) Established through P. Lorillard and Company of New York City to help subsidize the education of gifted students to complete their graduate program.

*Charles Lubin Fellowship* (1963) Established at the annual Chicago dinner by a group of his friends to honor Mr. Charles Lubin. This scholarship will provide assistance to a deserving student.

*Theodore Roosevelt McKeldin Fellowship* (1957) Established by friends of former Governor McKeldin of Maryland as a tribute to him. To be used to subsidize gifted graduate students who plan to concentrate in the areas of political science and government.

*Abraham Mendelowitz Fellowship Endowment Fund* (1959) Established by the Millinery Workers Health and Welfare Fund in honor of Mr. Abraham Mendelowitz of New York City on the occasion of his sixty-fifth birthday. To subsidize outstanding scholars so that they may continue their studies and medical research in biochemistry and microbiology.

*Merrill Foundation Fellowships* (1961) Established by a gift from the Charles E. Merrill Trust of Boston, Massachusetts, to encourage gifted scholars in the study of all aspects of Jewish life, and develop Jewish community leadership, scholarship and teaching, especially on the university level.

*Morris Messing Fellowship* (1964) Established by Mr. Morris Messing of Nutley, New Jersey, to provide fellowship assistance for deserving graduate students.

*Hyman Miller Fellowship* (1963) Established by Mr. Hyman Miller of Auburn, Maine, to provide assistance to a graduate student in the Lown Institute for Contemporary Jewish Studies.

*Joseph Millman Memorial Foundation Fellowship* (1964) Established by the Joseph Millman Memorial Foundation of Villas, New Jersey through Mr. Stanley Rappaport. This fund will provide fellowship assistance for a gifted graduate student. Preference is to be given to applicants who are residents of Cape May County, New Jersey.

*National Biscuit Company Fellowship* (1962) A grant from the National Biscuit Company of New York City to provide fellowship support for deserving graduate students.

*New York Raincoat Manufacturers Association Fellowship* (1963) Established by the New York Raincoat Manufacturers Association of New York City, New York, through Mr. Simon Cohen to provide fellowship assistance for deserving graduate students.

*David K. Niles Teaching Fellowship in American Government* (1957) To be assigned in memory of a Trustee of the University, who served with distinction as administrative assistant to President Roosevelt and President Truman, for a worthy graduate student who plans for a career in American government service.

*Lillian Persky Palais Endowment* (1960) Established by Mr. and Mrs. Abraham S. Persky of Worcester, Massachusetts, in memory of Mr. Persky's sister, as an endowment whose income in perpetuity is to subsidize the tuition of gifted graduate students so that they may complete their science training.

*Peace Corps Scholarship-Fellowship Fund* (1965) Established by the University to offer scholarship and fellowship assistance to qualified young men and women who have completed their tour of duty with the Peace Corps and are seeking to complete their educational training.

*Permanent Charity Fund, Incorporated Fellowships in Social Welfare* (1962) Graduate fellowships contributed by the Committee of the Permanent Charity Fund, Incorporated of Boston, Massachusetts, for financial aid to deserving students at the Florence Heller School for Advanced Studies in Social Welfare.

*Maurice Pollack Foundation Research Fellowship* (1956) Established by the Maurice Pollack Foundation of Quebec, Canada, to enable gifted graduate students to pursue research programs in the field of Judaic studies.

*Prince Macaroni Manufacturing Company and the Cleghorn Folding Box Company Fellowship* (1962) Established to provide fellowship assistance to deserving graduate students by the Prince Macaroni Manufacturing Company and its subsidiary, the Cleghorn Folding Box Company, of Lowell, Massachusetts.

*Norman S. Rabb Fellowship* (1962) Established by business associates of the Chairman of the Board of Trustees of Brandeis University in tribute to him. This fellowship is to be granted for the support of a deserving graduate student.

*Louis M. Rabinowitz Foundation, Inc. Fellowship* (1962) Established by the Louis M. Rabinowitz Foundation, Inc. of New York City for the support of a foreign student in the social sciences, preferably from Africa.

*Bertha C. Reiss Memorial Fellowship Endowment Fund* (1954) Created by the late Dr. Henry Reiss of New York City for the establishment of the Bertha C. Reiss Memorial Fellowship or teaching fellowships. Awards to be made to students on the basis of their accomplishments in the field of research and/or teaching.

*Harry and Mildred Remis Music Fellowships* (1963) Established by Mr. and Mrs. Harry Remis of Swampscott, Massachusetts. The income from this fund to provide fellowship support for gifted advanced students who are enrolled in the graduate music department at the University.

*Charles Revson Fellowship Trust* (1962) A capital fund of \$1,000,000 established by Charles Revson of New York City, to be assigned to outstanding students who wish to pursue their graduate studies in the areas of biochemistry, chemistry, physics, biology, biophysics, mathematics or psychology. The fellowships will be granted annually in the range of \$3000-\$4000 and may be renewed for three or four years.

*Benjamin Rosenberg Teaching Fellowship Endowment* (1959) Established as a memorial tribute by Mr. and Mrs. Joseph Rosenberg of Fox Point, Wisconsin, to support a teaching fellowship in the field of Polymer Chemistry.

*Leo L. Rosenhirsch Memorial Fellowship Fund* (1961) Established by Mr. Alfred E. Rosenhirsch and Mrs. Hilda Nussenfeld of New York City to help cover tuition and other expenditures for gifted and needy graduate students.

*Edwin M. Rosenthal Teaching Fellowship in the Life Sciences* (1961) Established to honor the eighty-second birthday of Edwin A. Rosenthal of Hollywood, Florida, by his daughter, Mrs. Hoke Levin of Detroit, Michigan, to be assigned as a teaching fellowship for a graduate student concentrating in the life sciences.

*Julius Rosenwald Teaching Fellowships* (1952) A series of teaching fellowships in memory of the distinguished philanthropist, Julius Rosenwald, established by his daughter, the late Mrs. Adele Rosenwald Levy of New York City, to subsidize the development and teaching of gifted graduate students.

*Dr. Vera Rubin Fellowship* (1960) Established by Dr. Vera Rubin of New York City for a fellowship in the field of anthropology.

*Abram L. Sachar Fellowship* (1961) Established by B'nai B'rith in honor of the Honorary Chairman of the National Hillel Commission, to underwrite part of the expenses for a gifted student at Brandeis University who joins the Hiatt Institute in Israel to strengthen background in Israeli Studies.



*Dr. Harry Sagansky Fellowship Trust* (1963) Established by Dr. Harry Sagansky of Brookline, Massachusetts, in the amount of \$25,000 annually, to be used for subsidies to graduate students so that they may be helped in the completion of their specialized training.

*Samuel and Rae Salny Fellowship Endowment in Social Relations* (1952) Established by Mrs. Samuel M. Salny and the late Mr. Salny of Boston, Massachusetts, to support a fellowship in the field of social relations.

*Shirley and Maurice Saltzman Fellowship Endowment Fund* (1961) Established by Mr. and Mrs. Maurice Saltzman of Cleveland, Ohio, so that the income may be assigned to gifted and advanced students who are concentrating in humanities.

*David Sarnoff Fellowship* (1959) Established by the RCA Education Committee to subsidize a gifted and needy student in the graduate program in physics.

*Samuel D. and Goldie Saxe Fellowship in Science* (1955) Established by Mrs. Goldie Saxe of Brookline, Massachusetts, and children, to support research and teacher training in the field of science.

