

1978/80
GRADUATE
BULLETIN

STATE UNIVERSITY OF NEW YORK AT
STONY BROOK

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1978—79 Academic Calendar

Fall Semester 1978

- August 16, Wednesday Foreign Students Must Arrive
New Foreign Student Residence Halls Check-in
- August 17-23
Thursday-Wednesday Foreign Student Orientation
Begin Final Registration Week and Payment of Fees (or properly deferred) for All Students Not Previously Registered (schedule announced prior to registration). CED Final Registration To Be Announced
- August 19, Saturday All Residence Halls Open for New Student Check-in
- August 22, Tuesday Returning Students Check into Residence Halls
- August 24, Thursday Classes Begin—Late Registration Period Begins with \$20 Late Fee Assessed
Add/Drop and/or Section Change Period Begins
- September 4, Monday Labor Day (no day or evening classes)
- September 8, Friday End of Late Registration Period for All Students Including CED
Last Day for All Students to Drop Courses Without Receiving a Recorded W (Withdrawal)

September 22, Friday	Last Day for Graduate Students to Add or Withdraw from a Course (W will be Recorded for Withdrawal) Last Day for Graduate Students to File Degree Cards in the Graduate School Office for December Graduation
September 29, Friday	Last Day for CED Students to File for December Graduation at the CED Office Final Bills for Fall 1978 Semester to be Mailed
October 2-3 Monday-Tuesday	Rosh Hashanah (no day or evening classes)
October 5, Thursday	All Classes Will Follow Tuesday's Schedule
October 6, Friday	All Classes Will Follow Monday's Schedule
October 10, Tuesday	No Evening Classes
October 11, Wednesday	Yom Kippur (no day or evening classes)
October 12, Thursday	Last Day for Final Payment of Fees for the Fall Semester
October 21, Saturday	First Quarter Fall Housing Period Ends
November 1, Wednesday	Last Day for Removal of Incompletes and NR (No Record) Grades for All Students from the Spring Semester and the Summer Session
November 7, Tuesday	Election Day (no day or evening classes)
November 13, Monday	Advance Registration Period Begins for the Spring Semester for All Students (schedule announced prior to registration)

November 22, Wednesday	Thanksgiving Recess Begins at Close of Classes
November 27, Monday	Classes Resume
December 7, Thursday	Bills for 1979 Spring Semester to be Mailed to Pre-registered Students
December 15, Friday	Last Day of Classes—Last Day to Withdraw from the University
December 16-17 Saturday-Sunday	Reading Days
December 18, Monday	Final Examinations Begin—Final Grades Due in the Registrar's Office 72 Hours after Last Class Meeting or after Scheduled Examination, or as Arranged
	Last Day for Graduate Students to Submit Theses and Dissertations for December Graduation
December 20, Wednesday	Last Day for Mail Payment of Spring Semester Fees for All Students Registered in Advance (payment returned if postmarked later)
December 22, Friday	Final Examinations End—Fall Semester Ends
	Residence Halls Close for Fall Semester
	Winter Recess Begins at Close of Exams
	Last Day for Departments to Submit Completion Statements for December Master's and Doctoral Candidates
December 23, Saturday	Intersession Housing Begins
January 11, Thursday	Last Day for Students Pre-registered for the 1979 Spring Semester to Pay Fees in Person Without Late Penalty

January 16, Tuesday Intersession Housing Ends

Spring Semester 1979

- January 11, Thursday Begin Final Registration and Payment of Fees (or properly deferred) for All Students Not Previously Registered (schedule announced prior to registration). CED Final Registration to be Announced
- January 15, Monday Foreign Students Must Arrive
- January 17, Wednesday Residence Halls Open for Spring Semester
- January 18, Thursday Classes Begin—Late Registration Period Begins with \$20 Late Registration Fee Assessed
- Add/Drop and/or Section Change Period Begins
- January 31, Wednesday End of Late Registration Period for All Students Including CED Students
- Last Day for All Students to Drop Courses Without Receiving a Recorded W (Withdrawal)
- February 14, Wednesday Last Day for Graduate Students to Add or Withdraw from a Course (W will be recorded for Withdrawal)
- Last Day for CED Students to File for May Graduation at the CED Office
- February 20, Tuesday Final Bills for Spring 1979 Semester to be Mailed
- February 21, Wednesday Last Day for Graduate Students to File Degree Cards in the Graduate School Office for May Graduation
- March 6, Tuesday Last Day for Final Payment of Fees for the Spring Semester to be Received by the Bursar

- March 15, Thursday Last Day for Removal of Incompletes and NR (No Record) Grades for All Students from the Fall Semester
- March 17, Saturday First Quarter Spring Housing Period Ends
- April 7, Saturday Spring Recess Begins at Close of Classes
- April 16, Monday Classes Resume
- April 16-20
Monday-Friday Advance Room Deposits for Fall 1979 Semester Due
- April 30, Monday Advance Registration Period Begins for Fall Semester (schedule announced prior to registration)
- Bills for Fall 1979 Semester to be Mailed Approximately July 1st with Payment Date During Latter Part of July
- Last Day for Graduate Students to Submit Theses and Dissertations for May Graduation
- Last Day for Departments to Submit Completion Statements for May Doctoral Candidates
- May 7-18
Monday-Friday Advance Registration for 1979 Summer Session for All Students, with Summer Session Fees Payable at Time of Registration
- May 9, Wednesday Last Day of Classes—Last Day to Withdraw from the University
- May 10-13
Thursday-Sunday Reading Days
- May 14, Monday Final Examinations Begin—Final Grades Due in the Registrar's Office 72 Hours after Last Class Meeting, or after Scheduled Examination, or as Arranged

May 18, Friday	Final Examinations End—Spring Semester Ends
May 20, Sunday	Commencement All Residence Halls Close
May 21, Monday	Last Day for Departments to Submit Completion Statements for May Master's Candidates

Summer Session 1979 (to be announced)

1979—80 Academic Calendar

Fall Semester 1979

- August 15, Wednesday Foreign Students Must Arrive
New Foreign Student Residence Halls Check-in
- August 16-22
Thursday-Wednesday Foreign Student Orientation
Begin Final Registration Week and Payment of Fees (or properly deferred) for All Students not Previously Registered (schedule announced prior to registration). CED Final Registration To Be Announced
- August 18, Saturday All Residence Halls Open for New Student Check-in
- August 20-22
Monday-Wednesday Undergraduate Student Orientation for All Students Not Having Previously Participated
- August 21, Tuesday Returning Students Check into Residence Halls
- August 23, Thursday Classes Begin—Late Registration Period Begins with \$20 Late Fee Assessed
Add/Drop and/or Section Change Period Begins
- September 3, Monday Labor Day (no day or evening classes)
- September 7, Friday End of Late Registration Period for All Students including CED
Last Day for Undergraduate Students to Add a Course

	Last Day for All Students to Drop Courses without Receiving a Recorded W (Withdrawal)
September 19, Wednesday	Last Day for All Students Who Have Not Previously Filed (except CED and Graduate Students) to File for December Graduation at the Office of Records
September 21, Friday	Last Day for Graduate Students to Add or Withdraw from a Course (W will be Recorded for Withdrawal) Last Day for Graduate Students to File Degree Cards in the Graduate School Office for December Graduation
September 28, Friday	Last Day for CED Students to File for December Graduation at the CED Office Final Bills for Fall 1979 Semester to be Mailed
October 1, Monday	Yom Kippur (no day or evening classes)
October 4, Thursday	All Classes will follow Tuesday's Schedule
October 5, Friday	All Classes will follow Monday's Schedule
October 11, Thursday	Last Day for Final Payment of Fees for the Fall Semester
October 20, Saturday	First Quarter Fall Housing Period Ends
October 24, Wednesday	Last Day for Undergraduate Students to Change Courses to or from Pass/No Credit Last Day for Undergraduate Students to Withdraw from a Course Without Withdrawing from the University

November 1, Thursday	Last Day for Removal of Incompletes and NR (No Record) Grades from the Spring Semester and the Summer Session for All Students
November 6, Tuesday	Election Day (no day or evening classes)
November 12, Monday	Advance Registration Period Begins for the Spring Semester for All Students (schedule announced prior to registration)
November 21, Wednesday	Thanksgiving Recess Begins at Close of Classes
November 26, Monday	Classes Resume
December 7, Friday	Bills for 1980 Spring Semester to be Mailed to Pre-registered Students
December 14, Friday	Last Day of Classes—Last Day to Withdraw from the University
December 15 & 16 Saturday-Sunday	Reading Days
December 17, Monday	Final Examinations Begin—Final Grades Due in the Registrar's Office 72 Hours after Last Class Meeting or after Scheduled Examination, or as Arranged
	Last Day for Graduate Students to Submit Theses and Dissertations for December Graduation
December 19, Wednesday	Last Day for Mail Payment of Spring Semester Fees for All Students Registered in Advance
December 21, Friday	Final Examinations End—Fall Semester Ends
	Residence Halls Close for Fall Semester

Winter Recess Begins at Close of Exams

Last Day for Departments to Submit Completion Statements for December Masters and Doctoral Candidates

December 22, Saturday Intercession Housing Begins

January 9, Wednesday Last Day for Students Pre-registered for 1980 Spring Semester to Pay Fees In Person without Late Penalty

January 15, Tuesday Intercession Housing Ends

Spring Semester 1980

January 10, Thursday Begin Final Registration and Payment of Fees (or properly deferred) for All Students not Previously Registered (schedule announced prior to registration) CED Final Registration To Be Announced

January 14, Monday Foreign Students Must Arrive

January 16, Wednesday Residence Halls Open for Spring Semester

January 17, Thursday Classes Begin—Late Registration Period Begins with \$20 Late Registration Fee Assessed

Add/Drop and/or Section Change Period Begins

January 30, Wednesday End of Late Registration Period for All Students including CED Students

Last Day for Undergraduate Students to Add a Course

Last Day for All Students to Drop Courses without Receiving a Recorded W (Withdrawal)

- February 6, Wednesday Last Day for All Students Who Have Not Previously Filed (except CED and Graduate Students) to File for May Graduation at the Office of Records
- Final Bills for Spring 1980 Semester To Be Mailed
- February 13, Wednesday Last Day for Graduate Students to Add or Withdraw from a Course (W will be Recorded for Withdrawal)
- February 20, Wednesday Last Day for Graduate Students to File Degree Cards In the Graduate School Office for May Graduation
- March 4, Tuesday Last Day for Final Payment of Fees for the Spring Semester to be Received by the Bursar
- March 15, Saturday First Quarter Spring Housing Period Ends
- March 17, Monday Last Day for Removal of Incompletes and NR (No Record) Grades for All Students from the Fall Semester
- March 19, Wednesday Last Day for Undergraduate Students to Change Courses to or from Pass/ No Credit
- Last Day for Undergraduate Students to Withdraw from a Course Without Withdrawing from the University
- April 5, Saturday Spring Recess Begins at Close of Classes
- April 14, Monday Classes Resume
- April 14-18 Monday-Friday Advance Room Reservations and Deposits for Fall 1980 Semester Due
- April 28, Monday Advance Registration Period Begins for Fall Semester (schedule announced prior to registration)

Bills for Fall 1980 Semester to be Mailed Approximately July 1st with payment Date during Latter Part of July

Last Day for Graduate Students to Submit Theses and Dissertations for May Graduation

Last Day for Departments to Submit Completion Statements for May Doctoral Candidates

May 5, Monday Advance Registration Begins for 1980 Summer Session for All Students, with Summer Session Fees Payable at Time of Registration

May 7, Wednesday Last Day of Classes—Last Day to Withdraw from the University

May 8-11
Thursday-Sunday Reading Days

May 12, Monday Final Examinations Begin—Final Grades Due in the Registrar's Office 72 Hours after Last Class Meeting, or after Scheduled Examination, or as Arranged

May 16, Friday Final Examinations End—Spring Semester Ends

May 18, Sunday Commencement
All Residence Halls Close

May 19, Monday Last Day for Departments to Submit Completion Statements for May Masters Candidates

Summer Session 1980 (to be announced)

General Information

Background

"The initial mission of the State University of New York at Stony Brook was to become an institution of national stature in the time-honored and traditional terms of the outstanding private universities and of such public institutions as Berkeley, Michigan and Illinois. In this it has succeeded outstandingly well. It is remarkable in what short a time Stony Brook has come to be thought of as being among that distinguished company."

That observation, from the opening paragraph of a Middle States Association reaccreditation report, dramatically summarizes an extraordinary development process that began just two decades ago. The State University of New York at Stony Brook has grown to be one of the nation's major public university centers, completing nearly \$500 million in all campus construction and consolidating extensive academic programs, all within perhaps the shortest time span in the history of higher education.

What was to become the State University of New York at Stony Brook began in 1957 at Oyster Bay, Long Island, as a State University College to prepare secondary school teachers of math and science. In 1962, with a new mandate to become the State University's fourth regional university center, the young school moved to a parcel of land in Stony Brook given to the state by industrialist-philanthropist Ward Melville.

Since then, Stony Brook has grown to encompass 85 buildings on 1000 acres. The faculty has grown from about 175 to 1000, the student body from 1000 to 17,000 and the annual budget from about \$3 million to \$86.5 million.

Of the 64 institutions comprising the State University of New York, Stony Brook is the only comprehensive university center for the entire New York metropolitan region, one of the nation's fastest growing, most complex population areas. In carrying out its mission, including research and public service, Stony Brook strives to be a responsive university of excellence.

Degree Opportunities

Graduate study is offered in 24 of Stony Brook's present 29 academic departments, as well as the six Schools of the Health Sciences Center, and the Center for Continuing Education. The doctorate degree is offered through 21 departments, the M.A. through 15 and the M.S. through nine. There are also two interdisciplinary M.S. programs, an M.Mus. (Master of Music), D.M.A. (Doctor of Musical Arts) and a terminal M.A. designed specifically for teachers in chemistry, English, French, history, mathematics, philosophy, physics, sociology or Spanish. In the Health Sciences

Center, the M.D. degree is offered by the School of Medicine; the D.D.S. by the School of Dental Medicine; the M.S. degree by the School of Social Welfare, the School of Allied Health Professions and the School of Nursing; and the Ph.D. by the School of Basic Health Sciences. The evening Continuing Education program, primarily for working adults, offers the degree of Master of Arts in Liberal Studies (M.A./L.S.). At the undergraduate level, many departmental major programs and interdisciplinary programs leading to the B.A., B.S. and B.E. (engineering) degrees are offered by the College of Arts and Sciences, College of Engineering and Applied Sciences and Health Sciences Center.

Campus

The Frank Melville, Jr. Memorial Library provides both an intellectual and physical focal point for the campus. The combined collections of the Melville Library, its five departmental branch libraries and the University's Health Sciences Library this year reached over 1,000,000 volumes. In addition, library collections include more than 2,000,000 items in microformat and subscriptions to 9,082 periodicals. Radiating out from the center campus Melville Library (see campus map, p. 223) are the major academic buildings for arts and sciences and engineering, the Van de Graaff nuclear accelerator, the Administration Building, Lecture Center, Laboratory Office Building, Educational Communications Center, Computing Center (its Univac 1100 dual processor system provides both batch processing and interactive time sharing services for student and faculty research and administrative data processing), Stony Brook Union, Gymnasium and other service and activities buildings. Stony Brook's new Fine Arts Center has opened, between the Library and Administration Buildings, providing extensive performing arts facilities along with an outdoor plaza connecting the Library, Stony Brook Union and Fine Arts Center in the middle of the campus. Southeast of the Administration Building is a new Social and Behavioral Sciences Building housing the departments of anthropology, history, social sciences, economics and political sciences as well as other administrative offices.

Encircling the academic buildings are six residential quadrangles with living space for 1000 students each. They are the basic social units for on-campus students, providing residence halls, dining facilities and a diversity of student-sponsored enterprises and recreational facilities. Each quadrangle consists of 3-5 coeducational colleges, or residence halls, housing 200-400 students each. About half the undergraduates live on campus.

South of the main campus is the 26-acre Ashley Schiff nature preserve. Beyond these woods and linked to the Main Campus by a free shuttle bus service is the South Campus, where 11 functionally adaptable single story buildings provide flexible space for newer, growing University programs.

The Health Sciences Center, on the east side of Nicolls Road, has completed a ten-year cycle of planning and construction. The Teaching Research Building opened in 1976 and the Basic Sciences Tower was ready for occupancy in 1978. The University Hospital will open its doors to its first patients in 1979.

Research

In fiscal year 1978, Stony Brook attracted about \$21 million in non-state grants and funds to support campus research programs. The bulk of these monies, over 80%, is received from the federal government or its agencies; the remainder comes from corporations and foundations. Lunar rocks, cancer, urban problems, holography, research on the social history of English nobility, the psychology of political attitudes and behavior, and the role of symmetry in the arts and sciences are a few examples of the approximately 450 subjects currently under examination on campus.

All campus projects which involve human subjects, whether they be conducted as part of a research program or in conjunction with course activities (including graduate research) must receive prior review and approval by the campus-wide Committee on Research Involving Human Subjects (CORIHS). (It is SUNY policy that the campus may not require the participation of students as subjects in human research.) If such prior approval has not been obtained for degree-related work, delays may occur in the award of a graduate degree. Questions regarding human subjects should be addressed to the Executive Secretary of CORIHS in the Office of Research Administration, which is part of the Graduate School.

Academic publications emanating from the University include: *American Comparative Literature Association Newsletter*, *American Naturalist*, *Anthropology*, *Journal of Biological Psychiatry*, *Journal of Biomedical Materials Research*, *The Physics Teacher*, *Quarterly Review of Biology*, the *Stony Brook Engineer*, and the *Quarterly Report of the Program on Technology and Society*.

Community Ties

Numerous concerts, lectures, films, theatre productions, art exhibits and sports events on campus are open to the public each semester.

With over 5000 people on the overall campus payroll, Stony Brook is one of Long Island's largest single employers. The University generates over \$120 million annually in direct economic impact in the Long Island region, with a rippling effect of perhaps an additional \$120 million or more.

In many ways, the University works with surrounding communities to provide services and to help solve area problems. The Computing Center assists numerous colleges, research centers and governmental agencies. Student teachers serve in local schools and numerous educational projects involve close University-school cooperation. The Point-of-Woods School at the University helps

disruptive elementary schoolchildren to be productive students. In health fields, Stony Brook students learn and work in Long Island hospitals and other health-related facilities. The Marine Sciences Research Center studies and makes recommendations regarding regional erosion and pollution problems, and the W. Averell Harriman College for Urban and Policy Sciences works with local governments to help solve problems in fields such as sanitation, waste disposal, zoning and transportation. The Economic Research Bureau conducts research, training and service activities in fields such as educational planning, property ownership, shipping, taxation and poverty. A thousand or more Stony Brook students annually participate in community volunteer programs in tutoring, recreation, health care and other areas. Ecology students recently, for example, developed plans for a community nature study preserve near the Stony Brook campus. The Association for Community-University Cooperation works to develop positive relationships between the University and the community through an annual series of "town-gown" programs and events.

Special Centers and Institutes

The Center for Contemporary Arts and Letters develops campus art holdings and sponsors visits by practitioners and critics of the arts; the *Center for Industrial Cooperation* links the resources of the University to the needs of Long Island industry; the *Economic Research Bureau* brings together the University and public and private agencies in regional research efforts of mutual interest; the *Educational Communications Center*, in cooperation with faculty members and departments, helps develop more effective teaching methods through the use of media and other technical aids; Stony Brook's branch of *Empire State College* offers degree study without formal class attendance; the *Engineering Concepts Curriculum Project* is a program designed to develop technological literacy in non-science oriented high school students nationwide; the *Institute for Advanced Studies of World Religions* with its 40,000 volume library seeks to facilitate the study and development of world religions and philosophy with emphasis on Buddhism, Islam and Hinduism; the *Institute for Energy Research* explores new areas of energy policy related research; the *Institute for Theoretical Physics* has a faculty of a dozen scholars researching all areas of theoretical physics; the *Institute for Urban Sciences Research* organizes and carries out research pertaining to policy problems and issues; the *Institute of American Studies*¹ funds a summer graduate program for outstanding high school social studies teachers; the *International Art of Jazz* is committed to the promotion, preservation and presentation of jazz music; the *Long Island Research Insti-*

¹See Department of Political Science

tute researches mental health and behavioral sciences; the *Marine Sciences Research Center* administers statewide research projects, offers research cruises and performs studies in oceans, bays, harbors, lakes and a University-owned tidal marsh near campus; the *Museum Computer Network*, now headquartered on campus, works to help many of the nation's top museums and other institutions make their collections and related information more accessible by computerizing museum files and archives; the *Poetry Center* houses a collection of poetry in English and foreign languages, over 100 current poetry magazines and both video and audio cassette recordings of poets reading their works; the *Research Foundation* administers all gifts, grants and contract funds supporting sponsored research, training and related programs carried out by, or supervised by, University faculty; the *Science and Mathematics Teaching Center* assists Long Island math and science teachers in curriculum planning and the development of special resource materials; and the *Stony Brook Foundation* seeks and encourages non-State support for the development and enrichment of programs at Stony Brook and administers the majority of the University's scholarships, loans and endowment accounts in conjunction with the Financial Aid Office.

Campus Activities

A wide variety of lectures, seminars, concerts, exhibits, theatrical performances and movies are scheduled regularly during the academic year. Some recent well-known speakers at Stony Brook have included statesman Abba Eban, publisher Bill Moyers, and novelist Erica Jong, as well as Eugene McCarthy, Kate Millett, Clive Barnes, and Dick Cavett.

Art galleries in the new Fine Arts Center, in the Library and at the Stony Brook Union offer continuing exhibitions of works by artists on and off campus. An average of five films are shown weekly on campus, including vintage and current productions; usually admission is free for students. The campus enjoys an average of one classical music concert per day, including student recitals and performances by faculty and visiting artists.

The University's Theatre Arts Department and several entirely student-run theatre groups have sponsored recent campus productions including "Encounters," three one-act plays; "The Other Season," student productions of such short works as "Foreplay, Doorplay" by Robert Auletta, "Persephone on Third Street" by Marc Di Gasperi, "Growing Pains" by Linda Belickis and Carol Best; and a joint production by the Music and Theatre Arts Departments of Mozart's comic opera, "La Finta Giardiniera."

Popular concerts recently on campus have included performances by Judy Collins, Carly Simon, Billy Joel, Renaissance, David Bromberg, George Benson, Bonnie Raitt, Roger McGuinn, Bob Weir, Maria Muldaur, Dickie Betts and Joan Baez.

Polity, the undergraduate student organization, and its related groups, particularly the Student Activities Board, sponsor many campus activities. Polity presently funds more than 80 student interest clubs and organizations which in many cases complement students' academic work; organizations include the Aztec Society for students interested in Central and South American history, and French and Italian clubs. Other student activity clubs cover a broad range of interests. They include groups such as the Biological Sciences Society, the Chess Club, Intervarsity Christian Fellowship, the Pre-Law Society and the Stony Brook Karate Club. Groups of 25 students or more interested in forming such organizations may apply for Polity funding.

The campus student newspaper, *Statesman*, is published three times weekly during the academic year, with a circulation of 10,000 on campus and in the local community. It has won numerous collegiate journalism awards, and its writers receive favorable attention from potential newspaper employers and journalism schools through the practical experience working for a college newspaper offers. Other student publications include *Black World*, a newspaper published bi-weekly, focusing primarily on news of interest to the black community on campus; *Fortnight*, a feature magazine also published bi-weekly; *Soundings*, the literary magazine; and *Specula*, the yearbook.

The Interfaith Center serves student religious concerns through regularly scheduled Jewish, Catholic, Lutheran and Episcopalian services which are open to all. Religious counseling services for students of these and other denominations also are provided.

The International Club meets student interests in various cultural traditions, as do other groups including the Chinese Association, the Indian Student Association, the Pakistan Club, the African Students Association, the Latin American Organization, and the Caribbean Association.

Graduate students have access to all campus recreational facilities and are welcome to organize their own intramural leagues, as they have done from time to time in football and basketball. These leagues are distinct from undergraduate leagues and are informally organized, usually by graduate student volunteers and often on a departmental basis.

Numerous organizations on campus welcome graduate student participation. These include professional organizations such as ASME, IEEE, Materials Science Club, Phi Beta Kappa, Sigma Xi, Alpha Kappa Delta, Phi Sigma Iota, Tau Beta Pi, and Pi Sigma Alpha, and religious groups such as B'nai Hillel Counselorship, Lutheran Students Group, Newman Community and Intervarsity Christian Fellowship.

Organization of the Graduate School

Under the direction of the Office of the Vice President for Academic Affairs, the Graduate School administration rests with the Dean of the Graduate School and his administrative staff in conjunction with the Graduate Council, comprised of faculty, students, and administrators. The chairman and the secretary of the Graduate Council are elected by the Council. The membership of the Council includes the Vice President for Academic Affairs, *ex officio*; the Deans of the Graduate School; one faculty member elected by the Faculty-Student Senate from each of the following groups: Arts and Humanities, Behavioral Sciences, Biological Sciences, Engineering Sciences, Mathematical Sciences, Physical Sciences, Social Sciences; and two faculty members elected from the Health Sciences. In addition, one faculty member is chosen from and by the CED Council; one faculty member of the Library elected by the library faculty; one elected member of the Executive Committee designated by the Executive Committee; one member elected by core campus non-teaching professionals; four graduate student members with no more than one from any graduate department (three chosen by the Graduate Student Organization, and one chosen by the CED Graduate Student Organization). Elected faculty members shall serve for three years with staggered terms. Among other duties detailed in the "Faculty By-Laws," the Council must approve all graduate programs before their submission to the SUNY Central Office and the State Department of Education.

Each department exercises a large measure of responsibility for its graduate program. Under the general responsibility of the department chairman, each department has a departmental committee on graduate students and a graduate program director who administers departmental graduate activities. Under the guidance of the Graduate Council, individual departments select graduate applicants and recommend them for admission to the Dean of the Graduate School. The departments are responsible also for the nomination of students and applicants for fellowships, traineeships and assistantships, as well as for the administration of graduate programs, including course work, supervised research, teaching apprenticeships, and graduate examinations. It is the departments which certify to the Graduate School that the student has completed all degree requirements.

Graduate Student Organization

The GSO (Graduate Student Organization), the graduate student governing body at Stony Brook, is affiliated with other state and national graduate student groups. It provides many special social, cultural and athletic events of interest to graduate students. The organization distributes a bi-monthly newsletter and represents the graduate student body on issues of importance with the University administration. The GSO Graduate Center is presently located on

the first floor of the Old Chemistry Building. At the center a graduate student can find on-going seminars, music, savory coffee and bar service, challenging chess and stimulating conversation.

Career Development Office

The Career Development Office assists all students and alumni with career planning and acts as a resource for information on full-time permanent employment. Individual and group consultation with students is emphasized while periodic critical self-examination assists students in relating academic expertise to aspirations for future professional involvement and advancement.

An on-campus recruitment program permits interested seniors and graduate students to meet with prospective employers and graduate schools, and a credential service is provided to support students in their application for jobs or advanced study. These records are maintained permanently.

Students are encouraged to participate in the Student Volunteer Service Program (VITAL), in which experience in specific career areas is received by working with agencies and institutions seeking student volunteers.

Group discussions are held to assist students and alumni in writing resumes and to develop individual systems for applying for employment. As part of the Career Development Office's Out-Reach Program, visits are made by the career counselors to residence halls and campus departments in order to provide a broad exposure to career-related information.

The Career Development Resource Library has information pertaining to employment opportunities in business, government, social service, and education. Relevant materials are available on career planning, teaching certification, health careers, graduate and professional school admissions testing, graduate school and financial aid information, and recruitment options.

Other services available include information and applications for examinations required by various graduate and professional programs (i.e., the GRE, LSAT, GMAT, DAT, NTE, Actuarial Exam, MCAT, TOEFL, OAT, AHPAT, and Pharmacy Test), an annual Career Information Conference, and a library of taped descriptions of various careers as given by people who are actually doing the work being discussed.

It is suggested that students visit the Career Development Office and become familiar with the services it provides. The office, located in the Library Building, Room W-0550, is open weekdays from 8:30 a.m. to 5:00 p.m. Its telephone number is (516) 246-7023/4.

Admission Requirements

Scholastic Requirements

Applicants may be admitted to the Graduate School to pursue the M.A., M.M., M.S. or Ph.D. degree. To be considered for admission, all students must complete and submit an official graduate application, three letters of reference, and scores from the Graduate Record Examination Aptitude Test; and must submit two copies of all previous transcripts. To be admitted to the Graduate School, an applicant must have the preparation and ability which, in the judgment of the department and the Graduate School, are sufficient to enable him or her to progress satisfactorily in a degree program. Admission decisions are based primarily on past records and on letters of recommendation. A baccalaureate degree is required, which will ordinarily be in the chosen field of graduate study, and an average grade of B in course work in the major and related areas. In exceptional cases in which these requirements are not met, or if the undergraduate preparation is inadequate, an applicant, if considered to have a reasonable probability of making satisfactory progress in graduate studies, may be admitted provisionally. The department may set conditions which the admitted student must satisfy during the early period of graduate work. Departmental recommendation and Graduate School approval are required for provisional admission. Detailed admission requirements are listed in each department's section of this *Bulletin*. Admission application blanks and additional information may be obtained by writing to the appropriate department or to: *Office of the Graduate School, State University of New York at Stony Brook, Stony Brook, New York 11794. No application fee is required.*

Students interested in applying to the Center for Continuing Education's Master of Arts in Liberal Studies program should consult the information described on page 122.

Foreign Students

All students who are foreign nationals or have taken their higher education in a non-English-speaking country must demonstrate proficiency in English. This can be done by presenting acceptable scores on the Test of English as a Foreign Language (TOEFL). Admission to the Graduate School is contingent upon satisfactory fulfillment of this requirement. A student must have a minimum score of 500 for admission. Exceptions to this requirement are rare, and only with the approval of the Dean of the Graduate School. A 550 minimum score is needed for most forms of support.

Non-U.S. applicants must provide the University with verification that the necessary funds are available to finance their education at Stony Brook. The University will provide forms for this purpose.

Government regulations require that every foreign student attend the institution issuing the I-20 used for entry to the U.S. Transfers are possible but only if the student can show that he or she has been enrolled at the original institution.

Student Status

Part-Time Students—Admission of part-time students into advanced degree programs depends, in addition to an applicant's qualification, on the availability of departmental faculty and facilities. The determination of how many part-time students may be admitted in proportion to full-time students is left to the departments, in consultation with the Dean of the Graduate School, since they are best able to determine how many graduate students they can prepare properly without compromising the standards of graduate education. Part-time students are classified as either 91 code (less than 24 graduate credits) or 92 code (more than 24 graduate credits, regardless of where earned) and may register for no more than 11 credit hours per semester. Students in programs in which the highest degree offered is the master's may not be classified as 92 code.

Full-Time Students—Students regularly admitted to the Graduate School will register for 12 or more credit hours per semester. Responsibility for certifying the full-time status of graduate students rests with the Office of Records and Studies. A graduate traineeship is considered part of the academic program; therefore a graduate student on a regular appointment will be a full-time student and will register for 12 credit hours. Registration for 12 or more credit hours includes credit for supervised teaching and research. Full-time graduate students are classified as either 91 code (less than 24 graduate credits) or 92 code (more than 24 graduate credits, regardless of where earned). Students in programs in which the highest degree offered is the master's may not be classified as 92 code.

International Students—International students may not be part-time if they are here on a student visa. The Immigration and Naturalization Service prohibits any student on a student visa from another country from taking less than a full-time load.

Graduate Record Examination

The result of the Aptitude Test of the Graduate Record Examination is a condition of application for all prospective graduate students, except for part-time master's candidates. Several departments also require the Advanced Area Tests. Students who have taken the GRE should request the Educational Testing Service to forward their

scores directly to the departments or Schools to which they are applying.

Admission of Undergraduates to Graduate Courses

Undergraduates of exceptional ability, upon the request of the graduate program director of a department and of the instructor to the Dean of the Graduate School, may be admitted to graduate courses and be permitted to earn graduate credit. The acceptance of such credit by graduate schools other than Stony Brook is the responsibility of the student.

Financial and Residential Information

Registration is not complete until a student has paid all fees and charges which are due and payable by the first day of classes unless properly deferred. All fees and charges are subject to change without further notice.

Charge or Fee	First Semester	Second Semester	Year
Tuition			
Full-time graduate student			
(N.Y. State Resident)	\$ 700.00	\$ 700.00	\$1,400.00
(Out-of-State Resident)	\$ 900.00	\$ 900.00	\$1,800.00
Part-time graduate student (11 credits or less)			
(N.Y. State Resident per semester credit hour)	\$ 58.50	\$ 58.50	
(Out-of-State Resident per semester credit hour)	\$ 75.00	\$ 75.00	
Professional Schools (Medicine, Dental Medicine)			
(N.Y. State Resident)	\$1,500.00	\$1,500.00	\$3,000.00
(Out-of-State Resident)	\$2,200.00	\$2,200.00	\$4,400.00
College Fee			
Full-time graduate student	\$ 12.50	\$ 12.50	\$ 25.00
Part-time graduate student per credit	\$.85	\$.85	
Health Fee			
Full-time graduate student	\$ 8.50	\$ 8.50	\$ 17.00
Part-time graduate student	\$ 3.00	\$ 3.00	\$ 6.00
Housing			
Advance Room Deposit**			\$ 75.00
Double Occupancy, per person ...	\$ 375.00	\$ 375.00	\$ 750.00
Board	Fee to be Announced		

** Applied to first semester housing charges.

<i>Activity Fee^c</i> (full-time students, Except professional)	\$ 10.00	\$ 10.00	\$ 20.00
<i>Cooking Fee</i> (Residents not on Board Plan)	\$ 25.00	\$ 25.00	\$ 50.00
<i>Lost Identification Card</i>	\$ 3.00		
<i>Late Registration Fee^a</i>	\$ 20.00		
<i>Transcript Fee^b</i>	\$ 2.00	each	
<i>Returned Check Charge</i>	\$ 5.00		
<i>Late Payment Fee</i>	\$ 20.00		

The above fees are subject to change without notice.

Payment

All fees and charges for a given academic session must be paid in full or properly deferred prior to the first day of classes. All checks must be payable to "SUNY at Stony Brook." Post-dated checks are not acceptable.

Students making payment on or after the first day of classes, during the late registration period, or pre-registered students making payment after pre-billing due date, shall be required to pay a late registration fee of \$20.00. This fee may not be waived, and is non-deferrable. The late registration period ends at the close of the second week of classes.

Deferments

Students receiving awards provided by the State of New York, managed by the University, or payable to the University, may utilize deferment equal to the amount of the award. Documented proof of the award and the amount must be presented at time of payment to apply the deferment to the account.

Deferment may be granted to students for the following types of awards:

1. *Regents College Scholarships and Regents Tuition Assistance Awards*: All New York State residents are encouraged to file for Regents Tuition Assistance Awards. Incoming students and students who have not received their application form by June 11 should immediately obtain the application form from the Financial Aid Office. (Students should apply for all Regents Awards at the earliest possible date, preferably no later than June 10, if they expect to receive award certification from the Regents prior to the beginning of classes in the fall. Students are reminded that failure to file an application in a timely manner can preclude their receiving award credit or deferment.)

When paying bills students should present a notarized Power of Attorney card and award certification to the Bursar's Office to be

^a Paid by students registering after the close of the official registration.

^b The first one is free.

^c CED students pay a \$7 fee per semester.

eligible for an award credit. Students who have not received a Regents award notice may obtain a deferment upon presentation to the Financial Aid Office of the stub from the Regents Scholarship and/or Tuition Assistance Award Notice from the previous year, and the certified return receipt from the Regents Scholarship Examination Center indicating submission of the current year's application.

2. *National Direct Student Loan*: Students who have filed applications prior to the specified deadlines and who qualify for awards receive award letters from the Financial Aid Office by mid-June. Acceptance of these awards must be returned to the Financial Aid Office promptly. Deferment will be granted upon presentation of the award letter to the Bursar's Office.

3. *Veterans' Education Benefits*: Students who are eligible for veterans' benefits should obtain an application from the Veterans' Office. Incoming students who are veterans are advised to contact the Veterans' Office concerning veterans' benefits as soon as possible.

The 1972 G.I. Bill amendments provide for advance payment of up to two months of G.I. benefits to be available for the veterans upon registration, but in no case earlier than 30 days prior to the beginning of the enrollment period. The advance payment check will be mailed directly to the University and held there for the veteran. Veterans will be notified directly by the Veterans Administration.

Deferment based upon veterans' benefits may be obtained by submitting to the Bursar's Office a copy of the Deferment Form prepared and signed by the Stony Brook Office of Veterans' Affairs. For veterans whose educational benefits are paid directly to the University, present an Eligibility Award Certificate from the Veterans Administration to the Bursar's Office.

4. *Private, Public, or Industrial Scholarships, Grants, Internships and Loans (Including Foreign Student Government Scholarships and Vocational Rehabilitation Grants)*: All students who can present notification of awards payable to the University or jointly payable to the University and the student in the above categories are eligible for an award credit equal to the amount of the award. In cases where the award is payable to the student or to the University and the student, the student will be required to submit a notarized power of attorney form to the Bursar's Office in order to receive an award credit.

5. *University Employment*: Graduate students employed as Teaching Assistants, Graduate Assistants, or Research Assistants may defer charges up to one-half of their semester salary. Only tuition, room and board charges may be deferred. All deferments expire six (6) weeks after the first day of classes and must be supported by a notarized power of attorney and deferment form.

No deferments will be made for New York State Higher Education Loans.

Transcripts

Students who wish to have transcripts of their academic records at Stony Brook forwarded to another institution or agency, or to themselves for their own use, must submit their requests in writing at least two weeks before the transcripts are needed except at the end-of-semester peak period when additional time should be allowed. If making the request by mail, address a letter to the Bursar's Office, S.U.N.Y. at Stony Brook, Stony Brook, New York 11794, and include the following: (1) your full name, (2) I.D. (Social Security) number, (3) complete current address, (4) dates of attendance at Stony Brook, (5) exact name, office, institution and complete address, including zip code to which the transcript is to be sent, and (6) enclose the required fee of \$2.00 for each transcript. Make checks payable to S.U.N.Y. at Stony Brook.

If making the request in person, obtain a Transcript Request Form from the Office of Records/Registrar in the Administration Building and follow the instructions on the form.

Students are entitled to receive one free transcript and should so indicate if the request is to include the free one. All financial obligations to the University must be satisfied before a transcript can be released. A request for a transcript must be made by the student himself/herself, and must be made in writing. Students who have both an Undergraduate and a Graduate transcript and wish only one of them sent should so specify in their request. Partial transcripts of either the Undergraduate or Graduate academic records are not issued.

Housing

A limited number of both single and double occupancy rooms are available for unmarried graduate students in University residence halls. One of the six residential quadrangles is designed to house graduate students in addition to the International College which integrates graduate, undergraduate, foreign, and American students. Admission does not imply or guarantee housing.

Housing is available for married students on the same basis as for single students; that is, a married couple may rent a standard double room on a corridor with each one paying the standard room charge of \$750 for the academic year.

Houses, apartments, and rooms are available within driving distance of the Stony Brook campus. However, since there is very limited public transportation, students who live off campus must have access to private transportation and be prepared to commute up to 20 miles each way. Off-campus housing is generally expensive and beyond walking distance.

The University housing service, located in the Administration Building, provides a listing service for students who are interested in renting off-campus facilities in the Suffolk County area.

Housing Charges

The rent for each person sharing a double occupancy room is \$750 per academic year, payable on a semester basis. A \$75 advance room deposit is required; this amount is applied to the first semester's payment. The advance room deposit is refundable by application in writing before July 1.

Refund Schedule

All requests for refund of tuition, room, cooking fee, and activity fee must be made in writing to the Office of Student Accounts, Room 254, Administration Building. College fee, late registration fee and lost ID card fee are nonrefundable. The first day of class session shall be considered the first day of the semester, quarter, or other term and Saturday of the week in which this first class session occurs shall be deemed the end of the first week for refund purposes. (Due to the fact that campus offices are not open for business on Saturday, cancellations and withdrawals must be effected during the Monday through Friday office working hours.)

Schedule of Tuition Liability

A student who withdraws from the University shall be liable for payment of tuition in accordance with the following schedule:

<i>Liability During</i>	<i>Semester</i>	<i>Six-Week Term (Summer Session)</i>
First week	0	0
Second week	30%	70%
Third week	50%	100%
Fourth week	70%	
Fifth week	100%	

It is interpreted that a student who does not attend any class sessions after Saturday of the first week and who notifies the University of any intent to cancel registration on or before the second Saturday following the first day of classes shall be deemed to have cancelled registration during the first week.

Certification of the effective date of withdrawal must be made by the Office of Records and Studies (Registrar). A withdrawal card available at the Registrar's Office must be completed and returned to that office on the date you withdraw. To expedite your refund the Student Accounts copy of the withdrawal card should be submitted with your refund request.

No money shall be refunded unless application for refund is made within one year after the end of the term for which the tuition requested to be refunded was paid to the State University.

Exception

There shall be no tuition or fee liability established for a student who withdraws to enter military service prior to the end of an academic term for those courses in which he or she does not receive academic credit. Proof must be submitted.

Room and Cooking Fee

Once a student has registered and occupied a room, no refund will be granted for room payment made for that *quarter* and no refund for the *semester* cooking fee. Refund requests for room must be accompanied by verification of the move-out date by the University Office of Residence Life.

Student Activity Fee

As determined by Polity (undergraduate student government), the CED Student Government and the Graduate Student Organization, full refunds will be granted if the student withdraws within the first two weeks of classes. No refund will be granted for withdrawals after the second week of classes.

Meal Plan

Meal Plan refund requests must be made in writing to the Faculty Student Association, Stony Brook Union.

Advance Housing Deposit

Request for refund will be granted if application is made in writing before July 1.

Financial Assistance

Financial assistance is available to graduate students at the State University of New York at Stony Brook through a program of assistantships, fellowships, scholarships, and traineeships. *The awards described below are available only to full-time matriculated students* through the Graduate School or Office of Financial Aid, or from the appropriate government or state agency. An applicant seeking financial assistance is strongly advised to make sure that all application material, including letters of recommendation and transcripts, has been received by the University no later than February 1. In addition, students seeking other financial aid must submit a College Scholarship Service financial aid application and the Stony Brook Institutional Application for Financial Aid (for further information on forms and dates see section on "Loans and Work Study Programs"). If a student receives a stipend from the University and also from an outside source, the University contribution will be adjusted so that the total of these stipends will not exceed a set limit (\$5100-\$5300) for the academic year.

Graduate School Traineeships

Graduate traineeships are awarded on a competitive basis (judged by such criteria as academic achievement, financial need, and

potential for professional growth and societal contribution) by the Graduate School on recommendation of the department for one year, but may be renewed for up to but not more than four years. Traineeships carry stipends of \$3500 and tuition exemption for each academic year.

Graduate Council Fellowships

A limited number of Graduate Council Fellowships is available to incoming students. These fellowships carry a stipend of \$4000 per academic year and do not require any services. They are awarded as a result of Graduate School-wide competition and, funds permitting, may be renewed for two additional academic years by those students who maintain superior academic standing.

Lectureships

Lectureships are sometimes awarded by the respective academic departments. Only full-time matriculated graduate students are eligible for such appointments. Recipients should contact the specific academic department in regard to registration, tuition waivers, etc.

Jessie Smith Noyes Fellowship

Fellowships are available for support of outstanding graduate students wishing to pursue careers in coastal zone management, marine environmental studies, or coastal oceanography. Fellowships will be restricted to students with adequate preparation, who have demonstrated potential to pursue innovative and independent research on some critical environmental problem of the coastal zone. The awards carry stipends of \$5500 for the calendar year and a full tuition waiver. Applications and additional information may be obtained from the Fellowship Committee, Marine Sciences Research Center.

Graduate Editorial Fellowship

Graduate Editorial Fellowships, sponsored by the Quarterly Review of Biology and the Stony Brook Foundation, are available for graduate students in the Division of Biological Sciences who have completed their first year of graduate work. The fellowships will provide students with training in the management and editorial work of the publication of a scientific journal, from manuscript stage to subscription/circulation and advertising. The awards carry stipends of \$3500 and waivers of tuition for the academic year, for approximately ten hours of work per week. Applications and additional information may be obtained from Mrs. Smolker, Quarterly Review of Biology Office, Graduate Biology Library, Room 110.

President's Award for Excellence in Teaching

The Stony Brook Foundation, a not-for-profit educational corporation affiliated with the University, presents the President's awards for excellence in teaching of \$500 each. These awards are made in

recognition of excellence in teaching by graduate students. Each candidate for the award must be recommended by his or her department. The recipients of these awards are selected by a committee chaired by the Dean of the Graduate School or his designee and consisting of members of the University faculty and of the Stony Brook Foundation.

National Science Foundation Graduate Fellowships

Fellowships are available in various fields and offer the same stipends and dependency allowances as graduate traineeships, but are awarded directly by the National Science Foundation. Recipients of these awards are exempt from payment of tuition. Candidates must be citizens or nationals of the United States. Closing date for applications is established by NSF, usually late November or early December. For further information, write: the Fellowship Office, National Academy of Sciences, National Research Council, 2101 Constitution Avenue, N.W., Washington, D.C. 20418.

Regents Tuition Assistance Awards

Full-time graduate students who are legal residents of the State of New York and are accepted for admission to the Graduate School are required to apply for Regents Tuition Assistance Awards whether or not they receive tuition waivers. The award carries stipends of \$100 to \$600 per year depending upon financial need. Applications may be obtained from each department office.

Brookhaven National Laboratory Junior Research Associate

Full-time graduate students who have completed all course requirements and are ready to begin dissertation research in the areas of the biological and medical sciences are eligible to apply for a Brookhaven National Laboratory Research Associate award. These awards carry stipends of \$4000 for the academic year with tuition exemption.

Graduate Student Dissertation Grants-in-Aid

Full-time graduate students who have completed course requirements and whose dissertation research is in progress or is about to begin are eligible for a dissertation grant-in-aid. The amount of the award is \$300, to defray the cost of those expenditures which allow for the accumulation of data and contribute directly to the writing of the dissertation.

Loans and Work Study Programs

Both the State of New York and the federal government offer low-cost loan programs to help graduate students finance their education. In addition, there are federally funded Work Study Programs which help students earn money through campus employment. Such aid is based on students' financial need, which is established by filing financial disclosure forms with the Financial Aid Office.

For 1978-79, graduate students must file the GAPSFAS form plus the Stony Brook Institutional Application for Financial Aid. NOTE: for 1979-80 and thereafter, graduate students must file the Financial Aid Form (FAF) and the Stony Brook Institutional Application for Financial Aid. The deadline for continuing students to submit applications is February 1; for new students it is April 1.

Under the federal National Direct Student Loan program graduate students may borrow up to \$2500 per year (depending on availability of funds) at 3% interest. For eligible graduate students the average NDSL is \$1200.

The New York State Guaranteed Student Loan Program is administered by the State Guaranteed Loan Association through the Financial Aid Office and a bank. It is available to New York State residents only. Out-of-state students may apply through their home State Guaranteed Loan Association. The maximum amount available through this program is \$5000 per year, subject to financial need. There is a 1/2% loan fee charged at disbursement, and repayment at 8% interest begins 9 months after the student leaves school.

Model Repayment Schedules

<i>Loan</i>	<i>Cum. Amount Borrowed</i>	<i>Monthly Payment</i>	<i>Quarterly Payment</i>
NDSL	\$2000	\$20	\$59
NDSL	\$3000	\$29	\$87
Guaranteed Loan	\$2000	\$36	N/A
Guaranteed Loan	\$3000	\$39	N/A

In order to qualify for funds allocated on a financial need basis, students must have their financial disclosure forms on file with the Financial Aid Office or the Graduate School by March 15th.

Academic Regulations and Procedures

All programs, regulations and schedules of dates are offered subject to change or withdrawal depending on the availability of funds and the approval of programs by appropriate State authorities.

Registration

All candidates for graduate degrees, whether in residence or *in absentia*, must complete registration each semester. This ruling includes those who are using the library, laboratories, or computer facilities; who are consulting with the faculty while working on their dissertations; and who are preparing for or taking qualifying or oral examinations at the master's or doctoral level. Students who hold graduate traineeships, research assistantships, or predoctoral fellowships must be registered as full-time students. Departments or individual faculty members do not have the authority to waive these rules.

Registration after the close of the announced final registration period in the academic calendar requires the payment of a service charge of \$20. Registration is not permitted after the end of the second week of classes. A student is not considered registered until the appropriate forms have been filed with the Registrar and arrangements regarding tuition and fees have been made with the Bursar's Office.

Changes in Registration

During the first four weeks of classes (as noted in the Academic Calendar) graduate students may add or drop courses by completing the request form available from the Registrar provided the proposed change does not alter the student's status as defined in "Student Status." Courses dropped during the first two weeks are deleted from the student's semester registration record. *Courses dropped during the third and fourth weeks remain on the student's record and a withdrawal grade of W is recorded.* After the fourth week of classes no course may be added or dropped. Should it become impossible for a student to complete a course for a reason such as illness or accident, he or she may petition the Dean of the Graduate School for a waiver of the drop deadline. Such petitions must be approved by both the chairman and the graduate program director of the department.

Registration for Maintaining Matriculation

Students must register for at least a one-credit course in thesis or dissertation research *each semester or session* for which they are

maintaining matriculation and must do so at the regular times designated for graduate registration by the Registrar. Students failing to do so either at advance or final registration may register during the first two weeks of the semester and will be charged a \$20 late registration fee. After the first two-week period, no student will be permitted to register. Students do not maintain matriculation during the Summer Session unless they plan to graduate in August.

To be eligible to receive a degree, a student must maintain matriculation for *each* semester prior to and including the semester in which the degree is awarded. Students on approved leaves of absence do not register for those semesters for which a leave has been granted; however, they must register for the semester in which the degree is awarded.

Students who complete all degree requirements *after* the deadline for any degree date but *before* the first day of classes of the next term or session are eligible for graduation without additional registration. Students who complete all degree requirements during the Summer Session may graduate in December provided they were registered in the preceding spring semester and *all* requirements were completed before classes began in the fall semester. Students who wish an August degree and do not complete all requirements before Summer Session begins must register for the Summer Session to be eligible for the August degree.

Dissertation Research Away from Campus

Normally, it is expected that a graduate student's dissertation will be conducted at Stony Brook under the direct guidance of the faculty of the department or program in which the degree is sought and with the facilities available here or close by, as, for example, at Brookhaven, Cold Spring Harbor, the hospitals and institutions on the Island, or the libraries of New York City. However, there may be circumstances in which the student's work would be facilitated by being done away from campus at another institution or research facility. In such cases, the department may petition the Dean of the Graduate School for permission for the student to carry on work away from campus. The petition must contain the following information:

1. The reasons for the request.
2. The conditions under which the student's work away from campus is to be performed, supervised, and evaluated.
3. That the student is registered as a graduate student at Stony Brook and has paid the necessary fees. If the student is supported by a stipend or grant from state funds or from University-monitored federal and private sources, he or she must be registered as a full-time student. If the student is employed elsewhere, in a position not under the University's jurisdiction, matriculation may be maintained by registering for at least one credit of research each semester pro-

viding all degree requirements have been fulfilled except for the writing of the thesis or dissertation.

