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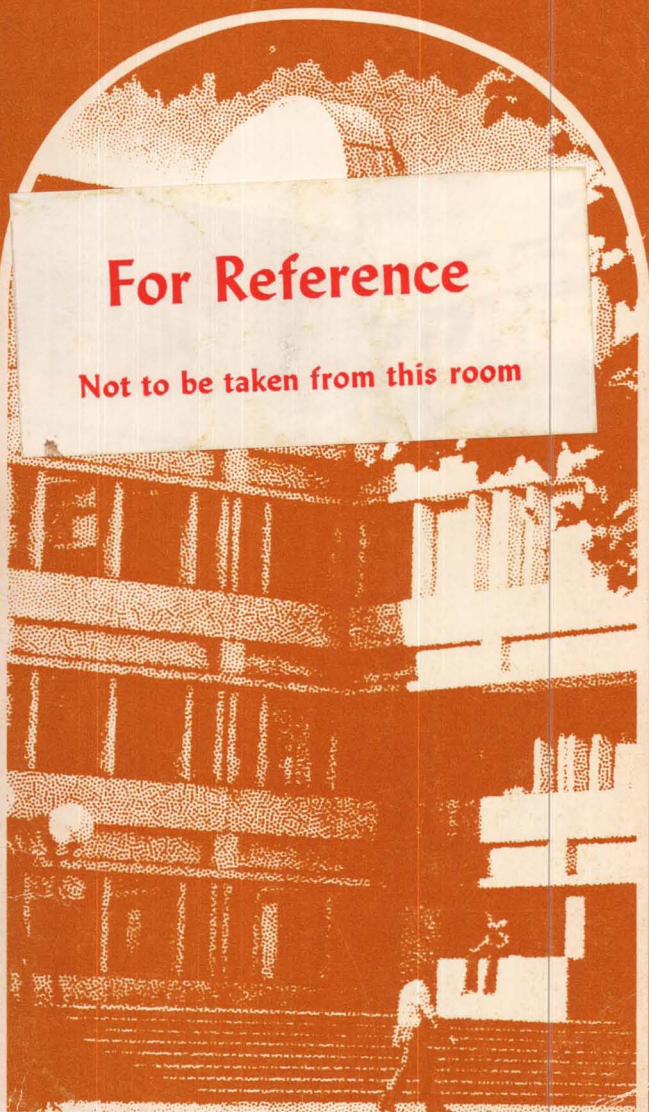
OF NEW YORK AT

Stony Brook

1980-82 GRADUATE BULLETIN

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STATE UNIVERSITY OF NEW YORK AT
Stony Brook

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Volume XVI

Press Date: January 25, 1980

Editor: Barbara Becker

Graphic Design: Pat Costello

Original Photography: Ann Carvalho

Pat Costello

Charles Marshall

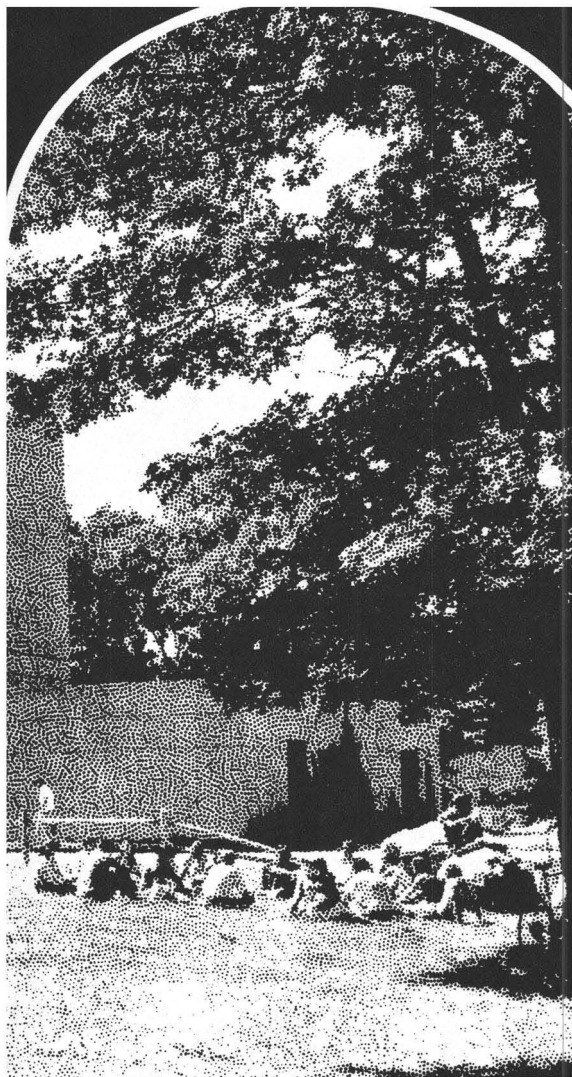
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The University represents that the information in this publication is accurate as of the press date. Circumstances may require that a given course be withdrawn, or that alternate offerings be made. Names of instructors for courses, and days and times of class sessions are given in the Class Schedule, available to students at registration. All applicants are reminded that the State University of New York at Stony Brook is subject to the policies promulgated by the Board of Trustees of the State University of New York. Fees and charges are set forth in accordance with such policies and may well change in response to alterations in policy or actions of the legislature, during the two-year period covered by this publication. The University reserves the right to change its policies without notice.