*Edward A. Schaffer Teaching Fellowship Endowment* (1959) Established by Mrs. Edward A. Schaffer of New York City, in memorial tribute to her husband, to support a teaching fellowship in the field of humanistic and social sciences.

*Alice Boughton Schaffner Memorial Fellowship Endowment* (1961) Established under the terms of the will of the late Alice Boughton Schaffner by her designators, Winifred Raushenbush and James Rorty. The income from this fund will be used to provide fellowship support for outstanding women students from racially underprivileged families.

*Rabbi Solomon Scheinfeld Fellowship Endowment* (1959) Established by the Sylvia and Aaron Scheinfeld Foundation of Chicago, Illinois, as a memorial tribute to Mr. Scheinfeld's distinguished father. The income to be used for fellowship assistance to gifted graduate students, preferably from Wisconsin, in the School for Advanced Studies in Social Welfare.

*S. H. Scheuer Fellowship* (1960) Established in the School for Advanced Studies in Social Welfare to subsidize the doctoral preparation of a gifted graduate student enrolled in the School.

*Ida Hillson Schwartz and Elias Edward Schwartz Memorial Fellowship Endowment Fund* (1949) Established as a memorial to Ida Hillson Schwartz of Winter Hill, Massachusetts, by her family. The Fund has been augmented by a perpetuity as an exchange fellowship, either to bring gifted young people from Israel to Brandeis or to send Brandeis University students to the Hebrew University in Israel.

*Kurt and Hortense Schweitzer Teaching Fellowship in American Civilization* (1951) A grant from Mrs. Kurt Schweitzer and the late Mr. Schweitzer of Oklahoma City, Oklahoma, to support a teaching fellowship in the field of American civilization.

*Morris Sepinuck Teaching Fellowship* (1954) Created as a memorial to Morris Sepinuck by his children, Messrs. Samuel and Nathan Sepinuck, and Mrs. George Sorkin of Boston, Massachusetts.

*Fannie and Simon Shamroth Fellowship Endowment* (1963) Established by the children of Fannie and Simon Shamroth of Lynn, Massachusetts. The income from this fund will be used to help subsidize deserving graduate students.

*Leonard Shanhouse Fellowship* (1963) Established by Mr. Leonard Shanhouse of Magnolia, Arkansas, to provide fellowship assistance for deserving graduate students.

*Isaiah Leo Sharfman Teaching Fellowship Endowment* (1956) Established by Mr. and Mrs. Samuel R. Rosenthal of Highland Park, Illinois, in tribute to Professor Sharfman of the University of Michigan, with preference given to teaching fellows in the area of economics.

*Mona Bronfman Sheckman Memorial Teaching Fellowship* (1952) A grant from the Mona Bronfman Sheckman Memorial Foundation of New York City, to support a teaching fellowship.

*Mr. and Mrs. Abraham Smith Memorial Fellowship* (1962) Established by Mr. Samuel Smith of Allentown, Pennsylvania, in memory of his parents, Mr. and Mrs. Abraham Smith, to provide fellowship assistance for worthy graduate students.

*Jack and Irene Hayes Solomon Foundation Fellowship Endowment* (1962) Established by the Jack and Irene Hayes Solomon Foundation of New York City, the income to be used to support fellowships for gifted graduate students.

*Mr. and Mrs. Harry Stadler Teaching Fellowship in Music* (1956) Established by Mr. and Mrs. Harry Stadler of Hollywood, Florida, in memory of their loving mothers, Sarah Stadler and Etta Berger, to support a teaching fellowship in the field of music.

*Joseph F. Stein Foundation, Inc. Fellowship* (1959) Established by the Joseph F. Stein Foundation, Inc. through Mr. Joseph F. Stein of New York City, for fellowship study in the School of Advanced Studies in Social Welfare.

*Dr. and Mrs. Siegfried F. Strauss Fellowship* (1961) Established by Dr. and Mrs. Siegfried F. Strauss of Chicago, Illinois, to subsidize a gifted graduate student working in the field of social welfare.

*Sunshine Biscuits, Incorporated Fellowship* (1962) Established through a grant from Sunshine Biscuits, Incorporated of Long Island City, New York, to provide fellowship assistance for deserving graduate students.

*Gertrude W. and Edward M. Swartz Fellowship Endowment Fund* (1954) Established by Mr. and Mrs. Edward M. Swartz of Brookline, Massachusetts, to support a teaching or research fellowship.

*David Tannenbaum Teaching Fellowship in Legal Institutions* (1958) An endowment to honor the memory of David Tannenbaum of Beverly Hills, California, established by his friends and admirers.

*Tanson Enterprises Inc. Fellowship* (1961) A fellowship set up by Tanson Enterprises, Inc. of New York City, to subsidize the graduate training of an outstanding student in the School for Advanced Studies in Social Welfare.

*Ben Tobin Teaching Fellowship* (1955) Established by Mr. Ben Tobin of Hollywood, Florida, to support a fellowship in the field of science.

*Universal Match Foundation Fellowship* (1957) A stipend of \$3600 to be awarded to a graduate student, or students, who are concentrating in the fields of physics, chemistry, biochemistry or microbiology, set up by the Universal Match Foundation of St. Louis, Missouri.

*Harry Uviller Fellowship* (1962) Established by friends and associates of Harry Uviller, in appreciation for his many years of distinguished service as an impartial arbitrator, and his many other contributions to the advancement of the

needle trades industry and the preservation of industrial peace in New York. This fellowship will provide assistance to deserving graduate students.

*Rose Mary Waga Fellowship Endowment* (1964) Established by Mr. Peter E. Klein of Cleveland, Ohio, as Trustee to provide, in perpetuity, assistance to talented and needy students in the Graduate School.

*Leo Wasserman Graduate Fellowship* (1962) Established through a gift from the Leo Wasserman Foundation as a memorial to Leo Wasserman, late of Brookline, Massachusetts; the income to be devoted to the aid of graduate students in the humanities, the social sciences, and the field of social work.

*Herman Weisselberg Memorial Fellowship* (1957) Established as a memorial tribute by Mr. Arnold Weisselberg of Long Island City, New York, to support a fellowship.

*Carrie Wiener Teaching Fellowship* (1950) The income from this \$25,000 fund is to be used for a fellowship, established by Mr. Herman Wiener of Toledo, Ohio, in the name of his wife.

*Leon G. Winkelman Fellowship Endowment Fund* (1959) Established by the Leon G. and Josephine Winkelman Foundation of Detroit, Michigan, as a memorial tribute to Leon G. Winkelman, to subsidize a graduate fellowship in the field of gerontology.

*Benjamin Yeager Teaching Fellowship* (1952) Established by Mr. Benjamin Yeager of Sullivan County, New York, for a teaching fellowship.

*Paul Ziffren Fellowship* (1962) Established by Mr. Paul Ziffren of Los Angeles, California, to provide fellowship assistance for worthy and deserving graduate students concentrating in the social sciences.



# Directories



## Board of Trustees

NORMAN S. RABB, A.B., L.H.D., *Chairman*

LAWRENCE A. WIEN, LL.B., LL.D., *Vice-Chairman*

JACOB A. GOLDFARB, L.H.D., *Treasurer*

SAMUEL L. SLOSBERG, A.B., LL.D., *Secretary*

George Alpert, LL.B., LL.D.

James J. Axelrod, L.H.D.