4. A statement by the chairman of the department attesting that permission for the student to do work away from campus will not diminish the department's capability to fulfill its commitments.

5. A statement from the institution where the student's work is to be performed in which acceptance of responsibility for its supervision is made. In the case of archival research or fieldwork, a statement of authorization for the student to use such resources must be submitted.

6. The petition must have the approval of the graduate program committee and the chairman of the department concerned.

Exchange Credits

When the special educational needs of a doctoral student at one SUNY institution or the graduate center of CUNY can be served best by taking courses at another unit of the SUNY system or at the graduate center of CUNY, he or she should obtain an application from the chairman of his or her department to apply for admission to take the desired courses at the host institution. The recommendation from the department should state that the student has the prerequisites for the courses and that, if the courses are successfully completed, credit for them will be accepted toward the degree. The statement from the department chairman should be approved by the Dean of the Graduate School of the student's institution. It should then be sent to the Dean of the Graduate School of the host institution who will clear it with the department concerned. When approval is obtained, the student will be admitted to take the courses requested. The student will pay appropriate tuition and fees at the host institution. If the student has a waiver of tuition at his or her home institution, that waiver will be recognized by the host institution. At the completion of the courses, the host institution will, on request, send a transcript to the student's home institution.

Transferred Graduate Credits from Other Universities

A candidate for the master's degree may petition to have transferred a maximum of six graduate credits from another institution toward his or her degree. The student should submit a petition to the appropriate departmental committee. The petition must include a copy of the official transcript. Transferred courses must be relevant to the degree sought. These credits *must not have been used to satisfy the requirements of another degree*. Courses taken more than five years ago will be accepted only in rare circumstances and then only with the permission of the Dean of the Graduate School. The departmental committee has the responsibility of deciding on the applicability of those credits to their specific program. Petitions must be forwarded to the Graduate School for final approval. Once approved, the Graduate School will forward a copy of the petition to the Office

of Records for inclusion on the student's permanent record. A candidate for the doctoral degree may transfer those graduate credits which are allowed by the appropriate department committee. Policies concerning the transfer of credit into the Center for Continuing Education can be found on page 124.

Grading System

The following grading system will be used for graduate students in both graduate and undergraduate courses: A(4.00) Superior, B (3.00) Good, C (2.00) Minimum Passing, F (0.00) Failing. Pass/No Credit is not an approved grading system for graduate students.

In addition, the following marks may be awarded at the end of the semester:

I (Incomplete). This is an interim grade. It may be given at the discretion of the instructor but only upon evidence that good cause, such as serious, protracted illness, prevented the student's completion of course requirements. The grade of "I" must be resolved by the following dates: March 15 for courses of the preceding fall semester; November 1 for courses of the preceding spring semester. However, the instructor may require that the work be completed at any time prior to the end of the Incomplete extension period. In granting a grade of "I" the instructor signifies a willingness to receive student work and prepare grades in accordance with these deadlines. If final grades are not reported to the Registrar by the specified dates, the grade of "I" will automatically be changed to "F." Extension to the end of the succeeding term may be requested by written faculty petition to the Registrar; any subsequent exception must be appealed by the student with a written letter of support or denial by the faculty member addressed to the Graduate Council.

Each student's permanent academic record must reflect a final grade or a withdrawal grade for each course in which he or she was enrolled. If a final grade has not been reported by the scheduled deadlines or appropriately extended, the grade of F will be recorded.

S (Satisfactory). Indicates passing work in those courses, so designated by the department and approved by the Graduate Council, where the normal mode of evaluation is impracticable.

U (Unsatisfactory). Indicates unsatisfactory work in those courses, so designated by the department and approved by the Graduate Council, where the normal mode of evaluation is impracticable.

R (Registered). Indicates attendance during the first semester in a year-long course, the final grade for which will be assigned only after the completion of two semesters.

NR (No Record). An instructor may assign a temporary grade of NR only for students who have never, to the instructor's knowledge, participated in the course in any way. An NR report is not to be interpreted as a grade but only as a temporary indication of a state of affairs which requires prompt resolution, leading either to removal of the course from a student's program (whenever it turns out to

have appeared as a result of an error in recording the registration information submitted by the student), or to the assignment of a grade. If a final grade is not reported by the deadline date appearing in the Academic Calendar, the grade of F will be recorded.

Auditing

Auditing is permitted by special arrangement between student and instructor. No record is kept of courses audited.

Academic Standing

A student may be dismissed if his or her overall average falls below B (3.0) at any time. Additional minimum grade requirements may be imposed by individual departments. Graduate students may be dismissed upon proof of violation of professional standards and academic honesty.

Withdrawal from the University

Official Voluntary Withdrawal. A student finding it necessary to withdraw from the University must request permission to withdraw from the department chairman. If the department chairman favors such withdrawal, the student must obtain a withdrawal card from the Registrar. This card has to be approved by the offices indicated on the card and by the Dean of the Graduate School. The effective date of withdrawal is the date upon which the completed withdrawal card is returned to the Registrar. The process of withdrawing from the University is a formal procedure and the student has the responsibility for initiating it if, of necessity, he or she must leave graduate study. Students may withdraw from the University up to the last day of classes.

Unauthorized Withdrawal. A student who leaves the University without obtaining an official withdrawal may forfeit the privilege of honorable dismissal and his or her prospects of readmission to the Graduate School. He or she will be reported as having failed all courses.

Leave of Absence. Leave of absence may be obtained for a specified time not to exceed two years. Military leave of absence will be granted for the duration of obligated service to students in good standing. Students should request a leave of absence on the appropriate form and submit the request to the graduate program director of their individual department. If the graduate program director and the chairman of the department approve the request for leave, they recommend approval to the Dean of the Graduate School. If Graduate School approval is granted, the student should then follow the procedure for filing a withdrawal card outlined in the "Official Voluntary Withdrawal" section above.

Degree Requirements

Admission to the Graduate School does not automatically qualify a student as a candidate for the Ph.D. degree. Formal recommendation of advancement to candidacy for the Ph.D. degree must be made to the Graduate School by the department after a review of the student's performance in courses, independent study, and departmental examinations. A candidate for the Ph.D. degree engages in research leading to a dissertation. For the master's degree a less formal procedure is followed, and a department may substitute a comprehensive examination for the research and thesis.

The granting of the master's degree is based upon the completion of 30 graduate credits, residence, examination, supervised teaching, thesis, special departmental requirements, and the recommendation of the student's department. The granting of the doctoral degree is based upon residence, examination, supervised teaching, dissertation, special departmental requirements, and the recommendation of the student's department. Ordinarily, however, certain courses should be taken in preparation for comprehensive examinations and research. The student will follow an approved program of courses, seminars, and individual study, determined to meet his or her needs and to satisfy departmental requirements.

The minimum degree requirements listed below are those of the Graduate School, unless otherwise specified by the department.

The Master of Arts and Master of Science Degrees

1. Language proficiency: Though the Graduate School itself does not require proficiency in a foreign language for the master's degree, departments have the responsibility for their foreign language requirement and the evaluation of any stated proficiency. Students must comply with their departmental requirements.
2. Practicum in teaching under supervision is required.
3. A minimum of 30 graduate credit hours is required.
4. The requirement for thesis and comprehensive examination varies from department to department. Some departments require a thesis; others require a comprehensive examination; while some only require a master's paper. For specific requirements refer to each departmental section of this *Bulletin*. If a thesis is required, it must be prepared in accordance with the guidelines presented in the booklet entitled "Instructions for the Preparation of Master's Theses and Doctoral Dissertations" available from the Graduate School. The State University of New York at Stony Brook does not allow multiple authorship for a thesis.

5. The submission of a signed degree card to the Graduate School in accordance with published deadlines.

6. Departmental recommendation: When all departmental requirements are completed, the chairman may recommend to the Dean of the Graduate School that the master's degree be granted.

7. Time limit: All requirements for the master's degree must be completed within three years of the student's first registration as a graduate student. In rare instances, or for part-time students, the Dean of the Graduate School will entertain a petition for extension of time bearing the endorsement of the chairman of the department. In such instances the student may be required to repeat certain examinations or present evidence that he or she is still prepared for the thesis or the final examination.

The Master of Arts (Liberal Studies) Degree

This is a terminal, non-research degree offered by the Center for Continuing Education (CED), primarily for persons interested in studying on a part-time basis. Details of the program and degree requirements may be found on page 122. Additional information is available from the CED Office, located in the Humanities Building.

The Ph.D. Degree

1. *Minimum residence*: At least two consecutive semesters of full-time graduate study beyond the baccalaureate. The purpose of the residence requirement is to insure that the graduate student participates in the professional life of the department beyond class attendance. Owing to the difference in the means by which this requirement can be satisfactorily met, departmental residence requirements may vary from the Graduate School norm and are described in the individual department requirements for the degree; the Graduate School regulation pertains unless otherwise specified.

2. *Language proficiency*: Though the Graduate School itself does not require proficiency in a foreign language for the Ph.D. degree, departments have the responsibility for their foreign language requirement and the evaluation of any stated proficiency. Students must comply with their departmental requirements. The proficiency examination must normally be passed before permission is given to take the preliminary examination.

3. *Preliminary examination*: The purpose of the preliminary examination is to ascertain the breadth and depth of the student's preparation and to appraise readiness to undertake a significant original investigation. At the discretion of the department the preliminary examination may be oral or written or both and may consist of a series of examinations. The examining committee is appointed by the Dean of the Graduate School on recommendation of the department chairman and may include one or more members from outside the department. Results of the preliminary examination will be communicated to the student as soon as possible and to the Graduate

School within one week of the completion of the exam. A repetition of the preliminary examination, upon failure, may be scheduled at the discretion of the department. A second repeat must be approved by the Dean of the Graduate School.

4. *Advancement to candidacy*: The student may be advanced to candidacy when he or she has completed all Graduate School and departmental requirements for the degree other than the dissertation. Advancement to candidacy is granted by the Dean of the Graduate School upon recommendation of the department.

5. *Practicum in teaching* under supervision is required.

6. *Research and dissertation*: A dissertation is required for the Ph.D. degree. It must convey in a clear and convincing manner the results of an original and significant scholarly investigation. Depending upon the character of the student's research, the department chairman will appoint an appropriate supervisor or supervisory committee, in consultation with whom the student will conduct an investigation and write a dissertation. The dissertation must be prepared in accordance with the guidelines presented in the booklet entitled "Instructions for the Preparation of Master's Theses and Doctoral Dissertations" available from the Graduate School. The State University of New York at Stony Brook does not allow multiple authorship for a dissertation.

The dissertation must be approved by a dissertation examining committee of at least four members of the faculty, appointed by the Dean of the Graduate School. This committee may include the dissertation supervisor(s) and must include at least one person from outside the department. At the discretion of the department, approval of the dissertation may or may not involve a formal oral defense. If a formal defense is required, it will be conducted by the dissertation committee and will not be chaired by the supervisor of the dissertation. The formal defense is open to all faculty members.

In the absence of a formal defense, the student will present the results of dissertation research at an informal dissertation colloquium convened for that purpose by the department and open to interested faculty and graduate students.

Evaluation (approval or disapproval) of the dissertation will be indicated by the Dissertation Examining Committee on a form to be submitted to the Graduate School.

7. *The submission of a signed degree card* to the Graduate School in accordance with published deadlines.

8. *Time limit*: All requirements for the Ph.D. degree must be completed within four years after advancement to candidacy. In rare instances, the Dean of the Graduate School will entertain a petition to extend this time limit, provided it bears the endorsement of the chairman of the department. The Dean or the department may require evidence that the student is still properly prepared for the completion of work. In particular, the student may be required to

pass the preliminary examination again in order to be permitted to continue work.

Award of Degree

When all requirements have been completed, the department chairman will so certify to the Dean of the Graduate School and recommend that the degree be awarded. Degrees are awarded three times a year: May, August, and December. Formal investiture, however, will only be at the spring commencement. To be eligible for a degree a student must have completed all University requirements, submitted the appropriate manuscripts, obtained all University clearances, and have maintained matriculation according to the regulations outlined under "Registration for Maintaining Matriculation" on page 38.

Waiver of Regulations

Specified requirements may be waived by the Dean of the Graduate School in individual instances. A petition for such a waiver must be endorsed by the chairman of the department and the graduate program director, who shall append their reasons for believing that the requested waiver would not result in a breach of the spirit of the regulations.

The University reserves the right to alter these regulations without notice.

English
French
Germanic Languages and Literatures
Hispanic Languages and Literatures (Spanish)
Music
Philosophy

The Arts and Humanities

DEPARTMENT OF ENGLISH

The Graduate Programs

The English Department offers programs leading to the degrees of Master of Arts and Doctor of Philosophy. A Program in Comparative Literature offers special courses leading to the degrees of Master of Arts and Doctor of Philosophy. Part-time attendance is encouraged at the master's level, and a number of graduate courses are offered in the late afternoon hours. A few graduate courses are offered in the summer session.

Admission to the M.A. Programs

Applicants for entrance to the Master of Arts programs at mid-year should submit all their materials by October 31; applicants for entrance in September should submit theirs by March 1. Applicants who cannot meet these deadlines should seek the guidance of the appropriate Director.

The following are ordinarily required for admission:

- A. A bachelor's degree from a recognized institution.
- B. An average of at least B in the last two years of undergraduate work.
- C. An official transcript of undergraduate record.
- D. Letters of recommendation from three previous instructors.
- E. The applicant's score on the Graduate Record Examination Aptitude Test, required by the Graduate School of full-time applicants in all departments.

Applicants for the Program in Comparative Literature are ordinarily required to hold a bachelor's degree from a recognized institution. The degree should be in one of the following:

1. English or American literature
2. Foreign languages and literatures.
3. The fine arts: art history, theatre, music, etc.
4. History or philosophy.

Furthermore, applicants to the Program in Comparative Literature are expected to demonstrate competence in one foreign language, as well as in English. Adequate reading knowledge of a second foreign language is also highly desirable.

Any deficiencies in these requirements for the various M.A. programs shall not automatically bar admission, but it is understood that inadequacies in undergraduate preparation will normally require the student to take additional work, the amount to be determined by the Graduate Program Committee, and not to be used to fulfill any specific M.A. degree requirements.

In all cases, admission is by action of the Graduate Admissions Committee of the department under guidelines established by the Graduate School. Applicants are admitted on the basis of their total records, and there are no predetermined quantitative criteria which by themselves insure a positive or a negative decision.

The M.A. Programs in English

In broad outline, a master's degree requires ten three-credit courses. Of these one must be a course in Shakespeare and another a course in Chaucer or Milton, although such courses previously taken on the undergraduate level may be accepted as fulfilling the requirement upon special application to the Director of M.A. Programs. In addition, a master's candidate must complete two graduate courses in the literature of the periods before 1800 and one graduate course in American literature. Only one course numbered EGL 599, Independent Studies, will be permitted to count toward the total courses required for the degree of Master of Arts in English. EGL 599 cannot be elected during the student's first semester of work toward the master's degree. EGL 599 may be elected during the second semester only if the student has a B+ average the first semester and only if he or she has no Incompletes at the time of registering for EGL 599. A proposal for a 599 course should be submitted in writing before the end of the first semester to that member of the faculty under whose direction the student plans to study. The proposal must be approved in writing by both the director and the Graduate Program Committee of the department before the student registers for EGL 599.

Each master's program is organized around a "cluster" or central group of inter-related courses determined by the student's major interest. For example, many of those pursuing the degree are either engaged in, or preparing themselves for, careers as teachers on the

elementary, secondary, or community college levels; they will therefore frequently choose the "teaching cluster," which comprises the following three courses: *Problems in Teaching Writing and Composition*, *Problems in Teaching Literature*, and *Contexts of Literary Study*.

Although this program as outlined above is directed toward teaching, changing vocational conditions today require innovative approaches in addition to the more basic course work. To that end other "clusters" or programs are offered; for example, a cluster in the drama will include courses in that area; likewise, other groupings may bring together such areas of study as literature and social attitudes or literature and its relation to other disciplines. Furthermore, courses for the teacher have regularly included, although not as requirements, such options as *Problems in Teaching Open Admission Students* and *Problems in Teaching Remedial Composition*. Further information may be obtained from the Director of M.A. Programs in English.

The M.A. Programs in Comparative Literature

A. *Course requirements*: The minimum course requirement for the M.A. degree is 30 graduate credit hours. An M.A. candidate is expected to take CLT 500 and CLT 501 (Literary Theory I and II); CLT 502 (Problems in Translation); and one Interdisciplinary Seminar (CLT 602). The candidate is also expected to enroll in two 500-level courses in English and in *at least* two literature courses, at the 500 level, conducted in a foreign language. The remaining course work may be distributed among graduate courses in foreign language and literature, in English, in philosophy, in history, or in music.

B. *Foreign language requirement*: The student will demonstrate *professional* competence in one foreign language by successful completion of CLT 502 (Problems in Translation). Competence in a second language may be demonstrated by the successful completion of a graduate literature course in a second foreign language, or by the passing of an appropriate examination.

C. *M.A. examination*: After the completion of course work, the candidate will be asked to sit for a four-hour written examination. The examination will cover these three areas:

1. An elected area of speciality. This may be a specific literary period or genre; an area involving literature and some related field; or a comparative problem involving a cluster of national literatures.

2. *Explication de Texte*. The candidate will be asked to analyze critically a poem or a short prose passage. The text will be in the foreign language in which the candidate has demonstrated *professional* competence.

3. Literary criticism and theory. The candidate will have the choice of writing on a specialized topic in literary theory (mimesis, the ontology of the literary work, etc.), or on a problem in the history of criticism.

Transfer Credit and Standards of Performance in English and Comparative Literature at the M.A. Level

Mindful that many applicants may have interrupted an earlier graduate career, the department permits the transfer of six hours of credit in suitable graduate work done elsewhere. The student must, however, make special application after admission. In all course work done at Stony Brook an average grade of B is the minimum required, but no more than two C's will be permitted.

Admission to the Ph.D. Program in English

For applicants to the Ph.D. program, who may be admitted if they have done no previous graduate work, the following are required:

- A. A bachelor's degree from a recognized institution.
- B. An average of at least B in the last two years of undergraduate work.
- C. An official transcript of undergraduate record, and of any graduate work that may have been done.
- D. Letters of recommendation from three previous instructors.
- E. The applicant's score on the Graduate Record Examination Aptitude Test, required by the Graduate School of applicants in all departments.
- F. A sample of recent scholarly or critical writing.
- G. Proficiency in a foreign language equivalent to two years of college work.

Admission to the Ph.D. Program in Comparative Literature

Applicants holding the M.A. degree in Comparative Literature from Stony Brook may, upon the advice of the Graduate Program Committee, be directly admitted to the Ph.D. program. Other applicants will be admitted to the program after review of qualifications. These normally will include a B.A. or M.A. degree from a recognized institution and in a suitable area of study (see Course Requirement A for M.A. in Comparative Literature, above); letters of recommendation; GRE scores; and other evidence of interest and ability. The applicant may also be asked, at the request of the Graduate Program Committee, to take the M.A. examination in comparative literature. Ph.D. candidates in comparative literature are expected to demonstrate *professional* competence in English and in *at least* two foreign languages. (See "Foreign Language Requirements for the Ph.D. in English," below.)

Deficiencies in Requirements for Admission

As in the case of those admitted to the master's programs, any deficiencies on admission to either Ph.D. program will have to be made up promptly and must not be used to satisfy any specific requirements for the degree itself.

The Ph.D. Program in English

Course Work in English

During their first year incoming Ph.D. students will take two semesters of Pro-Seminars (Backgrounds for the Study of English Literature). These seminars are designed to provide students with the classical, cultural and critical backgrounds which they will need in all later study. During that same year students will also take three M.A. (500-level) courses in addition to a teaching practicum linked to a teaching assignment. The English Department regards training in teaching as a necessary and valuable part of work toward the Ph.D. degree. Incoming students should therefore ordinarily expect to begin practical classroom experience under supervision in the second semester of their residence. These practica in teaching meet regularly with faculty members under the general supervision of the Director of Writing Programs.

At the end of the first year, students' records will undergo a departmental review. At this stage students may decide to leave the program, to proceed to the next stage, or to interrupt their studies in order to take the master's degree.

In the latter case students must take another teaching practicum and three more master's courses. They then will have an important credential for possible employment or for the later resumption of graduate work.

Students continuing without interruption will, however, be preparing for the qualifying examination to be taken at the end of their third semester. The qualifying examination will be in seven periods of English and American literature, and students must pass it in order to be admitted to candidacy.

Once admitted to candidacy, students must take a minimum of seven doctoral (600-level) seminars covering at least two areas of English and American literature and language in addition to EGL 695, Reading: Theory and Models, a course on the role of reading in the English curriculum. (It should be very carefully noted that no transfer credit is accepted at the seminar level.)

Teaching Program

Every student is required to teach responsibly one course for at least two semesters. The English Department regards training in teaching as a necessary and valuable part of work toward the Ph.D. degree. Such training may take the form of apprenticeship to a senior professor during the first and, possibly, second semester of preparation for the doctoral degree. During the second or later semesters, the student may be asked to instruct in sections of large lecture courses or to conduct a section of the composition course or a section of one of the courses offered through the Center for Continuing Education. During apprenticeship and teaching, students will receive guidance in discussions with the Director of Writing Programs and the professors they assist, advice from senior

members of the department, participation in staff meetings of large courses, and seminars in which students are joined by senior members of the staff. During those semesters in which they teach, students are required to be enrolled in EGL 697 or EGL 698, Practica in Teaching.

The Director of Writing Programs for the English Department will, upon application by the student, decide to what extent a student's teaching experience elsewhere will satisfy the requirements at Stony Brook.

Foreign Language Requirements for the Ph.D. in English

Students must complete one of two options:

Option I: Students must, on examination, demonstrate ability to translate writings of moderate difficulty in two foreign languages appropriate to the area of study and hence ability to make use of relevant literary and scholarly writings in those languages. The choice of foreign languages will be decided by the students and their advisors.

Option II: Students must, on examination, demonstrate (1) ability to read, understand and speak well one living foreign language, or ability to read and understand well one classical language appropriate to the area of study, and (2) knowledge of the major literature of that language in the original language, and hence ability to make full use of the literature of another language. This option can be satisfied by passing a half-hour oral examination conducted in the language over the major literary figures or works of the language. Students' advisors should consult the Director of Graduate Studies about setting up such examinations. *The passing of the reading and/or comprehension examination at the M.A. level shall not be sufficient evidence that the student has met Option II.*

Students will not be permitted to take oral examinations without first satisfying the departmental language requirement. Students choosing Option I must satisfy one language requirement before taking the Ph.D. Qualifying Examination and the second before taking the Oral Examination.

The Oral Examination

Following the completion of course work, there will be a single oral examination of approximately three hours in length, normally taken in the spring of the third year or the fall of the fourth year of full-time study which will cover a substantial portion of English literature, including the field of the proposed dissertation. Students will be responsible for primary as well as major secondary works. Materials outside English and American literature will be included where relevant.

Candidates will submit a description and, if necessary, a justification of the areas to be covered, which must be approved by their advisors and then by the Graduate Program Committee. The areas are:

1. Old English
2. Middle English
3. Tudor
4. Seventeenth Century (i.e., 1603-1660)
5. Restoration and 18th Century
6. Romantic
7. Victorian
8. Modern British
9. Early American
10. Modern American.

The Graduate Program Committee has stipulated that the normal paradigm of the doctoral oral examination shall be three chronological periods. Genres and special areas will be admitted only by petition and are to be regarded as highly exceptional. (*See departmental guidelines.*)

The examining board is appointed by the Dean of the Graduate School on recommendation of the Director of Graduate Studies and will be selected by the candidate's advisor and the Graduate Program Committee, and will be composed of five members: the advisor, one specialist representing each area, and a fifth member recommended by the Director of Graduate Studies.

Dissertation

As soon as possible after passing the doctoral examination, students must prepare a written statement setting out the scope and method of the dissertation and submit it to their advisors who will then forward the statement to the Graduate Program Committee of the department for its approval. After the statement has been approved, the dissertation director will meet with the Graduate Program Committee to discuss the selection of the other three readers of the dissertation. The Graduate School requires that one of the readers be from outside the department. The four readers of the dissertation will recommend acceptance of the dissertation before it can be approved by the Graduate Program Committee of the department. (*See departmental guidelines.*)

Additional Requirements

To be awarded the Ph.D., every student must have passed (1) one course in Shakespeare, (2) one course in either Chaucer or Milton, and (3) one course in the history and structure of the English language. These requirements may be met by courses taken while the student was an undergraduate. In any event, these three requirements, as well as the language requirement, will have to be satisfied in the same year as the oral examination, *at the latest*.

The Ph.D. Program in Comparative Literature

Course work in Comparative Literature

The student in the Comparative Literature Program is expected to

complete the following course work:

1. CLT 500 and CLT 501 (Literary Theory I and II).
2. CLT 502 (Problems in Translation) taken *twice* in two different foreign languages.
3. At least seven doctoral (600-level) seminars. Four of these seminars must be conducted in the foreign languages in which the student has demonstrated *professional* competence; one of these seminars must be an Interdisciplinary Seminar.

Teaching Requirement in Comparative Literature

Students in Comparative Literature will be required to do a year of supervised teaching in appropriate courses designated by the Graduate Program Committee.

Area of Speciality

During their second semester of doctoral work, candidates are asked to submit to their advisory committee an outline of a proposed area of speciality. The area of speciality will be used as a basis for advising the students in curriculum, for determining their specific language requirements, and for structuring their general examinations. Normally, the area of speciality will consist of a core subject mastered in detail and on a comparative basis.

The Oral Examination

The oral examination in comparative literature, approximately three hours in length, will cover the candidate's area of speciality; students will be expected to discuss texts in the two foreign languages in which they have demonstrated competence.

Dissertation

It is assumed that the dissertation topic will develop out of the student's area of speciality. The program encourages studies that are critical as well as scholarly: a group of related essays focusing on a single literary problem; a lengthy translation prefaced by a critical introduction; studies involving literature and other disciplines.

Residency Requirement for the Ph.D.

Every full-time student is normally expected to make a three-year commitment to study toward the doctorate. Students will be considered in full-time residence during any semester in which they: (1) are taking at least one 500-level course or 600-level seminar or are, in the opinion of the Graduate Program Committee, properly preparing for the Doctoral Examination; (2) are holding no position other than that required under the teaching program; (3) are registered for EGL 690, Thesis Research, or 699, Directed Reading for Doctoral Candidates, for 3, 6, 9, or 12 credit hours, depending on the number of other courses being taken and the teaching assignment, the total of all these credits and teaching hours to be no more than 12.

Dissertation Colloquium

Students will present the results of dissertation research at an informal colloquium convened for that purpose by the Department of English and open to interested faculty and graduate students.

Matters Pertaining to All Advanced Degrees in English and Comparative Literature

A. *Extensions of time limits:* Extensions of time limits are granted at the discretion of the Graduate Program Committee of the department and the Dean of the Graduate School and are normally for one year at a time.

B. *Incompletes:* The Graduate Program Committee has established as sufficient grounds for the granting of Incompletes either medical reasons on the part of the students themselves or emergencies arising within students' families.

C. *English Graduate Colloquium:* The colloquium is designed to foster a scholarly community by bringing the faculty and graduate students together informally to discuss literature and related matters. All graduate students are members of the colloquium. Students will elect the officers from among themselves to plan and direct the meetings of the colloquium. Students and members of the faculty will be invited to present papers or lectures, or to participate in panel discussions.

Foreign Languages and Graduate Study in English

Although the Ph.D. program includes a foreign language requirement, the M.A. programs do not. The English Department feels, however, that graduate students at all levels should maintain and improve their foreign language skills as a means of better equipping themselves in their own chosen fields. Opportunities for further study exist at Stony Brook in Comparative Literature and in its departments of foreign languages.

Additional Notes on Graduate Courses

Graduate courses in the 500 series are open to all graduate students. Courses in the 600 series are normally open only to students admitted to study for the Ph.D. degree although M.A. students with adequate preparation and background can sometimes be admitted with the permission of the instructor. All graduate courses normally carry three credits.

Each course in the 500 and 600 series to be offered in a given semester will be described by the instructor in some detail in a special departmental announcement prepared and distributed toward the end of the semester prior to that in which it is to be offered.

None of the courses numbered 690-699 can be taken to satisfy the requirement of seven seminars as stated in "Course Work in English" and "Course Work in Comparative Literature," above.

Advisement

There are a number of problems which the preceding explanations make no attempt to cover; for example, there are students whose careers may fall into two widely separated phases, whose previous records may show only a minor rather than a major interest in English or Comparative Literature, whose academic preparation now seems remote, or whose recent experiences have kindled new interests. For such reasons the functioning of an advisement system under the directors is of the greatest importance. This advisement system itself functions in an informal atmosphere. Further questions should be directed to the graduate office of the department.

Faculty

- Altizer, Thomas J.J., *Professor and Chairman of Religious Studies Program*, Ph.D., 1955, University of Chicago: Religion and literature; myth and imagination.
- Arkans, Norman, *Assistant Professor*, Ph.D., 1975, University of Washington: Romantic and Victorian literature.
- Bashford, Bruce, *Assistant Professor*, Ph.D., 1970, Northwestern University: Literary criticism; rhetoric and the teaching of composition.
- Bennett, Betty T., *Adjunct Associate Professor¹ and Assistant to the Dean of the Graduate School*, Ph.D., 1970, New York University: English, American, and Continental Romanticism; the Gothic.
- Bennett, Joseph T., *Associate Professor, Director of Graduate Studies in English*, Ph.D., 1968, New York University: Victorian literature; twentieth-century British literature; literary criticism.
- Dolan, Paul, *Associate Professor*, Ph.D., 1966, New York University: Modern British and American literature; Yeats; literature and politics.
- Erdman, David V., *Professor*, Ph.D., 1936, Princeton University: Romantic literature; Blake; textual and critical editing.
- Fiess, Edward, *Associate Professor, Director of Master of Arts Programs in English*, Ph.D., 1951, Yale University: American literature; twentieth-century literature; biography and autobiography.
- Flanagan, Thomas, *Professor*, Ph.D., 1958, Columbia University: Irish literature and cultural history; Victorian literature; modern British literature; Yeats; Joyce.
- Fortuna, Diane, *Assistant Professor*, Ph.D., 1967, The Johns Hopkins University: Twentieth-century British and American literature; nineteenth-century American literature.
- Fry, Donald, *Professor*,¹ Ph.D., 1966, University of California, Berkeley: Old English; Middle English; Chaucer.
- Goldberg, Homer, *Professor*, Ph.D., 1960, University of Chicago: The Restoration and the eighteenth century; the novel; literary criticism.

- Gross, Harvey S., *Professor¹ and Director of Comparative Literature Programs*, Ph.D., 1955, University of Michigan: Prosody and poetic theory; modern intellectual history.
- Houle, Peter, *Assistant Professor*, Ph.D., 1972, University of Massachusetts: The Renaissance; medieval studies.
- Huffman, Clifford C., *Associate Professor and Director of Summer Session*, Ph.D., 1969, Columbia University: The Renaissance; Shakespeare.
- Kott, Jan, *Professor¹*, Ph.D., 1947, Lodz University, Poland: Shakespeare; the drama; literary criticism.
- Kranidas, Thomas, *Professor*, Ph.D., 1962, University of Washington: Prose and poetry of the seventeenth century; Milton; rhetoric and revolution.
- Levin, Richard,^a *Professor*, Ph.D., 1957, University of Chicago: The drama of the Renaissance; literary criticism.
- Levine, Richard A., *Professor and Chairman*, Ph.D., 1961, Indiana University: Victorian literature; the novel; literature and society.
- Lipton, Aaron, *Associate Professor*, Ed.D., 1966, New York University: The teaching of reading, composition, and literature; the psychology of literature.
- Ludwig, Jack, *Professor*, Ph.D., 1953, University of California, Los Angeles: The literature of the twentieth century; Joyce; Yeats.
- Maresca, Thomas E., *Professor*, Ph.D., 1963, The Johns Hopkins University: Restoration and eighteenth-century literature; the epic; satire.
- Miller, Ruth, *Professor¹ and Assistant Academic Vice President*, Ph.D., 1965, New York University: Early American literature; poetry; Emily Dickinson; Black American literature.
- Nelson, Gerald B., *Associate Professor*, Ph.D., 1967, Columbia University: Twentieth-century British and American literature; poetry.
- Newlin, Paul A., *Assistant Professor*, Ph.D., 1967, University of California, Los Angeles: Nineteenth-century American literature; Black American literature.
- Pequigney, Joseph, *Associate Professor*, Ph.D., 1959, Harvard University: The seventeenth century; Shakespeare.
- Rand, Richard Aldrich, *Assistant Professor*, Ph.D., 1974, City University of New York: The Romantic period; literary criticism; non-fiction prose.
- Rogers, Thomas, *Associate Professor, Director of Writing Programs*, Ph.D., 1955, University of Pennsylvania: The Restoration and the eighteenth century; rhetoric; the teaching of composition and literature.
- Scheps, Walter, *Associate Professor*, Ph.D., 1966, University of Oregon: Old English and Middle English; the history of the English language.
- Sears, Sallie, *Associate Professor*, Ph.D., 1963, Brandeis University: The novel; Henry James; literary criticism; women's studies.
- Shaw, Peter, *Associate Professor*, Ph.D., 1965, Columbia University:

- American literature; twentieth-century literature.
- Sheehan, David, *Assistant Professor and Director of Undergraduate Studies in English*, Ph.D., 1974, University of Wisconsin, Madison: The Restoration and the eighteenth century.
- Simpson, Louis,^b *Professor*, Ph.D., 1959, Columbia University: Nineteenth and twentieth-century British and American literature; poetry; literary criticism.
- Spector, Stephen, *Assistant Professor*, Ph.D., 1973, Yale University: Old English and Middle English; the history of the English language.
- Squier, Susan, *Assistant Professor*, Ph.D., 1977, Stanford University: Nineteenth and twentieth-century British literature; women's studies.
- Stampfer, Judah L., *Professor*, Ph.D., 1959, Harvard University: The Renaissance and the seventeenth century; Shakespeare; literature and psychology.
- Thompson, John,^b *Professor*, Ph.D., 1957, Columbia University: The literature of the twentieth century; prosody; literary criticism.
- Wallis, Norman, R. *Assistant Professor, Assistant Director of Writing Programs*, Ph.D., 1974, University of Chicago: The Restoration and the eighteenth century; satire, rhetoric and the teaching of composition.
- Weisinger, Herbert, *Professor¹ and Dean of the Graduate School*, Ph.D., 1941, University of Michigan: The Renaissance; Shakespeare; mythology and ritual.
- Wilson, Alice S., *Associate Professor*, Ph.D., 1947, Cornell University: The English and continental literature of the Renaissance; classical backgrounds of English literature; mythology.
- Zimbaro, Rose, *Associate Professor*, Ph.D., 1960, Yale University: The Restoration and the eighteenth century; the Renaissance; the modern drama.

DEPARTMENT OF FRENCH AND ITALIAN

Admission to Graduate Study

Candidates for admission to the M.A. program in French or French and Italian must hold the bachelor's degree or its equivalent from a recognized academic institution. The dossier must include:

¹Joint appointment, Department of Comparative Literature

^aOn leave, academic year 1978-79

^bOn leave, spring semester 1979

A. Three letters of recommendation from persons qualified to assess the student's preparation.

B. The results of the Graduate Record Examination (verbal and quantitative aptitude as well as the advanced test in French).

C. A transcript of grades.

It is also recommended that students submit one or two sample papers. These papers are required of applicants transferring from graduate programs in other universities.

While it is expected that applicants demonstrate superior preparation in French and/or Italian language and literature, they need not have majored in French and/or Italian as undergraduates. Foreign students must furnish as much information as possible about their training.

The University requires all foreign students to take the TOEFL examination. The department does not subscribe to fixed degree equivalencies for institutions abroad, and prefers to judge each application individually. Transfer credit (up to 6 credits) is awarded where circumstances warrant.

Requirements for the M.A. Degree

To qualify for the M.A. degree with a concentration in French, degree students will normally complete 30 graduate credit hours (ten courses), including at least 18 credits (six courses) in the Department of French at Stony Brook. French 507 (Advanced Stylistics) and 508 (*Explication de Texte*) are required; French 501 (Civilization) is highly recommended. Students who wish to have a double concentration in French and Italian will normally complete 36 credits (twelve courses), with at least 15 credits in each language.

A student who has completed his course requirements with a satisfactory (B) average and has earned at least a B (not B-) in French 507 will become a candidate for the M.A. examination.

The department urges all students to acquire at least a functional oral, written, and reading knowledge of a second foreign language.

Students who wish to satisfy the New York State certification requirements for secondary school teachers of French will consult Professor Tursi and arrange their schedules with these requirements in mind.

The general reading list and details of the M.A. examination, which comprises a written and an oral part, can be obtained from the department. Both will be sent to the candidate upon admission into the program, together with a description of the courses to be offered in the semester following his or her admission.

The M.A. Program in French

The department offers two basic options: one to meet the needs of graduate students interested in a pre-Ph.D. program; another for those wishing to obtain a practical, terminal M.A. In addition, a

thorough and extensively supervised program for teaching assistants is available; it has been considered unusually helpful by all who have participated in it. Our carefully developed advising system enables us to tailor individual programs to suit the needs and interests of individual students.

The M.A. program emphasizes linguistic proficiency as well as training in literature and its cultural context. Courses are taught in French or Italian; written and oral assignments are in French or Italian. Students must obtain the grade of B or better in advanced stylistics before being admitted to the M.A. examination. (Those with insufficient background will be directed towards remedial work and/or undergraduate courses; neither counts for degree credit.)

The program is conceived so that students may acquire a general knowledge of French and/or Italian literature, culture, and history, as well as the tools necessary to deal independently with a literary text. Upon entering the program, they are given a general reading list and, well before taking the M.A. examination, they will select an area of concentration with the help of their advisors. Normally this will involve a specific topic or theme in two periods of literature to be chosen for study in greater depth.

Our graduate courses are open to qualified students in other fields and in the CED program. Conversely, our students are encouraged to take courses in related areas. With the permission of their advisor and the Director of Graduate Studies, students may obtain 6 credits outside the department.

Faculty

Allentuch, Harriet, *Associate Professor*, Ph.D., 1962, Columbia University: Seventeenth-century French literature.

Bieber, Konrad, *Professor*, Ph.D., 1953, Yale University: Contemporary French literature; eighteenth-century French thought; history of ideas.

Blum, Carol, *Associate Professor*, Ph.D., 1966, Columbia University: Eighteenth-century French literature.

Brown, Frederick, *Professor*, Ph.D., 1960, Yale University: Nineteenth and twentieth-century literature in relation to social history and the history of ideas.

Cocco, Maria, *Assistant Professor*, Ph.D., 1976, University of California, Riverside: French and Italian Renaissance literature.

Goldman, Jeanine M., *Lecturer*, Ph.D., 1973, Fordham University: French language and literature, phonetics.

Haac, Oscar A., *Professor*, Ph.D., 1948, Yale University: Eighteenth and nineteenth-century French and comparative literature.

Laidlaw, G. Norman, *Professor*, Ph.D., 1950, Columbia University: Eighteenth and twentieth-century French literature; literature and science.

Mills, Leonard R., *Associate Professor*, Ph.D., 1963, Columbia University: Medieval literature, paleography.

- Mignone, Mario, *Associate Professor*, Ph.D., 1972, Rutgers University: Twentieth-Century Italian literature and contemporary theatre.
- Petrey, Sandy, *Associate Professor*, Ph.D., 1966, Yale University: Nineteenth-century literature; contemporary criticism.
- Riggs, Elizabeth P., *Assistant Professor*, Ph.D., 1971, Columbia University: Medieval French language and literature; contemporary French novel and theater; French films.
- Rizutto, Anthony, *Associate Professor*, Ph.D., 1966, Columbia University: Nineteenth and twentieth-century literature.
- Tursi, Joseph A., *Professor*, Ph.D., 1965, New York University: Eighteenth-century Italian literature; methodology and language.
- Whitney, Mark S., *Professor*, Ph.D., 1962, University of Pennsylvania: Sixteenth-century French literature.
- Zimmermann, Eléonore M., *Professor*, Ph.D., 1956, Yale University: Seventeenth-century French drama; nineteenth-century literature, especially lyricism; twentieth-century drama.

DEPARTMENT OF GERMANIC LANGUAGES AND LITERATURES

Admission to the M.A. Program

For admission to graduate study in Germanic languages and literatures the following are required:

- A. A bachelor's degree from a recognized institution.
- B. An average of at least a B in undergraduate German literature courses.
- C. An official transcript of undergraduate record.
- D. Letters of recommendation from three previous instructors.
- E. Results of the Graduate Record Examination Aptitude Test.
- F. Proficiency in a second foreign language equivalent to two years of college work. Preference will be given to French, Spanish, Italian, or Russian but each case will be treated on its individual merits.

Any deficiencies in these requirements will not automatically bar admission but will normally mean that the student after being admitted may have to do additional work to bring his or her level of preparation up to the required standard.

If the applicant's credentials and background seem to indicate deficiencies in the German language, he or she may be required at the outset of the first semester of study to take a written and oral examination testing command of the language. If judged insufficiently prepared, the student may be required to enroll in GER 321 and perhaps GER 322 in addition to the other course requirements listed below.

Other relevant graduate courses taken at Stony Brook may be used to substitute for certain courses of the minimum requirements listed below if they are approved in advance by the department.

Requirements for the M.A. Degree

Option I:

A. Formal course requirements:	Credit Hours
1. GER 549 Modern Trends in Literary Theory	3
GER 556 Bibliography and Methodology	3
GER 557 History of the German Language	3
GER 561 Goethezeit	3
GER 599 Thesis	6
2. Four additional offerings at the graduate level from courses within the department or, upon prior approval by the department, from those of other departments within the Graduate School.	<u>12</u>
	30

B. Performance: Average of B or better for all courses listed under A.

C. Language examination: Passing an examination testing the candidate's ability to use for research purposes at least one other language, ancient or modern, approved by the department.

D. M.A. paper: Submission of a scholarly essay on a topic and of a standard acceptable to the department.

Option II:

A. Formal course requirements:	Credit Hours
No thesis required—all 30 credits can be fulfilled by course work, as follows:	
1. GER 504 German Cultural History	3
GER 539 Contrastive Structures	3
GER 556 Bibliography and Methodology	3
GER 571 Comparative Germanic Linguistics	3
2. Six additional offerings at the graduate level from courses within the department or, upon prior approval by the department, from those of other departments within the Graduate School.	<u>18</u>
	30

B. Performance: Average of B or better for all courses listed under A.

C. Language examination: Passing an examination testing the candidate's ability to use for research purposes at least one other language, ancient or modern, approved by the department.

Option III: TESOL (Teaching of English to Speakers of Other Languages)

A. Formal course requirements:	Credit Hours
1. GER 521 Syntax	3

GER 522	Phonetics	3
GER 523	Phonology-Morphology	3
GER 524	Methods of TESOL	3
GER 525	Contrastive Analysis	3
	or	
GER 526	Analysis of an Uncommonly Taught Language	3
GER 527	English Grammar and Usage	3
GER 528	Practicum in TESOL I	3
GER 529	Practicum in TESOL II	3

(Note: Students with a good undergraduate preparation in linguistics will be encouraged to substitute electives for one or more of the courses in the sequence GER 521, 522, 523.)

2. Two electives from approved courses, among which are : ANT 560; EGL 509; FRN 503, 505, 511; GER 501, 502, 539, 557, 562, 570, 571, 572; SPN 501, 502, 582, 583, 584, 691; PSY 511, 512.

6
30

B. Performance: Average of B or better for all courses listed under A. The student must achieve a grade of Satisfactory in GER 528, 529 in order to be graduated from the program.

C. Prerequisites: Mastery of German is *not* required for this option; however, students must demonstrate a command of a living foreign language. This will be interpreted as a minimum of twelve credits of undergraduate study of the language offered. Students may request a competency examination in foreign languages which they have not formally studied.

(Note: It is recommended that entering students possess a minimum of six (6) undergraduate credits in modern English literature. It is further recommended that entering students possess a minimum of six (6) credits of undergraduate linguistics; students deficient in this requirement may be required to take ANT 560.)

Matters Pertaining to the M.A. Degree

A. Graduate instruction in the Department of Germanic Languages will be given as far as possible by tutorials and seminars. Members of the department of professorial rank will advise students in the planning of their programs according to their special interests and needs against the background of their undergraduate and graduate preparation before entering the Stony Brook program. In the M.A. program, normal course work has been reduced to a minimum so that the maximum amount of time may be released for independent study under the tutorial and seminar programs.

B. Extensions of time limitations: Extensions of time (beyond three years for the M.A. degree) are granted at the discretion of the department and the Dean of the Graduate School and are normally for one year at a time.

C. Incompletes: A student wishing to request an Incomplete must get the course instructor's approval, as well as that of the Director of Graduate Studies.

D. Part-time study for the M.A. degree may be permitted at the discretion of the department.

**Advancement to Candidacy for the Ph.D. Degree
in Germanic Languages and Literatures**

A. *Residence requirement:* Minimum of two consecutive semesters of full-time study.

B. *Foreign language requirements:* A student who has not fulfilled the language requirement during the master's program must pass an examination in at least one other ancient or modern language approved by the department.

C. *Comprehensive examination:* Before the end of the fourth semester of full-time residence after receiving the M.A., a student will be required to take and pass the departmental comprehensive examination testing knowledge and critical understanding of German literature and language.

D. *Dissertation subject:* Presentation of a proposal for a doctoral dissertation which is supported by that member of the department who has agreed to sponsor the dissertation.

E. *Course requirements:* In addition to those listed under the master's degree, students must take the following courses:

1. In preparation for the independent research involved in the dissertation, students must take at least two advanced tutorials:

	Credit Hours
GER 601 Special Author	3
GER 602 Special Period	3

2. Six additional offerings at the graduate level from courses within the department or, with prior approval by the department, from those of other departments within the Graduate School. (Students should note that the comprehensive examination can be expected to cover material drawn from not only the four courses listed under the M.A. requirements but also GER 558, Middle High German, and GER 563, Old High German.)

18

24

Persons wishing to stress Germanic philology will be encouraged to do so by substituting appropriate courses from within the department's offerings as well as those from other departments, such as FRN 511, EGL 509, EGL 510, ELG 515, or EGL 601.

Courses

Graduate Seminar and Tutorial Offerings

Candidates should understand that these seminars are given general titles. The specific topics to be offered in proseminars and seminars of the 500- and 600-series in a given semester will be described in announcements prepared and distributed before pre-registration for the semester in which they are to be offered. A candidate may take, so far as the requirements allow, the same seminar more than once if the alteration of subjects within that seminar benefits the individual's graduate program. Candidates for graduate degrees are urged to consult with the professors to whom they are assigned in order to work out the most favorable sequences of seminars.

Faculty

- Anshen, Frank, *Assistant Professor*, Ph.D., 1968, New York University: Sociolinguistics.
- Aronoff, Mark, *Assistant Professor*, Ph.D., 1974, Massachusetts Institute of Technology: Morphology; syntax.
- Berr, Samuel, *Associate Professor*, Ph.D., 1968, New York University: Historical linguistics; Old Saxon; Yiddish language and literature.
- Brown, Russell E., *Associate Professor*, Ph.D., 1963, Harvard University: Modern German literature; Expressionist poetry; Trakl; Brecht; Jahn.
- Carton, Aaron S., *Professor*, Ph.D., 1961, Harvard University: Psycholinguistics.
- Chanover, Susan A., *Lecturer*, M.A., New York University: Teaching of English to speakers of other languages.
- Elling, Barbara E., *Associate Professor and Graduate Studies Director*, Ph.D., 1971, New York University: Romanticism; literature and sociology; methods of language teaching.
- Hall, Beatrice L., *Assistant Professor*, Ph.D., 1963, New York University: Historical linguistics.
- Karst, Roman, *Professor*, LL.M., 1936, Jagiellonian University, Cracow, Poland: Goethe; modern novel; Kafka; T. Mann.
- O'Neill, Daniel C., *Assistant Professor*, Ph.D., 1966, Cornell University: Ernst Barlach; literature and visual arts; problems of translation.
- Ruplin, Ferdinand A., *Associate Professor*, Ph.D., 1965, University of Minnesota: Applied linguistics; Middle High German; computer-assisted instruction.
- Russell, John R., *Associate Professor and Chairman*, Ph.D., 1966, Princeton University: Rokoko; Novelle; computer-assisted instruction.
- Schröter, Klaus, *Professor*, Ph.D., 1961, University of Hamburg, W. Germany: Goethe; literary theory; prose of the Weimar Republic; dialectical-materialistic esthetics.

Sjöberg, Leif, *Professor*, Ph.D., 1968, Uppsala University, Sweden: Scandinavian literature; Ibsen; Strindberg; Lagerkvist; Ekelöf; Old Norse.
Welden, Ann, *Assistant Professor*, Ph.D., 1977, University of Texas, Austin: Applied linguistics; teaching of English to speakers of other languages.

DEPARTMENT OF HISPANIC LANGUAGES AND LITERATURES

The M.A. and Ph.D. programs described below have few prescribed or required courses in order to permit the individual student reasonable flexibility *vis a vis* his or her major interest. Broad subject coverage as well as departmental and interdepartmental disciplinary specialization are recommended. Preparation other than University teaching is also considered according to individual motivations. Programs of study for both M.A. and Ph.D. candidates are planned in consultation with the student and approved by a committee of advisors presided by the Chairman and the Director of Graduate Studies.

Degree Requirements for the M.A. Programs

M.A. in Spanish

A. B.A. degree with preparation equivalent to that of a standard undergraduate Spanish major. Students with a major in other disciplines will be admitted subject to their fulfilling deficiencies.

B. Three letters of recommendation.

C. Official transcripts of all college work.

D. Results of the Graduate Record Examination Aptitude Test.

M.A. in Spanish with Specialization in Hispanic Bilingual-Bicultural Studies

A. B.A. degree.

B. Three letters of recommendation.

C. Official transcripts of all college work.

D. Proficiency in both English and Spanish.

E. Results of the Graduate Record Examination Aptitude Test.

Ph.D.

A. B.A. or M.A. degree (or equivalent).

B. Superior preparation in Spanish language and literature.

C. Three letters of recommendation from Spanish professors.

D. Official transcripts of all college work. It is also recommended that a senior thesis paper, an M.A. thesis, or one or more research papers written during previous studies, accompany the application.

E. Results of the Graduate Record Examination Aptitude Test.

All applicants are automatically considered for a traineeship on a competitive basis.

Students who are admitted to the Ph.D. program are considered provisional, until they pass the qualifying examination. They are formally admitted to Ph.D. candidacy upon passing the comprehensive examination.