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*HEGIS code numbers included where appropriate. Students who enroll in programs not registered or otherwise approved may jeopardize their eligibility for certain student aid awards.



Fall Semester 1980

| | |
|--------------------------------------|--|
| August 25, Monday | Foreign students arrive |
| August 25-29 Monday-Friday | Final registration and payment (or proper deferral) of fees for all students not previously registered (schedule announced prior to registration) Foreign student orientation |
| August 27-29 Wednesday-Friday | Undergraduate student orientation for students not having participated previously Residence halls open for new student check-in |
| August 28, 29 Thursday, Friday | Residence halls open for returning, non-preregistered student check-in |
| August 30, 31 Saturday, Sunday | Residence halls open for returning, preregistered student check-in |
| September 1, Monday | Labor Day holiday (no day or evening classes) |
| September 2, Tuesday | Classes begin Late registration period begins with \$20 late fee assessed |
| September 11, 12 Thursday, Friday | Rosh Hashanah recess (no classes on Sept. 10, Wed., after 4:30 p.m.) |
| September 17, Wednesday | End of late registration period Last day for undergraduate students to add a course; last day for all students to drop courses without W (Withdrawal) grades being recorded Last day for undergraduates to apply for change of status to or from full-time/part-time |
| September 29, Monday | Last day for graduate students to add or withdraw from a course (W will be recorded for Withdrawal) |

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| | Last day to file for December graduation: undergraduates file applications at the Office of Records/Registrar; graduate students (except CED) file at Graduate School Office; CED students file at CED Office |
| October 13, Monday | Columbus Day holiday (no day or evening classes) |
| October 25, Saturday | Fall quarter housing period ends |
| October 30, Thursday | Last day for payment of deferred fall semester fees |
| October 31, Friday | Last day for removal of I (Incomplete) and NR (No Record) grades from the spring semester and summer session |
| November 3, Monday | Last day for undergraduate students to withdraw from a course without withdrawing from the University |
| | Last day to change courses to or from Pass/No Credit |
| November 4, Tuesday | Election Day holiday (no day or evening classes) |
| November 10, Monday | Advance registration for spring 1981 semester begins (schedule to be announced prior to registration) |
| November 11, Tuesday | Veteran's Day holiday (classes in session) |
| November 25, Tuesday | All classes will follow Thursday's schedule |
| November 26, Wednesday | All classes will follow Friday's schedule |
| | Thanksgiving recess begins at close of classes |
| November 27, Thursday | Thanksgiving holiday |
| December 1, Monday | Classes resume |

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| | Bills for spring 1981 semester to be mailed to preregistered students |
| December 9, Tuesday | Last day of classes Last day to withdraw from the University |
| December 10, Wednesday | Reading Day |
| December 11, Thursday | Final examinations begin Final grades due in Registrar's Office 72 hours after last class meeting or scheduled examination |
| | Last day for graduate students to submit theses and dissertations to Graduate School for December graduation |
| December 17, Wednesday | Final examinations end Fall semester ends Residence halls close for fall semester Winter recess begins at close of exams |
| December 18, Thursday | Intersession housing begins |
| December 25, Thursday | Christmas holiday |
| December 31, Wednesday | Last day for departments to submit completion statements for December master's and doctoral degree candidates |