William Benton, A.B., LL.D.

Morris Brown

Sidney M. Farber, M.D., L.H.D.

Joseph F. Ford, L.H.D.

Harry W. Golding

Reuben B. Gryzmish, LL.B.

Florence G. Heller

Maurice B. Hexter, Ph.D., L.H.D.

Jacob B. Hiatt, M.A.

Milton Kahn, B.S.

Irving Kane, LL.B., L.H.D.

Dudley F. Kimball, M.B.A., LL.D.

Philip M. Klutznick, D.H.L., LL.D.

Samuel Lemberg

Joseph M. Linsey, D.Com.Sc.

Isador Lubin, Ph.D., LL.D.

Joseph L. Mailman

Mrs. Leon Margolis, A.B.

William Mazer, B.S.

Jack I. Poses, M.B.A.

Joseph M. Proskauer, LL.B., LL.D.

Israel Rogosin, D.Sc.

Edward Rose

Irving Salomon, L.H.D.

Louis H. Salvage

Dore Schary, D.H.L., D.F.A.

Jacob Shapiro, B.S.

Isaiah Leo Sharfman, LL.B., LL.D.

\*Simon E. Sobeloff, LL.B., Litt.D.

Benjamin H. Swig

President of the University

ABRAM L. SACHAR, Ph.D., Litt.D.

## Officers of Instruction

### Faculty of Arts and Sciences

Abram Leon Sachar, Ph.D., Litt.D.	<i>President of the University.</i>
Leonard W. Levy, A.M., Ph.D.*	<i>Dean of Faculty and Earl Warren Professor of History</i>
Harold Weisberg, B.A., Ph.D.**	<i>Dean of the Graduate School, Associate Dean of Faculty and Associate Professor of Philosophy</i>
Eugene C. Black, A.M., Ph.D.**	<i>Associate Dean of Faculty and Associate Professor of History</i>
Peter Diamandopoulos, M.A., Ph.D.	<i>Acting Associate Dean of Faculty and Associate Professor of History of Ideas and Philosophy</i>

\* \* \* \* \*

Robert H. Abeles, M.S., Ph.D.	<i>Associate Professor of Biochemistry (on the Rosenstiel Foundation)</i>
Rose Abendstern, B.A., M.A.	<i>Lecturer in French</i>
Asher Adler, M.Sc.	<i>Instructor in Physics</i>
Henry D. Aiken, M.A., Ph.D.	<i>Professor of History of Ideas and Philosophy</i>
Walter E. Albert, M.A., Ph.D.	<i>Assistant Professor of French</i>
John D. W. Andrews, B.A.	<i>Assistant Professor of Psychology</i>
Horace Armistead	<i>Visiting Professor of Theatre Arts</i>
Alexander Altmann, M.A., Ph.D.**	<i>Philip W. Lown Professor of Jewish Philosophy</i>
Jerold S. Auerbach, M.A., Ph.D.	<i>Assistant Professor of History</i>
Maurice Auslander, B.A., Ph.D.	<i>Professor of Mathematics</i>
A. Owen Barfield, B.A., M.A.	<i>Visiting Professor of English</i>
Kenneth Barkin, B.A.	<i>Assistant Professor of History</i>
Howard Bay	<i>Professor of Theatre Arts</i>
Saul Benison, B.A., Ph.D.	<i>Adjunct Professor of History</i>
Daniel C. Bennett, B.A., Ph.D.	<i>Assistant Professor of Philosophy</i>
Arthur Berger, B.S., M.A.	<i>Walter W. Naumburg, Professor of Music</i>
Robert W. Berger, B.S., M.A.	<i>Assistant Professor of Fine Arts</i>
Stephan Berko, B.A., Ph.D.	<i>Professor of Physics</i>
David Sandler Berkowitz, A.M., Ph.D.**	<i>Professor of History</i>
Joseph S. Berliner, M.A., Ph.D.	<i>Harold J. Silver Professor of Economics</i>
Martin Boykan, B.A., M.M.	<i>Assistant Professor of Music and Artist-in-Residence</i>
Paul H. Brainard, M.A., Ph.D.	<i>Associate Professor of Music</i>
Leo Bronstein, Ph.D.	<i>Professor of Fine Arts</i>
Edgar H. Brown, Jr., M.A., Ph.D.*	<i>Professor of Mathematics</i>
Sheldon R. Brunswick, B.A., M.S.	<i>Lecturer in Yiddish</i>
David A. Buchsbaum, A.B., Ph.D.*	<i>Professor of Mathematics</i>
Norman F. Cantor, M.A., Ph.D. (beginning 1966-67)	<i>Professor of History</i>
Morris Carnovsky, A.B.	<i>Adjunct Professor of Theatre Arts</i>
Joseph I. Cheskis, A.M., Ph.D.	<i>Professor Emeritus of Romance Languages and Literature</i>
Max Chrétien, Ph.D.	<i>Associate Professor of Physics</i>

\*On Leave, 1965-66

\*\*On Leave, Fall Term, 1965-66.

- James H. Clay, M.A., Ph.D. *Associate Professor of Theatre Arts*  
 Helen Codere, B.A., Ph.D. *Professor of Anthropology*  
 H. Daniel Cohen, B.S. (*beginning 1966-67*) *Assistant Professor of Physics*  
 Saul G. Cohen, M.A., Ph.D. *Helena Rubinstein Professor of Chemistry*  
 Stephen S. Cohen, B.A. *Assistant Professor of Economics*  
 Peter Colaclides, Ph.D. *Visiting Associate Professor of Classics*  
 Andr e M. Collard, M.A., Ph.D. *Assistant Professor of Spanish*  
 Lewis A. Coser, Ph.D. *Harry Coplan Professor of Sociology*  
 George L. Cowgill, A.M., Ph.D. *Assistant Professor of Anthropology*  
 James V. Cunningham, A.B., Ph.D. *Paul E. Prosswimmer Professor of English*  
 David M. Dawson, A.B., M.D. *Adjunct Assistant Professor of Biochemistry*  
 Stanley Deser, B.S., Ph.D. *Professor of Physics*  
 Porphyrios Dikaos, D.Litt. *Jacob Ziskind Visiting Professor of  
Mediterranean Studies*
- Paul B. Dorain, B.S., Ph.D. *Associate Professor of Chemistry*  
 Philip J. Driscoll, B.A., M.A. *Instructor in English*  
 James E. Duffy, A.M., Ph.D.\*\* *Professor of Spanish*  
 Edward Engelberg, M.A., Ph.D. *Associate Professor of Comparative Literature*  
 Herman T. Epstein, M.A., Ph.D. *Professor of Biophysics*  
 Mireille Etienne, *Agr g e de l'Universit * *Visiting Lecturer in French*  
 Robert Evans, Jr., S.B., Ph.D. *Adjunct Associate Professor of Economics*  
 David L. Falkoff, B.A., Ph.D. *Professor of Physics*  
 Gerald D. Fasman, B.Sc., Ph.D. *Associate Professor of Biochemistry*  
 (*Established Investigator of the American Heart Association*)
- Gordon A. Fellman, B.A., Ph.D. *Associate Professor of Sociology*  
 David Hackett Fischer, A.B., Ph.D. *Assistant Professor of History*  
 Eug ne J. Fleischmann, M.A., Ph.D. *Visiting Lecturer in Jewish Philosophy*  
 Emanuel Flumere, B.S., M.Ed. *Associate Professor of Physical Education*  
 Madeline Foley, B.A., M.S. *Lecturer in Music and Artist-in-Residence*  
 Richard G. Fox, A.B., M.A. *Assistant Professor of Anthropology*  
 Michael Freeman, M.S., Ph.D. *Lecturer in Mathematics*  
 Orrie M. Friedman, B.Sc., Ph.D. *Adjunct Research Professor of Chemistry*  
 Lawrence H. Fuchs, B.A., Ph.D.\* *Professor of American Civilization*  
 Chandler M. Fulton, A.B., Ph.D. *Assistant Professor of Biology*  
 Joachim E. Gaehde, M.A., Ph.D. *Associate Professor of Fine Arts*  
 Barbara Gelpi, M.A., Ph.D. *Assistant Professor of English*  
 Stephen J. Gendzier, M.A., Ph.D. *Assistant Professor of French*  
 Martin Gibbs, B.S., Ph.D. *Professor of Biology*  
 Donald B. Giddon, D.M.D., Ph.D. *Adjunct Lecturer in Psychology*  
 Creighton Gilbert, B.A., Ph.D. *Sidney and Ellen Wien  
Professor of the History of Art*
- Ira H. Gilbert, A.M., Ph.D. *Instructor in Astrophysics and Research Associate*  
 Raymond S. Ginger, A.M., Ph.D. *Professor of History*  
 Howard M. Gitelman, M.S., Ph.D. *Assistant Professor of Economics*  
 (*on the Atran Foundation*)
- Nahum Norbert Glatzer, Ph.D. *Michael Tuch Professor of Jewish History*  
 Sidney Golden, B.S., Ph.D. *Henry F. Fischbach Professor of Chemistry*  
 Erich Goldhagen, B.A., M.A. *Assistant Professor of Politics*