Degree Requirements for the M.A. Programs

M.A. in Spanish

For secondary and junior college teachers who do not necessarily intend to do post-M.A. studies, 30 credits in graduate course work in Spanish are required, of which six may deal with problems of the teaching of language and literature at the secondary and junior college levels and six with studies in Spanish linguistics or problems in bilingual education, plus examination. Reading knowledge of a second language is required. For students who wish an intermediate degree but whose main concern is continuing toward the Ph.D., the minimum is 27 credits in Peninsular and Spanish-American literature and 3 credits in Spanish linguistics, plus examination. Reading knowledge of French is required.

M.A. with Specialization in Hispanic Bilingual-Bicultural Studies

This program is specially designed for graduate students, teachers and other professionals who wish to concentrate on the linguistics and cultural dimensions of Hispanic bilinguals. The program welcomes applications for part-time as well as full-time study. Course work is conducted in Spanish, English or both.

Degree requirements are 30 graduate credit hours, distributed as follows:

A. 15 credits in Hispanic Bilingual-Bicultural courses: 581, 583, 584, 585 (or 586), and 587;

B. 15 credits in other Spanish graduate courses. Six of these credits may be selected from related courses offered by other departments in consultation with the Program Coordinator and Director of Graduate Studies.

There are no M.A. examinations in this program. Spanish and English are the only required languages. However, SPN 587, Independent Project, which must be taken during the last semester of courses, will be individually designed to serve as an adequate and thorough completion of the learning experience of the student.

Degree Requirements for the Ph.D. Program

Although research and its relationship to teaching are stressed, provision is made for students oriented to areas other than college teaching. The student's individual academic needs will have priority over any specifically prescribed program. Each candidate's program will be planned during his or her first semester on campus by a committee of advisors presided over by the Chairman and the Director of Graduate Studies.

Programs will reflect previous experience, maturity, and the candidate's proposed area of specialization.

All Ph.D. candidates will be involved in two levels of teaching experience: One at the lower division level (SPN 691, Practicum in Lower Division Teaching) as teaching assistants, and one at the intermediate level (SPN 693, Practicum in the Teaching of Advanced Spanish and Literature). The first practicum should be taken the first semester of studies, and the second, during the third. Both are intended to combine theoretical studies with practical discussion of problems related to classroom situations.

A. *Ph.D. students holding a B.A. or equivalent:* A minimum of three years devoted to course work (72 credits) as well as to the preparation of the qualifying and comprehensive examinations. Continuation year by year is contingent upon satisfactory performance.

B. *Ph.D. students holding an M.A. or equivalent:* Generally, a minimum of 42 graduate credits is advisable. These may include courses in allied subjects when such work is of demonstrable importance to the field of the projected dissertation (preferably in another language, comparative studies, Luso-Brazilian studies or linguistics). Approximately half of the total graduate credits should be taken in the field of concentration, either Spanish or Spanish-American literature.

C. *For transfer students* who have already worked a year or more in another University toward the Ph.D. in Spanish, and above the M.A. level, the minimum requirement is 24 credit hours.

Language Requirements

All Ph.D. students must prove reading knowledge in French and in a second language of their choice related to the field of the dissertation or allied fields. In addition, students specializing in Medieval, Pre-Renaissance Literature or Philology should show competence in Latin. Other languages are accepted if they are justified and approved by the committee of advisors. The student is strongly advised to complete at least one of the language requirements by the end of the first year of graduate study. He or she must have completed both language requirements prior to the comprehensive examination.

Specific Courses Required

Three courses are required:

- SPN 528 Seminar in Cervantes
- SPN 549 Seminar in Spanish-American Modernism
- SPN 609 Literary Theory

Field of the Dissertation

During the last year of courses, the student is advised to work closely with a faculty member in the proposed field of the dissertation. This is very important, since the comprehensive examination

places great emphasis on this area. At this time, the candidate should also have chosen at least one other specialized reader and counselor for his or her dissertation.

Procedures to Satisfy the Language Requirements

Any of the following procedures is considered satisfactory:

A. Reading examination administered by the Department of Hispanic Languages and Literature.

B. The Princeton Graduate School Foreign Language Test (GSFLT).

C. Successful completion of a graduate reading course in that language.

D. Completion of a regular graduate course in the foreign language with a grade of B or better.

Examinations

M.A. Program

The student who has completed all formal course work and has proved reading proficiency in French can sign up for the M.A. examination one month prior to the established date (usually the first week in November and again the first week of April).

It is a six-hour written examination consisting of three hours of questions on Spanish literature and three on Spanish-American literature, based on a relatively short reading list. Other areas such as language teaching, linguistics, and bilingual studies are considered fulfilled by passing the respective courses. In case of failure, the student may repeat this examination once.

There are no examinations in the concentration in Hispanic Bilingual-Bicultural Studies. Instead, an individual project is required (SPN 587).

Ph.D. Program

Toward the end of the first year of study (usually the second week of November or the second week of April), a brief *qualifying examination* based on a list of six works of literature and criticism will be administered to gauge the candidate's potential and determine the nature of his or her further studies. This qualifying examination serves as an indicator of the advisability of continuing toward doctoral work. It consists of a written part (usually two hours), and a half-hour oral. This examination, due to its nature and purpose, may normally not be repeated.

Toward the end of the last semester of courses or the year immediately following it, the *comprehensive examination* must be taken. All incomplete grades, if any, and both language requirements must be fulfilled prior to this examination.

It will consist of 12 hours of written questions and two hours of oral.

The written sections are three: (1) Major field: Spanish or Spanish-American literature; (2) Minor field: Spanish or Spanish-American literature; (3) Spanish linguistics.

A student who has taken two courses in Spanish linguistics in our department, with at least a B grade in each course, is not required to take the linguistics section of this examination.

The oral section is generally scheduled one week after the third part of the written examination.

The first and second parts of the written examination are based on a reading list. The comprehensive examination must be taken in its entirety. In case of failure, the student may repeat one of the three written parts, plus the oral. A failure in two or more written parts normally means failure in the examination as a whole.

Dissertation

The dissertation will consist of the written results of extended independent study under the supervision of a member of the staff. A specialized reader and counselor is also appointed. The result may take the form of a critical or scholarly study. It is required for the Ph.D. degree *only*. Early in his or her studies the Ph.D. student should begin to think in terms of a dissertation topic, choose the advisor, and write up a brief prospectus to be submitted to the Director of Graduate Studies. The prospectus will be studied by an *ad hoc* committee appointed by the Director, and if approved, the student may begin preliminary bibliographical work. After the dissertation is completed, it is judged by a committee consisting of its director, the second reader, plus one Spanish professor and two faculty members from outside the department who specialized in related areas. Generally, if the dissertation is approved by this committee, the Ph.D. in Spanish is granted. However, the committee may decide to hold an interview with the candidate before reaching a decision.

As an academic commencement and a service to the academic life of the department, he or she is then finally asked to give a public lecture on the subject of the dissertation.

Faculty

Chaffee, Diane, *Lecturer*, Duke University, ABD: Golden Age literature.

De La Campa, Román, *Assistant Professor*, Ph.D., 1975, University of Minnesota: Caribbean culture and literature; Latin American theatre; applied linguistics.

Fainberg, Louise Vasvari, *Associate Professor*, Ph.D., 1969, University of California, Berkeley: Medieval Spanish literature; romance philology; applied linguistics.

Giordano, Jaime A., *Associate Professor*, Universidad de Chile, 1961 (University Professor, Universidad de Concepcion 1958-1966): Modern and contemporary Spanish-American literature.

- Lastra, Pedro, *Professor*, Universidad de Chile, 1967 (University Professor, 1960-1973): Modern and contemporary Spanish-American literature.
- Lida, Clara E., *Associate Professor*,¹ Ph.D., 1969, Princeton University: Peninsular and Latin American history; cultural and intellectual history of Spain and Latin America.
- Mc Kenna, James B., *Associate Professor*, Ph.D., 1965, Harvard University: 20th century Spanish culture and literature.
- Palumbo, Joseph A., *Assistant Professor*, Ph.D., 1976, University of Wisconsin: Medieval Spanish literature; applied linguistics; teaching methodology.
- Zavala, Iris M., *Professor*, Ph.D., 1962, Universidad de Salamanca: 17th to 20th-century Peninsular Caribbean literature.

DEPARTMENT OF MUSIC

Degree Programs

The Department of Music offers programs leading to the Master of Arts degree and the Doctor of Philosophy degree in history, in theory and in composition; and to the Master of Music degree and the Doctor of Musical Arts degree in performance. A special emphasis in each of these programs on the music of the twentieth century reflects one aspect of the department's philosophy. The department encourages as well the development of professional competence in more than one area of musical study; the capability for combining work in more than one area is innate in the design of the programs at the doctoral level. For students at that level who propose to do serious work both in performance and in some other area, the decision to pursue either the D.M.A. or the Ph.D. degree will depend upon the balance of emphases in the intended program of study.

Admission to the M.A. Program

The following are required for admission to the M.A. programs in history, in theory and in composition:

- A. A baccalaureate degree from a recognized institution.
- B. An official transcript of undergraduate record.
- C. A minimum grade average of B in undergraduate music courses.
- D. Examples of undergraduate work:
 1. For history applicants, essays in music research, analysis or criticism.

¹Joint appointment, Department of History.

2. For theory applicants, essays in music analysis and examples of work in courses such as counterpoint, fugue or composition.

3. For composition applicants, music compositions.

E. Scores of the Graduate Record Examination Aptitude Test (GRE).

Applicants are invited to submit any other evidence of their abilities in support of their application for admission, such as recordings of music performances or the score on the Graduate Record Examination Area Test in music.

All students entering the M.A. program will be examined in the following areas during the week before the beginning of classes:

1. Ear training.

2. Basic keyboard skills.

3. The harmonization of a chorale in four voices.

4. The composition of a passage in free two-part counterpoint in either the 16th-century or 18th-century style, according to the student's choice.

5. The history of music (for history and theory students only).

Students who are found deficient in any of the areas of ear training, keyboard, harmony and history will be required to take the appropriate undergraduate or graduate courses to remedy the deficiencies.

Requirements for the M.A. Degree in Music History

A. *Courses*: Thirty graduate credit hours (exclusive of those in MUS 501, Compositional Skills of Tonal Music, and MUS 591, Practicum in Teaching) chosen in consultation with the student's advisor. The program must include:

1. MUS 502, Proseminar in Tonal Analysis, to be taken during the spring semester of the first year of study. Students who are well prepared in analysis may be exempt from this requirement by examination.

2. MUS 503, Music in the 20th Century.

3. At least two courses from the group MUS 543-555 (Special Topics Courses).

If a course in a department other than Music is taken towards the degree, approval by the Graduate Studies Committee must be obtained.

B. *Foreign languages*: A reading knowledge of French and German. Examinations must be taken by the end of the second semester of study.

C. *Comprehensive examinations*: Written and oral examinations in the history of music and in the analysis of preassigned compositions.

D. *Research paper*: A substantial essay, normally one which the student has written as part of the course work. The paper should be

submitted no later than the first week of the semester in which the student expects to receive the degree.

Requirements for the M.A. Degree in Music Theory

A. *Courses*: Thirty graduate credit hours (exclusive of those in MUS 501, Compositional Skills of Tonal Music, and MUS 591, Practicum in Teaching) chosen in consultation with the student's advisor. The program must include:

1. MUS 502, Proseminar in Tonal Analysis, to be taken during the spring semester of the first year of study. Students who are well prepared in analysis may be exempt from this requirement by examination.

2. Two courses from the group MUS 531-534, Seminars in Music Theory.

3. MUS 559, Topics in Analysis (two semesters).

4. One course from the group MUS 543-555 (Special Topics Courses).

5. One of the following:

MUS 511 Compositional Techniques of the 20th Century

MUS 516 Electronic Music Workshop

MUS 521 Composition in Traditional Styles.

If a course in a department other than Music is taken toward the degree, approval by the Graduate Studies Committee must be obtained.

B. *Foreign languages*: A reading knowledge of French and German. Examinations must be taken by the end of the second semester of study.

C. *Comprehensive examinations*: Written and oral examinations in the theory of music.

D. *Research paper*: A substantial essay, possibly one which the student has written as part of the course work. The paper should be submitted no later than the first week of the semester in which the student expects to receive the degree.

Requirements for the M.A. Degree in Composition

A. *Courses*: Thirty graduate credit hours (exclusive of those in MUS 501, Compositional Skills of Tonal Music, and MUS 591, Practicum in Teaching) chosen in consultation with the student's advisor. The program must include:

1. MUS 502, Proseminar in Tonal Analysis, to be taken during the spring semester of the first year of study. Students who are well prepared in analysis may be exempt from this requirement by examination.

2. MUS 504, Music History for Composers, to be taken during the spring semester of the first year of study.

3. MUS 523, Advanced Composition, to be taken in every semester of residence.

4. MUS 515, The Fundamentals of Electronic Music.

5. MUS 516, Electronic Music Workshop.

If a course in a department other than Music is taken toward the degree, approval by the Graduate Studies Committee must be obtained.

B. *Foreign language*: A reading knowledge of French, German, or Italian. The examination must be taken by the end of the second semester of study.

C. *Comprehensive examination*: Written examination in the analysis of preassigned compositions.

D. *Compositions*: Students must satisfy the department that they have written compositions of sufficient quality and variety during the period of study after admission to the Graduate School. Fair copies of all such works must be submitted to the Graduate Studies Committee as they are completed. The "LAST DAY FOR GRADUATE STUDENTS TO SUBMIT THESES AND DISSERTATIONS," as specified in the Academic Calendar, will be the final deadline for all works to be submitted.

Admission to the M.Mus. Program

The following are required for admission to the M.Mus. program in performance:

A. A baccalaureate degree from a recognized institution.

B. An official transcript of undergraduate record.

C. An audition in the major field of performance. Students residing at a distance may gain provisional acceptance by means of recordings of their work. Applicants should contact their prospective major teachers regarding suitable repertory for auditions.

D. Letters of recommendation from the principal teacher and at least one other person familiar with the student's work.

E. Scores of the Graduate Record Examination Aptitude Test (GRE).

Requirements for the M.Mus. Degree

A. *Courses*: Thirty graduate credit hours (exclusive of those in MUS 501, Compositional Skills of Tonal Music, and MUS 591, Practicum in Teaching) chosen in consultation with the student's advisor. Up to fifteen credits in individual study of the major instrument or voice may be counted toward the degree. None of the remaining fifteen degree credits may be in individual study of another instrument or voice. The program must include at least two semester courses or one year course *outside* the following group of courses:

MUS 509 Performance Studies for Composers and Musicians

MUS 561 Orchestral Conducting

MUS 563 Choral Conducting

MUS 565 Graduate Orchestra

MUS 570 20th Century Conducted Ensemble

- MUS 571 Advanced Instruction in Instrument or Voice
- MUS 573 Chamber Music
- MUS 575 Master Class in Solo Repertory for Instrument or Voice
- MUS 595 Chamber Players.

MUS 565, Graduate Orchestra, is required of all students who play orchestral instruments during each semester of residence. If a course in a department other than Music is taken toward the degree, approval by the Graduate Studies Committee must be obtained.

B. *Jury examinations:* These are offered each semester.

1. Students must take one jury examination during each academic year.

2. Students must take and pass the jury examination in the semester prior to the one in which the degree recital (see C., below) is given.

C. *A public recital.*

Admission to the Doctor of Musical Arts Program

In addition to the admission requirements set forth by the Graduate School, a master's degree is required, normally in the pertinent area of performance. Applicants must present themselves to a faculty committee for an audition, which is usually held in February. Applicants who plan to include study in the areas of history, theory or composition as a part of their program should submit examples of their work in these areas as well.

Students currently enrolled in one of the department's master's programs who wish to pursue doctoral work in the department must announce application in a formal letter which should reach the Director of Graduate Studies by February 1 for fall admission, and which should be accompanied by letters of recommendation and examples of work where pertinent.

Entering students who plan to do considerable work in areas other than performance as part of their degree program must take the appropriate advisory examinations, described under "Admission to the M.A. Program," above, if they have not already done so. Any remedial work must be completed by the end of the first year of study.

Requirements for the Doctor of Musical Arts Degree

Contract Toward Candidacy

A plan of study in the form of a working contract toward candidacy will be drawn up jointly by the student and a directing committee early in the student's first semester. The directing committee will consist of the student's advisor and at least two other faculty members. The Director of Graduate Studies, after consultation with the student and appropriate members of the faculty, will appoint the directing committee and will designate its chairman, who shall not

be the student's advisor. The committee may include faculty members from outside the department when that is appropriate. Final approval of the contract, and of any revisions that may be necessary, rests with the Graduate Studies Committee.

The design of the program is to be developed around the requirements given below, and the contract should specify such terms as the core of courses to be taken, the length of full-time residence, and the schedule and substance of various recitals and examinations. The terms of the contract should normally be completed after two years of full-time residence.

A. *Work in the student's area(s) of specialization.* Progress during residence in the program will be demonstrated to the directing committee through the presentation of at least two recitals, not including the doctoral recital, showing ability to perform in a wide range of musical styles. Students who propose to do work in composition, history or theory as an integral part of the program must, in addition, do one or a combination of the following:

1. Present a number of musical compositions demonstrating fluency in working with a variety of contemporary performance media, both live and electronic.

2. Present a number of essays demonstrating proficiency in various aspects of musicological research, theoretical studies, analysis or criticism. The essays may have been prepared as course work.

B. *Studies in performance criteria.* Two essays, to be submitted to the directing committee, one of which takes up a problem of performance through historical investigation, the other from an analytic point of view. These essays may grow out of work in such courses as MUS 535 and 537.

C. *Work in the area of twentieth-century music.* Competence is to be demonstrated to the directing committee through the following:

1. A public lecture-recital on a topic of significant interest in twentieth-century music. A special teaching project in the Center for Continuing Education, the public schools or a community arts program may meet this requirement.

2. An open rehearsal in the form of a colloquium of some twentieth-century work for ensemble.

D. *Foreign language.* A reading knowledge of French, German or Italian. Students in voice must in addition demonstrate singing competence in all three. The contract toward candidacy may specify further language proficiency depending upon the proposed plan of study.

E. *Teaching.* A minimum of two semester courses, at least one of which shall be an introductory college course in musicianship, theory or literature. Students must also participate in the Ongoing Departmental Seminar in Music Instruction for a minimum of two

semesters and must present to the seminar at least one project or report.

Advancement to Candidacy

To be advanced to candidacy, the student must:

1. Submit a program of the proposed doctoral recital to the Graduate Studies Committee. The program must not include works previously performed to satisfy other graduate degree requirements.

2. Appear before an examining committee to demonstrate mastery of the doctoral recital program and of areas pertinent to the works to be performed.

Advancement to candidacy normally occurs within one year after completion of the terms of the contract toward candidacy.

Doctoral Recital

The doctoral recital, which is given after advancement to candidacy, must demonstrate a distinguished level of performance. A recording of it is to be kept permanently in the University Library.

Admission to the Doctor of Philosophy Program

In addition to the admission requirements set forth by the Graduate School, a master's degree is required in a pertinent area of competence. As evidence of ability to carry on doctoral work in that area, applicants in history and theory should submit examples of recent prose writings about music; applicants in composition should submit scores and, when possible, recordings of recent works. Applicants who plan to include study in performance as a part of their degree program should follow the audition procedure outlined under "Admission to the Doctor of Musical Arts Program," above.

Students currently enrolled in one of the department's master's programs who wish to pursue doctoral work in the department must announce application in a formal letter which should reach the Director of Graduate Studies by February 1 for fall admission, and which should be accompanied by examples of work and letters of recommendation.

Those applicants who do not possess the Master of Arts degree in music from Stony Brook may be asked to demonstrate achievement commensurate with that degree by the end of the first year of study.

Entering students who have not already done so must take the appropriate advisory examinations, described under "Admission to the M.A. Program," above. Any remedial work must be completed by the end of the first year of study.

Requirements for the Doctor of Philosophy Degree

Contract Toward Candidacy

A plan of study in the form of a working contract toward candidacy

will be drawn up jointly by the student and a directing committee early in the student's first semester. The directing committee will consist of the student's advisor and at least two other faculty members. The Director of Graduate Studies, after consultation with the student and appropriate members of the faculty, will appoint the directing committee and will designate its chairman, who shall not be the student's advisor. The committee may include faculty members from outside the department when that is appropriate. Final approval of the contract, and of any revisions that may be necessary, rests with the Graduate Studies Committee.

The design of the program is to be developed around the requirements given below, and the contract should specify such terms as the core of courses to be taken, the length of full-time residence, and the schedule and subject areas of various examinations including the preliminary examination. The terms of the contract should be completed within one or two years, depending upon the scope of the program.

A. *Work in the student's area(s) of specialization.* Progress during residence in the program will be demonstrated to the directing committee in one or a combination of the following ways:

1. The presentation of a number of musical compositions demonstrating fluency in working with a variety of contemporary performance media, both live and electronic.

2. The presentation of a number of essays demonstrating proficiency in various aspects of musicological research, theoretical studies, analysis or criticism. The essays may have been prepared as course work.

Students who propose to do work in performance as an integral part of the program must, in addition, present at least two recitals showing ability to perform in a wide range of musical styles.

B. *Work in the area of twentieth-century music.* Competence is to be demonstrated to the directing committee through the following:

1. An essay dealing with twentieth-century music from an historical, theoretical, critical, or analytic point of view.

2. A public lecture or colloquium on a topic of significant interest in twentieth-century music. A special teaching project in the Center for Continuing Education, the public schools or a community arts program may meet this requirement.

C. *Foreign language.* A reading knowledge of French, German or Italian. A student intending a dissertation in history or theory must demonstrate proficiency in both French and German. The contract toward candidacy may specify further language proficiency depending on the area of the dissertation.

D. *Teaching.* A minimum of two semester courses, at least one of which shall be an introductory college course in musicianship, theory or literature. Students must also participate in the Ongoing Departmental Seminar in Music Instruction for a minimum of two

semesters and must present to the seminar at least one project or report.

Advancement to Candidacy

After completing the terms of the contract, a student is eligible for advancement to candidacy. To be advanced to Ph.D. candidacy, the student must:

1. Submit a prospectus outlining the nature and aims of the dissertation.
2. Pass a preliminary examination that will demonstrate preparation in his or her special competence, normally the area of the dissertation.

Dissertation

The dissertation shall be a significant original work of scholarship or composition. Approval of the dissertation in scholarship will rest upon a formal oral defense to be conducted by the Dissertation Committee.

Faculty

- Addison, Adele, *Performing Artist in Residence*, B. Mus., 1946, Westminster Choir College, New England Conservatory of Music: Voice; vocal pedagogy.
- Anderson, Ronald, *Performing Artist in Residence*, M.D., 1958, Juilliard School of Music; Ed.D., 1969, Columbia University: Trumpet; Renaissance and Baroque brass performance practice; 20th-century brass performance.
- Arel, Bülent, *Professor and Director of the Electronic Music Studio*, Diploma, 1947, State Conservatory of Ankara, Turkey: Composition; electronic music.
- Baron, Samuel, *Professor*, B.S., 1948, Juilliard School of Music; pupil of George Barrere and Arthur Lora: Flute; chamber music; Baroque performance practice; 20th-century wind performance.
- Bonvalot, E. Antony, *Associate Professor*, Ph.D., 1966, Harvard University: Bibliography; English Renaissance music.
- Canin, Martin, *Performing Artist in Residence*, M.S., 1956, Juilliard School of Music: Piano; piano pedagogy.
- Cohen, Isidore, *Performing Artist in Residence*, B.S., 1950, Juilliard School of Music; pupil of Ivan Galamian: Violin, chamber music.
- Des Roches, Raymond, *Performing Artist in Residence*, M. Mus., 1961, Manhattan School of Music: Percussion; 20th-century percussion ensemble.
- de Zeeuw, Anne Marie, *Instructor*, M. Mus., 1971, University of Texas, Austin: Theory.
- Eddy, Timothy, *Performing Artist in Residence and Co-ordinator of Chamber Music*, M. Mus., 1970, Manhattan School of Music: Cello; chamber music; 20th-century string performance.

- Fuller, Sarah, *Associate Professor*, Ph.D., 1969, University of California, Berkeley: Medieval and Renaissance music.
- Glazer, David, *Performing Artist in Residence*, B.Ed., 1935, University of Wisconsin, Milwaukee: Clarinet; chamber music.
- Graham, John, *Performing Artist in Residence*, B.A., 1960, University of California, Berkeley: Viola; chamber music.
- Greenhouse, Bernard, *Professor*, Diploma, 1939, Juilliard Graduate School: Cello; cello pedagogy; chamber music.
- Ingraham, Paul, *Performing Artist in Residence*, B.S., 1953, Ithaca College: Horn; chamber music.
- Kalish, Gilbert, *Performing Artist in Residence*, B.A., 1956, Columbia University: Piano; 20th-century piano performance.
- Karasick, Simon, *Director of the University Band*, B. Mus., 1933, Eastman School of Music: Trombone; wind ensemble.
- Kramer, Richard, *Associate Professor and Director of Graduate Studies*, Ph.D., 1974, Princeton University: 18th-century theory; Beethoven.
- Kreiselman, Jack, *Performing Artist in Residence*, Manhattan School of Music; pupil of Simeon Bellison and Simon Kovar: Clarinet; 20th-century wind performance.
- Lawton, David, *Associate Professor and Director of the University Orchestra*, Ph.D., 1973, University of California, Berkeley: Orchestral and opera conducting; 19th-century studies.
- Layton, Billy Jim, *Professor*, Ph.D., 1960, Harvard University: Composition; analysis.
- Lessard, John, *Professor*, Diploma, 1940, Ecole Normale; Diploma, 1941, Longy School of Music: Composition.
- Levine, Julius, *Performing Artist in Residence*, B.A., 1943, Brooklyn College; B.S., 1946, Juilliard School of Music: String bass; chamber music.
- Lewin, David, *Professor*, M.F.A., 1958, Princeton University: Composition; tonal and post-tonal theory; analysis; computer applications to music.
- McCalla, James, *Assistant Professor*, Ph.D., 1976, University of California, Berkeley: 20th-century music; aesthetics and criticism.
- Roseman, Ronald, *Performing Artist in Residence*, B.A., 1955, Queens College: Oboe; chamber music; 20th-century wind performance.
- Rosen, Charles, *Professor*,^a Ph.D., 1951, Princeton University: Interdisciplinary studies in music, literature, art and philosophy; piano.
- Semegen, Daria, *Assistant Professor*, M. Mus., 1971, Yale University: Composition; electronic music.
- Treitler, Leo, *Professor and Chairman*,^b Ph.D., 1966, Princeton University: Medieval and early Renaissance music; 20th-century music; history of music theory; cultural historiography.
- Weisberg, Arthur, *Performing Artist in Residence and Conductor of the Graduate Orchestra*, Juilliard School of Music; pupil of Simon Kovar: Bassoon; orchestral conducting; 20th-century ensemble.

- Winkler, Peter, *Associate Professor*,^b M.F.A., 1967, Princeton University; Composition; theory and history of popular music.
- Wolf, R. Peter, *Assistant Professor*, Ph.D., 1977, Yale University; pupil of Gustav Leonhardt and Ralph Kirkpatrick: 18th-century French opera (esp. Rameau); harpsichord and Baroque keyboard music; Baroque performance practice.

DEPARTMENT OF PHILOSOPHY

The Department of Philosophy offers programs leading to the Master of Arts in Philosophical Perspectives, and to the Doctor of Philosophy. The two programs are extremely different in content and purpose.

Master's Program

The Master's Program in Philosophical Perspectives concentrates on the development of an appreciation of the contributions of philosophic thought to the self-understanding of men and women in a changing world. It is designed for people who have been away from college for a period and wish to engage in both structured and individualized studies in philosophy. Most courses fall into one of three areas: History of Philosophy, Contemporary Schools of Philosophy and Contemporary Moral and Social Problems.

Classes are usually scheduled in the late afternoon, evening or Saturday mornings. Full-time students can complete requirements for the degree in three semesters, and the master's thesis or alternative teaching practicum or field work within a short time thereafter. Part-time students set their own deadlines (students must petition for an extension of the deadlines, if completion time exceeds three years).

Admission to the M.A. Program

For admission to the M.A. Program in Philosophical Perspectives, the following are required:

- A. A bachelor's degree from a recognized institution.
- B. An average of at least B in the last two years of undergraduate work or six credits of graduate work with a B average in the MA/LS program or another recognized graduate program.
- C. An official transcript of undergraduate record and of any work completed in the MA/LS program or other graduate program.

^aOn leave spring 1979

^bOn leave academic year 1978-79

D. Letters of recommendation from two previous or current instructors.

E. An admission essay of roughly 500 words expressing your interests and expectations of the program as it relates to your current state of life.

F. Results of the Graduate Record Examination Aptitude Test.

Deficiencies in these requirements shall not automatically bar admission to the program, although a candidate may be required in such cases to enroll in philosophy courses in the MA/LS program prior to consideration of his/her application.

Requirements for the M.A. Degree

A. *Formal course requirements:* A student preparing for the degree of Master of Arts in Philosophical Perspectives is required to take a total of ten courses amounting to 30 graduate credit hours. These courses will include seven courses on contemporary problems (e.g. communication, death, feminism), two courses in the history of philosophical perspectives (PHI 524-25), and one course in the detailed analysis of a philosophical text (PHI 527 or 528 or 587).

Additionally, the student is required to take two courses (PHI 588 and 589 in directed research leading to the M.A. paper or the M.A. practicum or field work.

B. 1. *The M.A. paper:* The paper is a research paper in which the student exhibits his/her ability to locate, comprehend and present in a communicatively sensitive form the fruits of mature philosophical research as that bears upon one or another contemporary problem. The paper will usually be written under the direction of the instructor in one of the seven perspective courses and will eventually be presented to that instructor and one other faculty member upon completion. Students who have not completed the paper by the end of the third semester must enroll for at least one credit of work during the semester in which they intend to complete the paper.

2. *The M.A. practicum:* For those students who are teaching in high school and who can obtain permission to introduce a philosophy course into the curriculum, the supervised preparation and teaching of this course will substitute for the M.A. paper. The student will be required to present course plans, bibliographies and other evidence of his/her academic readiness prior to the teaching of the course. During the course, the construction and grading of exams and papers will be supervised and several classes will be visited. Overall evaluation will take place at the conclusion of the course. The Philosophy Department has some resources to locate programs or schools where the student might teach such a course.

3. *Fieldwork:* A student, with the direction of two professors (as advisors), chooses a problem related to the philosophical perspective on contemporary social and moral issues that he/she wishes to investigate by going into the community (e.g., hospitals,

businesses, schools, etc.). The credits will involve 3 credits for the preparation and execution of the fieldwork project and 3 credits for the written analysis of the project itself and the final conclusions.

C. *Performance*: An average grade of B is the minimum, but no more than six credits of C's will be permitted to count for credit toward the degree. Any student who accumulates 12 credits of C grades will be dropped from the program.

D. *Credit for work done elsewhere*: A maximum of six hours of post-baccalaureate credit in philosophy from other institutions *may* be transferred towards the M.A. in Philosophical Perspectives. The transference of credit will not be automatic, but will depend upon the suitability of the courses to the goals of the program and upon the grades received in the courses. All credits in philosophy earned in Stony Brook's MA/LS program are transferable, subject only to the performance and distribution regulations mentioned above. Credits transferred from other institutions will not be accepted toward the PHI 524, 525 courses.

General Aims of the Doctoral Program

1. To cultivate the principal contemporary styles of philosophical reasoning;
2. To engage in philosophical discourse about aspects of contemporary human experience that involve communication with other disciplines;
3. To bring philosophers using different styles into ongoing dialogue on such contemporary interface issues;
4. To make explicit the methodology and rational values involved in the different contemporary styles of philosophical reasoning.

Requirements for Admission into the Doctoral Program

Students who have a bachelor's degree with a major in philosophy will be admitted to the doctoral program only if undergraduate work has introduced the students to the history of philosophy and given some acquaintance with a variety of contemporary philosophical styles. In the case that these requirements are not fulfilled, the department may require that some specific remedial work be done. In applying for admission, a student must also submit a philosophical essay he/she has written.

Requirements of the Doctoral Program

The doctoral program is designed so that a doctoral student will ordinarily be able to complete the Ph.D. in four years of full-time work after admission to the doctoral program. No minimum length of time, however, is prescribed. Requirements are as follows:

A. Four doctoral courses or seminars in the history and the traditional core areas of philosophy. Doctoral students must take PHI 500, History of Philosophy and Philosophical Texts, which will be offered every year. In addition, they will take their choice of three

out of six graduate courses or seminars offered in a two-year cycle, where at least one course will have to be taken from each of the following groups:

Group A: PHI 501, Philosophy of Science and Logic; PHI 502, Metaphysics and Systematic Philosophy; PHI 503, Epistemology; Philosophy of Mind, Perception and Experience.

Group B: PHI 504, Philosophy of Value, Culture and Society; PHI 505, Aesthetics and Rhetoric; PHI 506, Oriental Philosophy.

B. Participation in two *Ongoing Style Seminars* is required. Style seminars are given in the spring term and are preceded by *Proseminars* in the fall term. Proseminars are recommended for students taking the respective style seminars.

Proseminars are advanced introductions to contemporary philosophical styles. Proseminars assume a general background in philosophy and serve to acquaint the beginning graduate student with the methods, presuppositions, and operational style of the philosophies involved. Proseminars balance readings of important texts with projects, papers, and discussions designed to prepare the student for the advanced Ongoing Style Seminars.

Ongoing Style Seminars are highly advanced courses in one or another of the main contemporary philosophical styles. These seminars have as prerequisites some advance preparation on the part of the students involved. The seminar, chaired by an accomplished philosopher of the style involved, is to be an ongoing display of the philosophical method in question through the discussion of a problem of the seminar's choice.

C. Participation in two *Ongoing Interface Seminars* where communication is established between philosophy and some other discipline. The content of interdisciplinary seminars will vary from term to term. Interface seminars are to be chaired by staff members acquainted with fields of study outside philosophy. Interface seminars will draw upon visiting and interdepartmental participants as well.

Over and above these requirements, the student will be guided by the Director of Graduate Studies in planning and executing an appropriate program of philosophical studies.

Ph.D. Candidacy

To be promoted to Ph.D. candidacy, a student must, in addition to the above requirements, fulfill the following conditions:

- A. Pass an exam in the history of philosophy.
- B. Submit a philosophical essay in a major philosophical style.
- C. Submit a philosophical essay in an interface area.
- D. Fulfill the symbolic logic requirement, which is to have acquired a knowledge of the concepts and notation of first-order logic sufficient to deal with its application to problems in analytic philosophy. Satisfactory completion of an undergraduate course in

symbolic logic is usually considered to be an adequate demonstration of competence.

E. Fulfill the foreign language requirement, which is to have translated a previously untranslated philosophical article (or the equivalent) or to have written a research paper which includes the original and translation of substantial philosophical passages.

F. Pass the candidacy preliminary exam (see below).

G. Be recommended by the graduate faculty to begin work on a dissertation.

The preliminary exam will ordinarily be oral and will be based on material prepared by the student with the help of the faculty advisor. The material will be from the student's area of special competence (usually the area in which he or she intends to write the dissertation) and will be presented in the form of an extended outline (approximately 4000 words) with bibliography. The examining committee will consist of three or four faculty, including the student's advisor.

Principal Structures on the Doctoral Level

There will be *Ongoing Style Seminars*, each exploring a major contemporary method of philosophical reasoning, though principally those of analytic philosophy, phenomenology or existentialism, and systematic philosophy. The seminars will meet every spring, following the preparatory proseminars which will be held during the fall semester. Both faculty and students will participate in the seminars.

The Ongoing Style Seminars will discuss (1) contemporary philosophical problems, both narrowly professional and those involving interdisciplinary issues, the topics to be determined by the chairman of the seminar together with the members of the seminar; (2) the methodology, style, and rational values of their own way of philosophical reasoning. The faculty will participate either by engaging in philosophical discourse according to the style appropriate to the seminar, or by raising critical metaphilosophical questions. The aim of the Ongoing Style Seminars is to display the way a philosophical style or sensibility works.

There will also be an unspecified number of *Ongoing Interface (Interdisciplinary) Seminars* where other disciplines are brought into communication with philosophy. These seminars will be chaired by cross-disciplinary appointments or visiting professors or members of the department versed in some discipline other than philosophy. Both faculty and students will participate in the seminars.

The ongoing seminars will aid in the continuing education of the junior faculty. They will, moreover, be resource seminars for undergraduate teachers who more and more are being asked to say what philosophy is today and to express critical views on current problems often involving an interdisciplinary interface.

In addition to the above structures there is ample flexibility allowed for independent and directed studies. These take a number of forms including a seminar in the teaching of philosophy (PHI 622, Supervised Teaching) which is offered every year.

Faculty

- Allison, David, *Assistant Professor*, Ph.D., 1974, Pennsylvania State University: Phenomenology, structuralism.
- Buchler, Justus, *Distinguished Professor*, Ph.D., 1938, Columbia University: Systematic philosophy.
- Casey, Edward S., *Associate Professor*, Ph.D., 1967, Northwestern University: Aesthetics, phenomenology, philosophy of psychology.
- Dallery, Carleton, *Assistant Professor*, Ph.D., 1968, Yale University: Phenomenology, ancient philosophy, philosophy and medicine.
- deNicolas, Antonio, *Associate Professor*, Ph.D., 1971, Fordham University: Indian philosophy.
- Dilworth, David, *Associate Professor*, Ph.D., 1963, Fordham University; 1970, Columbia University: East-West comparative philosophy.
- Gelber, Sidney, *Professor and Academic Vice President*, Ph.D., 1954, Columbia University: Political philosophy.
- Heelan, Patrick, *Professor and Vice President for Liberal Studies*, Ph.D., 1952, St. Louis University; 1964, University of Louvain, Belgium: Philosophy of science.
- Hill, Patrick J., *Associate Professor*, Ph.D., 1969, Boston University: Communication, community, education.
- Howard, Dick, *Associate Professor*, Ph.D., 1970, University of Texas: Political and social philosophy, Marxism.
- Ihde, Don, *Professor and Chairman*, Ph.D., 1964, Boston University: Phenomenology.
- Miller, Clyde Lee, *Assistant Professor and Undergraduate Program Director*, Ph.D., 1974, Yale University: History of philosophy.
- Neville, Robert, *Associate Professor*, Ph.D., 1963, Yale University: Philosophy of religion, process philosophy.
- Ringelheim, Joan, *Assistant Professor and Director, Master's Program in Philosophical Perspectives*, Ph.D., 1968, Boston University: Philosophy of history, philosophy of social science.
- Silverman, Hugh J., *Assistant Professor*, Ph.D., 1973, Stanford University: History of ideas, continental philosophy, structuralism.
- Simon, Michael, *Visiting Associate Professor*, Ph.D., 1967, Harvard University: Philosophy of mind, philosophy of biology, philosophy of social science.
- Spector, Marshall, *Professor*, Ph.D., 1963, Johns Hopkins University: Philosophy of science, modern philosophy.
- Sternfeld, Robert, *Professor*, Ph.D., 1948, University of Chicago: Logical theory, epistemology.

- Tejera, Victorino, *Professor*, Ph.D., 1956, Columbia University: Aesthetics, classical philosophy.
- Watson, Walter, *Associate Professor and Director, Ph.D. Program*, Ph.D., 1958, University of Chicago: History of philosophy.
- Welton, Donn, *Assistant Professor*, Ph.D., 1973, Southern Illinois University: Phenomenology and social philosophy.
- Williams, Peter, *Assistant Professor*, Ph.D., 1973, Harvard University: Philosophy of law, ethics.
- Wood, Susan B., *Assistant Professor*, Ph.D., 1976, State University of New York, Buffalo: Logic.
- Zemach, Eddy, *Associate Professor*, Ph.D., 1965, Yale University: Aesthetics, metaphysics.
- Zyskind, Harold, *Professor*, Ph.D., 1964, University of Chicago: Philosophic rhetoric, history of philosophy.

Political Science
Psychology
Sociology

The Behavioral Sciences

DEPARTMENT OF POLITICAL SCIENCE

Master's Program in Public Affairs

Objectives: the M.A. Program in Public Affairs is designed to provide individuals with the analytical training and policy expertise which will make them effective public servants. Courses are scheduled entirely in the evening to accommodate those interested in attending on either a full- or part-time basis.

Admissions Requirements

- A. A baccalaureate degree or its equivalent.
- B. A minimum grade point average of 3.0 in the undergraduate major; in exceptional cases, students who cannot meet the G.P.A. requirement may be admitted on a provisional basis.
- C. Three letters of recommendation.
- D. (For students seeking full-time status) Results of the Graduate Record Examination Aptitude Test.

Degree Requirements

The department awards the master's degree to all candidates who have successfully completed 24 credits of formal graduate course work and six credits of internship in a public sector agency. Students may substitute additional course work or a master's thesis for the internship requirement where appropriate. The required core courses consist of two year-long sequences: POL 510 and POL 511 cover basic research methods and statistics for public policy analysis; POL 533 and POL 535 concentrate on the formulation, implementation, and evaluation of public policy. The remaining 12 credits are divided among analytic and substantive electives. A maximum of 6 credits may be taken in related social science departments at Stony Brook, with the approval of the Program Director.

Ph.D. Program in Political Science

Objectives: The Ph.D. degree program in political science is designed to prepare well-qualified students for careers in teaching, and in academic and non-academic research. The program emphasizes (1) broad theoretical scope encompassing a wide spectrum of political science areas rather than intensive specialization in any one field; (2) systematic and conscious effort to integrate the macro (political systems, institutions, processes) and micro (uniformities and universalities of individual political behavior) aspects of political study; (3) methodological rigor; and (4) intensive training and experience in both teaching and research. Successful candidates must attain both a systematic command of major substantive areas in political science and a high level of technical skill in either micro or macro analysis. A major portion of each student's training will involve active participation in one or more major research projects.

Admissions Requirements

Applicants for admission to the Ph.D. program in political science must meet the following requirements (in addition to those set forth on page 26 of this *Bulletin*):

A. Submission of G.R.E. Scholastic Aptitude Test scores (Verbal and Quantitative) from the Graduate Record Examination Board.

B. Prior training that includes basic work in at least two of the following:

1. Political science
2. Economics or mathematical sociology
3. Mathematics and statistics
4. Biology or psychology.

C. In those cases where the departmental admissions committee deems it desirable, personal interviews with departmental representatives.

Degree Requirements

Candidates must meet the general requirements for the Ph.D. degree set by the Graduate School. Departmental requirements are as follows:

A. *Courses and hours:* The Graduate School requires two consecutive full-time semesters in residence. The department makes no additional formal requirement, since progress toward the degree depends upon the attainment of requisite levels of competence rather than accumulation of credits. It does, however, normally expect satisfactory completion of the following courses by all candidates:

1. POL 550, 551, 552, 553 Foundations of Political Science
2. POL 601, 602 Teaching Practicum
3. POL 610, 611 Research Practicum
4. POL 620, 621 Advanced Research Colloquium.

B. *Familiarity with the basic literature and substantive knowl-*

edge of political science: Requisite level of attainment is demonstrated by passing a preliminary examination (normally at the end of the first year) and comprehensive examination (normally at the end of the second year) with a grade of at least B in each.

C. *Research skills:* All candidates must demonstrate a high level of proficiency in either micro or macro analysis and in additional skills (language, etc.) appropriate to the individual candidate's program, as specified by his or her committee.

D. *Competence in teaching and research operations:* Satisfactory completion of POL 550, 551, 552 and 553. Graduate assistants engaged in research will enroll in POL 610 or 611; those engaged as teaching assistants will enroll in 601 or 602, as advised by the Director of Graduate Study.

E. *Examinations:* In addition to the tests and examinations in their courses, Ph.D. candidates must pass with a grade of at least B three other examinations at appropriate points in their career:

1. *Preliminary Examination:* An oral examination covering the basic literature and substantive knowledge in political science. Normally taken at the end of the first year.

2. *Comprehensive examination:* A written and oral examination covering the candidate's chosen area of emphasis: either macro political behavior (attacking problems involving political systems, institutions, and processes with such tools as mathematical modeling and econometrics) or micro political behavior (analyzing individual political behavior with the skills employed in experimental psychology, psychophysics, psychophysiology, and survey research).

3. *Dissertation defense:* Dissertation colloquium organized and administered by the candidate's doctoral committee, open to all interested faculty members and graduate students (of any department or institution), who may also participate in the discussion if they wish.

The department will also administer *equivalency examinations* in cases where a candidate believes he or she is sufficiently skilled in the areas described above to justify his or her proceeding without further formal training, but this will be done only in exceptional cases. It will normally require intensive formal training to attain the level of competence expected of candidates in those areas.

F. *Doctoral dissertation:* A student is formally admitted to candidacy after he or she has completed all the above requirements save, of course, the dissertation defense, and has submitted an acceptable dissertation proposal which shows how the student will bring to bear work previously done and/or work yet to be done, in order to meet the department's stringent dissertation requirement.

The dissertation is a substantial and significant piece or collection of original work that conclusively demonstrates the student's ability to contribute new knowledge to the scientific literature on politics. In form, the dissertation is either a single monograph, two

or more full-length articles, or the equivalent. In the case of dissertations comprising two or more articles, the topic may vary from one to another. The quality of the dissertation must be demonstrated by (1) approval of the candidate's dissertation examining committee, after an informal dissertation colloquium, *and* (2) acceptance of the monograph or the articles for publication by publishers or in journals deemed appropriate by the dissertation examining committee, or alternatively, if the dissertation examining committee so recommends, attestation of publishable quality by *two* appropriately qualified scholars outside the department invited by the committee to review the dissertation. Acceptance of the dissertation after the colloquium constitutes the last formal requirement before award of the degree.

G. *Satisfactory progress*: Upon initial registration each student, in consultation with the Director of Graduate Study or an advisor or doctoral committee chosen by him or her, formulates a plan of study. Progress in completing that plan of study (which may, of course, be changed at appropriate times with appropriate consultation) is reviewed annually. Students who fail to maintain satisfactory progress may be denied permission to continue.

1. Two consecutive semesters with a grade-point average of less than 3.0 is considered *prima facie* evidence of unsatisfactory progress.

2. Failure of the preliminary examination or the comprehensive examination is normally considered sufficient reason to terminate the student's program, although in certain exceptional cases the examining committee may recommend that the department is not obligated to accept the recommendation. A grade of B is required to pass the examinations. A student who obtains a grade of C may be permitted to retake the examination the next time it is offered, but only with the express recommendation of the examining committee and never more than once.

William R. Coe Summer Institute of American Studies

Each summer a six-week Institute of American Studies is offered for high school teachers. Senior members of the Stony Brook social science departments lead the two-hour daily colloquium and short analytical papers are required weekly. The Institute begins on June 19 and continues through July 28th.

The Institute is supported by an endowment given to the State University of New York by the William R. Coe Foundation. It is located at the former William R. Coe estate, Planting Fields, which has been given to the New York State Department of Parks and Recreation as an arboretum. Institute fellows are provided lodging, food, and a stipend. Six graduate credits are awarded for the successful completion of the program. For additional information, write *Professor Martin B. Travis, Director, Coe Institute of American Studies, Department of Political Science, State University of New York at Stony Brook, Stony Brook, New York 11794.*

Faculty

- Brown, Stephen P., *Assistant Professor*, Ph.D., 1976, University of Rochester: Political parties; legislative behavior; econometrics.
- Dantico, Marilyn, *Visiting Assistant Professor*, Ph.D., 1977, Florida State University: American government; public policy.
- Enelow, James M., *Visiting Assistant Professor*, Ph.D., 1977, University of Rochester: Voting theory; electoral behavior; methods.
- Gormley, William T., Jr., *Assistant Professor*, Ph.D., 1976, University of North Carolina: American government, regulatory and telecommunication.
- Hoadley, John, *Assistant Professor*, Ph.D., 1977, University of North Carolina: Legislative politics, methods.
- Jukam, Thomas, *Assistant Professor*, Ph.D., 1977, Michigan State University: Political behavior; quantitative methods.
- Koppelman, Lee E., *Adjunct Professor*, D.P.A., 1967, New York University: Regional planning and urban planning; environmental and natural resource policy.
- Linehan, William J., *Assistant Professor*, Ph.D., 1977, Indiana University: International relations; defense policy; methods.
- Lodge, Milton, *Associate Professor*, Ph.D., 1967, University of Michigan: Political psychology; public opinion and political behavior; methods.
- Luttbeg, Norman, *Professor and Chairman of Department*, Ph.D., 1965, Michigan State University: Public opinion; representation; political behavior.
- Myers, Frank E., *Associate Professor and Director of Graduate Studies*, Ph.D., 1965, Columbia University: Comparative politics; political theory; public policy.
- Pool, Jonathan, *Assistant Professor*, Ph.D., 1971, University of Chicago: Politico-linguistics; ethnic politics; computer-based experimentation and training.
- Reichler, Merton, *Adjunct Part-time Professor*, Ph.D., 1965, Columbia University: Constitutional law.
- Scarrow, Howard A., *Professor*, Ph.D., 1954, Duke University: Comparative politics; American government.
- Schneider, Mark, *Assistant Professor*, Ph.D., 1974, University of North Carolina: Public policy; urban/suburban politics.
- Tanenhaus, Joseph, *Professor*, Ph.D., 1953, Cornell University: International law; judicial process.
- Tursky, Bernard, *Professor*,¹ 1954, Lowell Institute, Massachusetts Institute of Technology: Political psychology; psychophysiology.
- Travis, Martin B., *Professor*, Ph.D., 1948, University of Chicago: International law; comparative foreign policy.
- Van Horn, Carl E., *Assistant Professor and Director of Public Affairs Program*, Ph.D., 1976, Ohio State University: American government; public policy.

¹Joint appointment, Department of Psychology

- Whitmore, Charles, *Assistant Professor*, Ph.D., 1976, Yale University: Political theory; comparative politics.
- Williams, Jay C., *Professor*, Ph.D., 1955, University of Chicago: Political film.
- Wolfson, Elaine, *Visiting Assistant Professor*, Ph.D., 1977, New York University: American national government; public policy.

DEPARTMENT OF PSYCHOLOGY

Admission to Graduate Study

- A. A baccalaureate degree in psychology.
- B. An average of 3.0 in all undergraduate course work.
- C. Letters of recommendation from three instructors or academic advisors.
- D. Results from the Graduate Record Examination.
- E. Acceptance by the Department of Psychology and the Graduate School. Students who do not meet these requirements may also apply if they feel that special circumstances should be considered.

Requirements for the Ph.D. Degree

The award of the Ph.D. degree in psychology is intended to signify both a scholarly mastery of the field of psychology and the ability to conduct independent research. In addition to the Graduate School's degree requirements, students must satisfy the following requirements:

A. *Residence*: Minimum residence required is two years, including at least two consecutive semesters of full-time study. (Unless admitted as part-time students, residents must register for full-time study until advanced to candidacy.) Full-time study is 12 graduate credits per semester, which may include credits for supervised teaching and research.

B. *Preliminary examination*: This examination ordinarily must be completed by the end of the fifth semester of graduate study and consists of two parts. The general examination includes completion of certain required courses (below) and a review and/or a research paper. The specialty examination is designed individually for each student; its form depends upon the area of specialization.