Spring Semester 1981

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| January 1, Thursday | New Year's Day holiday |
| January 2, Friday | Last day for mail payment of spring semester fees for preregistered students |
| January 19, Monday | Last day for preregistered |

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| | students to pay spring semester fees in person without late payment penalty |
| | Foreign students arrive |
| January 21, Wednesday | Intersession housing ends |
| | Residence halls open for returning non-preregistered student check-in |
| January 21–23 Wednesday–Friday | Final registration and payment (or proper deferral) of fees for all students not previously registered (schedule announced prior to registration) |
| January 23, Friday | Residence halls open for returning, preregistered student check-in |
| January 26, Monday | Classes begin |
| | Late registration period begins with \$20 late fee assessed |
| February 6, Friday | End of late registration period |
| | Last day for undergraduate students to add a course; last day for all students to drop courses without W (Withdrawal) grades being recorded |
| February 11, Wednesday | Last day for undergraduates to file for May graduation at the Office of Records/Registrar |
| February 12, Thursday | Lincoln's Birthday holiday (classes in session) |
| February 16, Monday | Washington's Birthday holiday (classes in session) |
| February 20, 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 for May graduation: graduate students (except CED) file at Graduate School; CED students file at CED Office |

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| March 12, Thursday | Last day for payment of deferred spring semester fees |
| March 16, Monday | Last day for removal of I (Incomplete) and NR (No Record) grades from the fall semester |
| March 20, Friday | Spring recess begins at close of classes |
| March 21, Saturday | Spring quarter housing period ends |
| March 30, Monday | Classes resume |
| April 3, Friday | Last day for undergraduate students to withdraw from a course without withdrawing from the University |
| | Last day to change courses to or from Pass/No Credit |
| April 13, Monday | Advance registration for fall 1981 semester begins (schedule to be announced prior to registration) |
| | Bills for fall 1981 semester to be mailed approximately July 1 with payment due date during latter part of July |
| April 17-20 Friday-Monday | Classes suspended |
| April 21, Tuesday | All classes will follow Friday's schedule |
| April 24, Friday | Last day for graduate students to submit theses and dissertations to Graduate School for May graduation |
| April 27, Monday | Registration begins for summer session with fees payable at time of registration |
| May 4, Monday | Last day for departments to submit completion statements for May Ph.D. candidates |
| May 5, Tuesday | Last day of classes |

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| | Last day to withdraw from the University |
| May 6, Wednesday | Reading day |
| May 7, Thursday | Final examinations begin |
| | Final grades due in Registrar's Office 72 hours after last class meeting or scheduled examination |
| May 13, Wednesday | Final examinations end |
| | Spring semester ends |
| May 17, Sunday | Commencement |
| | All residence halls close |
| May 25, Monday | Memorial Day holiday |
| May 27, Wednesday | Last day for departments to submit completion statements for May master's candidates |



Background

Established less than two decades ago as New York's comprehensive State University Center for the downstate-metropolitan area, the State University of New York at Stony Brook is recognized as one of the nation's finest universities. Stony Brook offers excellent programs in a broad spectrum of academic subjects, and conducts major research and public service projects. Over the past decade, externally funded support for Stony Brook's research programs has grown faster than at any other major university in the nation. Internationally renowned faculty offer courses from the undergraduate to the doctoral level for 16,000 students through 71 undergraduate and graduate departmental and interdisciplinary majors. Extensive resources and expert support services help foster intellectual and personal growth.

In 1960, the State Board of Regents and the late Governor Nelson Rockefeller established Stony Brook's mandate as a comprehensive University Center, to "stand with the finest in the country." The quality of Stony Brook's programs was praised by a distinguished national team of scholars in a recent Middle States Association of Colleges and Secondary Schools reaccreditation report, which recognized Stony Brook's spectacular achievements in so quickly becoming "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 . . . The University is in an excellent position to make major contributions in policy and problem oriented research of regional, as well as national, importance."