\*On Leave, 1965-66

\*\*On Leave, Spring Term, 1965-66.

- Abraham Goldin, M.A., Ph.D. *Adjunct Professor of Biochemistry*  
 William M. Goldsmith, B.A. *Assistant Professor of Politics*  
 Jack S. Goldstein, M.S., Ph.D. *Associate Professor of Astrophysics*  
 Nelson Goodman, B.S., Ph.D.\* *Harry A. Wolfson Professor of Philosophy*  
 Cyrus H. Gordon, M.A., Ph.D. *Joseph Foster Professor of Near Eastern Studies*  
 Norman K. Gottwald, A.B., Ph.D. *Visiting Lecturer in Biblical Studies*  
 (*Andover Newton Theological School*) *Lecturer in Russian*  
 Charles E. Gribble, B.A., A.M. *Professor of Fine Arts*  
 Peter Grippe *Associate Professor of Physics*  
 Marcus T. Grisaru, M.A., Ph.D. *Professor of Physics*  
 Eugene P. Gross, A.M., Ph.D. *Assistant Professor of English*  
 Allen R. Grossman, M.A., Ph.D. *Associate Professor of Biochemistry*  
 Lawrence Grossman, B.A., Ph.D. *(Career Award, National Institutes of Health)*  
 Ernest Grunwald, B.A., Ph.D. *Professor of Chemistry*  
 Alexei Haieff *Visiting Professor of Music*  
 Benjamin Halpern, Ph.D. *Associate Professor of Near Eastern Studies*  
 (*on the Rabbi Abraham Joseph and Leah Factor Foundation*)  
 Joel M. Halpern, A.B., Ph.D.\* *Associate Professor of Anthropology*  
 Martin Halpern, M.A., Ph.D. *Visiting Assistant Professor of Theatre Arts*  
 (*University of Massachusetts*)  
 L. Davis Hammond, B.A. *Instructor in French*  
 Andras P. Hamori, A.B., Ph.D. *Instructor in Mediterranean Studies*  
 Eugenia Hanfmann, Ph.D. *Professor of Psychology*  
 Victor Harris, M.S., Ph.D.\* *Professor of English*  
 Robert W. Hartman, A.M., Ph.D. *Assistant Professor of Economics*  
 Elsie Hasskarl, B.A. *Instructor in Biology*  
 Thomas J. Hegarty, A.M., Ph.D. *Assistant Professor of History*  
 Steve P. Heims, M.S., Ph.D. *Assistant Professor of Physics*  
 Peter Heller, Ph.D. *Assistant Professor of Physics*  
 James B. Hendrickson, M.A., Ph.D. *Associate Professor of Chemistry*  
 Donald Hindley, M.A., Ph.D. *Assistant Professor of Politics*  
 Milton Hindus, B.A., M.S.\*\* *Peter and Elizabeth Wolkenstein*  
*Professor of English*  
 Harry A. Hoffner, Jr., M.A., Ph.D. *Assistant Professor of Anatolian Studies*  
 Christoph Hohenemser, B.A., Ph.D. *Assistant Professor of Physics*  
 Thomas C. Hollocher, Jr., B.S., Ph.D. *Assistant Professor of Biochemistry*  
 Benjamin B. Hoover, M.A., Ph.D. *Associate Professor of English*  
 Graham Hough, Ph.D. (*beginning 1966-67*) *Professor of English*  
 Everett C. Hughes, A.B., Ph.D. *Professor of Sociology*  
 John M. Hughes, B.S. *Assistant Professor of Physical Education*  
 Robert F. Hutton, B.S., A.M. *Assistant Professor of Chemistry*  
 William P. Jencks, M.D. *Rosenstiel Professor of Biochemistry*  
 Sheridan W. Johns, III, M.A., Ph.D. *Assistant Professor of Politics*  
 Mary Ellen Jones, B.S., Ph.D. *Associate Professor of Biochemistry*  
 (*on the Rosenstiel Foundation*) *Professor of Psychology*  
 Richard M. Jones, A.B., Ph.D. *Assistant Professor of Chemistry*  
 Peter C. Jordan, M.S., Ph.D.

\*On Leave, 1965-66.

\*\*On Leave, Fall Term, 1965-66.