C. *Successful completion of an approved program of study* with a grade of B in each required course: Two semesters of quantitative methods, and three core courses selected from at least two areas outside the area of specialization, are required. The core courses offered include: Behavior Deviation (Clinical); Children's Learning, Cognitive Development, Socialization, and Biochemical Bases of Development (Developmental); Classical Theories and Animal

Learning, Cognition and Memory, Sensation and Perception, and Measurement and Scaling (Experimental); Neuropsychology, and Comparative Behavior (Psychobiology); and Contemporary Issues in Social and Community Psychology (Social). Following admission students with graduate training elsewhere can petition to waive course requirements on the basis of their previous work.

D. *Supervised teaching and research experience* from admission through their fourth year.

E. *Two semesters of substantial direct instruction in classroom or laboratory*: During these semesters, graduate students must receive teacher evaluations by their students.

F. *Advancement to candidacy*: Upon successful completion of the preliminary examination and requirements of the area of specialization, the student is recommended for advancement to candidacy for the Ph.D.

G. *Approval of the dissertation proposal, and a successful oral defense of the completed thesis.*

First-year evaluation: The progress of each first-year graduate student is reviewed at the end of the academic year by the entire faculty. The purpose of this review is to allow the student to withdraw without an unusually heavy investment of time when, in the opinion of the department, the student would not pass the preliminary examination at the Ph.D. level or produce a suitable dissertation. Any student whose performance is below the standard of the Ph.D. established by the department may be asked to withdraw. Under certain circumstances a student may be permitted to obtain a terminal Master of Arts degree after passing the general examination at the M.A. level, satisfactorily completing the required courses, and completing 30 graduate semester hours of study culminating in an M.A. thesis.

M.A. degree for doctoral program students: The department will recommend granting the M.A. degree to students who have completed all second-year requirements of the department and of their program area, and completed a research paper (which need not be presented in the form of a thesis), upon the recommendation of the student's program area.

Graduate Programs in Psychology

The graduate programs in psychology attempt to provide the student with training in general psychology and in the areas of specialization by emphasizing the laboratory apprenticeship and the seminar-tutorial method. Students are encouraged to become involved in ongoing research immediately upon entering graduate school and to engage in independent research when sufficient skills and knowledge are acquired. The department provides seminars and laboratory experience in the student's area of specialization as soon as possible. Students may specialize in any

of the following areas of study, which are described in greater detail in a brochure available on request.

Clinical Psychology

The clinical training program prepares the student to function as both a behavioral scientist and as a practicing professional psychologist. The program stresses an empirical approach to the study of behavior disorders, and emphasizes a cognitive behavioral approach to therapy, though other therapy modalities are also represented.

Developmental Psychology*

The program in developmental psychology provides students with research training in cognitive development, personality formation, behavioral analysis, infant growth, and maturation and comparative development. The role of clinical, experimental, and social psychological theories and factors in human development provides major focus of the area.

Experimental Psychology*

The program is designed to provide the student with a background in a variety of content areas in the field, and to provide training in research and teaching. Diverse approaches to experimental psychology, from the behavioral to the cognitive, are represented in the program. In particular there are four major foci of interest: animal behavior, cognitive processes, scaling and measurement, and sensation and perception.

Psychobiology (Comparative-Physiological Psychology)*

The program is oriented towards research in areas of comparative animal behavior and the anatomical, physiological, and chemical basis of human and animal behavior. An interdisciplinary program in psychobiology is offered jointly with the Division of Biological Sciences and focuses on behavioral psychology, ethology, and animal social behavior, with emphasis on both field and laboratory methods.

Social Psychology*

The program is exploring innovative directions for social psychology in addition to providing training in mainstream theories and methods. Special interest has developed in historical and critical studies of society and of the social sciences (with focus on economic, class, race and sex factors).

Changes of Program

Transfers between areas of specialization require approval of a formal application.

*This program will consider applications for part-time study ordinarily requiring registration for six graduate credit hours until advancement to candidacy. Only students pursuing full-time study are eligible for financial assistance.

Faculty

- Baars, Bernard, *Assistant Professor*, Ph.D., 1977, University of California, Los Angeles: Psycholinguistics; cognitive psychology.
- Birns, Beverly, *Adjunct Professor*,¹ Ph.D., 1963, Columbia University: Child development; neonates; special class differences; cognitive development; Piagetian theory; psychology of social differences; psychology of women.
- Bramel, Dana, *Professor*, Ph.D., 1960, Stanford University: Interpersonal perception; racism; social class; psychoanalytic theory; political implications of social psychology.
- Carr, Edward, *Assistant Professor*, Ph.D., 1973, University of California, San Diego: Behavior disorders associated with autism; childhood schizophrenia and mental retardation; speech and language development; development of alternatives to institutionalization for children with severe behavior problems.
- Coulter, Xenia, *Assistant Professor*, Ph.D., 1974, Princeton University: Animal learning and memory, Pavlovian conditioning, motivation, developmental psychobiology, development of learning and memory.
- Cross, David, *Associate Professor*, Ph.D., 1965, University of Michigan: Psychophysics; psychological scaling; mathematical psychology.
- Davison, Gerald C., *Professor and Director of Clinical Training*, Ph.D., 1965, Stanford University: Psychophysiological analysis of relationships between anxiety and sexual arousal; rational-emotive therapy; legal issues.
- Dwyer, James, *Assistant Professor*, Ph.D., 1975, University of California, Santa Cruz: Structural equation models of socio-economic status allocation; locus of control and economic well-being.
- D'Zurilla, Thomas J., *Associate Professor*, Ph.D., 1964, University of Illinois: Problem-solving training; self control; marital therapy.
- Emmerich, David, *Associate Professor*, Ph.D., 1967, University of Indiana: Audition; sensory processes; decision processes in the framework of signal detection theory.
- Friend, Ronald J., *Associate Professor*, Ph.D., 1969, University of Toronto, Canada: Interpersonal relations and social structure; social discrimination based on class, race and sex; social and political uses of psychology and social psychology.
- Gagnon, John, *Adjunct Professor*,² Ph.D., 1969, University of Chicago: Behavior; marriage and the family; social change.
- Gazzangia, Michael, *Professor*, Ph.D., 1964, California Institute of Technology: Neurological bases of behavior.
- Geer, James H., *Professor*, Ph.D., 1963, University of Pittsburgh: Study of sexual behavior with particular emphasis on cognitive factors and their effects upon physiological measures of sexual arousal.
- Gilchrist, Alan, *Assistant Professor*, Ph.D., 1975, Rutgers University:

Visual perception of surface color, illumination, depth, motion, size, and form.

- Goldfried, Marvin R., *Professor*, Ph.D., 1961, State University of New York, Buffalo: Behavioral assessment and cognitive behavior therapy.
- Green, Richard, *Adjunct Professor*,³ M.D., 1961, Johns Hopkins University, School of Medicine: Human sexuality and gender identity.
- Hay, Dale, *Assistant Professor*, Ph. D., 1976, University of North Carolina: Social development in infancy; play; exploration.
- Johnson, Marcia K., *Associate Professor*, Ph.D., 1971, University of California, Berkeley: Human learning and memory.
- Jones-Emmerich, Helen, *Assistant Professor*, Ph.D., 1972, University of Illinois: Development of memory, particularly visual memory; motivational factors in children's learning.
- Kalish, Harry I., *Professor*, Ph.D., 1952, University of Iowa: Applied learning, biofeedback, animal learning.
- Kanter, Norman, *Adjunct Assistant Professor*, Ph.D., 1975, State University of New York, Stony Brook.
- Kaye, Herbert, *Associate Professor*, Ph.D., 1964, Brown University: Infancy, early perception, conditioning in infancy, early language, early brain behavior relationships.
- Krasner, Leonard, *Professor*, Ph.D., 1950, Columbia University: Behavior modification, environmental design.
- Levine, Fredric, *Associate Professor*, Ph.D., 1965, Northwestern University: Behavior modification; motivation; schizophrenia.
- Levine, Marvin, *Professor and Director of Undergraduate Studies*, Ph.D., 1959, University of Wisconsin: Human learning, with emphasis on cognitive functions during problem solving.
- Lidsky, Theodore, *Assistant Professor*, Ph.D., 1974, University of Rochester: Basal ganglionic influences in oropharyngeal movements.
- Liebert, Robert, *Professor*, Ph.D., 1966, Stanford University: Observational learning on the instructional and socializing effects of entertainment television; moral development.
- Lockwood, Randall, *Assistant Professor*, Ph.D., 1976, Washington University: Mammalian behavior; social behavior and social ecology.
- LoPiccolo, Joseph, *Adjunct Associate Professor*,³ Ph.D., 1969, Yale University: Sexual dysfunction.
- MacDonald, Marian, *Assistant Professor*, Ph.D., 1974, University of Illinois: Behavior assessment; behavior modification with the aging.
- Menzel, Emil, *Professor*, Ph.D., 1958, Vanderbilt University: Primate behavior; social behavior; communication.
- Morrison, H. William, *Associate Professor and Director of Graduate Studies*, Ph.D., 1962, University of Michigan: Psychological scaling; judgmental and decision processes; perception of abstract relations; instructional techniques.

- Neale, John, *Professor*, Ph.D., 1969, Vanderbilt University: Studies of children vulnerable to psychopathology, and research on cognitive processes with adult schizophrenics.
- O'Leary, K. Daniel, *Professor and Chairman of the Department*, Ph.D., 1967, University of Illinois: Marital discord; hyperactivity in children.
- O'Leary, Susan, *Visiting Assistant Professor*, Ph.D., 1972, State University of New York, Stony Brook: Child and family problems; hyperactivity in children.
- Palmer, Francis H., *Professor*, Ph.D., 1950, University of Pittsburgh: Intervention studies, their follow-up and evaluation; cognition and language, particularly the relation between syntactic and semantic development in language comprehension.
- Pomeranz, David M., *Associate Professor and Director of Psychological Center*, Ph.D., 1963, University of Rochester: Environmental psychology; behavior setting theory; behavior modification.
- Rachlin, Howard C., *Professor*, Ph.D., 1965, Harvard University: Punishment, avoidance, choice, self-control.
- Rosen, Bruce, *Adjunct Assistant Professor*, M.D., 1971, Loyola-Stritch School of Medicine: Implementation of behavioral modalities in a hospital milieu setting complicated by outside-treating psychiatrists.
- Ross, Alan O., *Professor*, Ph.D., 1953, Yale University: Psychological disorders of children; learning disabilities; reading difficulties.
- Rubenstein, Eli, *Adjunct Professor*,³ Ph.D., 1951, Catholic University of America: Behavioral science with special emphasis on behavioral and social aspects of mental health in illness; role of mass media in influencing behavior; factors influencing sexual behavior.
- Schvaneveldt, Roger, *Associate Professor*, Ph.D., 1967, University of Wisconsin: Human information processing; cognition.
- Silverstein, Brett, *Assistant Professor*, Ph.D., 1976, Columbia University: Appetitive behavior; addiction; psychonutrition.
- Sprafkin, Joyce, *Adjunct Assistant Professor*, Ph.D., 1975, State University of New York, Stony Brook: The content and effect of television on children.
- Springer, Sally, *Assistant Professor*, Ph.D., 1971, Stanford University: Cognitive psychology; sensory processes; psycholinguistics.
- Stamm, John, *Professor*, Ph.D., 1950, University of Southern California: Neuropsychological processes in learning disabilities; electro-cortical recordings; cortical functions in primates.
- Sternglanz, Sarah H., *Adjunct Assistant Professor*, Ph.D., 1963, Stanford University: Human ethology; innate aspects of human social interactions particularly those between infants and adults; sex roles; social learning theory approach to the development of sex differences, particularly those most closely related to academic and career success.

- Tursky, Bernard, *Adjunct Professor*,⁴ Lowell Institute, Massachusetts Institute of Technology: Psycho-physiology; biofeedback; psycho-physics; laboratory approaches to the study of pain; political behavior.
- Valins, Stuart, *Professor*, Ph.D., 1964, Columbia University: Social ecology; cognitive and affective processes; environmental determinants of behavior change.
- Weintraub, Sheldon, *Adjunct Assistant Professor*, Ph.D., 1968, University of Minnesota: Study of children vulnerable to psychopathology.
- Whitehurst, Grover J., *Associate Professor*, Ph.D., 1970, University of Illinois: Basic learning processes (e.g., observational learning, operant learning) in the acquisition of complex skills (e.g., language, concepts, operations).
- Wyers, Everett J., *Professor and Director of Resources*, Ph.D., 1955, University of California, Berkeley: Comparative psychology; evolution of behavior; memory consolidation; learning.

DEPARTMENT OF SOCIOLOGY

M.A. Degree Program in Applied Sociology

The program is designed to provide a graduate-level introduction to sociological analysis for a select group of persons who (a) teach or intend to teach social studies in secondary schools or (b) hold positions in or wish to work in occupations requiring training in applied social research, including program and policy evaluation. This program is meant to help students develop an understanding of the analytical perspectives of sociology and a familiarity with its methodological approaches, including survey techniques, evaluation designs and observation techniques. The curriculum is adaptable to the ongoing experiences and career goals of individual students, including the problems of teaching high school sociology and of incorporating sociological perspectives into other social studies courses. The program is thus a logical extension of the department's current offerings in the Center for Continuing and Developing Education (CED) and draws in part on those courses.

Requirements for admission to this program will normally include:

- A. A baccalaureate program.

¹Joint appointment, Department of Social Sciences

²Joint appointment, Department of Sociology

³Joint appointment, Department of Psychiatry

⁴Joint appointment, Department of Political Science

- B. Six hours of undergraduate sociology.
- C. B (3.0) average or above (desirable).
- D. Graduate Record Examinations.
- E. Personal interview.

Minimum residence is two semesters of full-time study. The degree will be awarded upon successful completion of 30 graduate credits in sociology, approved by the Director of the Master's Program in Sociology. The courses would normally include the following:

Fall semester: SOC 514, SOC 546, and SOC 694.

Spring semester: SOC 695 and two graduate courses in sociology selected by the student in consultation with the director of the program.

Summer session: SOC 598; a six-credit seminar on sociological analysis, involving participation in either a collective research project on a topic chosen during the spring and/or an individual research project adapted to the individual's particular interest.

Requirements for the degree may be completed in twelve months of full-time late afternoon and evening study including summer session. Students who are interested in joining the M.A. degree program on a part-time basis are usually admitted.

Variations in the program may be arranged with the permission of the Director.

Admission to the Doctoral Programs in Sociology

Requirements for admission will normally include:

- A. A baccalaureate degree or its equivalent, as attested to by transcripts of previous academic work.
- B. Satisfactory results on Graduate Record Examinations.
- C. Satisfactory recommendations from former instructors.
- D. Acceptance by the Department of Sociology and by the Graduate School.

Applicants with a master's degree or other advanced work from other institutions must submit all the material cited above and their master's thesis or its equivalent. Credit is not ordinarily given toward the Ph.D. for graduate work done elsewhere. Exceptions are occasionally made for students who enter the program with demonstrability of high levels of expertise in subjects required for the Ph.D.

Requirements for the Ph.D. Degree

A. *Residence:* Minimum residence is generally one year of full-time study. Students are occasionally admitted to the Ph.D. program on a part-time basis, but these arrangements usually require that the students appear on campus during certain periods of the normal working day. Full-time study entails 12 or more graduate credit hours per semester. Since a graduate traineeship is considered part of the academic program, credit hours will be given for supervised teaching. Credit hours may also be given for individual

research work outside formal courses but under the supervision of a faculty member.

B. *Courses:* All full-time students are required to take at least eight courses during their first year. These must include two two-course sequences, one in sociological theory (SOC 505 and 506) and one in statistics and research methods (SOC 501 and 502). Ordinarily, two of the eight courses will consist of independent readings or, for those holding graduate traineeships, teaching experience under the supervision of a faculty member.

C. *Area specialty examinations:* During the first and second years of graduate study, every student is expected to take and pass four examinations chosen from a list of eight substantive areas deemed central to the discipline. The choice, and to a large extent the timing, of these examinations lie with the student. Those whose performance on these four examinations is not deemed satisfactory are not permitted to continue work on the Ph.D. Under certain circumstances those whose work is unsatisfactory at this stage may be permitted to take a terminal M.A.

D. *Research report:* Every student must submit a research report that demonstrates ability to analyze empirical data and to present findings clearly and systematically. Upon successful completion of all the above requirements along with completion of a minimum of 30 hours of graduate credit, the department will recommend to the Dean of the Graduate School that the student be awarded the M.A. degree as a sign of progress toward the Ph.D. Recipients of the terminal M.A. will not be granted permission to continue.

E. *Teaching requirement:* Graduate training includes supervised teaching experience. After completing C, above, students are required to teach an undergraduate course that falls within the general area of their specialization and to repeat that (or a similar) course if their teaching is satisfactory.

F. *Requirements outside of the department:* The student must choose one of three possible options: (1) to demonstrate proficiency in a modern foreign language by passing a suitable examination, or (2) to demonstrate proficiency in mathematics by passing a suitable examination, or (3) to pass with at least a B average a program of three graduate courses in other departments determined in consultation with the student's advisor and approved by the Graduate Committee.

G. *Preliminary examination:* This takes the form of an oral examination in the student's specialty to be given only after all the above requirements have been met. It is designed to appraise the student's depth of knowledge in the broad area from within which he or she has selected a dissertation topic and will include a consideration of the dissertation proposal. The content of this area is to be defined individually for each student. It consists of a generally recognized, broad subfield and must deal with related materials from other subfields.

H. *Advancement to candidacy*: The department's recommendation that a student be advanced to candidacy for the Ph.D. is based on passing the preliminary examination.

I. *Doctoral dissertation*: It must be an independent piece of research and scholarship representing an original contribution, the results of which are worthy of publication. Upon oral defense and acceptance of the dissertation, the department will recommend to the Dean of the Graduate School that the student be awarded the Ph.D. degree.

The progress of every student will be evaluated by the department at the end of the first full year of graduate study. Those whose performance and ability are clearly below the standard for Ph.D. established by the department will be asked to withdraw before they have made a costly investment of time. If more than four years should elapse between a student's advancement to candidacy and the submission of the finished dissertation, the student's Ph.D. candidacy may lapse, and he or she can be required to take a second set of examinations.

After the first year, a progressively larger proportion of a student's time will be spent as a participant in research activities, under the supervision of faculty members. Ordinarily, a student with adequate preparation and involved in full-time study should be able to earn a Ph.D. within four years from the time he or she begins graduate work.

Students who arrived with an M.A. degree in sociology or with three semesters of work in the discipline will be expected to complete some of the requirements above more quickly than indicated.

Faculty

Barthel, Diane, *Assistant Professor*, Ph.D., 1977, Harvard University: Urban; community; race and ethnicity; sex roles.

Cole, Stephen, *Professor*, * Ph.D., 1967, Columbia University: Science; professions; methodology.

Collver, O. Andrew, *Associate Professor*, Ph.D., 1964, University of California, Berkeley: Complex organizations; demography; ecology.

Coser, Lewis A., *Distinguished Professor*, Ph.D., 1954, Columbia University: Theory; conflict and violence; intellectual life; knowledge; political, social control.

Coser, Rose, *Professor*, Ph.D., 1957, Columbia University: Medical; family; organizations; socialization.

Davis, Wallace, *Assistant Professor*, Ph.D., 1974, Princeton University: Theory; knowledge; cognitive theory.

Dill, Forrest, *Assistant Professor*, Ph.D., 1972, University of California, Berkeley: Law; organization; control and deviance.

Feld, Scott, *Assistant Professor*, Ph.D., 1975, Johns Hopkins University: Methodology; political.

Feldman, Kenneth A., *Associate Professor*, Ph.D., 1965, University of Michigan: Social psychology; higher education.

- Gagnon, John, *Professor*,¹ Ph.D., 1969, University of Chicago: Deviant behavior; socialization; social change; sexual behavior.
- Goode, Erich, *Associate Professor*, Ph.D., 1966, Columbia University: Deviance; religion.
- Goodman, Norman, *Professor and Chairman*,* Ph.D., 1963, New York University: Social psychology; family; socialization.
- Granovetter, Mark, *Associate Professor*, Ph.D., 1970, Harvard University: Theory; political and economic sociology; stratification and formal models.
- Henry, Paget, *Assistant Professor*, Ph.D., 1976, Cornell University: Theory; class; political and economic sociology; stratification and formal models.
- Hodge, Robert W., *Professor*, Ph.D., 1967, University of Chicago: Social change; stratification; occupations and professions.
- Lang, Gladys, *Professor*, Ph.D., 1954, University of Chicago: Mass communications; social movements.
- Lang, Kurt, *Professor*,** Ph.D., 1953, University of Chicago: Collective behavior; mass communications; military.
- Logan, John, *Assistant Professor*, Ph.D., 1974, University of California, Berkeley: Urban; methods; political.
- Perrow, Charles, *Professor*, Ph.D., 1960, University of California, Berkeley: Complex organizations; social change; political.
- Polsky, Ned, *Associate Professor*, B.A., 1948, University of Wisconsin: Criminology and deviance; arts.
- Rosenberg, Terry, *Assistant Professor*, Ph.D., 1972, University of Chicago: Demography; urban; ethnic groups.
- Rule, James B., *Associate Professor*, Ph.D., 1969, Harvard University: Theory; political, social control.
- Schwartz, Michael, *Associate Professor*, Ph.D., 1970, Harvard University: Mathematical models; historical; political.
- Selvin, Hanan, *Professor*, Ph.D., 1956, Columbia University: Methodology; higher education; statistics; family.
- Tanur, Judith, *Associate Professor*, Ph.D., 1972, State University of New York, Stony Brook: Statistics; methodology; social psychology.
- Tyree, Andrea, *Associate Professor*,*** Ph.D., 1968, University of Chicago: Demography; social stratification; occupations.
- Weinstein, Eugene, *Professor*, Ph.D., 1954, Northwestern University: Experimental social psychology; family; methodology.
- Williams, Richard, *Lecturer*, M.A., 1975, State University of New York, Binghamton: Race and ethnic; development; media.
- Zeitz, Gerald, *Assistant Professor*, Ph.D., 1976, University of Wisconsin: Organizations; theory.

¹Joint Appointment, Department of Psychology

*On leave academic year 1978-79

**On sabbatical Fall 1978

***On leave Spring 1979

Biochemistry
Biology
Ecology and Evolution

The Biological Sciences

DIVISION OF BIOLOGICAL SCIENCES

The Division of Biological Sciences consists of three academic departments: Biochemistry, Biology, and Ecology and Evolution. The faculty of these three departments, together with individual members of the Departments of Chemistry, Earth and Space Sciences, and Psychology, the Marine Sciences Research Center, and the School of Basic Health Sciences of the Health Sciences Center, collaborate in operating several different graduate programs in various areas of the biological sciences. Some faculty members participate in more than one of these programs. Through these interdepartmental interactions it is possible to meet the needs of students with diverse intellectual and professional interests without the constraints imposed by traditional departmental boundaries.

The five graduate programs under the auspices of the Division of Biological Sciences are: Cellular and Developmental Biology, Ecology and Evolution, Molecular Biology, Neurobiology and Behavior, and an M.A. Program in Biology. The first four of these programs are designed for students seeking the Ph.D. degree while the last leads to the M.A. degree. Each of the programs is directed by a Program Chairperson and an Executive Committee, and each establishes its own entrance standards and degree requirements. Each program also separately evaluates candidates for admission. The paragraphs below describe the five programs in detail, and interested students should address inquiries directly to the appropriate Program Chairperson.

Information on related areas of graduate study in the School of Basic Health Sciences and in the Marine Environmental Studies Program is available elsewhere in this *Bulletin*.

CELLULAR AND DEVELOPMENTAL BIOLOGY (BCD)

The program in Cellular and Developmental Biology provides training and research opportunities in the physiological and genetic bases of growth, differentiation and morphogenesis of biological systems. Staff members in the program are engaged in research in the developmental biology of microorganisms, lower and higher plants, insects and invertebrates. The viewpoint is essentially experimental with emphasis upon regulation of developmental processes at the cellular and organismic levels. A close relationship with staff members in the Molecular Biology and Ecology and Evolution Programs is maintained.

The Division of Biological Sciences is well equipped for work in developmental biology. The modern laboratory facilities include culture rooms, apparatus for continuous and synchronized cell culture, equipment for biochemical and isotopic analyses and electron microscopy facilities. Besides course work and seminars, students in the program have an early opportunity to work in the laboratories of several different staff members to broaden their experience and to help them decide which area of developmental biology they wish to pursue further.

Admission Requirements

The program requires the following in addition to the minimum Graduate School admission requirements:

A. Baccalaureate degree in biology or related area including the following preparation: one year of general chemistry; one year of organic chemistry, including organic chemistry laboratory; one semester of physical chemistry or physical biochemistry; two semesters of college mathematics, including at least one semester of calculus; and two semesters of physics. Students may be admitted to the program without some of the above undergraduate courses but will be required to make up these deficiencies during the first year.

B. A report of Graduate Record Examination scores.

Ph.D. Requirements

Course Requirements

1. Cell Biology at the graduate level (BCD 656).
2. Developmental Biology at the graduate level (BCD 657).
3. Molecular Genetics (BIO 360), or Microbial Genetics (HBM 503).
4. Biochemistry (BMO 520-521).
5. Student seminar for at least 4 semesters (BCD 531, 532). One acceptable seminar is to be given each semester until advancement to candidacy, and attendance at all research seminars (BCD 621, 622) is required.
6. Two semesters of research (BCD 530) in staff laboratories. The student generally must work in four different laboratories during the

two semesters. The particular laboratories involved will be decided by the student's advisory committee in consultation with the student and with approval of the Executive Committee.

7. At least three elective graduate courses to be approved by the student's advisory committee.

Students must achieve a B or better in all required courses and must maintain a B average in undergraduate and graduate elective courses.

Residence Requirement

The University requires at least two consecutive semesters of full-time graduate study. The demands of the program necessitate a longer period of residence.

Teaching Requirement

It is expected that each graduate student completing a doctoral program will have functioned as a teaching assistant during at least two semesters of his/her graduate career (BIO 600).

Comprehensive Examination

At the beginning of the fourth semester, the student will take a two-day written comprehensive examination covering the areas of cell and developmental biology.

Thesis Proposal Examination

After successful completion of the comprehensive examination, the student selects a thesis advisor and writes a proposal for thesis research. After approval by the thesis advisor, the proposal is orally defended before a thesis committee.

Advancement to Candidacy

After successful completion of all required and elective courses, the comprehensive examination, and the thesis proposal examination, the student will be recommended to the Graduate School for advancement to candidacy.

Ph.D. Dissertation

The research for the Ph.D. dissertation is conducted under the supervision of the thesis committee. A dissertation examination committee is appointed by the Dean of the Graduate School when the thesis nears completion. The dissertation examining committee reads the finished dissertation and gives the candidate an oral examination on the dissertation research and related areas.

M.A. Degree Requirement

The program normally does not accept a student whose goal is a master's degree. In exceptional instances, a student already in the program may be awarded an M.A. degree upon completing an approved course of study, including a minimum of 30 graduate credit hours, passing a comprehensive examination, and presenting and defending a research thesis.

Faculty

- Arnheim, Norman, *Associate Professor*,² Ph.D., 1965, University of California, Berkeley: Structure and evolution of mammalian ribosomal genes.
- Baylor, Martha, *Research Investigator*,³ Ph.D., 1941, University of Illinois: Morphogenesis of viruses.
- Delihias, Nicholas, *Associate Professor*,⁴ Ph.D., 1961, Yale University: Structure and function of RNA and ribosomes.
- Dewey, Maynard M., *Professor and Chairman*,¹ Ph.D., 1958, University of Michigan: Contractile mechanisms; structure of vertebrate smooth muscle; cell-cell communication; immunocytochemical localization of membrane proteins.
- Dudock, Bernard S., *Associate Professor*,² Ph.D., 1966, Pennsylvania State University: Structure and function of viral and messenger RNA.
- Edmunds, Leland N., *Professor*³ and *Director, Graduate Program in Cellular and Developmental Biology*, Ph.D., 1964, Princeton University: Membrane transport; cell cycles and biological clocks in synchronized cultures of *Euglena* and yeast.
- Gordon, Joel, *Assistant Professor*,¹ Ph.D., 1971, University of Pennsylvania: Control of transcription in cell differentiation; myogenesis.
- Hauber, Eric J., *Assistant Professor*,¹ Ph.D., 1971, University of California, Los Angeles: Conformation and function of prokaryotic ribosomes and membrane-bound eukaryotic ribosomes.
- Hillman, William S., *Adjunct Professor*,³ Ph.D., 1954, Yale University: Biological rhythms and physiological timing in flowering plants.
- Jones, Raymond F., *Professor*,³ Ph.D., 1955, University of Durham, England: Physiology and biochemistry of growth and cellular differentiation in algae.
- Kates, Joseph R., *Professor and Chairman*,⁴ Ph.D., 1966, Princeton University: Molecular biology and animal virus replication; study of the mechanisms and control of gene expression during cellular growth and differentiation.
- Katz, Eugene R., *Associate Professor*,³ Ph.D., 1969, University of Cambridge, England: Biochemical genetics and development in cellular slime molds; eye development in Mexican cave fish.
- Krikorian, Abraham D., *Associate Professor*,³ Ph.D., 1965, Cornell University: Control of the morphogenetic potential of cultured plant cells; biochemical differentiation in cultured cells of angiosperms.
- Lyman, Harvard, *Associate Professor*,³ Ph.D., 1960, Brandeis University: Control mechanisms in the biogenesis, development, and replication of chloroplasts and other cellular organelles.
- Merriam, Robert W., *Associate Professor*,³ Ph.D., 1953, University of Wisconsin: The role of actins in the structure and function of eggs and early embryos.

- Poccia, Dominic L., *Assistant Professor*,³ Ph.D., 1971, Harvard University: Chromosome function during sea-urchin development; centriole function.
- Sadoglu, Perihan, *Research Associate Professor*,³ D.Sc., 1953, University of Istanbul, Turkey: Genetic control of eye development and cataract formation in Mexican cave fish.
- Taichman, Lorne B., *Assistant Professor*,¹⁶ Ph.D., 1971, University of Wisconsin; M.D., University of Toronto: Mechanism of chromatin replication and repair.
- Walcott, Benjamin, *Assistant Professor*,¹ Ph.D., 1968, University of Oregon: Comparative neurophysiology; relation between muscle tension, sarcomere length, and filament length in striated muscle; sensory integration; electron microscopy.
- Walther, Bernt, *Assistant Professor*,¹ Ph.D., 1972, University of Washington: Studies on the molecular basis for the organization of cells into tissues; the appearance of specific cell adhesive properties during embryogenesis.
- Williams, David L., *Assistant Professor*,⁵ Ph.D., 1972, University of Illinois: Hormonal control of protein secretion.
- Williamson, David L., *Associate Professor*,¹ Ph.D., 1959, University of Nebraska: Biochemical and structural aspects of sex-ratio-determining organisms from insects and plants; insect cell cultures.
- Wimmer, Eckard, *Associate Professor*,⁴ Ph.D., 1962, University of Göttingen, Germany: Structure and biological function of RNA's and proteins of picornaviruses and RNA tumor viruses and their host cells.

ECOLOGY AND EVOLUTION (BEE)

The Program in Ecology and Evolution provides training and research opportunities on a broad spectrum of theoretical, laboratory, and field problems involving diverse groups of terrestrial and marine organisms in geographic regions ranging from the tropics to the Arctic. The program also includes a diversity of approaches to ecological and evolutionary problems, including population dynamics from a behavioral, mathematical and experimental ap-

¹Department of Anatomical Sciences

²Department of Biochemistry

³Department of Biology

⁴Department of Microbiology

⁵Department of Pharmacological Sciences

¹³Brookhaven National Laboratories

¹⁶Department of Oral Biology and Pathology

proach, as well as study of field populations. Taxonomic theory and methodology (especially numerical taxonomy), and certain aspects of physiology, genetics (especially population genetics), marine biology, multivariate statistics, and systems analysis are also being studied in relation to ecological and evolutionary problems. The program also includes staff whose primary activities lie in the area of conservation (both resource management and pollution problems) and who are actively involved in ecologically-based social action in the Long Island area and on a national and international scale.

Research facilities include extensive greenhouse and controlled growth chamber facilities, computer laboratory (terminals, ModComp IV mini-computer and remote job entry to the University's Univac 1110 computer), and electrophoresis laboratory. Flax Pond, a near-by salt-marsh with an associate marine laboratory, and near-by fields, woods, ponds and beaches offer many possibilities for field research.

Admission Requirements

The program requires the following in addition to the Graduate School admission requirements:

- A. Baccalaureate degree, which should include formal training in genetics, ecology, and at least one course specializing in the biology of a particular group of organisms.
- B. Report of Graduate Record Examination scores.
- C. Acceptance by the program and by the Graduate School.

Ph.D. Requirements

Course Requirements

1. Biometry (BEE 552), preferably taken during the student's first semester.
2. Research Areas in Ecology and Evolution (BEE 556).
3. Colloquium in Ecology and Evolution (BEE 671).
4. Enrollment normally expected in one of a variety of small seminars every semester.
5. A diagnostic examination is given to all entering students early in the fall semester to aid in the selection of a curriculum. Candidates for the Ph.D. degree must satisfactorily fulfill those recommendations arising from this examination as well as other recommendations made by the student's advisory committee. The program faculty feel that each student will require advanced training in various ancillary disciplines appropriate to the student's chosen field of research. Requirements for any specific student will be determined by the student's advisory committee and might include one or more foreign languages or advanced study in mathematics, statistics, computer science, biochemistry, or other areas.

Teaching Requirement

It is expected that all graduate students completing a doctoral program will have functioned as teaching assistants during at least two semesters of their graduate careers.

Residence Requirement

At least two consecutive semesters of full-time graduate study are required. The demands of the program usually necessitate a longer period of residence.

Preliminary Examination

After completing the course of study arising from the results of the diagnostic examination, and after fulfilling other requirements that may be recommended by the advisory committee, a student may apply to take a preliminary examination. Normally this examination will be taken no later than the sixth semester after entrance. The preliminary examination will be partly written and partly oral.

Advancement to Candidacy

When all the above requirements have been completed, the program faculty will recommend the student to the Graduate School for advancement to candidacy.

Research and Thesis

A thesis is required for the Ph.D. degree. It must contain the results of original and significant investigation. A thesis proposal must be approved by the program faculty during an early stage of a student's research.

Final Examination

The completed thesis must be approved by the student's advisory committee. A dissertation examining committee is then appointed by Dean of the Graduate School. A formal public oral defense of the thesis is scheduled, at which the student presents his/her findings and is questioned by members of the examining committee and by other members of the audience.

M.A. Degree Requirements

The program normally does not accept a student whose goal is an M.A. degree. In exceptional instances, a student already in the program may be awarded an M.A. degree upon completion of an approved course of study, including 30 graduate credit hours, a comprehensive examination, and a research thesis.

Faculty

Armstrong, Robert, A., *Assistant Professor*,⁶ Ph.D., 1975, University of Minnesota: Mathematical ecology.

Arnheim, Norman, *Associate Professor*,² Ph.D., 1965, University of California, Berkeley: Macromolecular evolution; the evolution of regulatory systems.

- Baylor, Edward R., *Professor*,^{6, 8} Ph.D., 1949, Princeton University: Surface chemistry; oil spills; ethology.
- Bentley, Barbara L., *Assistant Professor*,⁶ Ph.D., 1974, University of Kansas: Plant ecology; plant-animal interactions; tropical ecology.
- Bretsky, Peter W., *Associate Professor*,⁷ Ph.D., 1967, Yale University: Evolution of Paleozoic benthic marine communities.
- Carroll, C. Ronald, *Assistant Professor*,⁶ Ph.D., 1974, University of Chicago: Insect ecology; social insects; agricultural ecology; interactions of plants and animals; tropical biology.
- Creel, Norman, *Associate Professor*,¹ Ph.D., 1967, Eberhard Karls University, Tübingen, Germany: Primate systematics with emphasis on numerical methods; biostereometrics; evolution of human populations; inheritance of polyfactorial traits in human populations.
- Farris, James S., *Associate Professor*,⁶ Ph.D., University of Michigan: Theory of phylogenetic inference.
- Futuyma, Douglas J., *Associate Professor and Program Director*,⁶ Ph.D., 1969, University of Michigan: Coevolution of species, especially of plants and insects; effects of evolution on the structure of ecological communities.
- Ginzburg, Lev, *Associate Professor*,⁶ Ph.D., 1970, Agrophysical Institute, Leningrad, U.S.S.R.: Mathematical population genetics and ecology.
- Hechtel, George J., *Associate Professor*,⁶ Ph.D., 1962, Yale University: Systematics and zoogeography of marine Demospongiae.
- Koehn, Richard K., *Associate Professor*,⁶ Ph.D., 1967, Arizona State University: Population genetics; enzyme function and adaptation in natural populations.
- Levinton, Jeffrey S., *Associate Professor*,⁶ Ph.D., 1971, Yale University: Marine benthic ecology; population genetics of bivalve mollusks; paleoecology.
- Okubo, Akira, *Professor*,⁸ Ph.D., 1963, The Johns Hopkins University: Oceanic diffusion; animal dispersal; mathematical ecology.
- Palmer, Allison R., *Professor and Chairman*,⁷ Ph.D., 1971, University of Minnesota: Paleobiogeography; Cambrian stratigraphy and trilobite systematics.
- Rohlf, F. James, *Professor and Department Chairman*,⁶ Ph.D., 1962, University of Kansas: Multivariate data analysis techniques applied to problems in taxonomy and ecology; mathematical population genetics.
- Slobodkin, Lawrence B., *Professor*,⁶ Ph.D., 1951, Yale University: Evolutionary strategy with reference to species diversity, timing of responses, self image; adaptive mechanisms of Hydra.
- Smolker, Robert E., *Associate Professor*,⁶ Ph.D., 1955, University of Chicago: Applied ecology; environmental impact analysis; public interest environmental law.
- Sokal, Robert R., *Professor*,⁶ Ph.D., 1952, University of Chicago:

Theory of systematics, numerical taxonomy; geographic variation and population phenetics in the aphid genus *Pemphigus*.

Walsh, John J., *Adjunct Associate Professor*,^{6, 8, 13} Ph.D., 1969, University of Miami: Upwelling of ecosystems; phytoplankton ecology; modeling of continental shelf ecosystems.

Williams, George C., *Professor*,⁶ Ph.D., 1955, University of California, Los Angeles: Evolution of life-history strategies; ecology and population genetics of marine fishes.

MOLECULAR BIOLOGY (BMO)

The Program in Molecular Biology is designed to prepare the student to formulate and attack biological problems at the molecular and cellular levels. The program accommodates a broad spectrum of interests, including the chemical basis of enzyme action, the physical biochemistry of macromolecules, the structure and function of proteins, the biosynthesis of proteins and nucleic acids, the molecular and cellular bases of gene expression, metabolic control mechanisms, membrane biochemistry, contractile systems, and ultrastructure. A full range of modern facilities is available for research in all these areas. The faculty of this program include all members of the Department of Biochemistry plus faculty drawn from other departments in the Division of Biological Sciences, from the School of Basic Health Sciences, and from the Department of Chemistry.

Admission Requirements

The program requires the following in addition to the Graduate School admission requirements:

A. Baccalaureate degree with the following minimal preparation: mathematics through one year of calculus; chemistry, including organic chemistry and physical chemistry; general physics; and one year of biology.

B. Letters from three previous instructors and a report of Graduate Record Examination scores.

C. Acceptance by the program and by the Graduate School. In special cases, students not meeting all of the requirements listed in

¹Department of Anatomical Sciences

²Department of Biochemistry

³Department of Biology

⁶Department of Ecology and Evolution

⁷Department of Earth and Space Sciences

⁸Marine Sciences Research Center

¹³Brookhaven National Laboratories

A above may be admitted, but such students must immediately remedy these deficiencies.

Ph.D. Requirements

Course Requirements

A. Core courses:

1. Principles of Biochemistry (BMO 520, 521), a two-semester course.
2. Microbial Genetics (HBM 503) or Molecular Genetics (BIO 360).
3. Physical Biochemistry (BMO 502).
4. Experimental Biochemistry (BMO 509, 510), a two-semester course in which the student spends a half semester in each of four different faculty laboratories actively participating in the ongoing research work of the laboratory.

B. Three elective courses in molecular biology or related fields.

C. Enrollment every semester in three seminar courses: Colloquium in Molecular Biology (BMO 601-602), which is a series of invited lectures by visiting scientists from other institutions; Student Seminar (BMO 603-604), in which each student presents a talk on a topic from the current literature; and Molecular Biology Workshop (BMO 605-606), in which faculty members, postdoctoral fellows, and advanced students present informal progress reports on their current research activities.

Residence Requirement

The University requires at least two consecutive semesters of full-time graduate study. The demands of the program necessitate a longer period of residence.

Teaching Experience

All students in the program, whether or not they are supported by teaching assistantships, are required to gain experience in teaching by assisting in laboratory sections, leading discussion sections or helping to formulate and grade examination papers. The teaching experience may be in either undergraduate or graduate courses, and is to extend over a period of at least four semesters.

Qualifying Examination

In the middle of the second year all students take a two-day written qualifying examination covering the material of the core courses. This examination tests the student's ability to integrate basic concepts and information from the core courses and to apply them to current problems in molecular biology.

Proposition Examination

After passing the written qualifying examination, each student is required to prepare and defend one proposition. The student proposes an original mechanism or theory which could serve to ex-

plain a biological phenomenon in molecular terms, and devises hypothetical experiments designed to test the proposal. The proposition may be in any area of molecular biology, including the probable area of the Ph.D. thesis. The student presents a detailed write-up of the background and logic of the proposition and the experiments proposed to test it, which then forms the basis for an oral proposition examination.

Advancement to Candidacy

When the above requirements have been satisfactorily completed, a recommendation for advancement to candidacy for the Ph.D. will be forwarded to the Graduate School.

Ph.D. Dissertation

During the second year the student initiates a thesis research project in the laboratory of a particular member of the program faculty. After the student has passed the proposition examination, a research committee is appointed to guide the thesis research, and when the research nears completion, a dissertation examining committee is appointed by the Dean of the Graduate School.

Thesis Defense

The thesis defense, which completes the requirements for the Ph.D., consists of a public seminar presentation of the thesis work followed by an oral examination before the dissertation examining committee.

M.A. Degree Requirements

The program normally does not accept students whose goal is a master's degree. In exceptional instances, a student already in the program may be awarded an M.A. degree upon completing an approved course of study, including a minimum of 30 graduate credit hours, passing a comprehensive examination, and submitting and defending a master's thesis.

Faculty

Arnheim, Norman, *Associate Professor*² and *Chairperson, Molecular Biology Program*, Ph.D., 1965, University of California, Berkeley: Structure and genetic behavior of ribosomal DNA in mammals.

Bauer, William R., *Associate Professor*,⁴ Ph.D., 1968, California Institute of Technology: Structure and interactions of the nucleic acids, especially circular DNA's; mechanism of action of anti-tumor drugs; morphogenesis of vaccinia virus.

Baylor, Martha, *Lecturer*,³ Ph.D., 1941, University of Illinois: Assembly of complex baseplate of the coliphages T2 and T4 using purified substructures of the baseplate and *in vitro* assembly experiments.

Cirillo, Vincent P., *Professor and Chairman*,² Ph.D., 1953, University of California, Los Angeles: Mechanisms of membrane transport

- processes in yeast and bacteria.
- Cohen, Seymour, *Distinguished Professor of Pharmacological Sciences*,⁵ Ph.D., 1941, Columbia University: Comparative biochemistry; function of polyamines.
- Dudock, Bernard S., *Associate Professor*,² Ph.D., 1966, Pennsylvania State University: Structure and function of transfer and viral RNA.
- Edmunds, Leland N., *Professor*,³ Ph.D., 1964, Princeton University: Interrelationships among cell cycle, biological clock and membrane transport control systems in yeast; *in vitro* culture of chloroplasts isolated from *Euglena*.
- Eisenberg, Moises, *Assistant Professor*,⁵ Ph.D., 1972, California Institute of Technology: Ion transport in reconstituted membranes mediated by drugs and proteins.
- Freundlich, Martin, *Associate Professor*,² Ph.D., 1961, University of Minnesota: *In vivo* and *In vitro* studies on the regulation of protein synthesis in bacteria.
- Grollman, Arthur P., *Professor*^{5, 10} and *Chairman*,⁵ M.D., 1959, Johns Hopkins University: Molecular pharmacology involving mechanisms of action of antitumor drugs, antiviral agents and toxins.
- Inouye, Masayori, *Professor*,² Ph.D., 1963, Osaka University, Japan: Control mechanisms of cell division; characterization of membrane proteins associated with cell division and DNA replication.
- Katz, Eugene, R., *Associate Professor*,³ Ph.D., 1969, University of Cambridge, England: Developmental genetics of cellular slime molds; eye development in Mexican cave fish.
- Lauterbur, Paul C., *Professor*,¹¹ Ph.D., 1962, University of Pittsburgh: Nuclear magnetic resonance and its application to medical imaging to studies of the structures and function of proteins in crystals, solutions and membranes, and to physiology.
- Lyman, Harvard, *Associate Professor*,³ Ph.D., 1960, Brandeis University: Control mechanisms in the biogenesis development and replication of chloroplasts and other cellular organelles; regulation of symbiotic chloroplasts and algae in invertebrate hosts.
- McLaughlin, Stuart G., *Associate Professor*,¹² Ph.D., 1968, University of British Columbia, Canada: Biophysics of natural and synthetic membranes.
- Moos, Carl, *Associate Professor*,² Ph.D., 1957, Columbia University: Contractile proteins of muscle and mechanism of contraction; actin-myosin interaction; ATPase kinetics.
- Riley, Monica, *Professor*,² Ph.D., 1960, University of California, Berkeley: Macromolecular evolution in bacteria and mechanisms of genetic recombination in bacteria.
- Sarma, Raghupathy, *Associate Professor*,² Ph.D., 1963, University of Madras, India: X-ray crystal structure determination of immunoglobulins, lysozyme and other molecules of biological interest.
- Scandella, Carl J., *Assistant Professor*,² Ph.D., 1971, Stanford University: Membrane biochemistry, particularly the role of fluidity in

- membrane function; molecular changes in membrane structure accompanying virus transformation of animal cells.
- Schmidt, Jakob, *Assistant Professor*,² Ph.D., 1970, University of California, Riverside; M.D., 1966, University of Munich, Germany: Molecular biology of synaptic transmission; structure and function of nicotinic acetylcholine receptors in muscle and brain.
- Setlow, Richard B., *Adjunct Professor*,^{2, 13} Ph.D., 1947, Yale University: DNA damage and repair; carcinogens and radiation.
- Shaw, Elliott N., *Adjunct Professor*,^{2, 13} Ph.D., 1943, Massachusetts Institute of Technology: Protein chemistry; proteolytic enzymes (purification, structure and function); synthetic inhibitor of proteases.
- Simon, Sanford R., *Associate Professor*,² Ph.D., 1967, Rockefeller University: Structure-function relationships in normal and modified hemoglobins, Na-K ATPase, and ionophorous antibiotics, employing spectroscopic and kinetic techniques.
- Simpson, Melvin V., *American Cancer Society Professor of Biochemistry*,² Ph.D., 1949, University of California, Berkeley: Mitochondrial DNA and its replication; conformational changes in ribosomes related to function; biochemistry of memory using split brain systems.
- Sternglanz, Rolf, *Associate Professor*,² Ph.D., 1967, Harvard University: DNA replication in bacterial and eukaryotic systems.
- Studier, F. William, *Adjunct Professor*,^{2, 13} Ph.D., 1963, California Institute of Technology: Genetics and physiology of bacteriophage T7; control of gene expression; replication of T7 DNA.
- Uyemura, Dennis, *Assistant Professor*,² Ph.D., 1976, Stanford University: Molecular mechanisms of cell motility processes and the control of DNA replication in simple eukaryotic microorganisms.
- Williams, David L., *Assistant Professor*,⁵ Ph.D., 1972, University of Illinois, Urbana: Purification of the messenger RNA for a specific egg yolk protein and the regulation of its synthesis by estrogens and antiestrogenic drugs.
- Wimmer, Eckard A., *Associate Professor*,⁴ Ph.D., 1962, University of Göttingen, Germany: Structure and function of cellular and viral ribonucleic acids and proteins; replication of polioviruses.
- Wishnia, Arnold, *Associate Professor*,¹¹ Ph.D., 1957, New York University: Globular proteins, ribosomal subunit association and membrane models.

²Department of Biochemistry

³Department of Biology

⁴Department of Microbiology

⁵Department of Pharmacological Sciences

¹⁰Department of Medicine

¹¹Department of Chemistry

¹²Department of Physiology and Biophysics

¹³Brookhaven National Laboratories

NEUROBIOLOGY AND BEHAVIOR (BNB)

The Program in Neurobiology and Behavior draws the core of its faculty from within the Division of Biological Sciences, but includes contributing faculty from the Health Sciences Center (Psychiatry, Anatomical Sciences, Physiology and Biophysics) and from the Department of Psychology.

The program has two main emphases, neurophysiology and behavior. Because the program is interdisciplinary in nature, and because students enter the program with differing backgrounds, programs of study are individually tailored to give academic breadth as well as scholarly depth in each student's area of specialization.

Facilities are available for studying animal behavior in the field and laboratory, acoustical communication, electrophysiology and neuroanatomy, and for computer simulation, modeling, and analysis.

Admission Requirements

- A. Baccalaureate degree, including the following preparation: one semester of calculus, one semester of physics, two semesters of chemistry with laboratory, one semester of psychology, and a strong background in biology.
- B. Minimum grade point average of 2.75 (B-) in all undergraduate course work, and 3.00 (B) in science and mathematics courses.
- C. Letters from three previous instructors and a report of Graduate Record Examination scores.
- D. Acceptance by the program and by the Graduate School. Students may be admitted to the program without some of the above undergraduate courses but will be required to make up deficiencies during the first year.

Ph.D. Requirements

Course Requirements

1. Course in statistics, to be selected.
2. Neurophysiological Techniques (BNB 542), and Behavioral Techniques (BNB 533).
3. Additional courses determined early in the first year by a "prescription" examination administered by a faculty committee.

Foreign Language Requirement

Reading knowledge of one foreign language is required. The appropriate language is decided upon in consultation with a faculty advisory committee.

Teaching Requirements

All graduate students are required to participate in teaching at the undergraduate level for at least two semesters. If the student is supported by a teaching assistantship, he/she must continuously participate in teaching.

Residence Requirement

At least two consecutive semesters of full-time graduate study are required. The demands of the program usually necessitate a longer period of residence.

Preliminary Examination

After completing the major portion of the course of study, a student may apply for the preliminary examination. This examination will be oral and/or written, and must be taken no later than the sixth semester after entrance.

Advancement to Candidacy

The program's recommendation to the Graduate School with respect to candidacy for the Ph.D. degree is based upon the satisfactory completion of the above requirements.