Founded in 1957 at Oyster Bay, Long Island as a State University College to prepare secondary school teachers of mathematics and science, the young school moved in 1962 to its present location on Suffolk County's north shore.

Since then, Stony Brook has grown to encompass 98 buildings on 1000 acres. The faculty has grown from about 175 to 1000, the student body from 1000 to 16,000 and the annual operating budget from about \$3 million to \$114 million.

The University serves its region, one of the nation's fastest growing and most complex, through research into area problems; through cooperative programs with governmental agencies at the Federal, State and local levels; through response to the extraordinary demand for higher education opportunity from the region; and as one of Long Island's largest employers. Stony Brook strives to develop programs of the highest quality in areas of great public need, including health sciences, engineering and

applied sciences, public policy, marine and environmental sciences and the arts.

Location

Stony Brook is located about 60 miles east of Manhattan on the wooded north shore of Long Island, convenient to New York City's cultural life and Suffolk County's tranquil, recreational countryside and seashores. Brookhaven National Laboratory and the Cold Spring Harbor Laboratory are nearby. Located in the restored village of Stony Brook at the geographical center of Long Island, the campus is some 60 miles west of Montauk Point. It is within minutes of New York State's richest farmland and clam beds, its spectacular Atlantic beaches, the craggy coastline and cliffs of Long Island's north shore and its picturesque village greens and gracious country homes. Long Island's hundreds of miles of magnificent coastline attract many swimming, boating and fishing enthusiasts from around the world.

Degree Opportunities

Graduate study is offered in 24 of Stony Brook's present 29 academic departments, as well as in the six Schools of the Health Sciences Center, and the Center for Continuing and Developing 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), a D.M.A. (Doctor of Musical Arts), a D.A. (Doctor of Arts) in foreign languages 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.W. degree by the School of Social Welfare; the M.S. degree by the School of Allied Health Professions and the School of Nursing; and the Ph.D. by the School of Basic Health Sciences. Evening Center programs of the Center for Continuing and Developing Education, primarily for working adults, offer 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, the College of Engineering and Applied Sciences and the Health Sciences Center.

Campus

Stony Brook's bustling academic community is situated within a thousand acres of fields and woodland. Bicycle paths, an apple orchard, park benches, a duck pond and spacious plazas complement modern laboratories, classroom buildings and the Fine Arts Center, giving Stony Brook spirit and cultural vitality.

Surrounding the Frank Melville, Jr. Memorial Library at the center of the campus (see map p. 322) 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, Stony Brook Union, Gymnasium and other service and activities buildings. Stony Brook's Fine Arts Center, situated between the Library and Administration Building, provides superb performing arts facilities and houses the departments of Theatre Arts, Music and Art. A spacious outdoor plaza in which concerts may be held connects the Library, Stony Brook Union and Fine Arts Center in the middle of the campus. The Social and Behavioral Sciences Building houses five departments as well as the Center for Continuing and Developing Education.

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 rooms and a diversity of student-sponsored enterprises and social facilities. Each quadrangle consists of 3-5 co-educational "colleges," or residence halls, housing 200-400 students each. A 240-bed apartment complex is expected to be ready for occupancy in fall 1980.

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

The Health Sciences Center, east of Nicolls Road, includes Long Island's tallest building. The 540-bed University Hospital admitted its first patients early in 1980. Preliminary authority has been granted for construction of the permanent facility for the School of Dental Medicine. A 1000-car parking structure for the Health Sciences complex is located adjacent to the Teaching-Research Building, and a 450-car outdoor parking facility for the Hospital opened early in 1980.

Students

Stony Brook's recent enrollment was about 16,000 (11,000 undergraduates and 5000 graduate students, including about 2000 part-time graduate students enrolled in continuing education programs). Foreign students from some 75 countries represent about 5% of the total student body. Graduate students come from all over the country and the world.

Faculty

The vast majority of Stony Brook's 1000 faculty members hold doctoral degrees and 90% or more are engaged in active research leading to publication, much of it supported by external grants and contracts. The faculty-student ratio is about one faculty member for every 16 students.