- Lisel K. Judge  
 David Kaplan, A.M., Ph.D.  
 Nathan O. Kaplan, A.B., Ph.D.  
 Morton Keller, M.A., Ph.D.  
 George A. Kelly, M.A., Ph.D.  
 Albert Kelner, M.Sc., Ph.D. *Abraham S. and Gertrude Burg Professor of Biology*  
 S. Jay Keyser, M.A., Ph.D. *Assistant Professor of English*  
 James B. Klee, M.A., Ph.D. *Associate Professor of Psychology*  
 Lucille H. Klee, M.A., Ph.D. *Lecturer in Chemistry*  
 Attila O. Klein, B.A., Ph.D. *Assistant Professor of Biology*  
 Karen W. Klein, M.A., Ph.D. *Instructor in English*  
 Oskar Klein, M.A., Ph.D. *Jacob Ziskind Visiting Professor of Physics*  
*(University of Stockholm)*
- Daniel J. Kleitman, A.M., Ph.D. *Assistant Professor of Physics*  
 Robert Lincoln Koff, B.Mus. *Associate Professor of Music and*  
*Artist-in-Residence*  
*Professor of Mathematics*  
 Joseph J. Kohn, M.A., Ph.D. *Assistant Professor of English*  
 Ira Konigsberg, M.A., Ph.D. *Professor of Theatre Arts*  
 Louis Kronenberger, Litt.D. *Assistant Professor of Chemistry*  
 Kenneth Kustin, B.Sc., Ph.D. *(on the Morris Schapiro Foundation)*
- Robert V. Lange, A.M., Ph.D. *Assistant Professor of Physics*  
 Joel Larus, LL.B., Ph.D.\* *Assistant Professor of Politics*  
 John Lawlor, B.A., M.A. *Jacob Ziskind Visiting Professor of English*  
*(University of Keele)*
- Earl E. Lazerson, M.A., Ph.D. *Visiting Associate Professor of Mathematics*  
*(Washington University)*
- Eugene Lehner *Consultant in Chamber Music*  
 Max Lerner, A.M., Ph.D.\*\* *Max Richter Professor of*  
*American Civilization and Institutions*  
 Baruch A. Levine, M.A., Ph.D. *Assistant Professor of Hebrew Literature*  
 Harold I. Levine, M.S., Ph.D. *Associate Professor of Mathematics*  
 Lawrence Levine, M.S., Sc.D. *Professor of Biochemistry*  
*(American Cancer Society Professorship)*
- Alan L. Levitan, M.A., Ph.D. *Assistant Professor of English*  
 Avigdor Levy, B.A., M.A.\*\* *Lecturer in Near Eastern Studies*  
*(on the Pincus Glickman Foundation)*
- Kenneth J. Levy, M.F.A., Ph.D. *Frederic R. Mann Professor of Music*  
 Denah Levy Lida, M.A., Ph.D. *Associate Professor of Spanish*  
 Henry Linschitz, M.A., Ph.D. *Professor of Chemistry*  
 Edgar Lipworth, M.A., Ph.D. *Professor of Physics*  
 Harvey S. London, A.B., Ph.D. *Assistant Professor of Psychology*  
 Norton E. Long, A.M., Ph.D. *James Gordon Professor of*  
*Community Government*
- William Farnsworth Loomis, B.S., M.D. *Louis I. and Bessie Rosenfield*  
*Professor of Biochemistry*  
 John M. Lowenstein, B.S., Ph.D. *Associate Professor of Biochemistry*  
 Heinz M. Lubasz, M.A., Ph.D. *Associate Professor of History*

\*On Leave, 1965-66.

\*\*On Leave, Spring Term, 1965-66.

- Alvin Lucier, B.A., M.F.A. *Lecturer in Music and Director of the University Chorus*
- Raymond A. Lyttleton, Ph.D. *Jacob Ziskind Visiting Professor of Astrophysics (St. John's College, Cambridge)*
- Ramsay MacMullen, A.B., Ph.D. *Associate Professor of History*
- Roy C. Macridis, M.A., Ph.D. *Professor of Politics*
- Douglas R. Maddox, B.A., M.F.A. *Instructor in Theatre Arts*
- Farahe Maloof, A.B., M.D. *Adjunct Associate Professor of Biochemistry*
- Robert A. Manners, M.A., Ph.D. *Professor of Anthropology*
- Thomas N. Margulis, B.S., Ph.D. *Assistant Professor of Chemistry*
- Abraham H. Maslow, M.A., Ph.D.\* *Professor of Psychology*
- William H. Matheson, M.A., Ph.D. *Assistant Professor of French*
- Teruhisa Matsusaka, B.Sc., D.Sc.\*\* *Professor of Mathematics*
- John F. Matthews, B.A.\* *Associate Professor of Theatre Arts*
- Carlo Mazzone-Clementi *Assistant Professor of Theatre Arts*
- Eugene Meehan, Ph.D. *Visiting Associate Professor of Politics*
- Mosley A. Meer, B.A., Ph.D. *Assistant Professor of Physics*
- Harriet K. Meiss, A.B., Ph.D. *Instructor in Biology*
- (Rutgers University)*
- Joseph V. Messer, A.B., M.D. *Adjunct Assistant Professor of Biochemistry*
- Marvin Meyers, M.A., Ph.D. *Harry S. Truman Professor of History*
- Bruce Jerome Mikel, B.A., M.A. *Instructor in German*
- Paul H. Monsky, M.S., Ph.D. *Visiting Assistant Professor of Mathematics*
- Charles Moore, B.A., M.F.A. *Associate Professor of Theatre Arts*
- Ricardo B. Morant, M.A., Ph.D. *Professor of Psychology*
- Ruth Schachter Morgenthau, Ph.D. *Associate Professor of Politics*
- Aryeh L. Motzkin, M.A., Ph.D. *Assistant Professor of Islamic Studies*
- Martin Mueller, M.A. *Instructor in English*
- William T. Murakami, A.B., Ph.D. *Assistant Professor of Biochemistry*
- (American Cancer Faculty Research Award)*
- Joseph S. Murphy, M.A., Ph.D.\* *Assistant Professor of Politics*
- David Neiman, M.A., Ph.D. *Associate Professor of Biblical Studies*
- (on the Dora Golding Foundation)*
- Ulric Neisser, M.A., Ph.D.\* *Associate Professor of Psychology*
- Howard Nemerov, B.A. *(beginning 1966-67)* *Professor of English*
- Anna Catherine Nichols, B.S., M.S. *Associate Professor of Physical Education*
- Minoru Nishida, Ph.D. *Visiting Associate Professor of Astrophysics*
- (Kyoto University)*
- Eric Nordlinger, A.B. *Assistant Professor of Politics*
- Irving Olin, B.S., M.Ed. *Adjunct Associate Professor of Physical Education*
- Gjerding Olsen, A.M., Ph.D. *Assistant Professor of Biology*
- Richard J. Onorato, A.B., A.M. *Instructor in English*
- Richard S. Palais, M.A., Ph.D. *Professor of Mathematics*
- Hugh N. Pendleton, III, M.S., Ph.D. *Assistant Professor of Physics*
- Frances S. Perkins, B.S.E., M.Ed. *Lecturer in Psychology*
- Edwin Burr Pettet, A.B., Ph.D. *Professor of Theatre Arts and Director of the Brandeis Theatre*
- Michael Phillips, B.A., M.A. *Instructor in Fine Arts*

\*On Leave, 1965-66.

\*\*On Leave, Fall Term, 1965-66.