Ph.D. Dissertation

A dissertation on original research is required for the Ph.D. The research is executed with the guidance of an advisory committee consisting of four to seven faculty members whose interests are appropriate to the dissertation topic. Finally, a dissertation examination committee, appointed by the Dean of the Graduate School, reads the dissertation and gives the candidate an oral examination on the dissertation research and related areas.

M.A. Degree Requirements

The program normally does not accept students whose goal is a master's degree. In exceptional instances, a student already in the program may be awarded an M.A. degree upon completing an approved course of study, including a minimum of 30 graduate credit hours, passing a comprehensive examination, and presenting and defending a master's thesis.

Faculty

Carlson, Albert D., *Associate Professor*,³ Ph.D., 1960, University of Iowa: Physiology of invertebrate nervous systems; insect neuropharmacology; neuronal control of flash patterns by fireflies.

Karten, Harvey J., *Professor*,¹⁴ M.D., 1959, Albert Einstein College of Medicine; Avian nervous pathways; comparative neuroanatomy.

Menzel, Emil, *Professor*,¹⁵ Ph.D., 1958, Vanderbilt University: Primatology; ethology.

Van der Kloot, William, *Professor and Chairman*,¹² Ph.D., 1952, Harvard University: Mechanism of transmitter release at synapses.

Walcott, Benjamin, *Assistant Professor*,¹ Ph.D., 1968, University of Oregon: Invertebrate neurophysiology.

Walcott, Charles, *Professor and Director, Graduate Program in Neurobiology and Behavior*, Ph.D., 1959, Cornell University: Animal behavior and communication; sensory bases of animal orientation.

- Witkovsky, Paul, *Professor*,¹ Ph.D., 1962, University of California, Los Angeles: Neurophysiology of vision.
- Wyers, Everett, *Professor*,¹⁵ Ph.D., 1955, University of California, Berkeley: Physiological psychology; learning.
- Yazulla, Stephen, *Assistant Professor*,³ Ph.D., 1971, University of Delaware: Neurophysiology and neuroanatomy of the vertebrate retina.

M.A. DEGREE IN BIOLOGY

The Division of Biological Sciences offers a degree of Master of Arts for persons with a variety of career goals, including government service and secondary education. The program affords the opportunity to pursue master's level study in a research-oriented academic environment.

The M.A. program is neither part of, nor prelude to, other graduate programs in the biological sciences. (M.A. students are eligible to apply for admission to doctoral programs at Stony Brook.)

The program is aimed at students who have completed a baccalaureate degree with at least the following courses: one year of college mathematics, two years of college chemistry and two years of college biology including laboratory. Applicants also must have a 3.0 grade point average in science courses during the last two years of undergraduate work, or have completed 6 credits of B or better in graduate work at an accredited institution of higher education, to be considered for matriculated status. Persons who have not met the grade point average or undergraduate science course requirements will be considered for provisional admission. They may become matriculated by completing the first six credits of graduate work within this program with grades of B or better.

All applicants to the master's degree program must complete an application form available from the *Student Information Office, Divi-*

¹Department of Anatomical Sciences

³Department of Biology

¹²Department of Physiology and Biophysics

¹⁴Department of Psychiatry

¹⁵Department of Psychology

sion of Biological Sciences, Graduate Biology Building, SUNY at Stony Brook, Stony Brook, New York 11794. That form, in addition to routine information, requests a concise statement of career goals and a tentative program of study. In addition, three letters of recommendation are required, as well as copies of all previous college transcripts. Letters, transcripts, and applications should be sent to the student information office. We prefer letters of recommendation written by faculty members in biology (or related sciences) at the applicant's undergraduate or previous graduate institution, and/or by school or research supervisors.

Applicants are also required to take the Graduate Record Examination (including both the general aptitude and biology tests). Information about this examination is available from the Career Development Office. Applicants should plan to take the G.R.E. well in advance of admissions deadlines.

Applications will be accepted for entry into the master's degree program starting in either the fall or spring session. Application folders must be completed by the following deadlines:

May 15th for fall semester; October 15th for spring semester.

M.A. Degree Requirements

The program has no full-time residency requirement, but all part-time students must work continuously by taking at least one course each semester. Deviations from such a minimum schedule require the consent of the program director.

The M.A. in Biology requires completion of an approved course of study, a thesis, and a minimum of 30 graduate credits (a maximum of 6 approved transfer credits may be applied to this requirement). The overall grade point average in graduate courses must be at least 3.0.

The program of study must include at least one course in Area V (Research and Educational Techniques), and at least one course in three of the other four areas: Molecular and Cellular Biology, Genetics and Developmental Biology, Animal and Plant Biology, and Population Biology. Additional courses may be taken from the offerings of the other graduate programs, with permission of the instructor. At least 6 (but no more than 12) credits must be taken as individual study, under the headings of directed readings, laboratory research, and master's project (the last for at least 3 credits). Faculty sponsors must be obtained for this part of the program.

The master's project may be a thesis, presenting the results of a laboratory and/or field study. Alternatively, it may be a paper, providing either a critical assessment of a topic, based largely on the primary literature, or a secondary school curriculum in biology, developed by the student. In all cases, the results must be presented in a divisional seminar, and the thesis must be accepted by a thesis committee appointed by the program.

Faculty

- Battley, Edwin H., *Associate Professor*,³ Ph.D., 1956, Stanford University: Physiology of growth of microorganisms.
- Carlson, Albert D., *Associate Professor*,³ Ph.D., 1960, University of Iowa: Physiology of invertebrate nervous systems; insect neuropharmacology; neuronal control of flash patterns by fireflies.
- Edmunds, Leland N., *Professor*,³ Ph.D., 1964, Princeton University: Membrane transport, cell cycles and biological clocks in synchronized cultures of *Euglena* and yeast.
- Erk, Frank C., *Professor and Department Chairman*,³ Ph.D., 1952, Johns Hopkins University: Genetics and development in insects; human genetics.
- Futuyma, Douglas J., *Associate Professor*,⁶ Ph.D., 1969, University of Michigan: Coevolution of species, especially of plants and insects; effects of evolution on the structure of ecological communities.
- Ginzburg, Lev, *Associate Professor*,⁶ Ph.D., 1970, Agrophysical Institute, Leningrad, U.S.S.R.: Mathematical population genetics and ecology.
- Hechtel, George J., *Associate Professor*⁶ and *Director, Master's Program*, Ph.D., 1962, Yale University: Systematics and zoogeography of marine Demospongiae.
- Krikorian, Abraham, D. *Associate Professor*,³ Ph.D., 1965, Cornell University: Control of the morphogenetic potential of cultured plant cells; biochemical differentiation in cultured cells of angiosperms.
- Laser, Kenneth D., *Assistant Professor*,³ Ph.D., 1972, Iowa State University: Developmental anatomy and morphology of vascular plants: ultrastructure, microsporogenesis, secretory structures, aquatic botany.
- Mallon, Elizabeth J., *Lecturer*,³ Ph.D., 1968, University of Michigan: Biology education; cognitive development and processes; curriculum; research techniques.
- Merriam, Robert W., *Associate Professor*,³ Ph.D., 1953, University of Wisconsin: The role of actins in the structure and function of eggs and early embryos.
- Smolker, Robert E., *Associate Professor*,⁶ Ph.D., 1955, University of Chicago: Applied ecology; environmental impact analysis; public interest environmental law.
- Sokal, Robert R., *Professor*,⁶ Ph.D., 1952, University of Chicago: Theory of systematics, numerical taxonomy; geographic variation and population phenetics in the aphid genus *Pemphigus*.

³Department of Biology

⁶Department of Ecology and Evolution

Continuing Education

CENTER FOR CONTINUING AND DEVELOPING EDUCATION

The Center for Continuing and Developing Education (CED) is the arm of the State University of New York at Stony Brook which reaches out beyond the traditional concerns of the academic disciplines to the community at large, to persons who would not otherwise be able to avail themselves of the University's facilities and programs. The Center offers two options for part-time graduate study. One leads to a Master of Arts in Liberal Studies through a broad interdisciplinary program of study. The other provides individuals with the opportunity to study at the University as non-matriculated students, not interested in a degree, but only in taking courses to satisfy other goals of their own. The Center also includes the Office of Institutes and Conferences, the Summer Session, and the Informal Studies program, which provide opportunities for part-time students to participate in credit and credit-free activities which are responsive to local and regional needs and interests.

The Master of Arts in Liberal Studies Degree Program

The Center for Continuing and Developing Education offers a 30-credit interdisciplinary degree: The Master of Arts in Liberal Studies. The MA/LS program provides students with an opportunity to complete a cluster of 18 credits in related courses with the remaining 12 credits distributed so as to complement the main cluster. Two major papers or projects used to satisfy course requirements are submitted to the Office of the Dean of Continuing and Developing Education for final review prior to the awarding of the degree.

Admission Requirements

All persons holding a baccalaureate degree or equivalent or an advanced degree from an accredited institution of higher learning are eligible for admission to the Master of Arts in Liberal Studies program.

How to Apply for Admission

Applications may be obtained by writing or calling the *CED Office, N201 Social & Behavioral Sciences Bldg., State University of New York at Stony Brook, Stony Brook, N.Y. 11794 (516-246-5936)*. The deadline for applying for the spring semester is January 1; for summer it is May 15; and for fall it is August 1. Individuals who miss the deadline for applying to the degree program in any semester but who want to begin taking courses as soon as possible may apply as special graduate students (GSP) for the one semester and then apply to the degree program for the next semester. Information about the procedures to follow may be obtained from the CED office.

Admission Opportunities for Mature Persons Lacking Baccalaureate Degrees

An individual who does not hold a baccalaureate degree or other advanced degree and who wishes to take courses in the Center for Continuing Education may petition the CED Committee on Academic Standing for admission as a special student. This option is intended only for mature persons who can substitute life experience and achievement for college credits. All individual cases are judged on their own merits. For information on how to apply, call or write the CED office. CED courses are closed to individuals who lack baccalaureate degrees unless their acceptance into the Center has been approved by the Committee on Academic Standing.

MA/LS Degree Requirements

Students must complete an approved 30 graduate credit course of study which includes:

A. *An 18-credit cluster of courses* related by theme or interdisciplinary field, planned individually with a CED advisor's assistance and approval. The remaining credits are to be selected from among other CED or departmental offerings in complementary areas. For example, if a student's main cluster is in the area of Natural Science, two (2) of the remaining courses would ordinarily be chosen from Arts and Humanities offerings and two (2) from Social and Behavioral Sciences. Students are required to schedule an appointment with a CED advisor upon admission to plan an approved program of study.

B. *An MA/LS essay requirement.* In order to qualify for graduation, two major papers or project reports used to satisfy course requirements for the MA/LS must be submitted to the Dean of Continuing and Developing Education *after* they are graded by course instructors. One paper should be selected from a course in the student's main cluster while the other should be chosen from among those used to satisfy a requirement in the remaining group of courses.

Time Limit

All requirements for the MA/LS program must be completed within seven years from the time a student first starts taking courses.

Students in the MA/LS program are not required to maintain continuous registration from the time of admission to the completion of the degree requirements. However, a student who fails to register for two consecutive years will automatically be de-activated.

Transferring Graduate Credits from Other Institutions

A maximum of six (6) graduate credits taken at accredited institutions may be transferred toward the MA/LS degree. Credits must be from an institution that is authorized to grant graduate degrees by recognized accrediting commissions.

Credits must be in keeping with graduate liberal arts studies offered at SUNY/Stony Brook. They must carry the grades of A or B. "Pass" or "Satisfactory" grades are not transferable unless these grades can be substantiated by the former institution as having at least B quality. (The A or B grades for credits transferred are not included in any calculation of a CED student's grade point average or in any evaluation of his/her academic standing in the MA/LS degree program.) Transfer credits must be no more than 10 years old at the time the student is admitted to CED, and they must be clearly graduate level. A course listed as both graduate and/or undergraduate will not be considered for transfer.

No credits used to fulfill a requirement for either a baccalaureate or another degree may be transferred toward the MA/LS degree, and no credits may be transferred until a student has completed one course as a CED student.

The University reserves the right to decline to approve transfer credit requests in advance of the student's having taken the course for which transfer credit is being sought.

New York State Teaching Certification (Minimum Requirements)

A. *Provisional Certification*: This certification requires education courses, the fulfillment of a full-time practice teaching requirement, and, in the case of secondary education, a number of credits in a particular subject area. While some education courses are available on the post-baccalaureate level at Stony Brook, student teaching *is not*.

B. *Permanent Certification*: New permanent certification requirements went into effect on January 1, 1978, and it is recommended that persons check in the campus Office of Teacher Certification (221N Social & Behavioral Sciences Bldg., or call 246-3301), with the Division of Teacher Education and Certification, 99 Washington Ave., Albany, N.Y. 12230, or with one of the Suffolk County Regional Certification Offices in BOCES I, II, III to determine their eligibility for permanent certification through graduate study in CED.

Faculty

With few exceptions, the faculty of the Center for Continuing Education are members of the faculty of the State University of New York at Stony Brook.

Administration

Fusco, Josephine, *Associate for Continuing Education*, B.A., 1951, St. Lawrence University; M.S., 1956, State University of New York College, New Paltz.

Kempner, Doris, *Acting Assistant Dean of Continuing and Developing Education*, B.A., 1943, Mount Holyoke College; M.A.L.S., 1974, State University of New York, Stony Brook.

Paldy, Lester G., *Dean of Continuing and Developing Education*, B.S., 1962, State University of New York, Stony Brook; M.A., 1966, Hofstra University.

Applied Mathematics and Statistics
Computer Science
Electrical Engineering
Materials Science and Engineering
Mechanical Engineering

The Engineering and Applied Sciences

ENGINEERING SCIENCES

The College of Engineering and Applied Sciences offers graduate study with degree programs leading to the M.S. and Ph.D. The College consists of five academic departments each under the direction of a chairman. Each department reviews student applications and approves the enrollment of the graduate student in the program best suited to his or her background and interests.

Admission to Graduate Study

For admission to graduate study in engineering, the minimum requirements are as follows:

A. A bachelor's degree in engineering, mathematics, physics, chemistry, or a closely related area from an accredited college or university.

B. A minimum grade average of at least B in all courses in engineering, mathematics, and science.

C. Results of the Graduate Record Examination Aptitude Test. (Part-time master's students exempt.)

D. Acceptance by the College of Engineering and Applied Sciences and the Graduate School.

Requirements for the M.S. Degree

A. The M.S. degree in the College of Engineering and Applied Sciences requires the satisfactory completion of a minimum of 30 graduate credits. This may be done in several ways, depending on the options that the student selects.

B. All credits must be at the graduate level. The faculties of individual graduate programs may impose additional requirements as listed under departmental headings. In addition, the grades in courses totaling at least 15 credits must be B or better and the average for all courses taken must be B or better.

C. Final recommendation: Upon the fulfillment of the above requirements the faculty of the graduate program will recommend to the Dean of the Graduate School through the Dean of Engineering that the Master of Science degree be conferred, or will stipulate further requirements that the student must fulfill.

D. Time limit: All requirements for the Master of Science degree must be completed within three years of the student's first registration as a full-time graduate student.

Requirements for the Ph.D. Degree

A. Minimum residence: At least two consecutive semesters of full-time study.

B. Qualifying examination: A student must satisfactorily pass a qualifying examination to ascertain ability for study for the Ph.D. degree.

C. Research advisor: After completion of at least one year of full-time residence and prior to taking the preliminary examination, the student must select a research advisor who agrees to serve in that capacity.

D. Preliminary examination: Upon completion of the course work, a comprehensive oral examination, which may be supplemented by a written examination, will be given to the student.

E. Advancement to candidacy: After successfully completing all requirements for the degree other than the dissertation, the student is eligible to be recommended for advancement to candidacy. This status is conferred by the Dean of the Graduate School upon recommendation from the chairman of the graduate program.

F. Dissertation: The most important requirement on the Ph.D. degree is the completion of a dissertation which must be an original scholarly investigation. The dissertation must represent a significant contribution to the scientific literature and its quality must be compatible with the publication standards of appropriate and reputable scholarly journals.

G. The student must defend the dissertation before an examining committee. On the basis of the recommendation of this committee, the Dean of Engineering will recommend acceptance or rejection of the dissertation to the Dean of the Graduate School. All requirements for the degree will have been satisfied upon the successful defense of the dissertation.

H. Time limit: All requirements for the Ph.D. degree must be completed within four years after advancement to candidacy.

DEPARTMENT OF APPLIED MATHEMATICS AND STATISTICS

The graduate program of this department provides a course of study in modern applied mathematics with a view to its utilization in the physical, social, biological, and behavioral sciences, as well as in engineering. The course offerings and the research program cover both the theories and principles which are common to the applications as well as the more specialized methods which arise in specific areas.

The task of translating physically or socially meaningful problems into a mathematical framework is called "Mathematical Modeling" and is often the key element in understanding the complex interrelations which underlie many problem areas. Students with a training in the use of modeling techniques are prepared for careers in government and industry in which mathematics is used to advantage either as a computational or conceptual tool.

Faculty research programs currently in progress include physiological modeling, numerical analysis (sparse matrices and partial differential equations), nuclear reactor theory, crack theory and elasticity, solid and fluid mechanics, modeling of urban service systems, realizability theory, robust tests of hypothesis, data analysis, applied graph theory, stochastic modeling and nonparametric methods.

The applied mathematics program includes a professionally-oriented track in statistics as well as a Postgraduate Extension Program administered in several off-campus locations.

Statistics Track

The statistics track will normally take 3 to 4 semesters to complete. A program consists of 8 required courses and 2 or more electives. See courses listed below. However, students with strong statistics backgrounds may have certain requirements waived, and thus may be able to complete studies in 2 semesters. Adjustments in the program may be accepted for doctoral students in the social and life sciences. Students who do not present an undergraduate course in probability in their credentials for admission must take MSA 569, Introduction to Applied Probability. It should be noted that familiarity with computer programming is required of students in the statistics track. Required courses in statistics are listed below:

MSA 570, 571	Mathematical Statistics, I, II
MSA 572, 573	Data Analysis I, II
MSA 575	Data Analysis Laboratory
MSA 578	Regression
MSA 581	Analysis of Variance (or MSA 582, Design of Experiment)
MSM 552	Measure Theory and Integration in Probability

Electives in Statistics: A minimum of two are required, one of which must be selected from a set of applied math courses and the

other from a group of courses, in applied math, the social and life sciences, and computer science.

Industrial Management Track

The Master of Science program in industrial management is designed to meet a growing demand by industry for managers in technologically based firms. Students are drawn from industry who are or have a strong interest in pursuing managerial careers. The program is open to both full- and part-time students who have completed a baccalaureate degree in engineering, physical science, social sciences, economics or mathematics. Acquaintance with the elements of computer programming is desirable.

The program in industrial management is under the jurisdiction of the Dean of the College of Engineering and Applied Sciences, together with an advisory committee consisting of key industrial executives in the Long Island area and Stony Brook faculty. Subjects include financial management, data base practices and quantitative analysis.

For course descriptions and further information concerning the program, contact the Graduate Faculty Representative, Professor Sumner N. Levine, or Professor Daniel Dicker, Director of the Postgraduate Extension Program of the College of Engineering and Applied Sciences.

Postgraduate Extension Program

In addition to the resident full-time graduate program leading to the M.S. and Ph.D. in Applied Mathematics and the new M.S. in Statistics, the department conducts an extensive part-time program at several locations in Nassau and Suffolk counties. The part-time program is governed by regulations governing the resident full-time program with the exception that students in the Postgraduate Extension Program have greater flexibility in choosing the time for the qualifying examination if they are contemplating pursuing the Ph.D.

At the present time, courses in the Postgraduate Extension Program are offered at the State University College at Farmingdale, Grumman Aerospace Corporation and Brookhaven National Laboratory. The purpose of this program is to provide an opportunity for men and women who are employed full time to pursue serious graduate study leading to advanced degrees in applied mathematics. Applicants who hold a bachelor's degree in applied mathematics, mathematics, engineering, physical science or life science and social science, with a strong background in undergraduate mathematics, will be considered for admission to this program. Qualified students may continue beyond the master's degree for the Ph.D. degree in this program.

A matriculated part-time degree candidate may pursue courses at any one of the several off-campus locations as well as those offered on campus. Additional information may be obtained from the Ad-

ministrator of the Postgraduate Extension Program, Esther Weitzman, at the Department of Applied Mathematics and Statistics, State University of New York at Stony Brook, Stony Brook, N. Y. 11794.

Requirements for Degrees in Applied Mathematics and Statistics

Requirements for the M.S. degree may be satisfied through the completion of eight courses in applied mathematics or in approved related areas with an average of a B or better. Completion of a master's thesis may be substituted for two of the courses.

Requirements for satisfaction of Ph.D. include successful completion of a qualifying examination, a preliminary doctoral examination, completion of the residency requirement of two consecutive semesters of full-time study, language proficiency in French, German, or Russian and the successful completion and defense of a doctoral dissertation.

Admission to Graduate Study

In addition to the requirements for admission given on page 26, the department requires study of advanced calculus or its equivalent.

Faculty

Beltrami, Edward J., *Professor and Chairman*, Ph.D., 1962, Adelphi University: Optimization techniques; models for public systems analysis.

Chen, Yung Ming, *Professor*, Ph.D., 1963, New York University: Numerical analysis and methods; deterministic and stochastic partial differential equations and their applications.

Dallal, Gerard, *Assistant Professor*, Ph.D., 1976, Yale University: Statistics.

Dicker, Daniel, *Professor and Director of College of Engineering Post-graduate Extension Program*, D.Eng.Sc., 1961, Columbia University: Boundary value problems of solids and fluids; aero-elastic analysis of suspension bridges.

Dolezal, Vaclav, *Professor*, Ph.D., 1955 and D.Sc., 1966, Czechoslovak Academy of Sciences, Prague, Czechoslovakia: Network theory; control theory; applications of distribution theory.

Finch, Stephen, *Assistant Professor*, Ph.D., 1974, Princeton University: Robust estimation and non-parametric statistics.

Frauenthal, James C., *Associate Professor*, Ph.D., 1971, Harvard University: Mathematical modeling; population dynamics; applied mechanics; shell stability and optimization.

Gerst, Irving, *Professor*, Ph.D., 1947, Columbia University: Network function theory; special functions as related to the preceding areas.

Kim, Woo Jong, *Associate Professor and Graduate Program Director*, Ph.D., 1964, Carnegie Institute of Technology; Ph.D., 1968,

Carnegie-Mellon University: Ordinary differential equations; oscillation, disconjugacy and monotonicity of solutions; factorization of differential operators; fractional inequalities.

Leibowitz, Martin A., *Associate Professor*, Ph.D., 1961, Harvard University: Operations research; stochastic processes and applications.

Provan, Scott, *Assistant Professor*, Ph.D., 1977, Cornell University: Operations research.

Sengupta, Bhaskar, *Assistant Professor*, Ph.D., 1976, Columbia University: Operations research.

Simon, Gary, *Associate Professor*, Ph.D., 1972, Stanford University: Categorical data analysis; multivariate non-parametric methods.

Smith, Laurel, *Assistant Professor*, Ph.D., 1972, Stanford University: Biostatistics.

Srivastav, Ram P., *Professor*, Ph.D., 1958, Lucknow University, India; Ph.D., 1963, Glasgow University, Scotland; D.Sc., 1972, Glasgow University: Fracture mechanics; integral equations; complex analysis; integral transforms.

Tewarson, Reginald P., *Professor*, Ph.D., 1961, Boston University: Numerical analysis and computational methods; sparse matrices; generalized inverses and large non-linear systems; mathematical models of diffusion problems in biology and medicine.

Tucker, Alan, *Associate Professor*, Ph.D., 1965, Stanford University: Graph theory; combinatorial algorithms.

DEPARTMENT OF COMPUTER SCIENCE

Ph.D. and M.S. Programs in Computer Science

The graduate programs in computer science are designed to train both academically oriented students and students with professional goals in the many business, industrial, or governmental occupations requiring advanced knowledge of computer theory and technology. Generally speaking, the Ph.D. program serves the first type of student while the professional M.S. program serves the second type. A student who is progressing satisfactorily toward the Ph.D. will earn an M.S. degree. However, the professional M.S. student will, for the most part, be emphasizing more practical and applied subject matter, excluding himself from automatic entry into the Ph.D. program.

Students seeking graduate studies in computer science with strictly limited professional goals in mind are interested in spending a relatively short period of time concentrating on the acquisition of knowledge and skill required for applied computer

science. The professional M.S. degree program was designed to satisfy this need. Programming, computing systems, and applications are emphasized in the course work. In addition, each student in the program is given the experience of grappling with a large-scale problem involving analysis, design, evaluation, and implementation. This is accomplished either through M.S. thesis work or workshop-type course activities.

The aims of the Ph.D. program are to give the student a rigorous and thorough knowledge in the subject areas discussed above and to develop in the student the ability to recognize and pursue significant research problems. The first two years of graduate study are generally devoted to the first aim, with the student taking a relatively heavy and well defined program of courses. By the end of the second year the research phase of the student's graduate career should be under way with participation in advanced study activities and preliminary research work. Research for the dissertation represents the final stage of the student's training.

Since January 1976, the department has offered a comprehensive program of evening courses, both on and off campus, which enable part-time students to earn the master's degree or to select individual courses of interest. The course schedule has been designed to provide the student with a thorough knowledge of computer techniques at the implementation level. Most require significant programming work to be carried out at computer facilities. Students wishing to enroll in this program should write to the Department of Computer Science at Stony Brook requesting information concerning the special admission and degree requirements pertaining to the part-time evening programs.

Admission to Graduate Study

For admission to graduate study in computer science, the following are normally required:

A. Baccalaureate degree in a physical science, biological science, mathematics, or engineering.

B. Two years of college-level mathematics including ordinary differential equations and linear algebra.

C. One year of a natural science at college level, with physics strongly preferred.

D. At least three college-level courses in computer science covering programming in both a language such as FORTRAN or ALGOL and assembly language, and an introduction to data structures and advanced programming techniques (i.e., recursive algorithms and structured programming).

E. A grade average of at least B in all undergraduate course work and in science, mathematics, and engineering courses.

F. Acceptance by the Department of Computer Science and by the Graduate School.

G. All applicants must submit Graduate Record Examination

scores for the general aptitude tests. Applicants are encouraged to submit GRE test scores for the advanced examination in their undergraduate major field as well. GRE score requirements may not be waived, and only provisional admission to the program is possible without them.

Whatever the area of undergraduate specialization, students offering additional preparation in computer science (computer organization, systems programming, digital logic, and systems), or in mathematics (probability and statistics, logic, finite mathematics, modern algebra, numerical analysis) can expect more favorable consideration. It is highly recommended that students include courses in digital systems, numerical analysis, and modern algebra as part of their undergraduate preparation. Ph.D.-bound students in particular will be seriously handicapped without preparation in either digital systems design or modern algebra.

Students of exceptional promise who are deficient in preparation will be considered for admission to the program on a provisional basis. Upon entrance, students will be informed of the requirements they must satisfy for the termination of provisional status.

Students with insufficient preparation to enroll in core courses offered during their first fall semester of residence may suffer a full year of delay in satisfying the requirements for the M.S. degree, for these core courses, offered only in the fall, may be prerequisites for core courses offered only in the spring, as well as for most of the spring electives open to M.S. students. Such students should plan their course of study with these restrictions in mind. If the applicant's deficiency in preparation can be remedied in one semester, and if the required undergraduate courses are offered in the spring, he or she should consider applying for special spring admission to the Graduate School in order to avoid prolonging the duration of matriculation needlessly.

Requirements for the M.S. Degree

Summary

Students in the professional M.S. degree program choose between two options, the M.S. with thesis and the M.S. without thesis. The course requirements depend on the option. Both options require the following five core courses and at least one approved graduate-level computer science elective:

1. Computer Architecture (MSC 502)
2. Data Structures (MSC 521)
3. Compiler Design (MSC 522)
4. Operating Systems (MSC 525)
5. Foundations of Computer Science (MSC 540).

Both options also require proficiency in numerical analysis and digital systems at the level of MSA 326 (Numerical Analysis) and ESE 318 (Digital Systems Design), respectively. The following are considered evidence of proficiency:

1. A grade of at least B in equivalent courses on the student's undergraduate record.
2. Taking and passing the above courses with a grade of B or higher.
3. Taking the final examinations in the above courses, obtaining a grade of B or higher.

In lieu of the M.S. thesis, students choosing the *no thesis option* are required to take an additional approved elective and the Laboratory in Computer Science (MSC 524). The latter course extends over a full academic year and provides the student with the experience of dealing with large-scale computer-oriented problems.

Specific Requirements

The above requirements are summarized and are included in the following complete description of the M.S. degree requirements.

A. *Residence*: No residency requirement.

B. *Language requirement*: None.

C. *Proficiency requirements*: Demonstration of proficiency in numerical analysis and digital systems at the senior undergraduate level.

D. *Course requirements*: (30 credits)

1. *M.S. without thesis*

- a. Core courses (MSC 502, 521, 522, 525 and 540)
- b. Laboratory in Computer Science (MSC 524), five credits extending over two semesters
- c. Six credits of graduate level elective courses, chosen with advisor's approval

2. *M.S. with thesis*

- a. Core courses (MSC 502, 521, 522, 525 and 540) (19 credits)
- b. Three credits of graduate level elective courses, chosen with advisor's approval
- c. MSC 599 Research (8 credits)

A grade average of B or better is required in the above courses of study.

E. *Thesis requirements*:

1. *M.S. without thesis*: None.

2. *M.S. with thesis*: A student choosing the thesis option must select a research advisor as soon as possible who agrees to serve in that capacity. The advisor will supervise his other studies and advise the student on his or her choice of courses. The thesis must be approved by a departmental faculty committee of no less than three members, appointed by the Graduate Program Director. At the discretion of the committee, the student may be required to present a seminar on the topic of his or her thesis.

F. *M.S. degree requirement for Ph.D. bound students*: A student enrolled in the Ph.D. program may satisfy the requirements for the M.S. degree by completing 30 credits of course work with a B aver-

age or better and passing the Ph.D. Qualifying Examination.

A student who does not meet *all* of the listed entrance requirements, *including* proficiency in numerical analysis and digital systems design, *can not* in general expect to earn the M.S. degree in less than three semesters. Undergraduate courses which must be taken to make up deficiencies or to acquire proficiency in numerical analysis and digital systems design may not be applied toward meeting graduate degree credit requirements.

A student who elects the *thesis option* generally must have substantial undergraduate background in computer science and well-defined subject preference in order to select a problem area and begin thesis research during the first semester of residence. More often, a full semester of exploration is necessary on the part of the student, and the thesis research is completed during the next two semesters (or, occasionally, during the next semester and the following summer). Students who have majored in computer science as undergraduates will usually have no difficulty in completing the requirements for either option in one year.

Requirements for the Ph.D. Degree

A. *Residence*: Two consecutive semesters of full-time study.

B. *Qualifying examination and research proficiency examination*: Students must satisfactorily pass a qualifying examination to demonstrate their ability to undertake the course of study leading to the Ph.D. degree. The examination is given early in the fall semester of each year. The student must take the examination within three semesters of admission to the Graduate School (i.e., during the second year of residence).

Students who perform satisfactorily on the qualifying examination are required to demonstrate their ability to undertake a creative research problem by preparing an oral presentation to the faculty during the spring semester of the same academic year in which the qualifying examination was passed (research proficiency examination).

Final qualification for admission to the research phase of the Ph.D. program will be determined by the faculty on the basis of performance on the written qualifying examination, the quality of the written research proposal or report, the results of the associated oral examination, and the academic record achieved by the student to date.

C. *Course requirements*: The faculty of the Department of Computer Science has decided that the student seeking the Ph.D. degree shall initially pursue a relatively heavy and controlled program of courses. The following first-year program of courses will be followed by the majority of students in the Ph.D. program. Students with exceptional strengths or weaknesses follow appropriately modified programs, worked out in consultation with their advisors.

In the following model program of courses, it is assumed that the student has taken a course in either digital systems or modern algebra before entering.

FIRST YEAR

Fall Semester (14 credits)

- | | |
|------------|------------------------|
| 1. MSA 514 | Applied Algebra II |
| or ESE 318 | Digital Systems Design |
| 2. MSC 543 | Automata Theory I |
| 3. MSC 521 | Data Structures |
| 4. MSC 502 | Computer Architecture |

Spring Semester (14 credits)

- | | |
|------------|---|
| 1. MSA 506 | Finite Structures |
| 2. MSC 541 | Theoretical Foundations of
Computing I |
| 3. MSC 522 | Compiler Design |
| 4. MSC 525 | Operating Systems |

In general, the second year program is more variable than the first year program, reflecting the research interests of the students to a large degree. A typical program follows:

SECOND YEAR

Fall Semester (12 credits)

- | | |
|------------|---|
| 1. MSC 542 | Theoretical Foundations of
Computing I |
| 2. MSC 526 | Programming Language Design |
| 3. MSC 552 | Microprocessor Design and
Applications |
| 4. MSC 699 | Research |

Spring Semester (12 credits)

- | | |
|------------|------------------------------------|
| 1. MSC 641 | Mathematical Theory of Computation |
| 2. MSC 548 | Analysis of Algorithms |
| 3. MSC 620 | Analysis of Computer Systems |
| 4. MSC 699 | Research |

D. Preliminary Examination: Upon the approval of the student's research advisor, the student will take his or her preliminary examination. The purpose of the preliminary examination is to ascertain the breadth and depth of the student's preparation to undertake a significant original investigation. The preliminary examination must be scheduled within two years from the time the student has passed the qualifying examination.

The major requirement of the preliminary examination is a complete and detailed Ph.D. thesis research proposal. The student is expected not only to be thoroughly familiar with the background and current status of his or her research area, and to have clear and well-

defined plans for pursuing his or her research objectives, but also to offer evidence of progress in achieving these objectives. He or she must be prepared to justify the effort to be expended in this research in terms of the value of the results expected, and to justify the extent and challenge of this research as evidence of research competence at the Ph.D. level.

E. *Advancement to Candidacy*: After the student has completed all requirements for the degree other than the dissertation, he or she is eligible to be recommended for advancement to candidacy. This status is conferred by the Dean of the Graduate School upon recommendation of the chairman of the department.

F. *Dissertation*: The most important requirement of the Ph.D. program is the completion of a dissertation which must be an original scholarly investigation. The dissertation shall represent a significant contribution to the scientific literature, and its quality shall be compatible with the publication standards of appropriate reputable scholarly journals.

Faculty

Bernstein, Arthur J., *Professor*, Ph.D., 1962, Columbia University:

The design and correctness of operating systems; the mathematical modelling of computer systems; computer networks.

Cherniavsky, John Charles, *Assistant Professor*, Ph.D., 1972, Cornell University: Verification of programs; theory of computation; mathematical logic.

Ekanadham, K., *Assistant Professor*, Ph.D., 1976, State University of New York, Stony Brook: Operating systems.

Fidducia, Charles M., *Assistant Professor*, Ph.D., 1973, Brown University: Analysis of algorithms; computational complexity; theory of computation.

Finerman, Aaron, *Professor and Chairman*, Sc.D., 1956, Massachusetts Institute of Technology: Computing science education; management of computing facilities.

Gelernter, Herbert L., *Professor*, Ph.D., 1957, University of Rochester: Artificial intelligence, scientific applications; on-line data acquisition, reduction and experiment control systems.

Heller, Jack, *Professor*, Ph.D., 1950, Polytechnic Institute of Brooklyn: Information organization and retrieval; humanities data processing; data structures.

Henderson, Peter B., *Assistant Professor*, Ph.D., 1975, Princeton University: Scheduling theory; concurrent processes; operating systems.

Kieburtz, Richard B., *Professor*, Ph.D., 1961, University of Washington, Seattle: Software engineering; programming languages; theory of computation.

Smith, David R., *Professor*, Ph.D., 1961, University of Wisconsin: Switching theory; digital system design; computer architecture.

Tycko, Daniel H., *Professor*, Ph.D., 1957, Columbia University: Pattern recognition; picture processing by computers; scientific applications of computers; computer systems.

DEPARTMENT OF ELECTRICAL ENGINEERING

M.S. and Ph.D. Degrees

The Department of Electrical Engineering offers graduate programs leading to the M.S. and Ph.D. degrees. Graduate programs are tailored to the needs of each student so as to provide a strong analytical background helpful to the study of advanced engineering problems. Ample opportunities exist for students to initiate independent study and to become involved in active research programs, both experimental and theoretical. In addition to its emphasis on modern electrical engineering, the department participates in inter-departmental graduate programs in computer science and in urban and policy science; these are described in adjoining sections of this *Bulletin*.

The major areas of research and study are Systems Science and Engineering, Communications and Information Science, Digital Systems and Electronics, Solid State and Quantum Electronics, Optical Information Processing, and Biomedical Systems Engineering. The department also offers the M.S. in Applied Science program which is run mainly by the Department of Technology and Society.

Graduate Program in Systems Science and Engineering

Some of the research areas currently under investigation by the faculty members and graduate students in systems science and engineering include the traditional areas of optimal control theory, systems and networks theory, as well as the application of systems sciences to broader socioeconomic, urban transportation, power distribution, energy and health systems. The Department of Electrical Engineering has close ties with other related departments in order to meet these new challenges. The present academic and research programs in electrical engineering form an excellent basis for such activities. The relevant course sequence is: ESE 502, ESE 503, ESE 539, ESE 541, ESE 542, ESE 543-544, ESE 545, ESE 547, ESE 551. In addition a number of courses useful to this subject area and offered by other departments are: UPS 513, UPS 531, ECO 510-511, ECO 514, ECO 520-521, ECO 572, SOC 502, SOC 503, SOC 505, SOC 514.

Graduate Program in Communications and Information Science

The predicted growth pattern of communications and information processing remains explosive for the foreseeable future. Enormous

volumes of data are now routinely transferred between computers or from remote devices to a central facility. Much of the world's communications is via satellite and suitable new techniques for this medium are increasingly important. Particular areas of emphasis in current research and instruction include: digitized voice and speech processing, data transmission and computer communications networks, satellite channels and communications traffic, digital signal processing, coding for error control, new modulation and multiplexing techniques. The course offerings which are appropriate to this area are: ESE 502, ESE 503, ESE 504, ESE 531-532, ESE 533, ESE 535, ESE 544, ESE 546, ESE 547, ESE 552, ESE 560, and ESE 561.

Graduate Program in Digital Systems and Electronics

Perhaps the most rapidly expanding area of engineering is the field of digital systems and electronics. The introduction of large-scale integrated circuits, such as microprocessors, has brought the price of digital electronics down so low as to make it possible for digital electronics to take over ever larger functions, from sewing machine stitch controls to inventory control. The Departments of Electrical Engineering and Computer Science have a PDP 15 Computer and peripherals for their research efforts. They work closely with one another in both research and teaching. The course offerings which are appropriate to this area are: ESE 318, ESE 545, ESE 546, ESE 549, ESE 551, ESE 552, MSC 502.

Graduate Program in Optical Information Processing

The Department of Electrical Engineering houses the Electro-Optical Science Laboratory. This Laboratory is one of the foremost optical research laboratories in the world. Research is currently underway in image deblurring and reconstruction, electron microscopy image enhancement, x-ray crystallography, holography and optical computing. The faculty associated with the Laboratory also contribute heavily to the education program. Students interested in optical information processing may wish to choose the following courses: ESE 560, ESE 561, ESE 515, ESE 518, ESE 520, ESE 521, and ESE 523.

Graduate Program in Solid-State and Quantum Electronics

The program of courses and of research pertinent to solid-state electronics ranges from a study of the fundamental electronic processes in solids and gases through a description of the mechanisms which yield useful devices, to a study of the design of complex integrated circuit systems. A number of the Ph.D. candidates are working part time in local semiconductor industries while completing the doctoral work. The course offerings which relate to these subject areas are: ESE 510, ESE 511, ESE 512, ESE 514, ESE 515, ESE 516-517, ESE 518, ESE 610. Relevant courses from other

departments include: ESM 536, ESM 615, ESM 618, ESM 652-653, PHY 511-512, PHY 540, PHY 555, CHE 521-522.

Graduate Program in Biomedical Systems Engineering

The Department of Electrical Engineering has established a sequence of graduate course offerings in biomedical systems engineering. The sequence includes courses in bioelectronics, cardiovascular dynamics, physiology for engineers, design of artificial organs and electronic instrumentation, as well as various courses in the format of seminars and internships. Research work and student projects have also been implemented by faculty in the program, with major efforts in assisted circulation technology, modeling of active physiological membranes, modeling of the cardiovascular system, design of prosthetic and orthotic devices, and design of biomedical instrumentation. Students with undergraduate or graduate backgrounds in the non-electrical engineering disciplines, who wish to enter the program, should be sure to consult with the Graduate Administrator of the department. The course offerings from which the student may make a selection include: ESE 547, ESE 570, ESE 572, ESE 574, ESE 575, ESE 576, ESE 577, ESE596, ESE 660, ESE 541, ESE 542, ESE 516-517, MSA 521, HBY 532, HBY 551, BMO 506.

Special Program for Non-Electrical Engineering Majors

A number of students who did not major in electrical engineering as undergraduates have been admitted to the electrical engineering graduate programs. Depending on individual background, a suitable program can often be developed. For example, a physics major can fit into the graduate program in solid-state and quantum electronics; a mathematics major into the systems science program and a biology major into the biomedical systems program. The department has developed a set of two intensive courses to help fill in the background of these students. Special consideration is also given to those interested in the Ph.D. program.

Evening Extension M.S. Degree Program

This program is designed to help practicing engineers meet today's advanced technology. A set of carefully selected courses fulfilling the requirements of the M.S. degree in Electrical Engineering is offered in two-year cycles during evening hours at the campus of the SUNY Agricultural and Technical College at Farmingdale. Students in this program may modify their own course of study and specialization by filling some of their course requirements with selections from the full course offering at the Stony Brook campus.

In conjunction with the Department of Materials Science and Engineering, an evening program in electronic materials is offered. This program is designed to familiarize those people working in industry with the design and fabrication of modern solid state cir-

culits. The core material of this program is covered in ESE 511, ESE 512, ESE 516, ESE 517, plus a course in production processes and a seminar on surface and interfaces. The evening programs are administered through the Department of Electrical Engineering and further information concerning these programs may be obtained through the Graduate Program Director of the Department of Electrical Engineering.

Combined BE-MS Degrees

Undergraduate students may enter this special five-year Master of Science-Bachelor of Engineering program at the end of their junior year. During the next two years a student will complete the requirements for both the B.E. and the M.S. degree and for the M.S. thesis.

Applied Sciences Track

This is a 30-credit, part-time M.S. program in electrical engineering intended for secondary school and community college educators and others who are interested in design and implementation of interdisciplinary curricula, and in the application of science and technology to education. A bachelor's degree in engineering, natural sciences, or social sciences and an average of B in course work is required for admission into the program. The unique feature of the program is its flexibility to meet individual needs and interests. Only five courses, CEN 580, CEN 581, CEN 582, ESE 583, and ESE 584, are required courses. The other 15 credits may be selected from other departments. This program is run mainly by the Department of Technology and Society.

Requirements for Graduate Degrees

The faculty of the Electrical Engineering Department has set the following regulations, which are in addition to the College of Engineering requirements.

A. M.S. Non-Thesis Option

1. 30 graduate credit hours with at least 3.0 grade point average. Among these 30 credits, up to six credits may be ESE 599, ESE 597, ESE 698 or ESE 699, and no more than six credits of ESE 670 may be used to satisfy the 30 credit requirement.
2. Minimum of eight (8) regular courses with at least 3.0 grade point average. At least five regular courses must be in the Department of Electrical Engineering (except for the applied sciences program).
3. ESE 599, ESE 597, ESE 691, ESE 698, and ESE 699 are not counted as regular courses in 2, above. Courses which permit repetitive credits, such as seminar or special topics, can be counted only once (3 or 4 credits) in 2, above.
4. Up to six transfer credits may be applied toward the degree with the approval of the program committee.

B. M.S. Thesis Option

1. 30 graduate credit hours with at least 3.0 grade point average. At least 6 credits of ESE 599. No more than 12 credits total may be taken from ESE 599, ESE 597 or ESE 698, and no more than six credits of ESE 670.
2. Minimum of six (6) regular courses with at least 3.0 grade point average. At least four regular courses must be in the Department of Electrical Engineering.
3. ESE 599, ESE 597, ESE 691, ESE 698 and ESE 699 are not counted as regular courses in 2, above. Courses which permit repetitive credits, such as seminar or special topics, can be counted only once (3 or 4 credits) in 2, above.
4. Up to six transfer credits may be applied toward the degree with the approval of the program committee.
5. Satisfactory completion of a thesis.

C. Ph.D.

1. Passing the written qualifying examination.
2. One-year residency.
3. A course study plan must be arranged with the thesis advisor within six months after passing the qualifying examination, filed with the Graduate Program Committee and later approved by the preliminary examination committee.
4. Passing the preliminary examination within 12 months after passing the qualifying examination. Both a thesis topic and the thesis background area are emphasized.
5. Satisfactory completion of a dissertation (normally in three years after passing the preliminary examination).

Faculty

Braun, Ludwig, *Professor*,² D.E.E., 1959, Polytechnic Institute of Brooklyn: Bioengineering and computers in education.

Carleton, Herbert R., *Professor*,³ Ph.D., 1964, Cornell University: Optical materials; electro-optics; ultrasonics; optical instrumentation.

Chang, Sheldon S.L., *Professor*, Ph.D., 1947, Purdue University: Optimal control; energy conversion; information theory; economic theory.

Chen, Chi-Tsong, *Professor and Graduate Program Director*, Ph.D., 1966, University of California, Berkeley: Systems and control theory; digital signal processing.

Dollard, Peter M., *Associate Professor*, Ph.D., 1963, Polytechnic Institute of Brooklyn: Digital communications and coding theory; operations research in management systems.

Driscoll, Timothy J., *Adjunct Associate Professor*, M.S., 1970, Polytechnic Institute of Brooklyn: Electrical power and distribution systems.

Fajer, Jack, *Adjunct Professor*, Ph.D., 1962, Brandeis University: Electro-chemistry; organic fuel cells.

- Fleming, John A., *Assistant Professor*, Ph.D., 1976, Cornell University: Systems; control theory; numerical methods; applied mathematics.
- Halioua, Maurice, *Adjunct Associate Professor*, Ph.D., 1971, University of Paris, France: Optical information processing; applications in biology; medicine and engineering.
- Issacs, Hugh S., *Adjunct Professor*, Ph.D., 1964, University of London: Electro-chemistry; fuel cell electrodes and materials.
- Jenq, Yih-Chyun, *Assistant Professor*, Ph.D., 1976, Princeton University: Data and computer communications.
- Lee, Edward T., *Assistant Professor*, Ph.D., 1972, University of California, Berkeley: Pattern recognition; computer architecture; systems analysis.
- Marsocci, Velio A., *Professor*, Eng.Sc.D., 1964, New York University: Solid state electronics; integrated electronics; biomedical engineering.
- Rappaport, Stephen S., *Associate Professor and Director of Undergraduate Program*, Ph.D., 1965, New York University: Communication theory; systems.
- Richman, Paul, *Adjunct Professor*, M.S., 1964, Columbia University: Field effect transistors and integrated circuits.
- Short, Kenneth L., *Associate Professor*, Ph.D., 1972, State University of New York, Stony Brook: Digital system design; instrumentation.
- Smith, David R., *Professor*,⁴ Ph.D., 1961, University of Wisconsin: Logic design; computer architecture.
- Srinivasan, Venugopal, *Adjunct Assistant Professor*, Ph.D., 1974, State University of New York, Stony Brook: Optical information processing; x-ray crystallography.
- Stroke, George W., *Professor*, Dr.E.Sci., 1960, University of Paris, Sorbonne: Optical information processing; optical communication; holography and application to medical biophysics.
- Thomas, Gary L., *Professor and Chairman*, Ph.D., 1967, University of California, Berkeley: Solid state electronics; transport phenomena in solid state devices; magnetoelectric interaction.
- Truxal, John G., *Professor*,² Sc. D., 1950, Massachusetts Institute of Technology: Control and systems engineering; science education.
- Tuan, Hang-Sheng, *Associate Professor*, Ph.D., 1964, Harvard University: Electromagnetic theory; integrated optics; microwave acoustics.
- Wayne, David A., *Adjunct Associate Professor*, Ph.D., 1971, University of Florida, Gainesville: Automated network design; integrated electronic circuits; semiconductor devices; computers.
- Zemanian, Armen H., *Professor*, Eng.Sc.D., 1953, New York University: Network theory; food system modeling.

²Joint appointment, Department of Technology and Society

³Joint appointment, Department of Materials Science and Engineering

⁴Joint appointment, Department of Computer Science

DEPARTMENT OF MATERIALS SCIENCE AND ENGINEERING

The Department of Materials Science and Engineering offers graduate work leading to the Master of Science and Doctor of Philosophy degrees. The motivating philosophy of the graduate program is to provide the student with a broad synthesis of the theoretical and experimental techniques required for work with all classes of materials. Emphasis is placed on courses which unify the field in terms of fundamentals treated with sufficient depth to enable the student to contribute in diverse areas of materials science and engineering.

Laboratory and course work is structured to provide programs for students who plan on entering industry upon acquiring the Master of Science degree, in addition to research-oriented programs leading to the Master of Science and Doctor of Philosophy degrees for students planning to enter teaching or research.

Programs and Facilities

The Department of Materials Science and Engineering maintains extensive facilities for the synthesis, characterization, and testing of modern materials. Laboratories are dedicated to materials processing, x-ray diffraction, thermal analysis, LEED, corrosion and erosion, mechanical testing, ultrasonics, and electron microscope techniques, and are used in both the teaching and research programs of the department.

Surface Science and Technology

A multidisciplinary laboratory has been established within the Department of Materials Science and Engineering in recognition that the surface of solids represents a significant barrier to the implementation of many novel materials in modern engineering systems. The research interests of the faculty are focused on the physics, chemistry and mechanics of surfaces, their mechanical and structural properties, and their interaction with the environment.

Degree Requirements

In addition to the College of Engineering and Graduate School requirements, a student will be admitted to the Ph.D. degree program after satisfactorily passing a graduate program qualifying examination. (However, see below for students entering with the M.S. degree.) The qualifying examination will be given at the beginning of each semester and will be a comprehensive examination covering undergraduate work in materials science, physics, chemistry and applied mathematics. The qualifying examination will be taken by every student who plans to study toward the Ph.D. degree, within the first month of the second semester in which he or she is enrolled as a full-time student in the Materials Science and Engineering Department. However, well prepared students are encouraged to take this examination in their first semester.

Requirements for the M.S. Degree

A. *Course requirements:* There are two options for the M.S. degree in the Materials Science and Engineering Department:

1. Satisfactory completion of a minimum of 18 graduate course credits and a thesis in the student's area of specialization. A total of 30 graduate credits is required.

or

2. The satisfactory completion of a minimum of 30 graduate credits, 24 of which must be for graduate courses. This option is primarily for part-time students. Full-time students may petition the Graduate Program Committee of the Materials Science and Engineering Department to elect this option, but the petition must be made at the time of admission application.