Eminent faculty include Einstein Professor C.N. Yang, the Nobel Laureate in physics; Distinguished Professors Lewis Coser and Justus Buchler in sociology and philosophy respectively; Pulitzer Prize winning poet Louis Simpson in English; musician-scholars Charles Rosen and Richard Dyer-Bennet; art critic Lawrence Alloway; and author Thomas Flanagan in English, winner of the 1979 National Book Critics Circle fiction award for "The Year of the French."

Research

In fiscal year 1979, Stony Brook's sponsored project expenditures exceeded \$22.5 million. The bulk of these funds, over 80%, derive from grants and contracts with the Federal government. The remaining funds come from private foundations, non-Federal governments, voluntary medical agencies and industrial organizations. Over 500 sponsored projects are actively being pursued, including scientific studies, training programs, public service projects, educational activities and library support. Many departments prepare brochures describing their sponsored activities in detail.

All campus projects which involve human subjects, whether they are 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 Sec-

retary of CORIHS in the Office of Research Administration, which is part of the Graduate School.

Academic publications emanating from the University include: *Anthropology*, *Archives of Sexual Behavior*, *Art Criticism*, *Biological Psychiatry*, *Bulletin of Research in the Humanities*, *Gradiva*, *Heat Transfer—Japanese Research*, *Journal of Applied Behavior Analysis*, *Journal of College Science Teaching*, *Marine Biology Letters*, *Mental Retardation and Developmental Disabilities*, *The Physics Teacher*, *Previews of Heat and Mass Transfer*, *Quarterly Review of Biology*, and *Transplantation Proceedings*.

University Libraries

The Stony Brook campus is endowed with a number of libraries established to meet the information needs of students and faculty. The Frank Melville, Jr. Memorial Library, the main library building, provides both an intellectual and physical focal point for the campus and is among the largest academic libraries in the nation. Within the architecturally distinctive Melville building are collections serving the social sciences, humanities, fine arts and music. These collections are particularly strong in English, Western European and Latin American literature, as well as in modern Western history and Latin American history. Special departments in the library provide ready access to current fiction and non-fiction, current periodicals, government documents, maps, microforms and legal materials. Other facilities of note are a music listening center, a student lounge and a variety of individualized study carrels. The full range of library services, including open stack privileges and data base searches, are available to all students.

Five branch science libraries are located in departmental buildings—biology, chemistry, earth and space sciences, engineering and mathematics/physics. There is also a Health Sciences Library in the Health Sciences Center. Collectively, the University Libraries contain over 1,250,000 bound volumes and 1,500,000 publications in microformat.

Other library facilities of note are the William Butler Yeats Archives and the Institute for Advanced Studies of World Religions, a privately endowed foundation which assists the study and teaching of world religions, particularly Asian systems.

Library Hours

During the academic year, the library is generally open Monday through Thursday, 8:30 a.m. to 12 midnight; Friday, 8:30 a.m. to

5 p.m.; Saturday, 10 a.m. to 6 p.m.; and Sunday, 2 p.m. to 12 midnight.

During intersession and other vacation periods, hours are generally 8:30 a.m. to 5:00 p.m., Monday through Friday, and closed weekends. The library is usually closed on major holidays.

Note: Library hours are subject to change from year to year, and even within the year, depending on constraints imposed by budgetary limitations. Students are urged to check the posted hours of operation at the various branch libraries, as well as at the main library.

Computing Center

Stony Brook's Computing Center, located at the west side of the Engineering Quadrangle, is a major centralized facility to service the computing needs of instruction, research and administration. By supporting both local and remote batch access and a large network of interactive terminals, the Computing Center makes extensive computing capabilities available to the campus community.

The central computer complex consists of a UNIVAC 1100/82A system with 4 million characters of main memory, 2 billion characters of on-line disk storage and a peripheral complement of tape drives, printers and card processing equipment. More than 120 remote devices are located on the campus and are connected via a communication network. A tape library of more than 6,000 magnetic tapes provides for storage of users' programs and data in machine accessible form.

The Computing Center operates three shifts each day, five days a week, plus one shift on Saturday. There are usually unattended operations (no operators present) for the remainder of the weekend. The Center is open for authorized student access each weekday from 8:30 a.m. to 11:30 p.m. and from 9 a.m. to 4 p.m. on Saturdays.