- Arthur Polonsky *Assistant Professor of Fine Arts*  
 Joshua Prawer, M.A., Ph.D. *Visiting Professor of History*  
 (Hebrew University)
- Robert Otto Preyer, M.A., Ph.D. *Professor of English*  
 David Prill, Sc.B., Ph.D. *Lecturer and Research Associate in Mathematics*  
 Philip Rahv *Professor of English*  
 Harry Rand, M.D. *Adjunct Professor of Clinical Psychiatry*  
 Esther Eugenie Rawidowicz, Ph.D. *Assistant Professor of German*  
 Janine Reisman *Lecturer in French*  
 Karl M. I. Reisman, A.B., Ph.D. *Assistant Professor of Anthropology*  
 Jack Reitzes, B.A., M.A. *Assistant Professor and Director of Education*  
 Marguerite S. Robinson, B.A., Ph.D. *Assistant Professor of Anthropology*  
 Romney Robinson, M.A., Ph.D. *Associate Professor of Economics*  
 (on the James Henry Yalem Foundation)  
 John P. Roche, M.A., Ph.D.\* *Morris Hillquit Professor of Labor  
 and Social Thought*  
 Myron Rosenblum, A.M., Ph.D.\* *Associate Professor of Chemistry*  
 Hugo Rossi, M.S., Ph.D.\* *Associate Professor of Mathematics*  
 Murray Sachs, A.M., Ph.D. *Associate Professor of French*  
 (on the B. E. and Régine S. Levy Foundation)  
 I. Milton Sacks, M.A., Ph.D. *Associate Professor of Politics*  
 Benson Saler, M.A., Ph.D. *Assistant Professor of Anthropology*  
 Peter M. Sander, A.B., M.F.A. *Instructor in Theatre Arts*  
 Gerasimos X. Santas, M.A., Ph.D. *Assistant Professor of Philosophy*  
 Nahum M. Sarna, M.A., Ph.D. *Associate Professor of Biblical Studies*  
 Gordon Hisashi Sato, B.A., Ph.D. *Associate Professor of Biochemistry*  
 (on the Rosenstiel Foundation)  
 Henry E. Schaffer, M.S., Ph.D. *Assistant Professor of Biology*  
 Jerome A. Schiff, B.A., Ph.D. *Associate Professor of Biology*  
 Melvyn Schnall, M.A., Ph.D. *Assistant Professor of Psychology*  
 Marcel Schneeberger, Ph.D. *Assistant Professor of Physics and  
 Research Associate*  
 Howard J. Schnitzer, B.S., Ph.D.\*\* *Associate Professor of Physics*  
 Miriam F. Schurin, M.S., Ph.D. *Assistant Professor of Biology*  
 Barney K. Schwalberg, B.Sc., M.A. *Assistant Professor of Economics*  
 Morris S. Schwartz, M.A., Ph.D. *Mortimer Gryzmish Professor of  
 Human Relations*  
 Silvan S. Schweber, M.S., Ph.D. *Professor of Physics*  
 John R. Seeley, A.B. *Philip M. Klutznick Professor of Sociology*  
 Robert T. Seeley, S.B., Ph.D. *Associate Professor of Mathematics*  
 William Chapin Seitz, M.F.A., Ph.D. *Professor of Fine Arts*  
 John W. Senders, A.B. *Lecturer in Psychology*  
 Harold Shapero, A.B. *Professor of Music*  
 Thomas O. Sherman, B.S., Ph.D. *Assistant Professor of Mathematics*  
 Seymour Shifrin, A.B., M.A. (beginning 1966-67) *Professor of Music*  
 Weishu Shih, D.Sc. *Lecturer and Research Associate in Mathematics*  
 Evelyn Singer Simha, B.A., M.A. *Assistant Professor of French*

\*On Leave, 1965-66.

\*\*On Leave, Spring Term, 1965-66.

- Marianne L. Simmel, A.M., Ph.D. *Associate Professor of Psychology*  
 Michell Siporin *Professor of Fine Arts*  
 Richard L. Sklar, B.A., Ph.D. *Adjunct Associate Professor of Politics*  
 Philip E. Slater, A.B., Ph.D. *Associate Professor of Sociology*  
 John H. Smith, M.A., Ph.D. *Visiting Associate Professor of English*  
 Lacey T. Smith, B.A., M.P.A. *Instructor in Economics*  
 (*Marquette University*)
- Bernard Z. Sobel, M.A., Ph.D. *Assistant Professor of Sociology*  
 Frederic T. Sommers, B.A., Ph.D. *Associate Professor of Philosophy*  
 Morris Soodak, M.S., Ph.D. *Associate Professor of Biochemistry*  
 Joel Warren Spiegelman, B.A., M.F.A.\*\* *Lecturer in Music*  
 Mark Spivak, A.M., Ph.D. *Assistant Professor of Psychology*  
 Michael Spivak, M.A., Ph.D. *Lecturer and Research Associate in Mathematics*  
 Philip A. St. John, M.S., Ph.D. *Assistant Professor of Biology*  
 Colin Steel, B.Sc., Ph.D. *Assistant Professor of Chemistry*  
 J. Peter Stein, B.A., Ph.D. *Instructor in Classics*  
 Maurice R. Stein, B.A., Ph.D. *Associate Professor of Sociology*  
 Robert Stevenson, Ph.D., D.Sc.\*\* *Associate Professor of Chemistry*  
 Ruth Stone, B.A. *Lecturer in English*  
 Maurice Sussman, B.S., Ph.D. *Professor of Biology*  
 Peter Swiggart, M.A., Ph.D. *Associate Professor of English*  
 Marie Syrkin, B.A., M.A.\* *Associate Professor of Humanities*  
 Robert Szulkin, A.B., M.A. *Instructor in Russian*  
 Ralph Tarica, B.A., M.A. *Lecturer in French*  
 Caldwell Titcomb, M.A., Ph.D. *Associate Professor of Music*  
 Robert C. Tobey, B.A., A.M. *Adjunct Lecturer in Computing Sciences*  
 Stephen E. Toulmin, M.A., Ph.D. *Professor of History of Ideas  
and Philosophy*
- Thomas R. Tuttle, Jr., M.S., Ph.D. *Associate Professor of Chemistry*  
 Milton I. Vanger, M.A., Ph.D.\* *Associate Professor of History*  
 John van Heijenoort, M.S., Ph.D. *Professor of Philosophy*  
 Alphonse T. Vasquez, B.S., Ph.D. *Assistant Professor of Mathematics*  
 Helen Van Vunakis, B.A., Ph.D. *Associate Professor of Biochemistry*  
 (*on a Research Career Award, National Institutes of Health*)
- Gerald C. Volpe, M.A., Ph.D. *Assistant Professor of French*  
 Samuel E. Wallace, M.A., Ph.D. *Assistant Professor of Sociology*  
 Aileen Ward, M.A., Ph.D. *Associate Professor of English*  
 Richard S. Weckstein, M.A., Ph.D. *Associate Professor of Economics*  
 (*on the Carl Marks Foundation*)
- Alex Weingrod, M.A., Ph.D. *Associate Professor of Anthropology*  
 Robert S. Weiss, M.A., Ph.D. *Associate Professor of Sociology*  
 John Burt Wight, Ed.M., Ed.D. *Lecturer in English*  
 William A. Wilson, B.A. *Instructor in Theatre Arts*  
 Jerome Wodinsky, B.A., Ph.D. *Assistant Professor of Psychology*  
 Sanford E. Wolf, S.B., M.A. *Assistant Professor of Physics*  
 Kurt H. Wolff, Ph.D. *Professor of Sociology*  
 Peter Woll, A.B., Ph.D. *Associate Professor of Politics*  
 Luis E. Yglesias, B.A. *Assistant Professor of Spanish*

\*On Leave, 1965-66.

\*\*On Leave, Fall Term, 1965-66.