In addition, the average grade for all credits, excluding ESM 599, ESM 698, and ESM 699, must be B or better.

B. *Thesis:* For the student who elects to complete a thesis for the M.S. degree, the thesis must be approved by three faculty members, at least two of whom are members of the Materials Science and Engineering Department, including the research advisor.

C. *Final recommendation:* Upon the fulfillment of the above requirements the faculty of the graduate program will recommend to the Dean of the Graduate School, through the Graduate Program Committee, that the Master of Science degree be conferred or will stipulate further requirements that the student must fulfill.

D. *Time limit:* For full-time students, all requirements for the M.S. degree must be completed within three years of the student's first registration as a full-time graduate student in the Materials Science and Engineering Department.

Requirements for the Ph.D. Degree

A. *Residency:* Two consecutive semesters of full-time study are required.

B. *Qualifying examination:* Students must satisfactorily pass a qualifying examination as described above. A student who elects the non-thesis option for the M.S. program will be considered a terminal M.S. student by the department and must formally reapply for admission to the department if he or she wishes to pursue a Ph.D. degree. Students who elect the M.S. thesis program, however, will be considered as continuing students in the department and may proceed to the Ph.D. qualifying examination.

C. *Plan of work:* Before completion of one year of full-time residence, the student must have selected a research advisor who agrees to serve in that capacity. The student will then prepare a plan of further course work. This must receive the approval of the student's advisor and of the graduate committee.

D. *Preliminary examination:* A comprehensive oral examination on the subjects covered in graduate materials science courses. The

examination committee will consist of four members including the research advisor, two members of the Materials Science and Engineering Department, and one member from outside the department. Students entering the program with a baccalaureate degree must take the preliminary examination before the end of the 5th semester. If a second examination is required, this must be completed by the 10th week of the 6th semester. Students entering the program with a master's degree must complete the examination by the 10th week of the second semester.

E. *Advancement to candidacy*: After the student has successfully completed all requirements for the degree, other than the dissertation, he or she is eligible to be recommended for advancement to candidacy. This status is conferred by the Dean of the Graduate School upon recommendation of the chairman of the graduate program.

F. *Dissertation*: The most important requirement of the Ph.D. degree is the completion of a dissertation which must be an original scholarly investigation. The dissertation shall represent a significant contribution to the scientific literature and its quality shall be compatible with the publication standards of appropriate and reputable scholarly journals.

G. *Defense*: The candidate shall defend the dissertation before an examining committee consisting of four members including the research advisor, two members of the Materials Science and Engineering Department, and one member from outside the department.

H. *Time limit*: All requirements for the Ph.D. degree must be completed within four years after advancement to candidacy.

Faculty

Bilello, John C., *Dean, College of Engineering & Applied Sciences*, and *Professor*, Ph.D., 1965, University of Illinois: Mechanical properties; lattice defects; fracture; refractory metals; surface coatings.

Carleton, Herbert R., *Professor*,² Ph.D., 1964, Cornell University: Optical and ultrasonic properties; Brillouin scattering in crystals; surface acoustics.

Goland, Allen N., *Adjunct Professor*,¹ Ph.D., 1956, Northwestern University: Solid-state physics; defects; interaction of radiation with condensed matter.

Herley, Patrick J., *Associate Professor*, Ph.D., 1960, Rhodes University, South Africa; Ph.D., 1964, Imperial College, England: Solid-state chemistry; physical processes occurring in solid inorganic materials; kinetics of thermal and photolytic decomposition; radiation effects; nucleation phenomena; growth of single crystals.

Herman, Herbert, *Professor*, Ph.D., 1961, Northwestern University: Neutron diffraction; phase transformations; protective coatings; coatings; ceramic surfaces; fine particles.

- Jach, Joseph, *Associate Professor*, D. Phil., 1955, Oxford University, England: Solid state chemical reactions; gas reactions; use of Mossbauer Spectroscopy in study of glass systems.
- Jona, Franco P., *Professor*, Ph.D., 1949, Swiss Polytechnic Institute (E.T.H.), Switzerland: Studies of solid surfaces and their interactions with surrounding agents; determination of atomic arrangements in surface layers; low energy electron diffraction (LEED); auger-electron spectroscopy (AES); photoemission (UPS).
- Levine, Sumner N., *Professor*, Ph.D., 1949, University of Wisconsin: Biomedical materials; industrial management.
- Li, Chou H., *Adjunct Professor*,³ Ph.D., 1951, Purdue University: Solidification; surface properties.
- Preece, Carolyn M., *Associate Professor*, Ph.D., 1966, Imperial College, England: Studies of the influence of the environment on the mechanical properties of materials, including cavitation, impact erosion, corrosion, hydrogen embrittlement and liquid metal embrittlement.
- Prewitt, Charles T., *Professor*,⁴ Ph.D., 1962, Massachusetts Institute of Technology: Crystallography; solid state chemistry; mineralogy.
- Seigle, Leslie L., *Professor*, D.Sc., 1951, Massachusetts Institute of Technology: Thermodynamics of solids; diffusion in solids; protective coatings; sintering.
- Wang, Franklin F.Y., *Professor*, Ph.D., 1956, University of Illinois: Ceramics; electronic materials; manufacturing processing; solar energy technology.

DEPARTMENT OF MECHANICAL ENGINEERING

Degree Programs

The Department of Mechanical Engineering offers graduate work leading to the Master of Science and Doctor of Philosophy degrees. The department offers a broad program emphasizing fundamental knowledge in three academic areas: atmospheric sciences; energy systems and fluid mechanics; and solid mechanics. In each area students are encouraged to participate in research.

¹Joint appointment, Brookhaven National Laboratory

²Joint appointment, Department of Electrical Engineering

³Joint appointment, Grumman Aerospace Corporation

⁴Joint appointment, Department of Earth and Space Sciences

Requirements for the M.S. and Ph.D. degrees are listed on page 26. In addition, for admission to the doctoral program in the Department of Mechanical Engineering, a defense of a Ph.D. thesis proposal is required as part of the preliminary examination, unless the student has earned the master's degree, with thesis.

The residence requirement for the Ph.D. degree is two consecutive semesters of full-time study; there is no residence requirement for the M.S. degree.

Laboratory for Planetary Atmospheres Research

The Laboratory for Planetary Atmospheres Research (LPAR) comprises an interdepartmental teaching and research program for students interested in the physics and chemistry of the atmospheres of the Earth and other planets. This program is available to students in the College of Engineering and Applied Sciences and the Division of Physical Sciences. A graduate student in any of the departments of these divisions may, with the consent of his or her chairman, elect to participate in the program. The basic degree requirements are set by the department in which the student is enrolled; they are the same as those for any other student in that department. The student will normally be advised to take two or more courses from the list drawn up by the LPAR faculty in order to obtain a basic background in the atmospheric sciences. He or she must then satisfy departmental requirements regarding a preliminary examination. However, a major portion of this examination will be devoted to problems in atmospheric physics and chemistry; at least one member of the examining committee will be from the LPAR faculty. A research advisor for the dissertation will normally be selected from the LPAR faculty, subject to the approval of the department chairmen.

The Laboratory for Energy Technology

Interdepartmental teaching and research concerned with energy technology is coordinated through faculty associated with the Laboratory for Energy Technology. A graduate student in any participating department may elect to participate in the energy technology program. Basic degree requirements are set by the department in which the student is enrolled. Students interested in this program, which emphasizes the fundamentals and applications of modern energy technology systems, may obtain more detailed information from the Department of Mechanical Engineering.

Environmental Engineering Track

The graduate program in environmental engineering is designed to meet a growing need in both the private and public sectors for planners, administrators and design engineers to deal with environment-related problems. The program is intended for professionals presently engaged in other areas of administration, planning and

engineering as well as those already in the environmental field. The program is open to full- and part-time students who have completed a baccalaureate degree in engineering, physical science, mathematics, economics or a related field.

The program is under the jurisdiction of the Dean of the College of Engineering and Applied Sciences and an advisory committee of regional environmental agencies and engineering and planning firms, together with Stony Brook faculty. Two basic program tracks are available: engineering design and water resources management.

For further information, contact Professor Stewart Harris, Department of Mechanical Engineering.

Faculty

- Atlas, Robert M. *Visiting Assistant Professor*, Ph.D., 1976, New York University: Weather prediction; air-sea interaction.
- Azbel, David S., *Research Professor*, Ph.D., 1965, Mandeleev Institute of Chemical Technology, Moscow, Russia: Two-phase flow.
- Berg, Fred Jr., *Adjunct Associate Professor*, M.S., 1959, Brooklyn Polytechnic Institute.
- Berlad, Abraham L., *Professor*, Ph.D., 1950, Ohio State University: Combustion; reactive media; stratospheric photochemistry; energy technology.
- Bradfield, W. Samuel, *Professor*, Ph.D., 1957, University of Minnesota: Environmental fluid dynamics; boundary layer heat transfer; hydrofoil ventilation studies.
- Cess, Robert D., *Professor*, Ph.D., 1959, University of Pittsburgh: Atmospheric sciences.
- Chevray, Rene, *Associate Professor*, Ph.D., 1967, University of Iowa: Transport and turbulent flows.
- Chiang, Fu-pen, *Professor*, Ph.D., 1966, University of Florida: Experimental mechanics; photoelasticity; moiré and other optical methods for stress analysis.
- Hameed, Sultan, *Adjunct Associate Professor*, Ph.D., 1968, University of Manchester: Air pollution dispersion.
- Harris, Stewart, *Associate Professor*, Ph.D., 1965, Northwestern University: Brownian motion theory and its applications; non-equilibrium theory of fluids.
- Hogan, Joseph S., *Associate Professor*, Ph.D., 1968, New York University: Planetary atmospheres; satellite meteorology.
- Irvine, Thomas F. Jr., *Professor*, Ph.D., 1956, University of Minnesota: Measurement of thermo-physical properties; rheological fluid mechanics and heat transfer.
- Lee, Richard S.L., *Professor*, Ph.D., 1960, Harvard University: Fluid mechanics; fire research; suspension flow; flow instability; bio-medical fluid flow.
- O'Brien, Edward E., *Professor*, Ph.D., 1960, The Johns Hopkins University: Turbulent transport.

- Stell, George R., *Professor*, Ph.D., 1961, New York University: Statistical thermodynamics.
- Tasi, James, *Professor*, Ph.D., 1962, Columbia University: Solid mechanics.
- Varanasi, Prasad, *Associate Professor*, Ph.D., 1967, University of California, San Diego: Planetary spectroscopy; molecular physics.
- Wang, Linshu, *Associate Professor*, Ph.D., 1966, University of California, Berkeley: Dynamic meteorology; energy technology.
- Yang, Ching H., *Professor*, Ph.D., 1951, Lehigh University: Thermokinetic systems.

Allied Health Professions
Basic Health Sciences
Dental Medicine
Medicine
Nursing
Social Welfare

The Health Sciences

The Health Sciences Center is an integral part of the Stony Brook campus, offering a comprehensive education in the health professions. It consists of six Schools which provide the special education needed for the training of a larger range of health professionals: the Schools of Allied Health Professions, Basic Health Sciences, Dental Medicine, Medicine, Nursing and Social Welfare, and the University Hospital. The Schools receive support services from Biomedical Computer Services, Media Services, the Division of Laboratory Animal Resources, the Health Sciences Center Library and the Office of Student Services.

The Health Sciences Center has affiliation arrangements with more than 80 hospitals and agencies. Four of these are referred to as "clinical campuses": Hospital of the Medical Research Center, Brookhaven National Laboratory; Long Island Jewish-Hillside Medical Center and its Queens Hospital Center affiliation; Nassau County Medical Center; and Northport Veterans Administration Hospital.

The Health Sciences Center is located on the east side of Nicolls Road, adjacent to the main campus and South Campus. The main teaching-research building is a five-level network structure, 5.3 acres in base size topped with two clinical towers. One houses ten levels of medical research laboratories and faculty offices; the other has five levels of basic science research laboratories and faculty offices.

Currently under construction, with opening scheduled for 1979, the University Hospital will be a central teaching facility for all the educational programs of the Health Sciences Center and will provide specialized patient care services for the region.

School Organization

With the exception of the Schools of Nursing and Social Welfare,

the Schools of the Health Sciences Center are organized structurally around departments:

School of Allied Health Professions

Department of Allied Health Resources
Department of Cardiorespiratory Sciences
Department of Medical Technology
Department of Physical Therapy
Department of Physician's Assistant Education

School of Basic Health Sciences

Department of Anatomical Sciences
Department of Biochemistry
Department of Microbiology
Department of Pathology
Department of Pharmacological Sciences
Department of Physiology and Biophysics

School of Dental Medicine

Department of Children's Dentistry
Department of Dental Health
Department of Oral Biology and Pathology
Department of Oral Surgery
Department of Periodontics
Department of Restorative Dentistry

School of Medicine

Department of Anesthesiology
Department of Community Medicine
Department of Family Medicine
Department of Medicine
Department of Neurology
Department of Obstetrics and Gynecology
Department of Pediatrics
Department of Psychiatry
Department of Radiology
Department of Surgery
Department of Orthopedic Surgery
Department of Urology
Department of Ophthalmology
Department of Dermatology
Department of Physical Rehabilitative Medicine
Department of Otorhinolaryngology

School Information

Detailed information about the professional programs offered by the six Schools is contained in the *Health Sciences Center Bulletin*.

Since the Center's training of health professionals requires special academic programming and supportive services, significant sections of the data contained in this *Graduate Bulletin* are not applicable to the Health Sciences Center; e.g., admission procedures and requirements, registration, student services, educational expenses, financial aid, and academic calendar.

The *Health Sciences Center Bulletin* can be obtained by writing or telephoning the Health Sciences Center Office of Student Services (516-444-2111), or at the Office of the Dean of a specific School.

Allied Health Professions

The program leading to the degree of Master of Science in Health Sciences is open to qualified, experienced professionals in any health field who now wish to direct their careers into teaching, supervisory, or research roles. The program requires completion of 44 credits of study including a six-month internship or practicum. All students will complete a required "core" program consisting of a sequence of 12 credits of common foundation courses, plus an individually planned sequence of courses in one of three tracks: teaching, supervision, or research. Both full-time and part-time students are accepted in the program.

All candidates for this M.S. in Health Sciences must hold a baccalaureate degree; have achieved professional status in one of the health professions; have completed at least one year of practice in their field; and aspire to a career within the framework of one of the three tracks of teaching, supervision, or research. Each candidate will plan and pursue his or her program with the guidance of a faculty committee of three members; committees will be chosen to include competence in the professional field, in the track area and in an academic discipline germane to the candidate's field of interests.

Further information may be obtained from the program director:

Bruce Gould, Ed. D.
Associate Professor of Health Sciences and
Director of Graduate Program
School of Allied Health Professions
Health Sciences Center
State University of New York at Stony Brook
Stony Brook, New York 11794
(516) 444-2256

Basic Health Sciences

The School of Basic Health Sciences offers programs leading to the Ph.D. degree in Anatomical Sciences, Microbiology, Pathology, Pharmacological Sciences or Physiology and Biophysics. These programs are designed to lead to careers in research and teaching. The programs currently offered are described in the following pages.

Dental Medicine

Admission to the School of Dental Medicine is highly selective. The School of Dental Medicine does not have a separate application form but participates in the centralized American Association of Dental Schools Application Service.

All questions concerning admission to the School of Dental Medicine should be addressed to:

The Office of Admissions, School of Dental Medicine
Health Sciences Center
State University of New York at Stony Brook
Stony Brook, New York 11794
(516) 444-2805

Medicine

Admission to the School of Medicine is highly selective and students must take the Medical College Admissions Test in the year prior to the year for which admission is being sought to be considered for acceptance.

All questions concerning admission to the School of Medicine should be addressed to:

The Office of Admissions, School of Medicine
Health Sciences Center
State University of New York at Stony Brook
Stony Brook, New York 11794
(516) 444-2113

Nursing

The School of Nursing offers a full-time, two-year multidisciplinary Master of Science program for the preparation of nurse-practitioners in family health care and clinical care management.

All questions concerning admission requirements, application and admission procedure should be addressed to:

Lenora McClean, Ed. D.
Director, Graduate Program in Nursing
School of Nursing
Health Sciences Center
State University of New York at Stony Brook
Stony Brook, New York 11794
(516) 444-2385

Social Welfare

The School of Social Welfare offers an MSW degree, a four-semester program which includes academic courses and field work. The curriculum in the School of Social Welfare is organized into two concentrations:

1. Intervention with individuals, families and small groups.

2. Policy planning, research, administration and community organization.

All questions concerning admission to the School of Social Welfare should be addressed to:

Michael Reisch, Ph.D.
Assistant Dean for Student Services
School of Social Welfare
Health Sciences Center
State University of New York at Stony Brook
Stony Brook, New York 11794
(516) 444-2146.

SCHOOL OF BASIC HEALTH SCIENCES

The preclinical disciplines fundamental to the health professions are organized in a School of Basic Health Sciences. These disciplines are represented by Departments of Anatomical Sciences, Microbiology, Pathology, Pharmacological Sciences, and Physiology and Biophysics. Also included for certain administrative purposes is the Department of Biochemistry which is housed in the Division of Biological Sciences. These departments have principal responsibility for preclinical instruction of students in all schools of the Health Sciences Center. The School of Basic Health Sciences also has University-wide responsibility to students in all other schools on the campus, as well as on affiliated clinical campuses, for undergraduate and graduate training and research in the disciplines basic to the health sciences.

The faculty listing that follows includes only those members sharing major responsibility for graduate education. A comprehensive listing of all Health Sciences faculty members is presented in the *Health Sciences Center Bulletin*.

Graduate Programs in Basic Health Sciences

Doctoral programs are being offered in anatomical sciences, microbiology, oral biology and pathology, pathology, pharmacological sciences, and physiology and biophysics. Each program is under the direction of its own program chairman and executive committee. Students wishing to pursue a combined M.D.-Ph.D. program should apply for admission to both Schools (BHS and Medicine), since admission to one program does not guarantee admission to the other.

Admission Requirements

A. A baccalaureate degree with the following minimal preparation is required: mathematics through one year of calculus, chemis-

try including organic chemistry, general physics, and one year of biology, including laboratory.

B. A minimum grade point average of 2.75 (B-) in all undergraduate course work, and 3.00 (B) in science and mathematics courses.

C. Letters from three previous instructors and results of the Graduate Record Examination.

D. Acceptance by the School of Basic Health Sciences and the Graduate School.

In special cases, students not meeting requirements A through C may be admitted on a provisional basis. These students must act to remedy deficiencies within the first year, according to individual departmental requirements.

Requirements for the Ph.D. Degree

A. *Minimum residence*: Two years of full-time graduate study.

B. *Language proficiency*: Whether or not foreign language proficiency or a substitute (such as computer programming) is required is left to the discretion of individual departmental programs.

C. *Formal course requirements*: Successful completion of an approved course of study (approval is the responsibility of the respective program committee).

D. *Candidacy (preliminary) examination*: At the discretion of the department, the preliminary examination may be oral or written, or both, and may consist of a series of examinations. Students will normally apply for the examination after completing the major portion of course work, but not later than the end of the fifth semester of course work. In those departments which require foreign language proficiency tests, the latter must be passed before permission can be granted to take the candidacy examination.

E. *Advancement to candidacy*: The School's recommendation with respect to candidacy for the Ph.D. degree will be based upon satisfactory completion of the above requirements. Advancement to candidacy is granted by the Dean of the Graduate School.

F. *Research and dissertation*: The general requirements of the Graduate School regarding the dissertation examination will be followed.

The M.S. Degree

Where the circumstances surrounding a student's failure to complete the Ph.D. program are sufficiently extenuating, the M.S. degree may be awarded, provided that the following requirements are met:

A. One-year residence.

B. Successful completion of an approved course of study (at least 30 graduate semester credits).

C. A comprehensive examination based on course work, and/or departmental approval of a written master's thesis and its successful defense in an oral examination.

Preparation for Teaching

As part of their graduate training, all students are required to participate in teaching activities and to demonstrate mastery of teaching skills.

Interdisciplinary Program

An interdisciplinary graduate program in molecular biology is offered by the Department of Biochemistry along with faculty drawn from other departments in the School of Basic Health Sciences, the Division of Biological Sciences, and from the Department of Chemistry. This program is under the auspices of the Division of Biological Sciences and is described under that section elsewhere in this *Bulletin*.

Anatomical Sciences

The program in anatomical sciences offers graduate studies in four broad areas: developmental anatomy, microscopic anatomy, macroscopic anatomy, and neuroscience. The program in *developmental anatomy* includes genetics, embryology, developmental mechanisms, and fetal biometrics. The *microscopic anatomy* program emphasizes the structure and function of biological membranes, cell organelles, motile and excitable tissues. The program in *macroscopic anatomy* consists of biomechanics and biometrics in human and vertebrate anatomy and physical anthropology, including primatology. The *neuroscience* program emphasizes invertebrate and vertebrate anatomy and physical anthropology, including neurocytology, neurohistology, electrophysiology, and animal behavior. Further details of the program in anatomical sciences may be obtained from the program chairman, Dr. David L. Williamson.

Faculty

- Blaustein, David, *Assistant Professor*, D.D.S., 1957, New York University; Ph.D., 1977, State University of New York, Stony Brook: Immunocytochemical localization of proteins; ultrastructure of the vertebrate eye; immunochemistry.
- Brink, Peter R., *Lecturer*, Ph.D., 1976, University of Illinois: Physiology and biophysics of junctional and excitable membranes.
- Creel, Norman, *Associate Professor*, Dr. rer. nat., 1967, Eberhard-Karls University, Tübingen, Germany: Quantitative taxonomy of primate populations; polyfactorial inheritance; primate evolution.
- Dewey, Maynard M., *Professor and Chairman*, Ph.D., 1958, University of Michigan: Structure and function of biological membranes; comparative structure and function of muscle; electron microscopy.
- Fleagle, John G., *Assistant Professor*, 1976, Harvard University: Evolutionary biology of higher primates; comparative musculoskeletal anatomy.
- Fusco, Madeline, *Professor and Associate Dean, School of Basic Health Sciences*, Ph.D., 1959, University of Pennsylvania: Neuro-

- physiology; neural control of energy exchange; hypothalamic control systems.
- Gordon, Joel S., *Assistant Professor*, Ph.D., 1971, University of Pennsylvania: Molecular biology of eukaryotic cytodifferentiation; chromatin structure and composition during differentiation; *in vitro* myogenesis and chondrogenesis; mechanisms of Budr action.
- Hauber, Eric J., *Assistant Professor*, Ph.D., 1971, University of California, Los Angeles: Conformation and function of prokaryotic ribosomes and membrane-bound eukaryotic ribosomes.
- Inke, Gabor B., *Professor*, M.D., 1944, Pazmany Peter University, Budapest, Hungary; D.D.S., Halle/Saale, East Germany: Quantitative morphology of the human body; physical anthropology.
- Jungers, William L., *Lecturer*, Ph.D., 1976, University of Michigan: Paleoanthropology; comparative primate anatomy; biomechanics and primate systematics.
- Karten, Harvey J., *Professor*, M.D., 1959, Albert Einstein College of Medicine: Comparative and developmental biology of the vertebrate nervous system, with emphasis on morphological and histochemical studies of nerve tissue; evolution of neural and behavioral biology.
- Owen, W. Geoffrey, *Assistant Professor*, Ph.D., 1970, University of London: Neurophysiology and neuroanatomy of the retina; synaptic transfer of information between sensory neurons.
- Stern, Jack T., Jr., *Associate Professor*, Ph.D., 1969, University of Chicago: Functional morphological and evolutionary mechanisms of primate adaptations; biomechanics, with emphasis on mathematical models of muscle systems and electromyography.
- Susman, Randall L., *Assistant Professor*, Ph.D., 1976, University of Chicago: Physical anthropology; functional morphology and behavior of primates and human evolution.
- Twarog, Betty M., *Professor*, Ph.D., 1952, Radcliffe College: Comparative structure and physiology of invertebrate smooth muscles; amine localization in the invertebrate nervous system; biotoxins.
- Walcott, Benjamin, *Assistant Professor*, Ph.D., 1968, University of Oregon: Comparative neurophysiology; relation between muscle tension, sarcomere length, and filament length in striated muscle; sensory integration; electron microscopy.
- Williamson, David L., *Associate Professor*, Ph.D., 1959, University of Nebraska: Genetics; maternally inherited infections; biology of spiroplasmas.
- Witkovsky, Paul, *Professor*, Ph.D., 1962, University of California, Los Angeles: Structure and function of the vertebrate retina; central control of reflexes in lower vertebrates.

Microbiology

The Department of Microbiology offers a variety of programs leading to the Ph.D. degree. The general areas of research being conducted in the department encompass all aspects of modern microbiology. These consist of prokaryotic systems, animal viruses, eukaryotic cells and subcellular systems. The department is especially well equipped for research in the rapidly growing fields of eukaryotic cells and viral molecular biology thanks to an N.I.H. Training Grant in Viral Oncology and a central facilities grant from the Human Cell Program of the National Science Foundation. The required course work will be designed to cover cell biology, biochemistry, genetics, molecular biology and developmental biology. Students are given the opportunity initially to conduct short-term research projects in two or three different laboratories, followed by concentration on a major dissertation research project. Further details may be obtained from the graduate advisor, Dr. William Bauer.

Faculty

- Bauer, William R., *Associate Professor*, Ph.D., 1968, California Institute of Technology: Structure, enzymology, and interactions of the nucleic acids, especially relating to the properties of circular DNA's; mechanism of action of antitumor drugs.
- Bukhari, Ahmad, *Adjunct Assistant Professor*, Ph.D., 1970, University of Colorado Medical School, Denver: The mechanism of integration of bacteriophage Mu and the degradation of abnormal proteins of *Escherichia coli*.
- Carter, Carol Ann, *Assistant Professor*, Ph.D., 1972, Yale University: Molecular biology of reovirus replication; roles of methylation and phosphorylation in virus replication.
- Delihias, Nicholas, *Associate Professor*, Ph.D., 1961, Yale University: Ribosome surface structure, RNA function, ribosome binding sites; antibiotic interactions.
- Dunn, John J., *Adjunct Assistant Professor*, Ph.D., 1970, Rutgers University: Transcription, processing, and translation of RNA.
- Kates, Joseph R., *Professor and Chairman*, Ph.D., 1966, Princeton University: Molecular biology of animal virus replication; study of the mechanisms and control of gene expression during cellular growth and differentiation using unucleation and nuclear transplantation techniques with tissue cultured cells.
- Kim, Charles W., *Associate Professor and Associate Dean of the Graduate School*, Ph.D., 1956, University of North Carolina, Chapel Hill: Cell-mediated immunity, especially the mechanism of delayed hypersensitivity to *Trichinella spiralis*.
- Ohtsubo, Eiichi, *Assistant Professor*, Ph.D., 1971, Osaka University, Japan: Mapping of functional sites and/or sequences involved in a specialized recombination of bacterial plasmids with bacterial chromosomes.

- Polack, Robert, *Professor*, Ph.D., 1966, Brandeis University: Cell biology, genetics and molecular biology of carcinogenesis; cell structure and function; control of cell growth.
- Setlow, Jane, *Adjunct Professor*, Ph.D., 1959, Yale University: Recombination and repair of microbial DNA.
- Tegtmeyer, Peter, *Professor*, M.D., 1960, St. Louis University: Genetic analysis of SV40 virus in relation to molecular biology of viral carcinogenesis and papovavirus replication.
- Weitzman, Stephen, *Assistant Professor*, M.D., 1969, New York University Medical School: Cell biology and molecular biology of immunoglobulin synthesis and secretion in cultured myeloma cells.
- Wimmer, Eckard, *Associate Professor*, Ph.D., 1962, University of Gottingen, Germany: Structure and biological function of ribonucleic acids of picornaviruses and RNA tumor viruses and their host cells.

Oral Biology and Pathology

The graduate program in oral biology and pathology is intended for students interested in study and research towards the M.S. and Ph.D. degrees and for post-doctorates desiring further training or wishing to pursue independent research in this area. The M.S. program is of approximately two years' duration and is particularly suited for those dental graduates who wish to obtain basic science training before entering a clinical specialty. While the department is interested in all aspects of oral biology, active programs of research presently being conducted include the following: development, metabolism and control of the oral microbiota; bone and salivary gland structure and metabolism; secretory mechanisms; ultrastructure and metabolism of healthy and diseased periodontal tissues; chemistry and crystallography of the biological calcium phosphates; bacterial cell walls and membranes; molecular basis of cellular differentiation. Further details may be obtained from the program chairman, Dr. Israel Kleinberg.

Faculty

- Eisenbud, Leon, *Professor*, D.D.S., 1940, New York University, College of Dentistry: Influence of systemic disease on oral tissues; chemotherapeutic agents in dental infection.
- Garant, Philius R., *Professor*, D.M.D., 1965, Harvard School of Dental Medicine: Ultrastructure of periodontium in health and disease; ultrastructure of hard-tissue formation, including odontogenesis; comparative odontology.
- Golub, Lorne M., *Professor*, D.M.D., 1963, University of Manitoba, Canada: Gingival crevicular fluid; local and systemic factors in periodontal disease; bone and gingival collagen metabolism.

- Gwinnett, A. John, *Associate Professor*, L.D.S.R.C.S., 1960; Ph.D., 1964, Bristol University, England; Electron microscopy of the tooth surface; interface of adhesive dental materials with tooth structure; morphology of plaque and its formation.
- Kaufman, Hershall W., *Associate Professor*, D.M.D., 1963; Ph.D., 1967, University of Manitoba, Canada: Phytates and other phosphates in mineralization and demineralization processes; effects of lathyrisms on hard-tissue mineralization; plaque mineralization.
- Kleinberg, Israel, *Professor and Chairman*, D.D.S., 1952, University of Toronto, Canada; Ph.D., 1958, University of Durham, England: Metabolism of oral mixed bacterial populations; physiochemical mechanisms in dental plaque formation; bacterial growth factors in human saliva; tissue pH and pO₂ monitoring during ischemic conditions; development of oral diagnostic techniques.
- McNamara, Thomas F., *Associate Professor*, Ph.D., 1959, The Catholic University of America: Role of microorganisms in dental caries etiology; immune mechanisms in periodontal disease; enzymes in gingival crevicular fluid and their relation to the onset of periodontal disease.
- Pollock, Jerry J., *Associate Professor*, Ph.D., 1969, Weizmann Institute, Israel: Functional organization of bacterial cell walls and membranes; molecular mechanisms of penicillin action; role of enzymes in dental plaque formation.
- Sciubba, James J., *Assistant Professor*, D.M.D., 1967, Fairleigh Dickinson University; Ph.D., 1974, University of Illinois: Wound healing; tumor pathology; electron microscopy of oral mucosa.
- Sreebny, Leo M., *Professor*, D.D.S., 1945; Ph.D., 1954, University of Illinois at Urbana: Salivary gland metabolism and secretion; salivary enzymes; role of diet, mastication, and endocrines in secretory processes.
- Taichman, Lorne B., *Assistant Professor*, M.D., 1965, University of Toronto, Canada; Ph.D., 1971, University of Wisconsin Graduate School: Mechanism of cell differentiation in cultured cells; molecular structure of chromosomes and its relation to genetic expression.

Pathology

This program provides a broadly-based approach to research in the pathology of human disease, including immunology and immunopathology, oncology, connective tissue metabolism, mechanisms of tissue injury, and environmental pathology. The curriculum initially is similar to that for first-year medical students, except for modification of clinical training as may be appropriate. Later, the student pursues advanced courses, selected to provide expertise in the investigative area of his or her major interest, leading ultimately

to dissertation research. Further details of the program may be obtained from the program chairman, Dr. Henry Godfrey.

Faculty

- Ackerman, Lauren V., *Professor*, M.D., 1932, University of Rochester: Pathology of cancer.
- Chandor, Stebbins B., *Associate Professor*, M.D., 1960, Cornell University Medical College: Immunopathology.
- Coller, Barry S., *Assistant Professor*, M.D., 1970, New York University: Platelet physiology and coagulation.
- Drew, Robert T., *Research Associate Professor*, Ph.D., 1968, New York University: Inhalation toxicology and carcinogenesis; toxicity of atmospheric pollutants derived from energy generation and utilization.
- Elias, Julius M., *Research Associate*, M.A., 1963, C.W. Post College: Immunohistochemistry of cell and tissue antigens; comparative studies of immunofluorescent and immunoenzyme methods for detection of immune complexes.
- Godfrey, Henry P., *Assistant Professor and Graduate Advisor*, M.D., 1965, Harvard University: The study and characterization of the antigen receptor(s) involved in the several delayed-onset, cell-mediated hypersensitivities of the guinea pig.
- Habicht, Gail, *Assistant Professor*, Ph.D., 1965, Stanford University: The cellular basis of immunological unresponsiveness (tolerance); lymphocytic chalones.
- Janoff, Aaron, *Professor*, Ph.D., 1958, New York University: Study of the proteolytic enzymes of human polymorphonuclear leukocytes and the role of these enzymes in the disease.
- Kane, Philip B., *Assistant Professor*, M.D., 1967, New York University: Experimental chemical carcinogenesis of the respiratory tract; characterization of asbestos-induced intrathoracic tissue reactions in humans.
- Kuschner, Marvin, *Professor and Chairman*, M.D., 1944, New York University: Carcinogenesis, environmental factors in disease.
- Lane, Bernard P., *Associate Professor*, M.D., 1963, New York University: Injury and carcinogenesis of respiratory tract in organ culture and in heterotopic grafts.
- Miller, Frederick, *Professor*, M.D., 1961, New York University: Lymphocytic chalones; glycoproteins; immune disease (special reference to rheumatic diseases, dermatoses); colon carcinoma.
- Peress, Nancy S., *Associate Professor*, M.D., 1967, Downstate Medical Center: Pathology of the nervous system.
- Phillips, Mildred E., *Associate Professor*, M.D., 1950, Howard University: Clarification of the basic mechanisms involved in the cellular and humoral immune responses of tumors.
- Sokoloff, Leon, *Professor*, M.D., 1944, New York University: Pathogenesis of degenerative and other joint diseases studied by cell culture, biomechanical and morphologic means.

Weisbroth, Steven H., *Associate Professor*, D.V.M., 1964, Washington State University: Impingement of intercurrent disease in laboratory animals on the research process; animal models of human disease.

Pharmacological Sciences

The faculty of the Department of Pharmacological Sciences, in conjunction with faculty in other departments at Story Brook, offers a graduate program in pharmacological sciences leading to the Ph.D. degree. By emphasizing early research experience and providing a broad but flexible curriculum, students lay the foundation for subsequent independent research. Graduate training in the program is organized along three broad tracks: biochemical pharmacology, physiological pharmacology, and chemical biology. The program is structured to give each student a flexible and individual course of study. Students, in consultation with faculty advisors, pursue a program of basic and elective course work during the first two years of training. During this time, they participate in several research projects directed by faculty associated with the program. Students then select a research advisor from the program faculty and, upon completion of the qualifying exam, devote full effort to dissertation research. Further details may be obtained from the program director, David L. Williams.

Faculty

Albert, Adrien, *Professor*, Ph.D., 1937, University of London, England: Chemical biology; medicinal chemistry.

Brynes, Paul J., *Assistant Professor*, Ph.D., 1975, Cornell University: Mechanism of action of tumor promoters.

Cohen, Seymour S., *Distinguished Professor*, Ph.D., 1941, Columbia University: Biochemistry of polyamines and nucleoside analogues.

Eisenberg, Moises, *Assistant Professor*, Ph.D., 1972, California Institute of Technology: Molecular aspects of membrane pore formation and the behavior of rhodopsin in natural membranes.

Grollman, Arthur P.,¹ *Professor and Chairman*, M.D., 1959, Johns Hopkins University: Mechanisms of action of anti-tumor drugs; anti-viral agents and toxins.

Iden, Charles R., *Instructor*, Ph.D., 1971, Johns Hopkins University: Mass spectrometry.

Johnson, Francis, *Professor*,² Ph.D., 1954, University of Strathclyde, Scotland: Synthesis of natural products; preparation and evaluation of new anti-fertility steroids.

¹Joint appointment, Department of Medicine

²Joint appointment, Department of Chemistry

- Raisfeld, Ilene H., *Associate Professor*, M.D., 1964, New York University: Studies of antibiotic toxicity; clinical pharmacology.
- Reich, Edward, *Professor*, M.D., 1956, Johns Hopkins University: Role of plasminogen activator in normal and neoplastic states: properties of acetylcholine receptors.
- Williams, David L., *Assistant Professor*, Ph.D., 1972, University of Illinois: Regulation of liver protein synthesis and secretion by estrogens.

Physiology and Biophysics

Two curricular tracks are available, the first for students with broad interests in physiology and biophysics, and the second for students who are interested in those aspects of physiology more closely related to clinical medicine. As many of the departmental members are actively engaged in research in neurobiology and the molecular biology of cell membranes, the first track should be particularly attractive to students with interests in these areas. Students with a solid background in some branch of the natural sciences but with little formal training in biology are especially invited to inquire further about the program. For the second track, the first-year curriculum is similar to that for beginning medical students, save for appropriate modification of clinical training. Further details concerning the programs in physiology and biophysics may be obtained from the program chairman, Dr. Stuart McLaughlin.

Faculty

- Benjamin, William, *Associate Professor*, M.D., 1959, College of Physicians & Surgeons, Columbia University: Endocrinology.
- Brown, Joel, *Professor*, Ph.D., 1964, Massachusetts Institute of Technology: Electrophysiology of vision.
- Cohen, Ira, *Assistant Professor*, M.D., Ph.D., 1974, New York University: Electrophysiology of the heart.
- LeFevre, Paul G., *Professor*, Ph.D., 1945, University of Pennsylvania: Cellular physiology, membrane transport.
- Levy, Harvey M., *Professor*, Ph.D., 1955, University of California, Los Angeles: Muscle physiology and biochemistry.
- Masiak, Stanley J., *Assistant Professor*, Ph.D., 1967, Rutgers University: Mechanism of ion transport.
- McLaughlin, Stuart, *Associate Professor*, Ph.D., 1968, University of British Columbia, Canada: Biophysics of membranes.
- Strichartz, Gary, *Assistant Professor*, Ph.D., 1970, University of Pennsylvania: Molecular neurophysiology.
- Van der Kloot, William G., *Professor and Chairman*, Ph.D., 1952, Harvard University: Cellular neurophysiology.

The Marine and Urban Sciences

MARINE SCIENCES RESEARCH CENTER

The M.S. program offered by the Marine Sciences Research Center consists of a rigorous interdisciplinary approach to coastal oceanography and coastal zone management. It is designed to prepare students for positions in research, management, environmental protection, and resource development. The program provides students with a firm basis for more advanced study, but more importantly it is designed to equip students with the background and tools needed for effective careers without additional training. Students may specialize in any one of the following areas: biological oceanography, chemical oceanography, geological oceanography, physical oceanography, fishery management, coastal zone management, and marine environmental sciences.

A five-year BS/MS program is sponsored jointly with the Department of Earth and Space Sciences for students concentrating in geological oceanography.

Marine Environmental Sciences Program

The M.S. Program in Marine Environmental Sciences also offers part-time training to professionals who wish to improve or broaden their skills, or redirect their careers. Required courses are alternated yearly between day and evening, and are arranged so that during any given year half of the courses are given in the evening.

Every student is required to successfully complete an approved course of study consisting of 30 graduate credits, including core courses in biological, chemical, geological, and physical oceanography, and courses offered by other departments in the student's

basic discipline. Not more than 6 credits may be research and/or seminar. An essay of publishable quality representing original work is required. It may be original laboratory or field research, or the application of existing knowledge to develop a management strategy for a significant environmental problem. Before a student is given formal approval to begin his or her research he or she must pass an oral examination which is designed to assess the student's general knowledge of coastal processes and environmental problems of the coastal zone. Each student is expected to present a seminar on his or her research work.

Admission Requirements

Requirements for admission to the master's program normally include: a B.A. or B.S.; course work in mathematics through calculus; statistics; introductory courses in at least two of the following areas: physics, chemistry, biology, and earth science, with advanced work in at least one of these areas; a cumulative grade point average of at least 3.00 (B); acceptable scores on the Aptitude Tests of the GRE. There are no language requirements.

Ph.D. Program in Coastal Oceanography

The Ph.D. program is designed to prepare students to effectively formulate and attack coastal oceanographic problems on applied and theoretical levels. It builds a flexible, interdisciplinary program and offers students the opportunity to extend their command of the tools of scholarship and to mature their judgment so that they may become effective, independent solvers of problems. Students will be free to emphasize their own interests whether they be in the biological, chemical, geological, physical, or management aspects of the coastal zone, but they may not elect to remain ignorant of the whole. Productive work in the coastal ocean requires both a general understanding and a profound knowledge of at least one basic science.

Admission Requirements

The applicant must have an M.S. degree or have published an acceptable article in a scientific journal. Students may be admitted to the program upon completion of the Center's M.S. degree in Marine Environmental Sciences, or by transfer from other institutions. Students who transfer either must demonstrate, by examination, mastery of the material of the MSRC core courses (MAR 501, 502, 503, 504, and 506) or must take those courses. Acceptable scores on the Aptitude Tests of the GRE are also required.

Requirements for the Ph.D. Degree

Candidates must meet the general requirements for the Ph.D. degree set by the Graduate School. Departmental requirements are as follows:

A. *Courses*: Successful completion with grades of B or better of an approved course of study consisting of core courses in biological oceanography (MAR 502), chemical oceanography (MAR 503), geological oceanography (MAR 506), and physical oceanography (MAR 501 and MAR 504); advanced courses in oceanography; and advanced courses in the student's basic discipline, including courses offered by other departments of the University.

B. *Language Requirement*: A working knowledge of one foreign language approved by the Marine Sciences Research Center. The Center will set the level of proficiency required.

C. *Sea experience*: Normally, each student will be expected to participate in oceanographic cruises aboard MSRC vessels or those of other institutions.

D. *Written qualifying examination*: Each student shall be required to pass written examinations in the biological, chemical, geological, and physical disciplines of marine science during the first academic year.

E. *Oral qualifying examination*: After submission and approval of the doctoral dissertation topic the advisor requests the Graduate Program Director to recommend an examination board and a date for the oral qualifying examination. The examination board shall be composed of five specialists in the field in which the student proposes to do his or her dissertation research or in closely related fields. No more than two examiners shall be named from the MSRC and the advisor shall not be among them. Of the remaining three examiners, at least one shall be an eminent scholar who has not been recently affiliated with the State University of New York at Stony Brook. The purpose of the oral examination is to determine whether the examinee is qualified to undertake the proposed research with a reasonable prospect of a successful outcome. The board may proceed in any way it sees fit to answer this question. The student's advisor shall attend the examination, act as his or her advocate during the subsequent discussion, and be prepared to supply any information that the board may reasonably require.

F. *Advancement to candidacy*: The student may be advanced to candidacy for the Ph.D. degree when he or she has completed all Graduate School and Marine Sciences Research Center requirements for the degree except the dissertation. Advancement to candidacy is recommended by the Center's Graduate Program Director to the Dean of the Graduate School through the Center's Director.

G. *Dissertation*: A dissertation is required for the Ph.D. degree. It must contain the results of original and significant investigation.

H. *Defense of the dissertation*: The defense of the dissertation is addressed to the candidate's research and its aims are to discover what he or she has done, what it means for the field of the marine sciences, how we will have to change our ideas, what leads it suggests for future work, and what we can do with it that is new. The examining board for the defense shall consist of five examiners

recommended by the Graduate Program Director. It shall include the candidate's advisor and one scholar with relevant interests, who has not been recently affiliated with the State University of New York at Stony Brook. The defense shall be open to the public. It shall begin with a presentation, by the candidate, of the candidate's work, followed by questioning by the examiners. Thereafter, the defense shall be thrown open to questions addressed to the candidate by the public.

I. *Residency requirement:* Normally, at least two consecutive semesters of full-time study will be required.

J. *Teaching requirement:* As a part of their graduate training, students will be expected to participate in the teaching activities of the University for a minimum of one semester. This requirement need not be filled within the MSRC.

K. *Time limit:* All requirements for the Ph.D. degree must normally be completed within four years after advancement to candidacy.

Facilities

Laboratories at the Center are well equipped and students may have access, by special arrangement, to facilities elsewhere on the campus, at the nearby Brookhaven National Laboratory, and at the Department of Environmental Conservation Laboratory at Flax Pond (local salt marsh). The Center maintains a number of small vessels and operates a new 18 m research vessel, the *R/V ONRUST*, designed specifically for coastal oceanographic research. Computing facilities at the Center and University are excellent. The University Library has extensive holdings in oceanography, environmental sciences and the basic sciences.

Faculty

Baylor, Edward R., *Professor*, Ph.D., 1949, Princeton University: Surface chemistry; oil spills; airborne viruses.

Baylor, Martha, *Adjunct Professor*, Ph.D., 1941, University of Illinois: Microbiology; virus genetics.

Bokuniewicz, Henry J., *Assistant Professor*, Ph.D., 1976, Yale University: Estuarine transport and dispersal; coastal sedimentation; energy sources for sediment transport.

Bowman, Malcolm J., *Associate Professor*, Ph.D., 1971, University of Saskatchewan, Canada: Descriptive and dynamical oceanography of estuarine and coastal waters; water quality modeling; microstructure and turbulence.

Brinkhuis, Boudewijn H., *Assistant Research Professor*, Ph.D., 1975, State University of New York, Stony Brook: Primary productivity of phytoplankton and seaweeds; biogeochemistry of trace metals in marine plants; physiological ecology of marine organisms.

Carpenter, Edward J., *Associate Professor*, Ph.D., 1969, North Carolina State University: Nitrogen cycling among plankton and ambi-

- ent seawater; phyto- and zooplankton ecology; effects of toxic chemicals and electric power stations on coastal plankton.
- Carter, Harry H., *Professor*, M.S., 1948, Scripps Institution of Oceanography: Estuarine and coastal dynamics; turbulent diffusion.
- Cooley, Arthur P., *Adjunct Associate Professor*,¹ M.S., 1956, Cornell University: Natural history of Long Island.
- Dayal, Ramesh, *Assistant Research Professor*, Ph.D., 1975, Dalhousie University, Nova Scotia: Geochemistry of coastal sediments; clay mineral-seawater interactions relating to fields of halmyrolysis and early diagenesis; sediment-water interface interactions.
- Duedall, Iver W., *Associate Professor*, Ph.D., 1973, Dalhousie University, Nova Scotia: Marine environmental chemistry; physical chemistry of seawater; coastal and deep-sea chemical oceanography.
- Esaias, Wayne E., *Assistant Research Professor*, Ph.D., 1973, Oregon State University: Phytoplankton ecology and photobiology.
- Falkowski, Paul G., *Adjunct Assistant Professor*,² Ph.D., 1975, University of British Columbia: Marine phytoplankton ecology; phytoplankton physiology.
- Fray, C.T., *Adjunct Associate Professor*,³ B.S., 1949, Harvard University: Coastal processes; geologic structure of continental margins; sedimentation marine geophysics.
- Goodman, Joel M., *Adjunct Professor*,⁷ M.S., 1959, Georgia Institute of Technology: Coastal zone planning; aquaculture.
- Hopkins, Thomas S., *Adjunct Assistant Professor*,² Ph.D., 1971, University of Washington: Coastal current structure; water mass analysis; air-sea interaction.
- Judkins, David C., *Adjunct Assistant Professor*,² Ph.D., 1972, University of California: Plankton ecology; biogeography of pelagic organisms and controlling environmental factors.
- Kinsman, Blair, *Visiting Professor*, Ph.D., 1960, The Johns Hopkins University: Waves and tides; estuaries.
- Like, Irving, *Adjunct Professor*,⁸ LL.B., 1949, Columbia University: Environmental law.
- Malouf, Robert E., *Assistant Professor*, Ph.D., 1977, Oregon State University: Shellfish biology.
- McHugh, J.L., *Professor*, Ph.D., 1950, University of California, Los Angeles: Fishery management; fishery oceanography; domestic and international affairs; whales and whaling.
- Meade, Robert H., *Adjunct Professor*,⁴ Ph.D., 1960, Stanford University: Coastal and fluvial sedimentation; ground water.
- Meyers, W.J., *Assistant Professor*,⁵ Ph.D., 1973, Rice University: Carbonates; sedimentology.
- Naidu, J.R., *Adjunct Assistant Professor*,² Ph.D., 1974, Oregon State University: Radioecology, radionuclides in the environment.
- O'Connors, Harold B., Jr., *Assistant Professor*, Ph.D., 1973, Oregon State University: Coastal plankton ecology; primary production;

- patterns of plankton distribution; zooplankton feeding behavior.
- Okubo, Akira, *Professor*, Ph.D., 1963, The Johns Hopkins University: Oceanic diffusion; animal dispersal; mathematical ecology.
- Powers, C. Donald, *Assistant Research Professor*, Ph.D., 1969, University of Michigan: Impact of persistent pollutants on phytoplankton and zooplankton ecology.
- Pritchard, Donald W., *Adjunct Professor*,⁶ Ph.D., 1951, Scripps Institution of Oceanography: Estuarine and coastal dynamics; coastal zone management.
- Schaeffer, Oliver A., *Professor*,⁵ Ph.D., 1946, Harvard University: Marine geochemistry; lunar studies.
- Schubel, J.R., *Professor, Director of Marine Sciences Research Center and Chairman, Marine Environmental Sciences and Coastal Oceanography Programs*, Ph.D., 1968, The Johns Hopkins University: Coastal sedimentation; suspended sediment transport; interactions of organisms and sediment; coastal zone management; marine geophysics.
- Squires, Donald F., *Professor and Director, New York Sea Grant Institute*, Ph.D., 1955, Cornell University: Marine affairs and science policy.
- Terry, Orville W., *Associate Research Professor*, Ph.D., 1970, State University of New York, Stony Brook: Aquaculture, especially of seaweed; wetlands management.
- Walsh, J.J., *Adjunct Associate Professor*,² Ph.D., 1969, University of Miami: Upwelling ecosystems; phytoplankton ecology; modeling of continental shelf ecosystems.
- Weyl, Peter K., *Professor*, Ph.D., 1953, University of Chicago: Coastal zone planning; physical oceanography.
- Whitledge, T.E., *Adjunct Assistant Professor*,² Ph.D., 1972, University of Washington: Regeneration of nutrients; chemistry of seawater; stimulation of primary productivity by sewage effluent; ecosystem dynamics.
- Wilson, Robert E., *Assistant Professor*, Ph.D., 1973, The Johns Hopkins University: Estuarine and coastal ocean dynamics.
- Woodhead, Peter M.J., *Research Professor*, B.S. 1953, Durham University, England: Physiology and behavior of fish; coral reef ecology.
- Wurster, Charles F., *Associate Professor*, Ph.D., 1957, Stanford University: Effects of chlorinated hydrocarbons on phytoplankton communities.

¹Bellport High School

²Brookhaven National Laboratory

³Dowling College

⁴U.S. Geological Survey

⁵Joint appointment, Department of Earth and Space Sciences

⁶The John Hopkins University

⁷Fredric R. Harris, Inc.