Special Centers and Institutes

The *Center for Contemporary Arts and Letters* develops campus art and letters holdings in print and electronic media, and sponsors visits by practitioners and critics of the arts; the *Center for Industrial Cooperation* links the research resources of the University to the needs of Long Island industry, especially in areas of high technology; the *Center for Photographic Images of Medicine and Health Care* collects, catalogs and disseminates slide duplicates of historical photographs

relating to medicine and health care, develops curriculum materials based on photographic images and promotes research; the ***Economic Research Bureau***, in cooperation with other University units and community agencies, conducts research in policy problems in health economics, public finance and regional economics; the ***Educational Communications Center*** helps develop more effective teaching methods through the use of media and other technical aids; the ***Educational Products Information Exchange Institute*** is a non-profit consumer agency for educational materials and equipment, chartered by the Board of Regents of the State of New York; Stony Brook's branch of ***Empire State College***, the State University of New York's non-traditional learning arm, offers study towards associate and bachelor's degrees without formal class attendance; the ***Horizon Center*** concerns itself with the production and presentation of experimental theatre and music; the ***Institute for Advanced Studies of World Religions***, a privately endowed foundation, assists the study and teaching of world religions, particularly Asian systems, through its library containing over 50,500 volumes, nearly 790 periodical titles and thousands of other texts, and through its microform resource program, informational services (including bibliographic reports on research in progress worldwide), translation program, book publication program, research program, and international institutional relations.

The ***Institute for Energy Research*** explores new areas of energy policy and related research and regularly conducts energy management training programs for energy experts from around the world; the ***Institute for Theoretical Physics*** has a faculty of thirteen and has guest scientists and visitors numbering about 100 every year, working in various aspects of elementary particle theory and nuclear theory; the ***Institute for Urban Sciences Research***, the research arm of the W. Averell Harriman College for Urban and Policy Sciences, organizes and carries out research projects and programs on public policy problems and issues; the privately endowed ***Institute of American Studies*** conducts a summer graduate program for outstanding high school social studies teachers; the non-profit ***International Art of Jazz, Inc.*** provides concerts, workshops and an arts-in-education program for elementary and secondary schools throughout New York State, utilizing the art form in non-traditional ways as a medium of communications for intercultural awareness and understanding; the ***Laboratory for Behavioral Research*** houses 11 experimental, computer-controlled labora-

tories for the study and analysis of political judgement; the ***Laboratory for Energy Technology*** considers the technical, economic and societal measures of excellence and acceptability of energy systems in terms of available energy technology options and examines the efficiency, conservation and environmental aspects of renewable and other energy technologies against these general measures of excellence and acceptability; the ***Long Island Regional Advisory Council on Higher Education*** is a consortium of colleges and universities on Long Island dedicated to improved educational effectiveness through inter-institutional cooperation.

The ***Long Island Research Institute***, which is funded by the New York State Office of Mental Health, works closely with the Department of Psychiatry and Behavioral Science in mental health and behavioral sciences research; the ***Marine Sciences Research Center*** conducts research cruises, performs studies in oceans, bays, harbors and lakes, and manages the Flax Pond Laboratory, a 146-acre tidal salt marsh research facility near the campus; the ***Museum Computer Network***, now headquartered on campus, works to help many of the world's major museums and other institutions make their collections and related information more accessible by computerizing museum files and archives; the ***Museum of Long Island Natural Sciences***, which houses permanent and special temporary exhibits and has the largest collection of natural history objects on Long Island, is engaged in research and provides programs in Long Island's geological and ecological developments for both adults and schoolchildren; the ***National Coordinating Center for Curriculum Development's*** Minorities in Engineering Project contributes to the nationwide effort to bring the number of minority engineering students up to parity with the population distribution in the college ages; members of the ***Nuclear Structure Laboratory*** conduct nuclear physics research on an FN tandem Van de Graaff accelerator and are currently developing the only University-based super-conducting LINAC booster in the world to expand research capability in heavy ion research; the ***Poetry Center*** maintains a collection of poetry as well as video and audio cassette recordings of poets reading from their own works, and sponsors readings by established and younger poets, lectures and symposia on the relationships of the humanities to the other disciplines.