## Research Associates and Fellows

- Kozaburo Adachi, Ph.D.  
 William S. Allison, Ph.D.  
 Rita Arditti, Ph.D.  
 Hilary Ashe, Ph.D.  
 John M. Ashworth, Ph.D.  
 Ronald J. Baumgarten, Ph.D.  
 Rene Bensasson, Ph.D.  
 Sandra Blethen, Ph.D.  
 J. Anthony Burke, Ph.D.  
 George Cardinale, Ph.D.  
 John Carrico, Ph.D.  
 Gary Ceska, Ph.D.  
 J. K. Chakrabarti, Ph.D.  
 William Cockburn, Ph.D.  
 Hayden Coon, Ph.D.  
 Leonard Corman, D.M.D.  
 Lucien Cuprak, D.M.D.  
 Betty Davidson, Ph.D.  
 Samuel Davidson, Ph.D.  
 Giovanni Di Sabato, M.D.  
 Frank Dolbeare, Ph.D.  
 Robert O. Doyle, Ph.D.  
 Charles Drake, A.B., B.D.  
 Robert A. Ellison, Ph.D.  
 Hans Eppenberger, Ph.D.  
 Monika Eppenberger, M.D.  
 Robert G. Everson, Ph.D.  
 Marie Ru-Yu Fang, Ph.D.  
 Ronald H. Felton, Ph.D.  
 Joan Friedman, Ph.D.  
 Erland C. Gjessing, Ph.D.  
 Kenneth Golden, Ph.D.  
 Michael Greenspan, Ph.D.  
 James Griffin, Ph.D.  
 J. Stuart Grossert, Ph.D.  
 Jon E. Haebig, Ph.D.  
 William Hammond, Ph.D.  
  
 Linda Harpring, Ph.D.  
 Joseph Herskovits, M.D.  
 Annemarie Herzfeld, Ph.D.  
 D. G. Hey, Ph.D.  
 Daniel Hodgins, Ph.D.  
 Robert L. Jaffe, Ph.D.  
 Volker Kasche, Ph.D.  
 Keitaro Kato, Ph.D.  
 Barbara J. King, Ph.D.  
 Annette Krebs, M.A.
- Postdoctoral Fellow in Biochemistry*  
*Postdoctoral Fellow in Chemistry*  
*Postdoctoral Fellow in Biochemistry*  
*Postdoctoral Fellow in Biochemistry*  
*Hardness Fellow in Biology*  
*Research Fellow in Chemistry*  
*NATO Postdoctoral Fellow in Chemistry*  
*Postdoctoral Fellow in Biochemistry*  
*Research Associate in Physics*  
*Postdoctoral Fellow in Biochemistry*  
*Research Associate in Physics*  
*Postdoctoral Fellow in Chemistry*  
*Research Associate in Chemistry*  
*Postdoctoral Fellow in Biology*  
*Research Associate in Biology*  
*Postdoctoral Fellow in Biochemistry*  
*Postdoctoral Fellow in Biochemistry*  
*Postdoctoral Fellow in Biochemistry*  
*Postdoctoral Fellow in Biochemistry*  
*American Cancer Society Scholar in Biochemistry*  
*Postdoctoral Fellow in Biochemistry*  
*Research Associate in Physics*  
*Research Associate in Psychology*  
*Postdoctoral Fellow in Chemistry*  
*Postdoctoral Fellow in Biochemistry*  
*Postdoctoral Fellow in Biochemistry*  
*Postdoctoral Fellow in Biology*  
*Postdoctoral Fellow in Biochemistry*  
*Postdoctoral Fellow in Chemistry*  
*Postdoctoral Fellow in Biochemistry*  
*Visiting Scientist in Biochemistry*  
*Research Associate in Physics*  
*Postdoctoral Fellow in Biochemistry*  
*Postdoctoral Fellow in Biochemistry*  
*Postdoctoral Fellow in Chemistry*  
*Postdoctoral Fellow in Chemistry*  
*Research Associate in Chemistry*  
*ONR Postdoctoral Research Associate*  
*in Mathematics*  
*Postdoctoral Fellow in Biochemistry*  
*Postdoctoral Fellow in Biochemistry*  
*Postdoctoral Fellow in Biochemistry*  
*Postdoctoral Fellow in Chemistry*  
*Postdoctoral Fellow in Biochemistry*  
*Postdoctoral Fellow in Biochemistry*  
*NATO Research Fellow in Chemistry*  
*Postdoctoral Fellow in Biochemistry*  
*Postdoctoral Fellow in Chemistry*  
*Research Associate in Psychology*

- Nicholas J. Kuhn, Ph.D.  
 Erwin Latzko, Ph.D.  
 Susan Leeman, Ph.D.
- Sherwin Lehrer, Ph.D.  
 Harvey L. Levine, M.D.  
 Gustav Lienhard, Ph.D.  
 Fang-Jen Lin, M.D.  
 Helmut Link, Ph.D.  
 William F. Loomis, Jr., Ph.D.  
 Evelyne Nahon, M.D.  
 Iain MacLean, Ph.D.  
 Inga Mahler, Ph.D.  
 Chiang H. Mei, Ph.D.  
 Leonard Meyers, Ph.D.  
 Behzad Mohit, M.D.  
 William Murphey, Ph.D.  
 Samuel T. Nerenberg, M.D., Ph.D.  
 Gerald Porter, Ph.D.
- David Portsmouth, Ph.D.  
 Mohindar Puar, Ph.D.  
 Julio Pudles, Ph.D.  
 Thomas Ragland, Ph.D.  
 Earle Ralph, Ph.D.  
 G. Caird Ramsay, Ph.D.  
 Michael Ramsay, Ph.D.  
 Vernon Reinhold, Ph.D.  
 Michael Rosen, Ph.D.
- Raquel Rotman-Sussman, Ph.D.  
 Allyn L. H. Rule, Ph.D.  
 Thomas St. Pierre, Ph.D.  
 Eugene Sander, Ph.D.  
 Gottfried Theodore Schoppert, Ph.D.  
 Charlotte Green Schwartz, M.A.  
 Edna Seaman, Ph.D.  
 John W. Senders, A.B.  
 Richard Silverstein, Ph.D.  
 Thomas A. Spencer, Ph.D.  
 Mark Spivak, Ph.D.  
 Norbert I. Swislocki, Ph.D.  
 Bronislava Szorenyi, Ph.D.  
 Jerome Targovnik, M.D.  
 Timothy F. Thomas, Ph.D.  
 J. Tyson Tildon, M.D.  
 Walter Toman, Ph.D.  
 Kiyoshi Ueda, M.D.  
 William D. Voiers, Ph.D.  
 Martha Wang, Ph.D.
- Postdoctoral Fellow in Biochemistry*  
*Senior Research Associate in Biology*  
*National Institutes of Health Research Career*  
*Development Awardee in Biochemistry*  
*Postdoctoral Fellow in Biochemistry*  
*Postdoctoral Fellow in Biochemistry*  
*Postdoctoral Fellow in Biochemistry*  
*Postdoctoral Fellow in Biochemistry*  
*Postdoctoral Fellow in Chemistry*  
*Postdoctoral Fellow in Biology*  
*Visiting Scientist in Biochemistry*  
*Postdoctoral Fellow in Chemistry*  
*Research Associate in Biochemistry*  
*Postdoctoral Fellow in Chemistry*  
*Research Associate in Physics*  
*Postdoctoral Fellow in Biochemistry*  
*Postdoctoral Fellow in Biochemistry*  
*Visiting Scientist in Biochemistry*  
*ONR Postdoctoral Research Associate in*  
*Mathematics*  
*Postdoctoral Fellow in Biochemistry*  
*Postdoctoral Fellow in Chemistry*  
*Senior Research Associate in Biochemistry*  
*Postdoctoral Fellow in Biochemistry*  
*Postdoctoral Fellow in Chemistry*  
*Postdoctoral Fellow in Chemistry*  
*Postdoctoral Fellow in Chemistry*  
*Postdoctoral Fellow in Biochemistry*  
*ONR Postdoctoral Research Associate in*  
*Mathematics*  
*Research Associate in Biology*  
*Postdoctoral Fellow in Biochemistry*  
*Postdoctoral Fellow in Biochemistry*  
*Postdoctoral Fellow in Biochemistry*  
*Research Associate in Chemistry*  
*Research Associate in Sociology*  
*Postdoctoral Fellow in Biochemistry*  
*Senior Research Associate in Psychology*  
*Postdoctoral Fellow in Biochemistry*  
*Visiting Scientist in Biochemistry*  
*Research Associate in Sociology*  
*Postdoctoral Fellow in Biochemistry*  
*Senior Research Associate in Biochemistry*  
*Postdoctoral Fellow in Biochemistry*  
*Postdoctoral Fellow in Chemistry*  
*Postdoctoral Fellow in Biochemistry*  
*Senior Research Associate in Psychology*  
*Postdoctoral Fellow in Biochemistry*  
*Research Associate in Psychology*  
*Postdoctoral Fellow in Chemistry*

Margaret Ward, Ph.D.  
Donald Wilken, Ph.D.