⁸Reilly, Like and Schneider, Attorneys

THE W. AVERELL HARRIMAN COLLEGE FOR URBAN AND POLICY SCIENCES

The W. Averell Harriman College for Urban and Policy Sciences prepares students for careers in the public sector as managers and analysts. The curriculum differs from the traditional "public administration" approach in that great emphasis is placed on the practical quantitative methods that have been derived over the past few decades from economics, statistics, computer science, engineering and the natural sciences. Graduates are expected to be skillful in exploring data, modeling complex processes, analyzing bureaucratic organizations, evaluating programs—all with a view toward improving the quality of public service.

Graduates generally make their careers in resource-allocating agencies at the federal, state and local level, as well as in consulting firms that serve those agencies. Substantive areas treated in the curriculum, and in which graduates specialize, include education policy, energy management, transportation, health care, and social policy.

A Master of Science degree is awarded on successful completion of the program.

Curriculum

First Year

All students take year-long courses in data analysis, modeling for policy-making, and economic analysis, plus one semester-long course in political and administrative decision making and another devoted to a workshop in which the classroom theory is brought to bear on one or more real problems of public policy.

Internship

All students must successfully complete an internship in a public agency. These positions are obtained with the help of the College and generally pay \$125-\$150 per week. Most internships are done during the summer between the first and second year, although outstanding students in some cases may do semester-long internships through the Presidential Management Intern Program, the Federal Graduate Cooperative Program, the New York State Assembly Fellowship, and the New York City Urban Fellowship.

The purpose of the intership is to provide practical experience in applying theoretical knowledge to difficult problems in the real world. An extensive intern report is required. The Stony Brook Foundation awards a cash prize for the best report of the year.

Second Year

While first-year courses average 40-50 students, the second-year courses generally have about half that number. The second-year courses offered in the Harriman College are of two general kinds: advanced methodology courses and detailed treatment of a

substantive public policy problem. During the year, students may take up to three courses in the graduate departments of other colleges at the University.

Research

In addition to preparing students for careers in the public sector, the Harriman College carries on policy research, the aim of which is to provide elected and appointed government officials with information and analysis that will contribute to improving the quality of public decision making and implementation. Research is done by the faculty of the College and other parts of the University, and with other institutions. Harriman College students also play an important role. The program is carried out through the two research institutes of the Harriman College: the Institute for Urban Sciences Research and the Institute of Energy Research.

Requirements for the Master of Science Degree

- A. 48 credits, usually taken over four regular semesters;
- B. An over-all 3.0 average;
- C. An internship, including faculty approval of the intern report.

Admission

The Harriman College is designed for ambitious and able students who are capable of applying what they learn toward the solution of public sector problems. Each student is asked to forward with his or her application a statement of his or her career objectives and the way he or she expects to realize these objectives through the program. A personal interview with the educational director is encouraged.

In addition, students must satisfy the following admissions requirements:

A. A baccalaureate degree with a minimum grade point average of 3.0. In exceptional cases, students not meeting this requirement may be admitted on a provisional basis.

B. Aptitude for quantitative analysis, demonstrated through previous course work, standardized tests, or practical experience.

C. Submission of Graduate Record Examination Aptitude scores.

D. Three letters of recommendation: one of which, if possible, should be from a professional working in a public agency or community or private organization, who is capable of evaluating the applicant's motivation and potential for public sector work, and at least one of which should be from a college faculty member, counselor, or administrator.

E. Acceptance by both the W. Averell Harriman College for Urban and Policy Sciences and the Graduate School.

Although not required, examples of an applicant's creative work will be considered. These might include previous or professional project reports or published articles.

Applications should be made by March 1 although earlier submissions are encouraged. Applications are reviewed between January and March for the following fall semester. Decisions concerning aid will be made not later than the March 1 deadline for applications.

Application forms may be obtained by writing to:

Educational Director, W. Averell Harriman College for
Urban and Policy Sciences
State University of New York at Stony Brook
Stony Brook, New York 11794.

Faculty

- Altman, Stanley M., *Associate Professor*, Ph.D., 1967, Polytechnic Institute of Brooklyn: Management information systems; developing strategies for improving frameworks for analyzing and implementing public policy.
- Beltrami, Edward J.,¹ *Professor*, Ph.D., 1962, Adelphi University: Optimization techniques: models for public systems analysis.
- Brody, Adele,¹ *Associate Professor*, MLL, New York University School of Law: Urban law and public administration in a policy analysis framework.
- Carlucci, Carl,¹ *Instructor*, M.S., 1974, State University of New York, Stony Brook: Management information systems.
- T. Owen Carroll, *Associate Professor*, Ph.D., 1968, Cornell University: Energy Systems; educational finance; mental health.
- Frucher, Meyer S.,¹ *Lecturer*, MPA, Harvard University: Manpower policy; operational skills for government.
- Kamer, Pearl, M.¹ *Associate Professor*, Ph.D., 1976, New York University: Regional economic planning.
- Levine, Sumner N.,¹ *Associate Professor*, Ph.D., 1949, University of Wisconsin: Industrial management; public sector financial analysis.
- Marcuse, William,¹ *Associate Professor*, Ph.D., 1956, Columbia University: Mathematical and econometric modeling.
- Nathans, Robert, *Professor*, Ph.D., 1954, University of Pennsylvania: Energy modeling and policy analysis.
- Neuberg, Leland G., *Assistant Professor*, Ph.D., 1976, University of California, Berkeley: Social conflicts surrounding the question of municipal vs. private ownership of electrical power systems.
- Silkman, Richard H., *Assistant Professor*, Ph.D., 1978, Yale University: Public policy toward education and health.
- Swinton, David, *Associate Professor*, Ph.D., 1975, Harvard University: Economic analysis of public policy questions and minority economic problems.
- Walsh, John P., *Assistant Professor*, Ph.D., 1975, State University of New York, Stony Brook: Application of economic analysis to problems of health policy.
- Weiner, Harry, *Associate Professor and Dean of the W. Averell Harriman College for Urban and Policy Sciences*, S.M., 1970, Massa-

chusetts Institute of Technology: Re-design of organizational structures to improve programmatic capabilities.

Young, Dennis R., *Associate Professor*, Ph.D., 1969, Stanford University: Organization of public services and the evaluation of their performance.

¹Part-time faculty.

The Mathematical Sciences

DEPARTMENT OF APPLIED MATHEMATICS AND STATISTICS

For detailed description of admission requirements and degree programs, see page 128.

DEPARTMENT OF COMPUTER SCIENCE

For detailed description of admission requirements and degree programs, see page 131.

DEPARTMENT OF MATHEMATICS

Master's Program

This program consists of two options: the Secondary Teacher Option (two years, part-time) for secondary school mathematics teachers seeking permanent certification; and the Professional Option (one or two years, full-time), designed for students who plan careers as professional mathematicians in industry, government or the academic world.

Doctoral Program

This program (three to four years, full-time), an extension of and the main reason for the Professional Option in the Master's program, is designed for students who plan careers as research mathematicians and/or as college or university faculty members.

Admission to the Master's Program

Any student who presents convincing evidence that he or she will benefit from a year of graduate work in mathematics is eligible for admission. Normally that evidence consists of records of prior training in mathematics, letters of recommendation from three mathematicians under whom the student has taken courses, or, for the Secondary Teacher Option, from supervisors under whom the applicant has taught, and the results of the Graduate Record Examination Aptitude Test. Foreign applicants must also present

their TOEFL score. Applicants to the Secondary Teacher Option are expected to have at least the equivalent of a provisional certificate in mathematics. An able student who has completed basic work in linear and modern algebra, real and complex analysis, and metric topology is well prepared for admission to the Professional Option.

An applicant whose prior training is seriously deficient may be offered provisional admission for one year after which he or she may apply for regular admission.

Requirements for the M.A. Degree

- A. 30 graduate credits of courses approved by the department.
- B. Passing the Comprehensive Examination.
- C. A minor of nine graduate credits.

The program of courses approved by the department depends on the option. The program for the Secondary Teacher Option normally includes the following: MSM 512, Algebra for Teachers; MSM 513, 514, Analysis for Teachers I, II; MSM 515, Geometry for Teachers; MSM 516, Probability and Statistics for Teachers; MSM 519, Seminar in Mathematics Teaching; CEN 560, Introduction to Computing. The last three courses satisfy the minor requirement. In the other option, the program is worked out individually with each student but will ordinarily include MSM 530, 531, 534, 535, 542, 544, 550, 590, 591, 592, or equivalent (including placing out by examination). The minor is to be in an allied area such as statistics, computer science or theoretical physics.

The comprehensive examinations are also designed separately for each option. For the Secondary Teacher Option they consist of the final examinations of MSM 512, 513, 514, and 515. For the Professional Option they consist of the final examinations of MSM 530, 531, 534, 535, 542, 544, 550, or the equivalent. Well prepared students may choose to substitute passing several equivalent examinations upon entrance to the program.

Admission to the Doctoral Program

A student who presents convincing evidence of significant potential for research in mathematics is eligible for admission. That evidence normally consists of an outstanding performance on the doctoral comprehensive examination or on comparable examinations at other universities. Students desiring direct admission to the doctoral program should indicate this on their application.

Requirements for the Ph.D.

- A. Passing the doctoral comprehensive examination.
- B. Passing the doctoral preliminary examination.
- C. Demonstrating proficiency in reading mathematics in two of the following: French, German, and Russian.
- D. Two consecutive semesters of full-time study.
- E. Advancement to candidacy.
- F. Writing an acceptable dissertation.

The Doctoral Comprehensive Examination

This examination, which is offered twice a year (at the start and finish of the spring semester), is designed to test mastery of the fundamentals of mathematics. A detailed syllabus for this examination is available upon request. Students who transfer from graduate programs in other universities may in some cases be granted exemption from this requirement at the time they are admitted. Otherwise, such students must take the doctoral comprehensive examination at their first opportunity.

The Doctoral Preliminary Examination

This examination is oral. Each student must take this examination no later than two years after passing the comprehensive examination or receiving an exemption therefrom. The chairman of the examining committee is chosen by the student.

Professional Academic Training Program

All full-time graduate students in mathematics are required to participate in this program. It consists of supervised teaching or tutoring at the lower undergraduate levels.

Faculty

Adler, Alfred, *Professor*, Ph.D., 1956, University of California, Los Angeles: Differential geometry and mathematical economics.

Ax, James, *Professor*, Ph.D., 1961, University of California, Berkeley: Algebraic number theory and logic; foundations of physics.

Barcus, William, *Professor*, Ph.D., 1955, Oxford University, England: Algebraic topology.

Brooks, Robert, *Instructor*, Ph.D., 1977, Harvard University: Differential geometry.

Charlap, Leonard, *Professor*, Ph.D., 1962, Columbia University: Homological algebra; differential geometry.

Cheeger, Jeff, *Professor*, Ph.D., 1967, Princeton University: Differential geometry.

Cohn, Sylva, *Associate Professor*, M.A., 1972, Stanford University: Mathematical education.

Cowen, Michael, *Assistant Professor*, Ph.D., 1971, Massachusetts Institute of Technology: Several complex variables.

Doss, Raouf, *Professor*, Ph.D., 1944, University of Cairo, Egypt: Harmonic analysis.

Douglas, Ronald, *Professor and Director of Graduate Studies*, Ph.D., 1962, Louisiana State University: Operator theory; functional analysis.

Ebin, David, *Professor*, Ph.D., 1967, Massachusetts Institute of Technology: Global analysis.

Farkas, Hershel, *Adjunct Professor*, Ph.D., 1965, Yeshiva University: Complex analysis.

Fox, William, *Associate Professor*, Ph.D., 1955, University of Michi-

- gan: Complex analysis.
- Gohberg, Israel, *Adjunct Professor*, Ph.D., 1954, Moscow State University: Operator theory and integral equations.
- Gromoll, Detlef, *Professor*, Ph.D., 1964, University of Bonn: Differential geometry.
- Gromov, Mikhael, *Professor*, Ph.D., 1969, Moscow State University: Differential topology and geometry.
- Hill, C. Denson, *Professor*, Ph.D., 1966, New York University: Partial differential equations; several complex variables.
- Jones, Lowell, *Associate Professor*, Ph.D., 1970, Yale University: Topology.
- Kleinstein, Jerrold, *Assistant Professor*, Ph.D., 1976, Cornell University: Algebra and mathematical education.
- Kra, Irwin, *Professor and Chairman*, Ph.D., 1966, Columbia University: Complex analysis; Kleinian groups.
- Kuga, Michio, *Professor*, Ph.D., 1960, University of Tokyo: Complex manifolds; algebraic groups.
- Kumpel, Paul, *Associate Professor*, Ph.D., 1964, Brown University: Algebraic topology.
- Laufer, Henry, *Professor*, Ph.D., 1966, Princeton University: Several complex variables.
- Lister, William, *Professor*, Ph.D., 1951, Yale University: Algebra.
- Maskit, Bernard, *Professor*, Ph.D., 1964, New York University: Complex analysis and Kleinian groups.
- Meyer, Wolfgang, *Professor*, Ph.D., 1965, University of Bonn: Differential geometry.
- Morava, Jack, *Assistant Professor*, Ph.D., 1969, Rice University: Topology.
- Phillips, Anthony, *Professor*, Ph.D., 1966, Princeton University: Differential topology.
- Pincus, Joel, *Professor*, Ph.D., 1959, New York University: Operator theory and integral equations.
- Sah, Chih-Han, *Professor*, Ph.D., 1959, Princeton University: Group theory and its applications.
- Simons, James, *Professor*, Ph.D., 1961, University of California, Berkeley: Differential geometry.
- Spencer, Joel, *Associate Professor*, Ph.D., 1970, Harvard University: Combinatorics.
- Stein, Elliot, *Assistant Professor*, Ph.D., 1975, Princeton University: Topology.
- Strasser, Elvira, *Professor*, Ph.D., 1956, New York University: Combinatorial group theory.
- Szusz, Peter, *Professor*, Ph.D., 1951, University of Budapest: Analytic number theory.
- Thorpe, John, *Professor*, Ph.D., 1963, Columbia University: Differential geometry.
- Zaustinsky, Eugene, *Associate Professor*, Ph.D., 1957, University of Southern California: Differential geometry.

Chemistry
Earth and Space Sciences
Physics

The Physical Sciences

DEPARTMENT OF CHEMISTRY

Degree Programs

The Department of Chemistry offers programs leading to the degrees of Master of Science for students seeking an education at an advanced level in chemistry and the experience of solving a problem in chemical research, and Doctor of Philosophy for those preparing for careers in which chemical research is a central activity. A student in the Ph.D. program may choose the dissertation research in any one of the diverse areas of chemistry represented by the interests of the departmental faculty, or he or she may choose an interdisciplinary study under the guidance of a faculty member in another department. Coordinated activities with the Departments of Biochemistry, Earth and Space Sciences, Electrical Sciences, Mechanics, and Physics include formal degree options in chemical physics and chemical biology.

Admission to Graduate Study

The following are required for admission to graduate study in chemistry:

A. A baccalaureate degree in chemistry earned in a curriculum approved by the American Chemical Society, or an equivalent course of study.

B. A minimum grade point average of 2.75 (B-) in all undergraduate work, and 3.00 (B) in all courses in the sciences and mathematics.

C. Results of the Graduate Record Examination Aptitude Test.

D. Acceptance by the Department of Chemistry and by the Graduate School.

In exceptional cases, a student not meeting requirements A and B may be admitted on a provisional basis.

Qualification to Candidacy

At the end of the second semester of graduate study, each student is qualified to candidacy for the graduate degree chosen provided that progress is satisfactory. Course work and research are considered in proportion appropriate to the student's program. Deficiencies in undergraduate preparation revealed by placement and proficiency examinations may be remedied by independent study or by formal course work.

Requirements for the M.S. Degree

A. Successful completion of an approved course of study comprising at least thirty credits of graduate course work.

B. Successful completion of the CHE 532 seminar and six courses selected from CHE 501 through 530, 557 through 589, 601 through 604, 623 through 683, and approved courses from other departments or from the CED program.

C. Successful completion of the CHE 590 term paper or research, thesis, and thesis defense.

Requirements for the Ph.D. Degree

A. *Residence:* Two years.

B. *Courses:* Successful completion of an approved course of study comprising at least six formal graduate courses of which four are selected from CHE 501 through 530, in addition to CHE 531, 532, and two semesters of CHE 610 or the equivalent. Qualification to candidacy is based, in part, on achievement in four 500-level chemistry courses to be taken during the student's first year. In consultation with faculty advisors each student selects a course work program to acquire a good background for research in the area of chemistry chosen.

C. *Language:* Reading proficiency in German, French, or Russian.

D. *Advancement to candidacy examination:* A student is advanced to candidacy for the Ph.D. degree when he or she has completed all degree requirements except the dissertation. A special committee is designated for each student to aid in progress toward this step. The committee is charged with advising the student and administering the advancement to candidacy examination. This examination, normally completed within one year following qualification to the Ph.D. degree, consists of a written proposition and oral defense, a discussion of the student's research, and a comprehensive examination.

E. Presentation of a *departmental seminar*.

F. Research, *dissertation*, dissertation defense, and departmental colloquium.

Research

Each student selects a research advisor from among the faculty at some time between the middle of the first and second semesters.

The research advisor also serves on the advancement to candidacy committee.

Doctoral Program in Chemical Physics

The doctoral program in chemical physics is provided for students whose interests lie in both chemistry and physics. A graduate student who is admitted to either the Chemistry or Physics Department may elect the program with the consent of the department chairman. A chemistry student elects this program to obtain more extensive training in physics than is normally required by chemistry departments. A physics student elects the program to obtain more extensive exposure to chemical systems than is normally obtained in physics departments. The program is a course option for graduate students in chemistry or in physics; furthermore, a student in the chemical physics program may select a research advisor from either department subject to the approval of the chairmen.

For a chemistry student the requirements are the same as for the Ph.D. in chemistry described above, with the following exceptions:

B. *Courses:* As well as CHE 532 and two semesters of CHE 610, a minimum of nine formal graduate courses is required, including the following:

CHE 523, Chemical Thermodynamics

PHY 503, Mathematical Physics

Two courses from among CHE 521, 522, Quantum Chemistry I, II and PHY 511, 512, Quantum Mechanics I, II

CHE 528 or PHY 540, Statistical Mechanics

PHY 501, Classical Mechanics

PHY 505, Classical Electrodynamics

One course in chemistry from among CHE 501, 502, 503, 511, and 512

D. *Advancement to candidacy examination:* In some cases a hybrid of the chemistry and physics programs may be used.

Doctoral Program in Chemical Biology

The doctoral program in chemical biology is provided for students whose interests lie in both chemistry and biology. A graduate student who is admitted to the Chemistry Department, the Department of Pharmacological Sciences, or the molecular biology program may elect, with the consent of the chairmen, the chemical biology program. A chemistry student elects the program if he or she desires more extensive training in biology than is normally accommodated in a chemistry graduate program. A pharmacology or molecular biology program student elects the program if he or she wishes to obtain more extensive exposure to fundamental chemical studies. Thus, the program is a course option for graduate students in chemistry, the pharmacological sciences, or molecular biology; furthermore, a student may select his or her research advisor in the Chemistry Department, the Department of Pharmacological

Sciences, or the molecular biology program, subject to the approval of the chairmen.

Each student in the program will have an advisory committee consisting of at least one member each from molecular biology, pharmacology and chemistry. When research is initiated, the research advisor will join this advisory committee. The committee advises the graduate student to prepare for a research career in some area of chemical biology.

Qualification for candidacy in this program requires, in addition to the general requirements in chemistry, a satisfactory background in undergraduate biology as judged by the student's advisory committee or as demonstrated by satisfactory performance in course work.

The requirements for this program are the same as for the Ph.D. program in chemistry described above, with the following exception:

B. *Courses:* As well as CHE 532 and two semesters of CHE 610 a minimum of seven formal graduate courses is required as specified by the student's advisory committee.

Specific inquiries from prospective graduate students are welcomed and should be addressed to the chairman. The *Graduate Programs in Chemistry* brochure states in some detail the varied research interests of the Chemistry faculty and is available from the department.

Faculty

Alexander, John M., *Professor*, Ph.D., 1956, Massachusetts Institute of Technology: Reactions between complex nuclei; nuclear potentials; nuclear entropies.

Altman, Lawrence J., *Associate Professor*, Ph.D., 1965, Columbia University: Biosynthetic investigations utilizing tritium NMR spectroscopy; new methods in synthetic organic chemistry.

Bonner, Francis T., *Professor*, Ph.D., 1945, Yale University: Inorganic nitrogen chemistry; isotope effects; isotope exchange kinetics; reaction studies in aqueous systems including natural waters.

Brynes, Paul J., *Assistant Professor*,¹ Ph.D., 1975, Cornell University: Chemical studies of pathological processes, especially tumor promotion, cocarcinogenesis, and teratogenesis; development of new antithrombosis agents.

Chu, Benjamin, *Professor*, Ph.D., 1959, Cornell University: Laser scattering, small-angle X-ray scatterings, critical phenomena, molecular forces; configuration and dynamics of macromolecules; structure of noncrystalline media; liquid crystals.

Dalton, Larry R., *Associate Professor*, Ph.D., 1972, Harvard University: Theoretical and experimental development of time-resolved electron resonance and double resonance spectroscopy and application to the study of the molecular dynamics of classical liquids, glasses, and biomolecular systems.

- Doll, Jimmie D., *Associate Professor*, Ph.D., 1971, Harvard University: Theoretical chemistry; semi-classical collision theory; theory of gas/solid surface interactions.
- Fowler, Frank W., *Associate Professor*, Ph.D., 1967, University of Colorado: Synthesis and study of heterocyclic molecules and the development of new synthetic methods.
- Friedman, Harold L., *Professor*, Ph.D., 1949, University of Chicago: Molecular interpretation of equilibrium and dynamic properties of solutions; solvation; excess functions; transport and relaxation coefficients; spectral line shapes; scattering phenomena.
- Goldfarb, Theodore D., *Associate Professor*, Ph.D., 1959, University of California, Berkeley: Vibrational spectroscopy; photochemical studies of isomerization in cyclic and acyclic conjugated molecules; low-temperature matrix isolation studies of reactive species; far-infrared spectroscopy.
- Haim, Albert, *Professor*, Ph.D., 1960, University of Southern California: Kinetics and mechanisms of inorganic reactions.
- Hanson, David M., *Associate Professor*, Ph.D., 1968, California Institute of Technology: Effects of electric fields on the electronic spectra and energy relaxation and transfer processes of molecules and molecular solids; mechanisms of conformational change in molecular crystals and biological polymers.
- Helquist, Paul M., *Assistant Professor*, Ph.D., Cornell University: Organometallic chemistry in organic synthesis; development of new synthetic techniques and total synthesis of natural products.
- Johnson, Francis, *Professor*,¹ Ph.D., 1954, Glasgow University, Scotland: Structure and total synthesis of naturally-occurring biologically active molecules; stereochemistry of unsaturated cycloaliphatics; new synthetic methods in organic synthesis; heterocyclic chemistry.
- Johnson, Francis, *Professor*,¹ Ph.D., 1954, Glasgow University, Scotland: Optical molecular spectroscopy and the electronic structure of very reactive molecules; mechanisms of unimolecular photochemical processes; electronic properties of excited molecules; multiphoton ionization spectroscopy.
- Kerber, Robert C., *Associate Professor*, Ph.D., 1965, Purdue University: Synthesis of organo-transition metal complexes and mechanisms of their reactions; complexes of fulvenes and other polyenes; metal-stabilized carbonium ions and carbenes.
- Koch, Stephen, *Assistant Professor*, Ph.D., 1975, Massachusetts Institute of Technology: Synthesis and structure in transition metal coordination chemistry; metal ions in biological systems; early transition metal catalysts.
- Krantz, Allen, *Associate Professor*, Ph.D., 1967, Yale University: Chemistry of theoretically interesting molecules in inert gas matrices; mechanism of drug action and chemistry of the nervous system; viral diseases.

- Lauher, Joseph W., *Assistant Professor*, Ph.D., 1974, Northwestern University: Inorganic and organometallic synthesis of new compounds or materials with useful catalytic or solid state properties; theoretical areas of inorganic chemistry.
- Lauterbur, Paul C., *Professor*, Ph.D., 1962, University of Pittsburgh: Nuclear magnetic resonance spectroscopy and applications to crystals, electrolyte solutions, isotope effects, and biological systems; image formation by magnetic resonance, with applications in biology and medicine.
- le Noble, William J., *Professor*, Ph.D., 1957, University of Chicago: Chemistry of highly compressed solutions, with applications such as solvation effects, carbenes, nitrenes, and the question of nonclassical ions.
- Levy, Alan, *Assistant Professor*, Ph.D., 1971, University of Colorado: Development of new synthetic methods and the applications of boranes, alanes and organocopper reagents to problems in organic synthesis.
- Okaya, Yoshi, *Professor*, Ph.D., 1956, Osaka University, Japan: Crystallography: development of an on-line computer-controlled system for the automatic collection of X-ray diffraction data, crystal structure and absolute configuration determination.
- Porter, Richard N., *Professor*, Ph.D., 1960, University of Illinois: Theoretical chemistry; classical dynamics of reactive molecular collisions; quantum theory of reaction complexes; many-body and field theoretic treatment of electron correlation.
- Prestwich, Glenn D., *Assistant Professor*, Ph.D., 1974, Stanford University: Isolation, elucidation, and synthesis of insect and plant natural products; termite chemical communication; chemical ecology of plant-insect interactions.
- Ramirez, Fausto, *Professor*, Ph.D., 1949, University of Michigan: Organic and biochemical aspects of phosphate and pyrophosphate esters and their metal complexes; polynucleotides, phospholipids and biomembrane transport problems.
- Schneider, Robert F., *Associate Professor and Associate Dean for Research*, Ph.D., 1959, Columbia University: Infrared and Raman spectra of ionic halides; direct nuclear quadrupole resonance of inorganic compounds.
- Seltzer, Stanley, *Adjunct Professor*, Ph.D., 1958, Harvard University: Organic reaction mechanism; enzyme- and photo-catalyzed cis-trans isomerization; model systems for enzymatic reactions; free radical reactions; isotope effects.
- Springer, Charles S., *Associate Professor*, Ph.D., 1967, Ohio State University: Biophysical chemistry; studies of biological membranes; physical properties and mediated cation transport; hyperfine shift nuclear magnetic resonance studies.
- Sujishi, Sei, *Professor and Provost for Physical Sciences and Mathematics*, Ph.D., 1949, Purdue University: Organo-silicon-

- transition metal compounds; synthesis; new reactions; bonding properties.
- Tu, Shu-I, *Assistant Professor*, Ph.D., 1969, Yale University: Energy conversion mechanisms in mitochondria and chloroplasts; ion transport of biological membranes.
- Weiser, David, *Associate Professor*, Ph.D., 1956, University of Chicago: NPSO bonding theory; history of science, especially Newton, Dalton.
- Whitten, Jerry L., *Professor*, Ph.D., 1964, Georgia Institute of Technology: Theoretical studies of molecular structure and bonding; correlated wave functions; excited electronic states; chemisorption on metallic and molecular solids.
- Wishnia, Arnold, *Associate Professor*, Ph.D., 1957, New York University: Physical chemistry of biological macromolecules; structure and function of ribosomes; membrane model systems; applications of nuclear magnetic resonance.

DEPARTMENT OF EARTH AND SPACE SCIENCES

The Department of Earth and Space Sciences (ESS) offers courses of study leading to M.S. and Ph.D. degrees in Astronomy-Planetary Sciences, Geochemistry, Geophysics, and Paleobiology-Sedimentary Geology. The unique grouping of these diverse fields into one academic department allows for interdisciplinary courses of study across traditional academic boundaries. The department occupies a modern, well-equipped building on the Stony Brook campus. The department library, laboratories for rock processing, a machine shop with three full-time machinists, a carpentry shop, and an electronics shop with two full-time electronics technicians are housed in the ESS Building. The campus computing facilities and the proximity of the Brookhaven National Laboratories give excellent support for graduate studies in earth and space sciences.

Admission to Graduate Study

For admission to graduate study in the earth and space sciences, the following are required:

- A. A baccalaureate degree in one of the earth or space sciences, or in biology, chemistry, physics, or mathematics.
- B. A minimum average of B for all undergraduate course work and an overall B average for courses in the sciences.
- C. Results of the Graduate Record Examination Aptitude Test.

¹Joint appointment, Department of Pharmacology

D. Acceptance by the Department of Earth and Space Sciences and by the Graduate School.

In special cases, a student not meeting requirements A and B may be admitted on a provisional basis. Upon admission, the student will be informed of the requirements that must be satisfied for termination of the provisional status.

Astronomy-Planetary Sciences

Courses of study are available in observational astronomy and theoretical astrophysics with emphasis in areas of stellar atmospheres, the interstellar medium, infrared and submillimeter astronomy, molecular spectroscopy, radio spectral line observations, interstellar molecule formation, planetary atmospheres and the physics of the solar system. The organization of the Astronomy Group within the Earth and Space Sciences Department provides for interdisciplinary programs in meteoritics, lunar studies and solar system evolution.

A low student-to-faculty ratio is maintained and early in the program the graduate student is encouraged to commence research in close contact with a faculty member. Support is available for graduate students in good standing.

Over 60 nights of observing time per year on the 152 cm telescope at Mt. Hopkins in Arizona are allocated for Stony Brook astronomers through a cooperative agreement with the Smithsonian Astrophysical Observatory. In addition, Stony Brook has installed a 61 cm telescope at the Mt. Hopkins site and a 30 cm telescope for instrument testing at the University. Auxiliary equipment available at either 61 or 152 cm telescopes includes Cassegrain and Echelle image tube spectrographs for optical work, 1 to 30u photometers and a Fourier Transform spectrometer for the infrared, and a submillimeter photometer. A 500-channel vidicon photometer is available for use with the spectrographs. Through arrangements with the Smithsonian Astrophysical Observatory, a PEPSIOS and a spectrum scanner are available at Mt. Hopkins. At Stony Brook a PDP-12 is interfaced to a Grant microdensitometer and a Grant radial velocity engine and is also available for general computational use.

The millimeter radio astronomy program makes extensive use of the new 45' antenna of the Five College Radio Astronomy Observatory in Amherst, Massachusetts. This system, which is partially equipped with Stony Brook instrumentation, is the largest mm wave antenna in the country and will be used primarily for observations of interstellar molecular clouds. Further radio observing time will be available on the new Bell Laboratories facility in Holmdel, New Jersey. The millimeter wave project equipment includes a Stony Brook 1028 Channel Auto correlator for spectral line observations and new low-temperature millimeter wave receivers.

A molecular astrophysics laboratory incorporating multiple pass gas cells with a 3.4 m spectrograph and a 1 m scanning spectro-

meter is currently being used for the study of stable and free radical gases important in astrophysical sources.

Data from space missions such as the Viking Project, Jupiter-Orbiter Probe, Mariner Jupiter-Saturn, and the IMP series are available for analysis through faculty participation in these investigations.

Geochemistry

As treated in the ESS Department, geochemistry includes a broad range of subjects and problem areas. A student may concentrate on one of the basic disciplines, such as mineralogy, crystallography, experimental and theoretical phase equilibria, petrology, trace element geochemistry, isotope geochemistry or marine geochemistry; or may combine these to attack such multidisciplinary problems as the origin and evolution of the moon and planets; nature and history of the earth's mantle; or the geochemical history of the crust. The flexibility built into the geochemistry program is increased by close interaction with programs in geophysics, sedimentary geology, paleobiology, astronomy and planetary sciences.

Generous research support, excellent analytical and experimental facilities, and a small student/faculty ratio contribute to a stimulating environment for graduate study and research.

Equipment for geochemical research includes an automated A.R.L. EMX-SM electron microprobe; an x-ray diffraction laboratory which includes powder and single-crystal diffractometers interfaced to a PDP-15/30 computer; mass spectrometers for K-Ar, U-Pb and Rb-Sr dating, trace element analysis and rare gas analysis; atomic absorption for chemical analysis; a laboratory for phase equilibrium studies at temperatures to 1500°C and pressures ranging from vacuum to 50,000 atmospheres.

Geophysics

Courses of study are available in seismology, solid-state geophysics, tectonophysics and structural geology. There is close interaction in research and teaching of these disciplines with the mineralogical, petrological and sedimentary programs in the ESS Department.

Among the topics of current research interest are the tectonics and upper mantle structure in the Caribbean region, elastic properties of minerals forming solid-solutions, elasticity of high-pressure phases of oxides and silicates, flow properties of upper mantle rocks, deformation of materials undergoing polymorphic phase transformations, strain history of high-grade metamorphic rocks of the Adirondack Mountains, and mechanisms of cleavage formation.

Equipment for geophysical research includes a seismology laboratory with data of the world-wide standard stations network, an experimental physical acoustics laboratory for measuring elastic properties of single crystals and rocks by Brillouin scattering and

ultrasonic techniques, a high-pressure laboratory for fabricating specimens and making *in situ* measurements of physical properties to pressures of 70,000 atmospheres and temperatures of 1500°C, a laboratory for experimental rock deformation at elevated temperature and pressure using both gas and solid media pressure vessels, and a laboratory for structural petrology equipped with extensive optical and X-ray texture goniometric facilities.

Paleobiology-Sedimentary Geology

Courses of study are available with concentrations in invertebrate paleobiology and paleoecology, biostratigraphy, sedimentology, and sedimentary petrology. A field and laboratory program emphasizes marine paleoecology in Paleozoic and Tertiary strata and marine and lacustrine sedimentary geology. Students are encouraged to initiate some active research interests as early as possible, normally in conjunction with first-year graduate courses. Close working relationships exist between our program and those of the Department of Ecology and Evolution and the Marine Sciences Research Center.

In addition to the basic equipment required for preparation and research analysis of fossils and sedimentary rocks, computer facilities are available for statistical analysis. Microprobe, X-ray and cathode-luminescence facilities are housed in the departmental building, and there is access to a scanning electron microscope.

Active research programs include studies of stratigraphy, paleontology and carbonate petrology in Paleozoic rocks of the eastern mid-continent, Appalachian and Cordilleran regions; Tertiary paleontology of the Coastal Plain; and Tertiary and Recent lacustrine sedimentology.

Requirements for the M.S. Degree

A. *Residence*: None.

B. *Language*: None.

C. *Formal Course Work*: Successful completion with a B average of an approved course of study consisting of 30 graduate credits with a minimum of:

1. 18 academic credits and a thesis; or
2. 30 academic credits without a thesis.

Courses which satisfy the academic credit requirements must be in the approved course of study, must be at the graduate level, and cannot be teaching or research courses.

D. *Qualifying Examination*: Astronomy students must pass a written qualifying exam at the M.S. level.

E. *Evaluation*:

1. *M.S. with thesis*: Approval of the thesis by an examining committee and a public oral presentation of the results of the thesis.

2. *M.S. without thesis*: Passage of an oral examination on material covered in the approved course of study.

F. *Departmental recommendation*: When all departmental requirements are completed, the chairman may recommend to the Dean of the Graduate School that the Master of Science degree be granted.

G. *Time Limit*: All requirements for the M.S. degree must be completed within two years of the student's first registration at Stony Brook as a graduate student. For part-time students, this time limit may be waived by the Graduate Committee.

M.S. Thesis

A student taking this option must submit before the end of the first academic year of residence a thesis proposal of approximately 2-3 pages in length signed by the M.S. thesis advisor(s). The ESS faculty advisor(s) must certify satisfactory completion of the research before the Graduate Committee will establish an examining committee. Copies of the thesis shall be submitted to the M.S. examining committee at least *one week* before a planned M.S. examination. The committee must respond to the student within one week after receipt of the thesis. Only if the committee attests that the thesis is well written, that it shows a competent collection and selection of data, that it adequately references the pertinent literature and that it is concise, can a date for the M.S. examination be set. The student is responsible for meeting all requirements of the Graduate School regarding the M.S. thesis.

M.S. Examination

A final, oral examination is required of all M.S. candidates and will be given near the end of the semester in which the student completes his or her approved course of study or may concentrate on the student's thesis.

For astronomy and planetary sciences students, a Ph.D. preliminary examination may function simultaneously as an M.S. oral examination for those taking an M.S. without thesis or research.

The M.S. exam must be administered *at least two weeks* before the end of classes in the semester during which the degree is to be conferred.

Responsibility

The student should become thoroughly familiar with these departmental requirements, with the advising and study plan procedures of each area of the department, and with the degree requirements of the Graduate School. In addition, the student should make a point of learning the function of the Graduate Committee and his/her relationship to it. Final responsibility for deadlines and procedures rests *solely* with the individual student.

Requirements for the Ph.D. Degree

A. *Residence*: One year of full-time graduate study.

B. *Language*: None.

C. *Formal course work*: Successful completion with grades of B or better of an approved course of study leading to the preliminary examination.

D. *Qualifying examination*: Acceptable performance on the written Ph.D. qualifying exam (applicable to astronomy only).

E. *Preliminary examination*: This examination will consist of the presentation and acceptance of one to three written research proposals and the oral defense of the research proposal(s).

F. *Advancement to candidacy*: The student may be advanced to candidacy for the Ph.D. when he or she has completed all Graduate School and departmental requirements for the degree other than the dissertation. Advancement to candidacy is recommended by the department Graduate Committee through the department chairman, to the Dean of the Graduate School.

G. *Research and dissertation*: The dissertation must be approved by a dissertation examining committee of at least five members of the faculty, including at least one from outside the department, appointed by the Dean of the Graduate School. A formal oral defense of the thesis will be conducted by the dissertation committee. This will be open to all members of the faculty.

H. *Time limit*: All requirements for the Ph.D. degree must be completed within three years after advancement to candidacy.

Laboratory for Planetary Atmospheres Research

The Laboratory for Planetary Atmospheres Research (LPAR) comprises an interdepartmental teaching and research program for students interested in the physics and chemistry of the atmospheres of the Earth and other planets. This program is available to students in the College of Engineering and Applied Sciences and the Division of Physical Sciences. A graduate student in any of the departments of these divisions may, with the consent of his or her chairman, elect to participate in the program. The basic degree requirements are set by the department in which the student is enrolled; they are the same as those for any other student in that department. The student will normally be advised to take two or more courses from the list drawn up by the LPAR faculty in order to obtain a basic background in the atmospheric sciences. He or she must then satisfy departmental requirements regarding a preliminary examination. However, a major portion of this examination will be devoted to problems in atmospheric physics and chemistry; at least one member of the examining committee will be from the LPAR faculty. A research advisor for the dissertation will normally be selected from the LPAR faculty, subject to the approval of the department chairman.

Faculty

- Bence, A. Edward, *Professor*, Ph.D., 1966, Massachusetts Institute of Technology: Petrogenesis of terrestrial and lunar basalts; metamorphic petrology; electron and ion probe theory and applications.
- Bretsky, Peter W., *Associate Professor*, Ph.D., 1967, Yale University: Paleocology and evolution of benthic marine communities.
- Bretsky, Sara S., *Adjunct Associate Professor*, Ph.D., 1969, Yale University: Evolution and numerical statistics of Tertiary mollusks.
- Caldwell, John, *Adjunct Assistant Professor*, Ph.D., 1971, University of Wisconsin: Planetary atmospheres.
- Dodd, Robert T., *Professor*, Ph.D., 1962, Princeton University: Chondritic meteorites; metamorphic history of the Precambrian rocks in southeastern New York.
- Forman, Miriam, *Adjunct Assistant Professor*, Ph.D., 1972, State University of New York, Stony Brook: Solar wind and cosmic ray interaction.
- Granath, James W., *Assistant Professor*, Ph.D., 1976, Monash University: Structural geology; determination of structural histories using field and microstructural techniques.
- Hanson, Gilbert N., *Professor*, Ph.D., 1964, University of Minnesota: Application of radiometric and geochemical methods to petrologic and tectonic problems.
- Hardorp, Johannes, *Associate Professor*, Ph.D., 1960, University of Hamburg: Stellar atmospheres; stellar rotation; Ap and Am stars.
- Hartung, Jack, *Adjunct Associate Professor*, Ph.D., 1968, Rice University: Impact shock; cosmochemistry.
- Knacke, Roger F., *Associate Professor*, Ph.D., 1969, University of California, Berkeley: Infrared astronomy; spectroscopy of planets and nebulae; galaxies and quasistellar objects; interstellar grains.
- Liebermann, Robert C., *Associate Professor*, Ph.D., 1969, Columbia University: Solid-state geophysics; synthesis and elastic properties of high-pressure phases of minerals and applications to the Earth's interior.
- Lindsley, Donald H., *Professor*, Ph.D., 1961, Johns Hopkins University: Application of phase equilibrium studies of silicate and oxide minerals to metamorphic and igneous petrology.
- Lutz, Barry L., *Adjunct Associate Professor*, Ph.D., 1968, Princeton University: Laboratory astrophysics.
- Meyers, William J., *Assistant Professor*, Ph.D., 1973, Rice University: Regional diagenetic facies in the Mississippian of southwestern United States; sedimentation within Mississippian bioherms.
- Owen, Tobias, *Professor*, Ph.D., 1965, University of Arizona: Solar system studies; spectroscopy of planets and comets; planetary atmospheres; participation in space missions.
- Palmer, Allison R., *Professor*, Ph.D., 1950, University of Minnesota: Paleontology and sedimentary facies analysis in the Cambrian of

- the Great Basin; Cambrian paleogeography and stratigraphy; trilobite systematics.
- Papike, James J., *Professor*, Ph.D., 1964, University of Minnesota: Crystal chemistry of silicate minerals; mineralogy and petrology of planetary regoliths; planetary basalts and terrestrial meta-sedimentary sequences.
- Peterson, Deane M., *Associate Professor*, Ph.D., 1968, Harvard University: Stellar atmospheres; radiative transfer; Bp stars; premain sequence evolution; speckle interferometry.
- Prewitt, Charles T., *Professor and Chairman*, Ph.D., 1962, Massachusetts Institute of Technology: Crystallography and mineralogy; specifically, disorder in minerals, crystalline phase transitions, and crystal chemistry of oxides and sulfides.
- Schaeffer, Oliver A., *Professor*, Ph.D., 1946, Harvard University: Cosmochemistry; lunar and meteorite radiometric dating; cosmic ray studies.
- Simon, Michal, *Professor*, Ph.D., 1967, Cornell University: Infrared astronomy; solar astronomy; physics of strong radio sources.
- Smoot, Joseph P., *Assistant Professor*, Ph.D., 1977, Johns Hopkins University: Tertiary lacustrine sedimentology, Rocky Mountain region.
- Solomon, Philip, *Professor*, Ph.D., 1964, University of Wisconsin: Interstellar molecules; radio astronomy; physics of interstellar medium; galactic structure; stellar mass loss; quasistellar objects.
- Theys, John, *Assistant Professor*, Ph.D., 1974, Columbia University: Evolution and interaction of galaxies.
- Weidner, Donald J., *Associate Professor*, Ph.D., 1972, Massachusetts Institute of Technology: Structure of the Earth's interior as revealed by seismic waves and laboratory determinations of physical properties.
- Yahil, Amos, *Assistant Professor*, Ph.D., 1970, California Institute of Technology: Galaxies; clusters of galaxies; physical cosmology; extragalactic X-ray sources; accretion processes.

DEPARTMENT OF PHYSICS

Admission to Graduate Study

For admission to graduate study in physics, the following are required:

- A. Baccalaureate degree in physics, from an accredited institution.
- B. A minimum grade average of B in all undergraduate course work, and of B in physics, mathematics, and chemistry.

C. Submission of results of the Graduate Record Examination Aptitude Test.

D. Acceptance by the Department of Physics and by the Graduate School.

In special cases, a student not meeting requirement A (or, in unusual cases, requirement B) may be admitted on a provisional basis. Upon entrance, the student will be informed of the requirements he or she must satisfy for the termination of the provisional status.

For admission to the M.A. (teaching) program students will be required to exhibit a proficiency in physics equivalent to that attained by successful completion of the University's general program in physics (see the *Undergraduate Bulletin* for details).

Readmission in subsequent years will depend on satisfactory academic progress.

Requirements for the M.A. Degree

A. Satisfactory performance in a program of studies (30 graduate credits) approved by the Graduate Committee. Normally, such a program would include PHY 599 (Graduate Seminars), Classical Mechanics and Electrodynamics, and Quantum Mechanics I, II.

B. Passing of the master's examination.

Requirements for the M.A. (Teaching) Degree

The Master of Arts (teaching) degree is designed for those students who plan to teach or who are teaching physics at the secondary school level. The degree program will ordinarily involve two semesters of course work and one semester of a supervised intern experience teaching physics in a secondary school.

A. 30 Graduate Credit-Hour Program

1. Nine credit hours of graduate courses in physics. Some or all of this credit may be for PHY 585, Special Study, with permission of the student's advisor.

2. Six credit hours of physics education courses offered by the Department of Physics.

3. Six credit hours in appropriate courses in educational psychology, philosophy, or history chosen with the approval of the student's advisor.

4. Six credit hours (one semester) of supervised intern teaching in a secondary school.

5. Three credit hours of project work (PHY 580) on a topic in physics associated with classroom teaching at the secondary level. This will generally be an experimental topic. All candidates will be required to demonstrate proficiency in laboratory techniques associated with the teaching of secondary school physics.

B. Successful performance on an oral examination in which the candidate demonstrates proficiency in explaining physics at a level appropriate for secondary school students.

C. Passing of a comprehensive written examination in physics.

Credit for Previous Work: Students who already have provisional teaching certification or who have taken the required courses in education or the teaching internship may substitute appropriate additional courses in science, mathematics, education, or history and philosophy of science with the approval of their advisor. These course requirements will not automatically be waived, however. Credit for such courses or work done elsewhere may depend upon demonstrated proficiency.

Requirements for the Ph.D. Degree

- A. One year of residence.
- B. Satisfactory completion (grades A, B, or S) of an approved program during each semester of residence or of part-time study.
- C. Advancement to candidacy: The department's recommendation to the Graduate School for advancement to candidacy for the Ph.D. is based on completion of the following requirements:
 1. Passing of PHY 515 (Methods of Experimental Research) and of two semesters of PHY 599 (Graduate Seminars) with grades of A or B. The PHY 599 requirement is normally expected to be satisfied in the first year of graduate study.
 2. Passing of the preliminary examination, which consists of two parts: (a) a written comprehensive examination and (b) an oral examination on a broad range of topics relevant to the student's intended area of thesis research. The written examination, given in September and January, must be passed no later than January of the second academic year of graduate study. The oral examination must be passed before the end of the second academic year.
- D. Completion, with grade A or B, of two approved advanced courses in areas outside the student's thesis research.
- E. Teaching experience at least equivalent to that obtained in a one-year appointment as a teaching assistant.
- F. Research, dissertation, and passing of the dissertation examination.

Doctoral Programs in Astrophysics, Biophysics, and Chemical Physics

The Department of Physics participates in three Ph.D. programs in cooperation with other departments. The basic degree requirements for a physics student enrolled in one of these programs are the same as those for other students in physics. He or she will usually be advised to take one or more courses in the cooperating department. The written part of the preliminary examination is the same as for other physics students; the oral part will ordinarily be on topics in astrophysics, biophysics, or chemical physics. Subject to the approval of the chairmen of the two departments involved, the student's research advisor may be chosen from participating members of the cooperating department.

A student in one of these programs who expects to receive a Ph.D. from a cooperating department should consult that department's section in this *Bulletin* for degree requirements. The cooperating departments are:

- Astrophysics: Department of Earth and Space Sciences.
- Biophysics: Department of Pharmacology and Department of Physiology and Biophysics, both in the School of Basic Health Sciences, Health Sciences Center.
- Chemical Physics: Department of Chemistry.

Faculty

- Allen, Philip B., *Associate Professor*, Ph.D., 1969, University of California, Berkeley: Theoretical solid state physics: superconductors and superconductivity.
- Arima, Akito, *Visiting Professor*, Ph.D., 1958, University of Tokyo, Japan: Theoretical nuclear physics.
- Balazs, Nandor L., *Professor*, Ph.D., 1951, University of Amsterdam, the Netherlands: Theoretical physics: statistical mechanics, general relativity.
- Blume, Martin, *Professor* (part-time), Ph.D., 1959, Harvard University: Theoretical solid-state physics; magnetic properties of matter.
- Brown, Gerald E.,* *Professor*, Ph.D., 1950, Yale University; D.Sc., 1957, Birmingham, England: Theoretical physics; the many-body problem.
- Courant, Ernest D.,* *Professor* (Part-time), Ph.D., 1943, University of Rochester: Theoretical physics; high-energy accelerator design.
- deZafra, Robert L., *Associate Professor*, Ph.D., 1958, University of Maryland: Experimental atomic physics; optical pumping and double resonance; quantum electronics.
- Dresden, Max** *Professor*, Ph.D., 1946, University of Michigan: Theoretical physics; field theory; statistical mechanics; particle physics.
- Eisenbud, Leonard, *Professor*, Ph.D., 1943, Princeton University: Theoretical physics; nuclear theory; foundations of quantum theory.
- Engelmann, Roderich, *Associate Professor*, Ph.D., 1966, University of Heidelberg, W. Germany: Experimental elementary particle physics.
- Feingold, Arnold M., *Professor*, Ph.D., 1952, Princeton University: Theoretical physics; nuclear structure, beta decay.
- Finocchiaro, Guido, *Professor*, Ph.D., 1957, University of Catania, Italy: Experimental high energy physics.
- Fossan, David B., *Professor*, Ph.D., 1961, University of Wisconsin:

- Experimental nuclear physics; nuclear structure and electromagnetic properties.
- Fox, David, *Professor and Director of Graduate Program in Physics*, Ph.D., 1952, University of California, Berkeley: Theoretical physics; solid state theory; properties of molecular crystals.
- Freedman, Daniel Z.,* *Professor*, Ph.D., 1964, University of Wisconsin: Theoretical physics; scattering.
- Goldhaber, Maurice, *Adjunct Professor*, Ph.D., 1936, University of Cambridge, England: Nuclear and particle physics.
- Goldhaber, Alfred S.,* *Professor*, Ph.D., 1964, Princeton University: Theoretical physics; nuclear theory; particle physics.
- Good, Myron L., *Professor*, Ph.D., 1951, Duke University: Experimental elementary particle physics.
- Graf, Erlend H., *Associate Professor*, Ph.D., 1967, Cornell University: Experimental low temperature physics.
- Grannis, Paul D., *Professor*, Ph.D., 1965, University of California, Berkeley: Experimental high-energy physics; elementary particle reactions.
- Jackson, Andrew D., *Professor*, Ph.D., 1967, Princeton University: Nuclear theory.
- Jostlein, Hans, *Assistant Professor*, Ph.D., 1969, University of Munich, W. Germany: Experimental elementary particle physics.
- Kahn, Peter B., *Professor and Chairman*, Ph.D., 1960, Northwestern University: Theoretical physics; the many-body problem; statistical properties of spectra.
- Kao, Yi-han, *Professor*, Ph.D., 1962, Columbia University: Experimental solid state physics; electronic structure of metals and semi-metals; superconductivity.
- Kirz, Janos, *Professor*, Ph.D., 1963, University of California, Berkeley: Experimental high energy physics.
- Kuo, Thomas T.S., *Professor*, Ph.D., 1964, University of Pittsburgh: Nuclear theory.
- Lambe, Edward D.B., *Professor*, Ph.D., 1959, Princeton University: Experimental physics; learning, problem-solving, and instructional processes.
- Lee, Linwood L., *Professor*, Ph.D., 1955, Yale University: Experimental nuclear structure.
- Lee-Franzini, Juliet, *Professor*, Ph.D., 1960, Columbia University: Experimental elementary particle physics.
- Lukens, James, *Associate Professor*, Ph.D., 1968, University of California, San Diego: Experimental solid state physics.
- McCarthy, Robert L., *Assistant Professor*, Ph.D., 1971, University of California, Berkeley: Experimental elementary particle physics.
- McCoy, Barry M.,* *Associate Professor*, Ph.D., 1967, Harvard University: Theoretical physics; statistical mechanics.
- McGrath, Robert L., *Associate Professor*, Ph.D., 1965, University of Iowa: Experimental physics; nuclear structure.