The ***Research Group for Human Development and Educational Policy*** studies the academic and non-academic functioning of Stony Brook and other educational institutions and partici-

pates in the implementation of its recommendations; the **Research Foundation** administers 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; the **Stony Brook Foundation, Inc.**, a not-for-profit corporation formed to encourage and accept gifts and endowments in support of University programs as well as scholarship and loan programs for needy students, also seeks support for University programs which cannot otherwise be supported by the State budget; the **Stony Brook Radiation Laboratory** is an organized research unit in which members work primarily on a variety of problems on the frontiers of nuclear physics and elementary particle physics; the Sudden Infant Death Syndrome Information and Counseling Center is a federally funded program through the Division of Maternal and Child Health to assist parents who lose a child to sudden infant death syndrome and to provide community awareness and education about this disease; **Taproot Workshops, Inc.**, a non-profit, county-wide center supported by grants from the New York State Council on the Arts and the Suffolk County Legislature, teaches creative writing to elderly people in congregate centers and nursing homes.

Community Ties

Over 350 concerts, lectures, films, theatre productions, art exhibits and sports events on campus are open to the public each semester.

With more than 6000 people on the overall campus payroll, Stony Brook is one of Long Island's largest employers. Recent studies indicate that the University generates over \$300 million annually in direct and indirect economic impact on Long Island.

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 secondary schools, and numerous educational projects involve close University-school cooperation. The Point of Woods School at the University provides opportunities for hyperactive elementary schoolchildren to become productive students. The recently opened 540-bed University Hospital offers sophisticated medical, surgical, psychiatric and emergency facilities. In addition, the University offers community residents a number of other

health care services, such as those provided by the Dental Care Center, Psychological Center, Sex Therapy Clinic and Laboratory for Arthritis and Related Diseases. The Marine Sciences Research Center, the Statewide center for marine research, undertakes projects on a wide variety of marine related subjects ranging from regional erosion and pollution problems to management of the fishing industry; the W. Averell Harriman College for Urban and Policy Sciences works with governmental agencies at all levels to help solve problems in fields such as energy, Federal government budgeting, efficiency and organization, sanitation, waste disposal, zoning and transportation. The Economic Research Bureau, in cooperation with other University units and community agencies, conducts research in policy problems in health economics, public finance and regional economics. 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.

Campus Activities

A wide variety of lectures, seminars, concerts, exhibits, theatrical performances, movies and sporting events are scheduled regularly during the academic year. Some recent well-known speakers at Stony Brook have included Israeli statesman Abba Eban, journalist Bill Moyers, composer John Cage, Indian spiritual leader Sri Chinmoy, environmentalist Barry Commoner, former presidential aide Midge Costanza, author Erica Abeel, and former New York City mayor John V. Lindsay.

Art galleries in the Fine Arts Center, in the Library, in the Chemistry Building, in the Administration Building and in the Stony Brook Union offer regularly changing exhibitions of works by on- and off-campus artists. The Museum of Long Island Natural Sciences, located in the Earth and Space Sciences Building, houses a continuous showing of dioramas depicting natural Long Island scenes, as well as special temporary exhibits. 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 Fine Arts Center's Pre-Inaugural and Inaugural concert series in the 1978-79 and 1979-80 seasons brought internationally acclaimed performers to Long Island, including Rudolph Serkin, the Bartok Quartet, Isaac Stern, Andre Watts, Itzhak Perlman, and the Alvin Ailey Repertory Ensemble. Recent campus theatrical productions included "Albee Directs Albee," in which the Pulitzer Prize winning American playwright directed his own works; "An Evening with Oscar Wilde," starring Vincent Price; "The Belle of Amherst," starring Julie Harris as Emily Dickinson; and Mozart's light opera "The Marriage of Figaro."

Popular concerts recently on campus have included performances by Patti Smith, Dave Mason, Jerry Garcia, Billy Joel, Carly Simon, Chuck Mangione, George Benson and the Doobie Brothers.