*Postdoctoral Fellow in Biochemistry*  
*National Science Foundation Postdoctoral*  
*Fellow in Mathematics*  
*Research Associate in Sociology*  
*Postdoctoral Fellow (Trainee) in Biology*  
*Postdoctoral Fellow in Biochemistry*  
*Postdoctoral Fellow in Biochemistry*  
*Research Associate in Biology*  
*Research Fellow in Chemistry*

Frederick Wiseman, LL.B.  
Kaichiro Yanagisawa, Ph.D.  
Jacob Yashphe, Ph.D.  
Yoshihiro Yasumura, M.D.  
Michael Zeldin, Ph.D.  
Estelle Zoll, Ph.D.

## Administration of the University

Abram Leon Sachar, Ph.D.

*President of the University*

### Administrative Council

Clarence Q. Berger, A.M.  
\*\*Eugene C. Black, Ph.D.  
Peter Diamandopoulos, Ph.D.  
Philip J. Driscoll, A.M.  
\*Leonard W. Levy, Ph.D.  
Lester G. Loomis, M.B.A.  
Kermit C. Morrissey, B.A.  
Charles I. Schottland, A.B.

*Dean of University Planning and Development*  
*Associate Dean of Faculty of Arts and Sciences*  
*Acting Associate Dean of Faculty*  
*Dean of Admissions*  
*Dean of Faculty of Arts and Sciences*  
*Dean of Financial Affairs*  
*Dean of Students*  
*Dean of Heller Graduate School for Advanced Studies*  
*in Social Welfare*

\*\*Harold Weisberg, Ph.D.

*Dean of Graduate School of Arts and Sciences and*  
*Associate Dean of Faculty of Arts and Sciences*

Sumner J. Abrams, P.E.  
David L. Rolbein, M.S.

*Director of Plant Operations*  
*Director of Business Administration*

## Offices of Administration

### Alumni Relations

Robert F. Kelley, '57, A.B.

*Director*

### Business Administration

David L. Rolbein, M.S.

*Director*

### Chaplains

Richard Troy, Ph.B.  
Paul Lee, Ph.D.  
Albert Axelrod

*Brandeis Newman Club*  
*Brandeis Student Christian Association*  
*Brandeis B'nai B'rith Hillel Foundation*

### University Finance Office

Lester G. Loomis, M.B.A.

*Dean*

Charles S. Woodbury, B.S., C.P.A. *Chief Accountant and Research Fiscal Officer*

\*On Leave, 1965-66.

\*\*On Leave, Fall Term.



**Library**

Louis Kronenberger, Litt.D.

*Librarian***Plant Operations**

Sumner J. Abrams, P.E.

*Director***Psychological Counseling Center**

Eugenia Hanfmann, Ph.D.

*Director*

Stanley S. Kanter, M.D.

*Psychiatric Consultant*

Elliot Baker, Ph.D.

*Counselor*

Sarah Evan, M.S.W.

*Counselor*

Anton G. Hardy, Ph.D.

*Counselor*

Philip M. Helfaer, M.A.

*Counselor*

Richard M. Jones, Ph.D.

*Counselor*

Esther Osborne, A.M.

*Counselor**Visiting Committee*

Grete L. Bibring, M.D.

George E. Gardner, M.D.

**Public Affairs**

Richard E. Gillman

*Director***Wien International Scholarship Program**

Kermit C. Morrissey, A.B.

*Acting Director***Graduate School Administrative Personnel**

M. Catherine Butler, A.M.

*Assistant to the Dean*

Philip A. St. John, Ph.D.

*Assistant to the Dean*

Dorothy H. Roach

*Executive Secretary*

Elaine P. Bridgett

*Secretary*

Margaret R. Holland

*Secretary*

Mary E. O'Neill

*Secretary*

Diana J. Twomey

*Secretary*

Marie Anderson (Biology, Biophysics); Elinor Ciftan (Mathematics); June Cushner (English and American Literature); Rose M. DeSimone (Mediterranean Studies); Judith Fleischer (History of American Civilization); Jean Gelhar (Near Eastern and Judaic Studies); Jan Gilmore (Anthropology); Sada Gordon (History of Ideas); M. Lee Healey (Physics); Lois S. McMullen (Chemistry); M. Rosamonde Morrison (Music); M. Verna Regan (Psychology); Edna E. Royal (Biochemistry); Dorothea I. Smith (Sociology); Bette White (Philosophy).

# Index

Academic Regulations	48
Administration of the University	192
Admission	42
Anthropology	67
Areas of Study and Courses	67
Auditing Courses	49
Biochemistry	74
Biology	80
Biophysics	88
Calendar	8, 9
Chemistry	89
Contemporary Jewish Studies	96
Credit for work done elsewhere	51
Degree Requirements, General	54
Directories	181
Dismissal	54
Dissertation	57
Employment	67
English and American Literature	99
Expulsion	54
Faculty	182
Fees	59
Fellowships	169
Financial Assistance	63
Foreign Students	46
Full-Time Resident status	52
General Description	22
General Information	39
Grades	50
Graduate Council	189
Health Office	41
History of American Civilization	104
History of Ideas	108
History of the University	39
Housing	40
Incompletes	50
Language Requirements	56
Leave of Absence	53
Mathematics	118
Mediterranean Studies	122

Music	127
Near Eastern and Judaic Studies	133
Part-Time Resident status	52
Philosophy	140
Physics	145
Program, change of	49
Psychology	152
Registration	48, 49
Research Assistantships	66
Research Associates and Fellows	190
Residence Requirements	51
Sociology	160
Special Students	53
Teaching Assistantships	65
Theatre Arts	168
University Organization	12
Withdrawal	54

## Notes

## Notes

## Notes

## Notes

## Notes



# Correspondence Directory

Admission to Graduate School:

DEAN OF GRADUATE SCHOOL

Admission to The Florence Heller School for Advanced Studies in  
Social Welfare:

DEAN OF THE SCHOOL FOR SOCIAL WELFARE

Summer Institute:

DIRECTOR OF SUMMER INSTITUTE.

Scholarship Applications:

DEAN OF ADMISSIONS

Establishment of Grants and Bequests:

DEAN OF UNIVERSITY RESOURCES

Alumni Affairs:

DIRECTOR OF ALUMNI RELATIONS

General Information:

DIRECTOR OF PUBLIC AFFAIRS









WELLS BINDERY INC.  
ALTHAM, MASS.  
FEB. 1975



3 9097 00807603 7

ARCHIVES