- Metcalf, Harold J., *Associate Professor*, Ph.D., 1967, Brown University: Atomic physics; level-crossing techniques; tunable lasers.
- Mould, Richard A., *Associate Professor*, Ph.D., 1957, Yale University: Theoretical physics, general relativity, quantum theory of measurements.
- Muether, Herbert R., *Professor*, Ph.D., 1951, Princeton University: Experimental nuclear physics; neutron physics.
- Nathans, Robert, *Professor*, Ph.D., 1954, University of Pennsylvania: Experimental solid state physics.
- Nieh, Hwa-Tung, * *Associate Professor*, Ph.D., 1966, Harvard University: Theoretical physics; elementary particles.
- Paul, Peter, *Professor*, Ph.D., 1959, University of Freiburg, W. Germany: Experimental nuclear physics.
- Pond, T., Alexander, *Professor and Executive Vice-President*, Ph.D., 1953, Princeton University: Positron processes; beta and gamma decay.
- Serene, Joseph W., *Assistant Professor*, Ph.D., 1974, Cornell University: Solid state theory; spin fluctuations.
- Shevchik, Nigel, *Assistant Professor*, Ph.D., 1972, Harvard University: Experimental solid state physics; photoemission.
- Silsbee, Henry B., *Professor*, Ph.D., 1951, Harvard University: Experimental physics; molecular and atomic beams; magnetic resonance.
- Smith, John, * *Associate Professor*, Ph.D., 1963, University of Edinburgh, Scotland: Theoretical physics; elementary particle physics.
- Sprouse, Gene D., *Associate Professor*, Ph.D., 1968, Stanford University; experimental nuclear structure.
- Strassenburg, Arnold A., *Professor (part-time)*, Ph.D., 1955, California Institute of Technology: Experimental particle physics; high energy instrumentation; physics education.
- Swartz, Clifford E., *Professor*, Ph.D., 1951, University of Rochester: Experimental high-energy physics; school curriculum revision.
- Toll, John S., *Professor and President*, Ph.D., 1952, Princeton University: Scattering; elementary particle theory.
- Van Nieuwenhuizen, Peter, * *Associate Professor*, Ph.D., 1971, University of Utrecht, the Netherlands: Theoretical physics; quantum field theory.
- Weisberger, William I., * *Professor*, Ph.D., 1964, Massachusetts Institute of Technology: Theoretical physics; quantum field theory; particle physics.
- Wilcox, Lee R., *Professor*, Ph.D., 1957, Stanford University: Quantum electronics.
- Yang, Chen Ning, * *Einstein Professor and Director of the Institute for Theoretical Physics*: Ph.D., 1948, University of Chicago: Theoretical physics; field theory; statistical mechanics; particle physics.

* Member, Institute for Theoretical Physics

** Executive Officer and Member, Institute for Theoretical Physics

Anthropology
Economics
History

The Social Sciences

DEPARTMENT OF ANTHROPOLOGY

Admission to Graduate Study

In addition to the admission requirements of the Graduate School, the Anthropology Department requires:

- A. A baccalaureate degree from an accredited college.
- B. A minimum grade point average of 3.00 (B) in all undergraduate course work, and 3.25 (better than B) in the major field of concentration.
- C. Results of the Graduate Record Examination Aptitude Test.
- D. Acceptance by the Department of Anthropology and the Graduate School.

Applicants need not have majored in anthropology as undergraduates but will be expected to make up deficiencies in their backgrounds by taking additional courses.

Graduate Program

The Department of Anthropology offers graduate work leading to the Master of Arts and Doctor of Philosophy degrees. The program for the first year is designed to give the students a general knowledge of social and cultural anthropology, including culture history, ethnography and linguistics. A progress examination must be taken after completion of the first year's work. This examination is given two or three times each year, usually in September, January and April. Students entering with advanced standing may take the progress examination during their first semester. Graduate students should gain some practical experience and training in teaching and research. All graduate trainees are assigned as teaching assistants in at least one undergraduate course and they assist in all aspects of teaching. Research training is gained through independent study, fieldwork, and assisting in depart-

mental research projects. Museology and the analysis of material culture are taught in the University museum.

The M.A. Degree in Anthropology

The Master of Arts program is designed for students who desire graduate anthropology training for a career in education, health, applied social sciences, or community professions. The M.A. may be granted to those students who complete the requirements and who wish to terminate their studies, or who wish to obtain the M.A. as a mark of progress towards the Ph.D. It is not required for the Ph.D. candidacy. However, students in the Ph.D. program who have already been advanced to candidacy may, upon petition, receive a master's degree without submitting a master's thesis. Requirements for the M.A. are:

A. One year minimum residence, and completion of a minimum of 30 graduate credits.

B. The progress examination passed at an appropriate level.

C. A course of study planned and carried out with the approval of the student's M.A. guidance committee. This may require library research, laboratory study, and/or fieldwork as the basis of the M.A. thesis, which must be accepted by a committee appointed by the department. No final defense is required.

The Ph.D. in Anthropology

This program is designed to provide specialized training in social, cultural, linguistic and ecological anthropology. Minimum residence is four semesters beyond the baccalaureate, including at least two consecutive semesters of full-time study. This residency requirement may be modified in special circumstances upon petition to the department and approval by the Graduate Dean. A minimum of 48 credits must be completed. In practice most students have found that it takes at least three years to complete the requirements of the Ph.D.

After satisfactory performance in the first year's course work and the progress examination, the student selects a guidance committee to supervise his or her studies. The student will then:

1. Choose 3 fields of specialization. One or two of these will be topical or theoretical fields and the rest ethnographic areas. One or more fields may be interdisciplinary, and involve study with faculty in other departments. For each field of specialization the student will write an essay outlining his or her views on the subject's theoretical and research problems and including a bibliography.

2. Demonstrate an understanding of the use of quantitative methods in social sciences, by successfully completing ANT 505 or equivalent work.

3. Demonstrate reading proficiency in the language or languages necessary for the fields of specialization as determined by the department. The language or languages should be used in preparing

the preliminary essays and tested by a procedure approved by the student's guidance committee.

4. Prepare a dissertation research project within his or her fields of specialization. This will demonstrate the student's ability to formulate independent research.

After completion of the above requirements, a written and oral preliminary examination will be administered by the guidance committee with additional faculty consultants within and outside the Anthropology Department. After satisfactory performance in the preliminary examination the student will be advanced to candidacy. If field research is not a part of the thesis project, a period of fieldwork, and report on this, will be required before the student may be advanced to candidacy. A doctoral dissertation will then be submitted. Research, including fieldwork gathering material for the dissertation, is frequently carried out away from the Stony Brook campus. Dissertation procedures and award of the Ph.D. follow Graduate School requirements. A final defense and/or presentation to a colloquium is required.

A supplementary and more detailed description of the rules and procedures of the graduate program in anthropology is issued to each entering student upon arrival at Stony Brook. Students are expected to thoroughly familiarize themselves with its contents. Mimeographed copies of this document, entitled "Rules and Procedures of the Graduate Program in Anthropology," will be mailed to interested applicants upon written request.

Faculty

Arens, W., *Associate Professor*, Ph.D., 1970, University of Virginia: Social anthropology; ethnicity; social change; Africa.

Bonvillain, Nancy L., *Assistant Professor*, Ph.D., 1972, Columbia University: Social organization; culture change; North American Indian ethnography and acculturation; language and culture; linguistics.

Carrasco, Pedro, *Professor and Department Chairman*, Ph.D., 1953, Columbia University: Theory; economics; preindustrial civilizations; ethno-history; Mesoamerica; Tibet.

Faron, Louis, *Professor*, Ph.D., 1954, Columbia University: Latin America, especially Chile, Peru, Panama, Mexico; kinship and marriage systems; ecology; religious systems; complex societies.

Gilmore, David D., *Assistant Professor*, Ph.D., 1975, University of Pennsylvania: Peasants; agrarian political movements; complex society; culture history (Mediterranean area); Europe; Spain.

Glick, Paula Brown, *Professor*, Ph.D., 1950, University of London, England: Oceania; social anthropology; ecology and economy; multiethnic societies; politics; social change.

Hicks, David, *Professor*, D.Phil., 1972, University of Oxford, England: Symbolism, Indonesia.

- Kennedy, Theodore R., *Assistant Professor*, Ph.D., 1974, Princeton University: Symbolic anthropology; kinship and the socialization of the family; urbanism in terms of cultures as a system of symbols; U.S. and the Caribbean.
- Lanning, Edward, *Professor*, Ph.D., 1960, University of California, Berkeley: Prehistory; ecology, New World.
- Newton, Dolores, *Assistant Professor and Museum Curator*, Ph.D., 1972, Harvard University: Teaching museum; relation of material culture to social organization; culture history; Brazil; North America.
- Starr, June, *Associate Professor*, Ph.D., 1970, University of California, Berkeley: Political anthropology; anthropology of law; social change; culture and personality; women in culture; Middle East and North Africa.
- Stevenson, Robert, *Associate Professor*, Ph.D., 1965, Columbia University: Political systems; ecology; cultural evolution; theory; Africa; China.
- Stone, Elizabeth C., *Assistant Professor*, Ph.D., 1978, University of Chicago: Old World prehistory; Near East; state formation; the food-producing revolution; ancient economic and social systems.
- Weigand, Phil C., *Associate Professor*, Ph.D., 1970, Southern Illinois University: Early civilizations and urbanization; archaeology; ethnography; culture history; culture change and theory; Near East; Mesoamerica; Southwestern U.S.A.
- Wheeler, Margaret C., *Associate Professor*, Ph.D., 1957, Yale University: Physical anthropology; urban anthropology; Jewish culture; culture of poverty; North America.

DEPARTMENT OF ECONOMICS

The Department of Economics has both a Ph.D. and a terminal M.A. program.

The Ph.D. Program in Economics

The Department of Economics offers a Ph.D. program whose goal is the learning of rigorous economic theory and quantitative methods and their creative application. The applications emphasize foci in two broad overlapping areas: public sector economics and the analysis of economic systems. Public sector economics deals with a variety of problems that relate to public finance, urban economics, health economics, economics of education, environmental and energy policies, and monetary and fiscal stabilization. It draws upon, and develops, such "abstract" economic theories as those of public goods, externalities, general equilibrium, behavior under uncertainty, and welfare theory. Analysis of economic systems covers

economic organization in contents radically different from the industrial market economy, especially planned, developing, and pre-industrial economies. It draws upon theories about optimal use of information, investment in human capital, capital accumulation and growth, and non-market (e.g., cultural) constraints. These application areas are accompanied by a strong program in advanced (mathematical) economic theory.

Students' course work is supplemented by independent study and research seminars. Emphasis is placed on achieving competence in doing independent research rather than on formal course requirements. Each student's program is fitted to his or her individual interests and needs, and close student-faculty relations are encouraged.

Admission to the Ph.D. Program

For admission to the Ph.D. program, the following are required:

A. A baccalaureate degree, with an average of at least B in the undergraduate major subject.

B. Proficiency in a year course in introductory differential and integral calculus, demonstrated by a grade of at least B in such a course.

C. Results from the Graduate Record Examination Aptitude Test.

D. Acceptance by the Department of Economics and by the Graduate School. Students who do not meet all these requirements may also apply if they feel that special circumstances should be considered.

Requirements for the Ph.D. Degree

The Ph.D. program is based on attaining competence rather than on registering for a predetermined number of courses. The following areas of proficiency are required of all students:

A. *Mathematics*: Proficiency may be demonstrated by a grade of at least B in ECO 590 and 591 or their equivalent, or in a special examination. This requirement should be met during the first year of study. The proficiency requirement must be met before permission is given to take the preliminary examination.

B. *Core fields*: Microeconomic theory, macroeconomic theory, and quantitative methods. Because of the necessity for maintaining a basic minimum level of competence in these fields, most students will probably take the basic courses offered by the department. Since these fields are tools of economic research, they should be taken as early as possible, although students who need to bring their mathematics up to standard may wish to postpone quantitative methods to their second year.

C. *Optional fields*: Two optional fields must be offered by each student.

One of the optional fields must be chosen from among the following fields on which the department places emphasis: public sector economics, analysis of economic systems, advanced micro-economic theory, advanced macroeconomic theory, or advanced econometrics. The other optional field may be chosen from among these fields and/or any other field certified by the Ph.D. committee as acceptable.

All students will be required to demonstrate proficiency in the five fields by passing written preliminary examinations in each field, normally by December of the third year, but no later than the beginning of the fourth year. These examinations may be supplemented by an oral examination at the discretion of the examiners. The examination in one optional field may be waived if the student has achieved a satisfactory grade in all his course or other work in the field. In preparing for the examinations, experimentation and flexibility are expected and encouraged; the student may elect courses given by the department or other departments, an individual reading program under faculty supervision, research seminars, or appropriate part-time work for governmental or other agencies. Prior approval of such a program must be obtained from the Ph.D. Committee.

D. *Languages*: The department requires demonstration of proficiency in a foreign language only in cases where the dissertation research involves knowledge of a foreign language for successful completion. In such cases, the dissertation advisor will notify both the student and the members of the Graduate Committee, who will arrange the details of the language proficiency examination.

E. *Residency*: Although the University residency requirement is for at least two consecutive semesters of full-time study, the Economics Department recognizes that normally students should plan on four semesters of full-time residency in order to prepare themselves adequately for the preliminary examinations.

F. *Advancement to candidacy*: Upon successful completion of the mathematics proficiency requirement, the language proficiency requirement (if necessary), and the field examinations in the core and optional areas, the student will be admitted to candidacy for the Ph.D. degree. A student who selects a dissertation topic involving language competency after advancement to candidacy must, however, fulfill the language requirement subsequent to such advancement.

G. *Departmental seminars*: Attendance at departmental seminars is considered an important and integral part of a student's progress towards the doctorate. Seminars are presented on a regular basis by faculty, visitors and graduate students, and students are strongly urged to attend.

H. *Doctoral dissertation*: Each candidate for the Ph.D. must complete a dissertation. The prospectus must receive approval of the thesis advisor and members of the thesis committee. Within one

year of advancement to candidacy, each student is expected to present a workshop seminar on his or her dissertation progress. Final approval will be by a committee including the candidate's principal advisor, two other department members and one member from another department. The results of the dissertation will be presented at a colloquium convened for that purpose.

Additional Information

Teaching: The department is committed to achieving a high quality of teaching and encourages all graduate students to acquire teaching experience during their graduate study.

Early completion: In order to encourage early completion of all degree requirements, departmental approval will be required to continue a student's program if it extends more than five years from the time of entry.

Certification of Ph.D. candidates: Students who satisfactorily complete all Ph.D. requirements except for the dissertation and who find it impossible to complete the dissertation may apply for a certificate of completion of all but thesis requirements.

The M.A. Program in Economics

Option A

Students admitted to the Ph.D. program are expected to have the aptitude for and an intention of obtaining the Ph.D. degree. For students who must terminate their enrollment before obtaining the Ph.D., the M.A. will be awarded under the following conditions:

1. Thirty hours of resident graduate credits (exclusive of Teaching Practicum) in which a grade of B or better has been received.
2. Not more than three years since first registration as a graduate student.

Students pursuing the Ph.D. program may wish to change their course to Option B prior to obtaining the M.A. Such students should consult the Graduate Program Director.

Option B

A separate option is the self-contained M.A. in Economic Policy Analysis. It is designed for part-time (evening) students who seek a graduate education in economics for professional reasons and who do not intend to become students in the doctoral program. The M.A. program in economics presents surveys of methods of economic analysis and major problems of economic policy. A bachelor's degree is required for admission, but no prior training in economics is necessary. Completion of this program does not generally permit the student to transfer into the Ph.D. program. Students wishing to make such a transfer should consult the department as soon as possible about how to do so with a minimal loss of time.

The Master of Arts degree will be awarded upon the completion of 30 hours of graduate course credit with an average grade of B. Only one grade of C is acceptable and it must be offset by a grade of A in another course. Normally, students should take two courses per semester for two years, and two courses during the intervening summer.

The basic core (which also provides the prerequisites for courses indicated as requiring prerequisites) consists of ECO 573, Prices and Markets; ECO 580, National Income, Employment and Money; and ECO 574, Statistics and Data Analysis for Public Policy. Student programs will be planned to meet individual needs, guided by academic advisors. With the consent of the department, students in this program may enroll in a research seminar and write a master's thesis, but a thesis is not required. Students may transfer six credits earned in CED economics courses towards their M.A. degree. Courses in related social sciences, mathematics, or other disciplines may be given credit towards the degree where such courses serve a useful part of the student's career objectives. Up to six transfer credits from other institutions may also be counted towards the degree with the approval of the department and the Graduate School.

Faculty

- Ames, Edward, *Professor*, Ph.D., 1952, Harvard University: Theory of economic systems; general equilibrium dynamics.
- Denci, Michael S., *Adjunct Assistant Professor and Assistant Dean of the Graduate School*, M.S., 1961, Columbia University: Managerial accounting.
- Dusansky, Richard, *Professor and Director, Economic Research Bureau*, Ph.D., 1969, Brown University: Taxation and money in general equilibrium; econometrics of property tax shifting and tax capitalization; third party reimbursement and cost-price structures in health care facilities.
- Hause, John C., *Visiting Professor*, Ph.D., 1962, University of Chicago: Theory of measurement and econometric estimation in human capital, industrial organization, and applied microeconomics.
- Hoffmann, Charles, *Professor*, Ph.D., 1954, Columbia University: Chinese economy: work incentives, industrial organization, economic development.
- James, Estelle, *Professor and Provost of Social and Behavioral Sciences*, Ph.D., 1961, Massachusetts Institute of Technology: Applied welfare economics; human resources.
- Kristein, Marvin M., *Associate Professor*, Ph.D., 1955, New School for Social Research: Health economics; hospital reimbursement and cost control; preventive medicine cost effectiveness; blood bank pricing; monetary economics; securities markets.

- Li, Mingche M., *Assistant Professor*, Ph.D., 1977, Harvard University: Dynamics of mobility decision and tenure choice; statistical modeling of qualitative choices; external diseconomy in urban environment.
- Miners, Laurence A., *Lecturer*, Ph.D. expected 1978, University of North Carolina, Chapel Hill: Factors affecting the demand for and utilization of health care services; the economics of group medical practice; labor economics.
- Mitra, Tapan, *Assistant Professor*, Ph.D., 1974, University of Rochester: Efficient and optimal growth theory; the economics of exhaustible resources; decision-making under uncertainty in dynamic resource allocation problems.
- Muench, Thomas J., *Professor and Chairman*, Ph.D., 1965, Purdue University: The microeconomics and general equilibrium theory of markets with externalities, public goods and uncertainty; econometric methods of analyzing time series.
- Neuberger, Egon, *Professor*, Ph.D., 1958, Harvard University: Decision-making approach to comparative economic systems; transmission of international stagflation to socialist countries; Yugoslav self-management.
- Staley, Charles E., *Associate Professor*, Ph.D., 1956, Massachusetts Institute of Technology: International economics; history of economic thought.
- Stekler, H.O., *Professor*, Ph.D., 1959, Massachusetts Institute of Technology: Macroeconomic forecasting and stabilization policies.
- Walker, Mark, *Assistant Professor*, Ph.D., 1970, Purdue University: Informational and incentive properties of collective decision procedures.
- Winn, John, *Lecturer*, Ph.D. expected 1978, University of Texas: Econometric analysis of time series data and structural equation systems.
- Wooders, Myrna H., *Assistant Professor*, Ph.D., 1976, University of Minnesota: Local public good economies, optimality and incentive properties of resource allocation mechanisms.
- Zschock, Dieter K., *Associate Professor*, Ph.D., 1967, Tufts University: Economic development and human resource analysis (employment, education, health).
- Zweig, Michael F., *Associate Professor*, Ph.D., 1967, University of Michigan: Political economy, fiscal crisis and general economic crisis.

DEPARTMENT OF HISTORY

Admission to Graduate Study

For admission to graduate study in history, the following are required:

- A. An official transcript of undergraduate record.
- B. Letters of recommendation from *three* previous instructors.
- C. Results of the Graduate Record Examination Aptitude Test.
- D. A baccalaureate degree in history or its equivalent.
- E. A minimum grade point average of 2.75 (B-) in all undergraduate course work, and 3.00 (B) in history courses.
- F. Acceptance by the Department of History and the Graduate School.

In special cases, students not meeting requirements D and E may be admitted on a provisional basis.

With the approval of the Dean of the Graduate School and the History Department, a student holding an M.A. degree from another accredited institution may be admitted directly to the Ph.D. program at Stony Brook.

Foreign Languages

Ph.D. candidates are expected to be able to use whatever languages are necessary for research in their major field. The student and his or her advisor will decide what those languages should be, with the approval of the Graduate Committee. In most cases proficiency in at least one foreign language must be demonstrated by examination before a student may be examined for the M.A. or Ph.D.

Supervised Teaching

Teaching assistants in history are expected to perform either research or teaching functions in the department, up to a possible 12 hours a week.

Those who are teaching will enroll in HIS 581, Supervised Teaching, for three units per semester of degree credit. Their work will be supervised by the member of the faculty to whom they are assigned.

All doctoral students beyond the M.A. level, whether teaching assistants or not, are expected to perform some kind of supervised teaching within their graduate career.

Master of Arts Degree

The department offers two options at this level: *Option 1* for those primarily interested in graduate study leading to university teaching or research positions and *Option 2* for those primarily interested in teaching history in the schools and community colleges. Those in *Option 1* will be awarded a degree upon satisfactory completion of at least 30 graduate credits and upon demonstration in an oral examination of competence in a field of history. Those in *Option 2* will be awarded a degree upon satisfactory completion of at least 30

graduate credits and the submission of an acceptable M.A. project. For a description of the M.A. project, see "Master of Arts" (History Education) in the *Option 2* section below.

Advising

Upon registration, M.A. candidates will be assigned advisors in their anticipated area of study (e.g., U.S., Europe, Latin America, History Education). The students will work out fields of study and schedules of appropriate courses with their advisors.

Option 1

Field of Examination

The M.A. examination field is a substantial area of study in which a significant historical literature exists and in which significant questions are raised. A field may be defined geographically or topically. Aspects of the field may be selected for special emphasis, but knowledge of the general contours of the whole field will always be assumed by the examiners. The examination field selected should be submitted to the Graduate Committee for approval.

Samples

United States, with emphasis upon political/constitutional (or intellectual, diplomatic or social) history.

Europe since 1815, with emphasis upon Britain, France, and Germany.

Modern Europe, with emphasis upon intellectual history, 1715-1890.

Modern Europe, with emphasis upon Russia since 1600.

Latin America before independence.

Latin America since independence, with emphasis on Brazil, Argentina, and Mexico.

Expansion of Europe, 1500-1750 or 1750-recent times.

Courses

Each M.A. candidate must complete satisfactorily at least 30 units of appropriate graduate course work before taking the M.A. oral examination. These courses shall normally include:

1. Two reading and/or research seminars in the exam field (6 units).

2. At least one additional reading colloquium with a different instructor (3 units).

3. Electives chosen among further reading colloquia and individual directed readings.

Examination

An examining committee of three faculty members, chosen by the chairman of the History Department, shall assess the candidate's competence in his or her chosen field in an oral examination.

Normally the M.A. examination shall be taken at the end of two semesters of study. It must be taken by the end of the third semes-

ter, except in exceptional circumstances by permission of the Graduate Committee.

Option 2

Master of Arts Degree (History Education)

The History Education option is designed to provide new modes of graduate study in history for those who are primarily interested in teaching in the schools and community colleges. A student's program combines traditional graduate courses with a special seminar on teaching. In place of the oral examination in the Option I program, a student prepares an M.A. project. The project may be an original instructional unit or a research paper and smaller teaching unit based on the paper. Other options are possible, but the objective in all cases is to integrate in meaningful ways a student's reading and research with teaching in the classroom.

The admission requirements to this program are the same as those indicated above under "Admission to Graduate Study." Ordinarily no special language proficiency will be required.

Courses

Each candidate in the History Education option must complete satisfactorily 30 hours of appropriate graduate course work. He or she must also submit an M.A. project, described above, which must be approved upon completion by two members of the department. A student's program will normally include:

1. HIS 597, 598; The Teaching of History I, II (6 units).
2. HIS 599: Research for M.A. Project (6 units).
3. Reading and/or research seminars, individual directed readings (18 units).

A "B" average will be a formal prerequisite for the degree. The History Education Committee, charged with the administration of this M.A. option, will recommend conferral of the degree when all requirements, including the M.A. project, have been satisfied.

Doctor of Philosophy Degree

The Ph.D. is the highest professional degree granted by the history department. Candidates for the degree must hold an M.A. awarded either by the State University of New York at Stony Brook, or by another institution which it recognizes. Candidates must have been formally admitted to the Ph.D. program in history and have an advisor/thesis director who has agreed in writing, even if conditionally, that he or she will guide the student through the Ph.D. qualifying examinations and direct the dissertation. A Ph.D. preparation committee, made up of members of the graduate faculty in fields in which the student has an interest, will prescribe the nature of a student's work. A foreign language requirement will be set by this committee, and will in no case be less than a reading knowledge of one foreign language. The Ph.D. preparation commit-

tee will, most critically, assist the student to define and master three fields of knowledge.

Field 1: Dissertation Field: An area of historical knowledge which encloses the student's expected research interest, and which comprises a field sufficiently broad for the purpose of undergraduate teaching. Example: Modern European History, with emphasis upon 19th century Germany.

Field 2: Additional Teaching Field: A broadly defined area of historical study which comprises a second, distinct teaching field (although it may be chosen for the comparisons it evokes with the dissertation field). Examples: Latin American History After Independence; History of Science.

Field 3: Cognate Field: A specialty in another discipline, or in history but with a specific methodological emphasis. Examples: Econometrics; Political Theory; Art History. This field will not be formally examined. The student can satisfy the requirement by successful completion of at least six credits of formal course work on the graduate level. A student's Ph.D. preparation committee will certify satisfactory completion of this requirement.

A student may not take the examinations in fields 1 and 2 before both satisfying the language requirement and passing the cognate field.

Course Work

A student's program should be planned in consultation with this Ph.D. preparation committee. In every case, however, it must include two graduate seminars beyond the M.A., one of which must be a research seminar in the dissertation field. This requirement must be met before qualifying examinations are taken. All students holding full or partial traineeships must register for three credits of HIS 581, Supervised Teaching, in each semester in which they hold such an appointment. Students who have not held a traineeship in the course of their graduate careers must take HIS 581 for at least one semester during their Ph.D. program. Full-time students are expected to take their qualifying examinations at the end of their third and not later than the end of their fourth semester of post-M.A. work.

Qualifying Examinations

There are three examination options open to the student in consultation with his or her Ph.D. preparation committee:

Option 1: A single oral examination of not less than two hours duration in which both the dissertation field and teaching field are examined, the two fields being assigned equal importance. An examiner from another department, ordinarily representing the cognate field, will be present and welcome to examine where he or she sees appropriate. The examining committee will be expected to take into consideration a student's overall graduate record before recommending advancement, or non-advancement, to candidacy.

Option 2: A written examination of the teaching field followed, not more than one month later, by a written examination of the dissertation field. As soon as the second exam has been passed, a brief review oral examination will be held, the examiners to include at least two readers of each of the two written examinations and an examiner from another department ordinarily representing the cognate field. This committee may examine the student on any aspect of his or her three fields, but will consider the student's overall graduate record before recommending advancement, or non-advancement to candidacy.

Option 3: A written examination of the teaching field followed, no more than one month later, by an oral examination, principally of the dissertation field. At least one reader of the written exam in the teaching field must be present and free to ask additional questions concerning that field. An examiner, from another department, ordinarily representing the cognate field, will be present and welcome to examine where he or she sees appropriate. The examining committee will be expected to take into consideration a student's overall graduate record before recommending advancement, or non-advancement, to candidacy.

A student who fails the oral or written examinations in all options may repeat each one, except that in option 2, failure of both written examinations prohibits a repetition of the oral.

Advancement to Candidacy

After the student has passed the qualifying examination, the department shall propose to the Dean of the Graduate School that the student be advanced to Ph.D. candidacy.

Dissertation

A dissertation is required for the Ph.D. degree. After advancement to candidacy, a student will register for dissertation credits in consultation with his or her advisor. The student will select a dissertation topic within the major field. At present, the department offers dissertation fields in United States, Modern European and Latin American history, and Expansion of Europe.

The dissertation must, upon completion, be approved by a dissertation examining committee of at least four members of the faculty, appointed by the Dean of the Graduate School. This committee may include the dissertation supervisor and must include at least one person from outside the department.

Before final approval can be granted, the student must present the results of the dissertation research at an informal dissertation colloquium convened for that purpose by the department and open to interested faculty members and graduate students.

Time Limit

All requirements for the Ph.D. degree must be completed within four years after advancement to candidacy. In rare instances, the

Dean of the Graduate School will entertain a petition to extend this time limit, provided it bears the endorsement of the chairman of the department.

For further details, see page 45 of the Graduate School regulations.

Faculty

Alin, Per, *Associate Professor*, Ph.D., 1961, University of Vienna, Austria: Ancient Greek and Roman history; prehistoric Aegean, Cypriot Iron Age.

Angrss, Werner T., *Professor*, Ph.D., 1953, University of California, Berkeley: Modern Europe; Germany; political and labor history; Jews in modern Germany.

Bottigheimer, Karl S., *Associate Professor*, Ph.D., 1965, University of California, Berkeley: Tudor-Stuart England and Ireland; the English Civil War; overseas expansion.

Burner, David, *Associate Professor*, Ph.D., 1965, Columbia University: 20th century U.S.; political and social history; Herbert Hoover.

Chinchilla-Aguilar, Ernesto, *Professor*, Ph.D., 1952, Escuela Nacional de Antropología de Mexico: Central America and the Caribbean; colonial history; archival training and diplomatics.

Cleland, Hugh G., *Associate Professor*, Ph.D., 1957, Case-Western Reserve University: U.S. labor and socialism; innovative teaching; visual materials in U.S. history.

Cowan, Ruth S., *Associate Professor*, Ph.D., 1969, Johns Hopkins University: History of science, biology and technology; women in modern society.

Fox, Daniel, *Adjunct Associate Professor*, Ph.D., 1964, Harvard University: U.S. history; social welfare and government institutions.

Garber, Elizabeth, *Associate Professor*, Ph.D., 1966, Case-Western Reserve University: History of science, physics and thermodynamics; European intellectual and social history.

Hoffmann, Charles, *Adjunct Professor*,¹ Ph.D., 1954, Columbia University: Economics and economic history: 19th century U.S. economic history; The People's Republic of China.

Kuisel, Richard F., *Associate Professor*, Ph.D., 1963, University of California, Berkeley: Modern Europe; France; political economy; business public administration.

Lampard, Eric E., *Professor*, Ph.D., 1954, University of Wisconsin: Economic history; urban history; U.S. and modern European cities.

Lebovics, Herman, *Associate Professor*, Ph.D., 1965, Yale University: Modern Europe; intellectual and social history; Germany and France.

Lee, Robert H.G., *Associate Professor*, Ph.D., 1963, Columbia University: China and the Far East; Manchuria; borders and cultural contacts.

- Lemay, Helen R., *Associate Professor*, Ph.D., 1972, Columbia University: Medieval and Renaissance intellectual history; paleogeography.
- Levine, Robert M., *Associate Professor*, Ph.D., 1967, Princeton University: Latin America and Brazil; political and social history.
- Lida, Clara, *Associate Professor*,² Ph.D., 1969, Princeton University: Spain and Latin America; labor and political history.
- Main, Jackson T., *Professor and Chairman*, Ph.D., 1949, University of Wisconsin: Colonial and revolutionary U.S.
- Marcus, Robert D., *Associate Professor*, Ph.D., 1967, Northwestern University: 19th and 20th century U.S. political and cultural history.
- Pratt, John W., *Associate Professor*, Ph.D., 1960, Harvard University: U.S. constitutional and political history; New York history.
- Rapp, Richard T., *Associate Professor*, Ph.D., 1970, University of Pennsylvania: Economic history; Italy; econometrics and quantitative methods.
- Rosenthal, Joel T., *Professor*, Ph.D., 1963, University of Chicago: Medieval history; medieval England; social history.
- Semmel, Bernard, *Professor*, Ph.D., 1955, Columbia University: Modern British history; European intellectual history; liberalism; imperialism; socialism.
- Stein, Stephen J., *Assistant Professor*, Ph.D., 1974, Stanford University: Latin America; Peru; social history and popular culture.
- Taylor, William R., *Professor*, Ph.D., 1956, Harvard University: 19th and 20th century U.S. history; cultural and intellectual history.
- Weinstein, Fred, *Professor*, Ph.D., 1962, University of California, Berkeley: Psychohistory; theory in history; Russian history.
- Weltsch, Ruben, *Associate Professor*, Ph.D., 1961, University of Colorado: Eastern Europe; the Reformation; Hapsburg Empire.
- Wildman, Allan K., *Professor*, Ph.D., 1962, University of Chicago: Russian history.
- Williams, John A., *Associate Professor*, Ph.D., 1963, University of Wisconsin: British Empire; Africa; the Commonwealth; expansion of Europe.

¹Joint appointment, Department of Economics

²Joint appointment, Department of Hispanic Languages and Literatures

Directories

State University of New York

Trustees

General Statement

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State University at Stony Brook

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State University of New York

BOARD OF TRUSTEES

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Secretary of the University. Martha J. Downey, B.S., M.A.

GENERAL STATEMENT

State University's 64 geographically dispersed campuses bring educational opportunity within commuting distance of virtually all New York citizens and comprise the nation's largest centrally managed system of public higher education.

When founded in 1948, the University consolidated 29 State-operated, but unaffiliated, institutions. In response to need, the University has grown to a point where its impact is felt educationally, culturally and economically the length and breadth of the State.

More than 340,000 students are pursuing traditional study in classrooms or are working at home, at their own pace, through such innovative institutions as Empire State College, whose students follow individualized and often non-traditional paths to a degree. Of the total enrollment, more than 100,000 students are 24 years or older, reflecting State University's services to specific constituencies, such as refresher courses for the professional community, continuing educational opportunities for returning servicemen, and personal enrichment for more mature persons.

State University's research contributions are helping to solve some of modern society's most urgent problems. It was a State University scientist who first warned the world of potentially harmful mercury deposits in canned fish, and another who made the connection between automobile and industrial smoke combining to cause changes in weather patterns. Other University researchers continue important studies in such wide-ranging areas as immunology, marine biology, sickle-cell anemia, and organ transplantation.

More than 1,000 public service activities are currently being pursued on State University campuses. Examples of these efforts include: special training courses for local government personnel, State civil service personnel, and the unemployed; participation by campus personnel in joint community planning or project work; and campus-community arrangements for community use of campus facilities.

A distinguished faculty includes nationally or internationally recognized figures in all the major disciplines. Their efforts are

recognized each year in the form of such prestigious awards as Fulbright-Hayes, Guggenheim and Danforth Fellowships.

The University offers a wide diversity of what are considered the more conventional career fields, such as engineering, medicine, literature, dairy farming, medical technology, accounting, social work, forestry and automotive technology. Additionally, its responsiveness to progress in all areas of learning and to tomorrow's developing societal needs has resulted in concentrations which include pollution, urban studies, computer science, immunology, preservation of national resources, and microbiology.

SUNY programs for the educationally and economically disadvantaged have become models for delivering better learning opportunities to a once-forgotten segment of society. Educational Opportunity Centers offer high school equivalency and college preparatory courses to provide young people and adults with the opportunity to begin college or to learn marketable skills. In addition, campus-based Educational Opportunity Programs provide counseling, developmental education and financial aid to disadvantaged students in traditional degree programs on most SUNY campuses.

Overall, at its EOC's, two-year colleges, four-year campuses and university and medical centers, the University offers 3,600 academic programs. Degree opportunities range from two-year associate programs to doctoral studies offered at 12 senior campuses.

The 30 two-year community colleges operating under the program of State University play a unique role in the expansion of educational opportunity, by providing local industry with trained technicians in a wide variety of occupational curriculums; by providing transfer options to students who wish to go on and earn advanced degrees; and by providing the community with yet another source for technical and professional upgrading as well as personal enrichment.

During its brief history, State University has graduated more than 600,000 alumni, the majority of whom are pursuing their careers in communities across the State.

State University is governed by a Board of Trustees, appointed by the Governor, which directly determines the policies to be followed by the 34 State-supported campuses. Community colleges have their own local boards of trustees whose relationship to the SUNY board is defined by law. The State contributes one-third to 40 per cent of their operating cost and one-half of their capital costs.

The State University motto is: "Let Each Become All He Is Capable of Being."

Campuses

University Centers

State University at Albany; State University at Binghamton; State University at Buffalo; State University at Stony Brook.

Colleges of Arts and Science

College at Brockport; College at Buffalo; College at Cortland; Empire State College; College at Fredonia; College at Geneseo; College at New Paltz; College at Old Westbury; College at Oneonta; College at Oswego; College at Plattsburgh; College at Potsdam; College at Purchase.

Colleges and Centers for the Health Sciences

Health Sciences Center at Buffalo University Center; Health Sciences Center at Stony Brook University Center; Downstate Medical Center at Brooklyn; Upstate Medical Center at Syracuse; College of Optometry at New York City; College of Veterinary Medicine at Cornell University*.

Agricultural and Technical Colleges

College at Alfred; College at Canton; College at Cobleskill; College at Delhi; College at Farmingdale; College at Morrisville.

Specialized Colleges

College of Agriculture and Life Sciences at Cornell University*; College of Ceramics at Alfred University*; College of Environmental Science and Forestry at Syracuse; College of Human Ecology at Cornell University*; College of Technology of Utica/Rome; Fashion Institute of Technology at New York City**; Maritime College at Fort Schuyler; School of Industrial and Labor Relations at Cornell University*.

*These operate as "contract colleges" on the campuses of private universities.

**While offering a limited number of baccalaureate degree programs, in addition to the associate degree, FIT is financed and administered in the manner provided for Community Colleges.

Community Colleges

(Locally-sponsored, two-year colleges under the program of State University)

Adirondack Community College at Glens Falls; Broome Community College at Binghamton; Cayuga County Community College at Auburn; Clinton Community College at Plattsburgh; Columbia-Greene Community College at Hudson; Community College of the Finger Lakes at Canandaigua; Corning Community College at Corning; Dutchess Community College at Poughkeepsie; Erie Community College at Buffalo; Fulton-Montgomery Community College at Johnstown; Genesee Community College at Batavia; Herkimer County Community College at Herkimer; Hudson Valley Community College at Troy; Jamestown Community College at Jamestown; Jefferson Community College at Watertown; Mohawk Valley Community College at Utica; Monroe Community College at Rochester; Nassau Community College at Garden City; Niagara County Community College at Sanborn; North Country Community College at Saranac Lake; Onondaga Community College at Syracuse; Orange County Community College at Middletown; Rockland Community College at Suffern; Schenectady County Community College at Schenectady; Suffolk County Community College at Selden; Sullivan County Community College at South Fallsburgh; Tompkins-Cortland Community College at Dryden; Ulster County Community College at Stone Ridge; Westchester Community College at Valhalla.

State University of New York At Stony Brook

MEMBERS OF THE COUNCIL

Subject to powers of State University trustees defined by law, the operations and affairs of the State University at Stony Brook are supervised locally by a Council appointed by the Governor. Members of the Council at time of printing are listed below. All positions listed are correct as of February 15, 1978

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OFFICERS OF ADMINISTRATION

All positions listed are correct as of March 1, 1978.

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L.O.M.
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Director of the Stony Brook
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*Dean for Undergraduate
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Director, Department of Safety

Joseph McConkey, B.B.A.
*Assistant Vice President;
Director of Management
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James McKenna, B.A., M.A., Ph.D.
Director of Academic Planning

Ruth Miller, B.A., M.A., Ph.D.
*Assistant Academic Vice
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Lester Paldy, B.S., M.S.
*Dean, Center for Continuing
and Developing Education*

Monica Riley, B.A., Ph.D.
Provost for Biological Sciences

Max B. Rosselot, A.B., A.M.
*Dean for Student
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Robert Schneider, A.B., M.A.,
Ph.D.
Associate Dean for Research

Jerry K. Schubel, B.S., M.A.T.,
Ph.D.
*Director, Marine Sciences
Research Center*

Carl J. Singler, B.B.A., C.P.A.
Director of Internal Audit

John Brewster Smith, B.S., M.S.
*Dean of Library Services;
Director of Libraries*

William Strockbine, A.B.,
M.A./L.S.
Director of University Records

Sei Sujishi, B.S., M.S., Ph.D.
*Provost for Physical Sciences
and Mathematics*

Charles R. Wagner, A.B. Arch.
Director of Facilities Planning

Ralph Watkins
Director, Special Programs

Harry Weiner, A.B., M.A., M.S.M.
*Dean, W. Averell Harriman
College for Urban and Policy
Sciences*

Herbert Weisinger, A.B., M.A.,
Ph.D.
Dean of the Graduate School

Bache Whitlock, B.A., M.A.
Director of Financial Aid

David Woods, B.A., M.A.
*Director of University
Relations*

Lee Yasumura, B.A.
Director of Personnel

STAFF OF THE GRADUATE SCHOOL

Betty T. Bennett, Ph.D.
Assistant to the Dean

Lois Branch, A.A.
Assistant for Grant Processing

D. Ann Carvalho, M.A.
Assistant to the Dean

Michael S. Denci, M.A.
Assistant Dean of the Graduate School

Charles W. Kim, Ph.D.
Associate Dean of the Graduate School

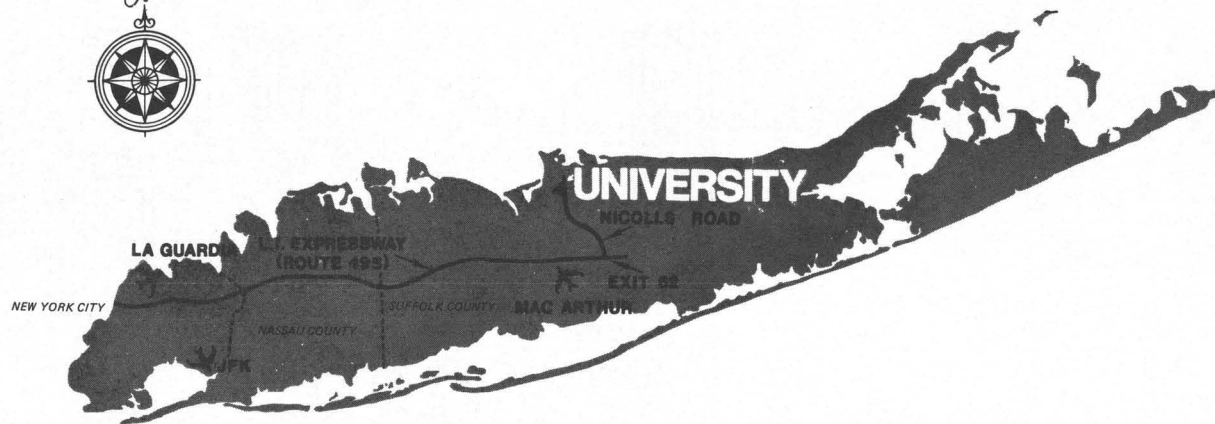
Phyllis A. Reed, M.A.
Assistant to the Dean

Kathryn S. Rockett, M.A.L.S.
Assistant for Grant Processing

Peter M. Saal, M.S.L.S.
*Assistant to the Dean for Sponsored
Research Information*

Robert F. Schneider, Ph.D.
Associate Dean for Research

Herbert Weisinger, Ph.D.
Dean of the Graduate School



TRANSPORTATION TO STONY BROOK

BY AIR

Stony Brook is located ten miles from Long Island-MacArthur Airport and 50 miles from Kennedy International and LaGuardia Airports.

BY CAR

Take the Long Island Expressway (Route 495) east from the Queens-Midtown Tunnel in Manhattan. Leave Expressway at Exit 62 and follow Nicolls Road north for nine miles. Turn left at the University.

BY RAILROAD

Take the Long Island Rail Road's Port Jefferson line from Pennsylvania Station (Manhattan) or Flatbush Avenue Station (Brooklyn), or Jamaica Station. Change trains at Jamaica or Huntington, according to LIRR timetable. Get off at Stony Brook Station. Inquire for free campus bus.

THE UNIVERSITY

The State University of New York at Stony Brook is the comprehensive State University Center for the New York metropolitan area. Stony Brook, one of the four comprehensive centers in the 64-institution SUNY system, has a stated goal of being a responsive university of excellence, dedicated to serving one of the nation's fastest growing population areas. Because the Nassau-Suffolk region in which it is located lags far behind the rest of the state and nation in higher education facilities, the University's mission is an especially urgent one. Founded in 1957 at Oyster Bay, the campus moved in 1962 to its present 1100-acre wooded location on the north shore of Long Island, 60 miles east of Manhattan. The University currently enrolls 17,000 students (11,500 undergraduates, and 5,500 graduate students, including about 3,000 part-time graduate students enrolled in continuing education programs) and the faculty numbers 1,200. Degrees are offered by the College of Arts and Sciences, College of Engineering and Applied Sciences, W. Averell Harriman College for Urban and Policy Sciences, Graduate School, Health Sciences Center and Center for Continuing Education.

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2 AMMANN COLLEGE	E5	032
3 BARUCH COLLEGE	H1	082
4 BASIC SCIENCES BLDG.	I7	400
5 BENEDICT COLLEGE	D6	033
6 BIOLOGY BUILDING	G4	004
7 CARDOZO COLLEGE	I4	062
8 CHEMISTRY BUILDING	F4	002
9 CHEMISTRY GRADUATE BUILDING	F4	02G
10 CLINICAL SCIENCES TOWER	I7	400
11 COMMISSARY	F2	041
12 COMMUTER COLLEGE in GRAY COLLEGE (29)		
12 COMPUTING CENTER	H3	014
13 COOLING TOWER	F2	
14 DEWEY COLLEGE	H1	081
15 DOUGLASS COLLEGE	J3	072
16 DREISER COLLEGE	J3	073
17 EARTH & SPACE SCIENCES BLDG.	G3	019
18 EISENHOWER COLLEGE	G1	083
19 ELECTRIC SUBSTATION	F2	010
20 ENGINEERING BUILDING	H4	011
21 ENGINEERING HEAVY LAB	H3	013
22 ENGINEERING LIGHT LAB	H3	012
23 N.Y.S. ENV. CONSERVATION BLDG.	C8	
24 FACILITIES & PLANT ENGRG. BLDG.	F2	042
25 FINE ARTS CENTER	F5	021
26 G CAFETERIA	E6	030
27 GARAGE	G2	078
28 GERSHWIN COLLEGE	I5	065
29 GRAY COLLEGE	E5	031
30 GREELEY COLLEGE	I1	093
31 GYMNASIUM	F4	006
32 H CAFETERIA	D6	033
33 HAMILTON COLLEGE	J3	085
34 HAND COLLEGE	J3	071
HEALTH SCIENCES CENTER	J7	400
35 HEATING PLANT	F2	008
36 HENRY COLLEGE	I4	063
37 HUMANITIES BUILDING	G5	001
38 INFIRMARY	E5	036
39 INSTRUMENTAL RESOURCES CENTER	H5	026
INTERNAT'L COL. in KELLER COL. (42)		
40 IRVING COLLEGE	F6	030
41 JAMES COLLEGE	D5	034
42 KELLER COLLEGE	I1	092
43 KELLY CAFETERIA	H1	080
44 LABORATORY OFFICE BUILDING	H5	027
45 LANGMUIR COLLEGE	D6	035
46 LECTURE HALL CENTER	H5	025
47 LIBRARY, FRANK MELVILLE, JR.	F4	005
48 LIFE SCIENCES (GRAD. BIO.) BLDG.	I6	04G
49 LIFE SCIENCES LIBRARY	I5	04C
50 MATH TOWER	F3	03G
51 MOUNT COLLEGE	I4	064
52 O'NEILL COLLEGE	E6	030
53 PHYSICS BUILDING	G3	003
54 PHYSICS GRADUATE BUILDING	F3	03G
55 POINT OF WOODS SCHOOL	H8	
56 ROTH CAFETERIA	I4	060
57 SANGER COLLEGE	J2	074

58 SCHICK COLLEGE	G1	084
59 SERVICE BUILDING	F2	007
60 SOC'L & BEHAV. SCIENCES BLDG.	H6	025
61 SOCIAL SCIENCES LAB BLDG. (A)	G5	24A
62 SOCIAL SCIENCES OFF. BLDG.	G5	24B
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76 STONY BROOK UNION	F5	037
77 TABLET CAFETERIA	H2	070
THEATRE in SOUTH CAMPUS B (64)	J2	
78 TOSCANINI COLLEGE	J7	075
79 UNIVERSITY HOSPITAL	I8	400
80 VAN DE GRAAFF ACCELERATOR	F4	03V
81 WAGNER COLLEGE	H1	094
82 WHITMAN COLLEGE	I4	061

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2 AMMANN COLLEGE	E5	032
29 GRAY COLLEGE	E5	031
40 IRVING COLLEGE	F6	030
52 O'NEILL COLLEGE	E6	030
H QUAD	D6	
5 BENEDICT COLLEGE	D6	033
41 JAMES COLLEGE	D6	034
45 LANGMUIR COLLEGE	D6	035
ROTH QUAD	I4	
7 CARDOZO COLLEGE	I4	062
28 GERSHWIN COLLEGE	I5	065
36 HENRY COLLEGE	I4	063
51 MOUNT COLLEGE	I4	064
82 WHITMAN COLLEGE	I5	061
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15 DOUGLASS COLLEGE	J3	072
16 DREISER COLLEGE	J3	073
34 HAND COLLEGE	J2	071
57 SANGER COLLEGE	J2	074
78 TOSCANINI COLLEGE	J7	075
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14 A DEWEY COLLEGE	H1	081
3 B BARUCH COLLEGE	H1	082
18 C EISENHOWER COLLEGE	G1	083
58 D SCHICK COLLEGE	G1	084
33 E HAMILTON COLLEGE	H2	085
STAGE XII QUAD	I2	
75 A STIMSON COLLEGE	I2	091
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