Stony Brook fields varsity teams in 14 intercollegiate sports competing through the NCAA, the ECAC and the Association for Intercollegiate Athletics for Women. In 1979 the men's varsity basketball team recorded the highest winning percentage (.889) in the nation with a record of 24-3 and participated in the NCAA Division III East Regional Playoffs for the third consecutive year. The varsity soccer team finished the 1979 season as co-champions of the Metropolitan Intercollegiate Soccer Conference, Division II East, with a 7-4-4 mark. The football club finished the '79 campaign with a 7-2 record and the number five ranking in the National Collegiate Football Association. In 1979, basketball forward Earl Keith and football lineman Bob Leroy were selected to All-American teams, and tennis star Steve Aronowitz was awarded a post-graduate scholarship by the NCAA.

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. Other student publications include *Black World*, a newspaper focusing primarily on news of interest to the black community on campus; *Fortnight*, a bi-weekly feature magazine; *Soundings*, the literary magazine; *Specula*, the campus yearbook, and *Stony Brook Press*, an alternative student newspaper.

Campus ministries serve student religious concerns through the Interfaith Center, offering regularly scheduled Jewish, Catholic, and Protestant services and activities which are open to all. Religious and personal counseling services for students of these and other denominations also are provided through the Interfaith Center. The Catholic ministry offers a Newman Club for students, and religious and social services and activities in a Catholic "parish" atmosphere for the campus community.

United Ministries in Higher Education on Long Island, the ministry of six Protestant denominations, conducts a project-oriented ministry which seeks to promote a creative, reciprocal interaction between campus, church and community-at-large in the service of human needs from the perspective of the communities of faith it represents. The B'nai B'rith Hillel Foundation offers religious social and cultural services as well as personal counseling for students and faculty. It is the umbrella organization for all the Jewish activities at Stony Brook.

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

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 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.

Stony Brook Union

The Stony Brook Union is the campus center for social, recreational and cultural activities at Stony Brook. It was designed to provide space for non-academic activities which enhance the academic environment. It is open to all students, faculty and staff members.

The Union is a place to relax, to gather with friends. It is a place to take in a film or a concert, or to watch TV. You can take a craft or photography course, browse through the bookstore, buy records at discount prices, have your hair cut, bowl, play billiards, eat a quick snack or enjoy a leisurely meal.

The all-volunteer Union Governing Board (UGB), composed of student, faculty and staff members, develops policies and programs for the facility. Current UGB programs include the "Tuesday Flicks" and "Midday Classics" film and concert series. The UGB also sponsors cultural events, film festivals and

crafts fairs. The committees are open to all, and new members are welcome. The UGB office is in Room 266.

The Union has space for all kinds of events. There are ten meeting and conference rooms. The auditorium seats 365, and the ballroom can accommodate up to 600. The Art Gallery displays the works of campus and community artists, and is open weekdays for browsing.

The Union has hosted China Week, Caribbean Week, Handicapped Awareness and Career Development symposiums, activity and club fairs, and more.

The University Information Center, located in the Union lobby, is a campus-wide resource center. Campus directory information, campus maps, bus and train schedules and concert, film and other events information are available. The Information Center's phone number is 246-3636.

In the Office of Student Activities in Room 271, professional staff members will assist you with the programming and staging of campus events.

The Master Calendar, the University's only daily publication, keeps the campus community informed of activities and deadlines. (Under new University policy, all campus activities must be registered with the Master Calendar Office.) Event registration forms are available in the department offices and in Room 266 of the Union. Copy deadline is 10:00 a.m. of the day preceding publication. Copies of the Master Calendar are delivered to more than sixteen key locations on campus.

The Faculty-Student Association (FSA) is located in Room 282. FSA operates many Union services—check cashing, SCOOP Records, food service, the meal plan office—and several eating places in the Union: Lackman Cafeteria, the Knosh Deli, the Cookie Clown Snack Bar, an ice cream parlor, and the End of the Bridge Restaurant and Cocktail Lounge.

The Rainy Night House, a student-run cafe, serves specialty teas, beer, brownies, and other delights. Often campus talent is booked to entertain patrons.

The Union Craft Center offers workshops in ceramics, photography, silk-screening, leatherwork and many other crafts. The non-credit classes are taught by professional and student staff, and are open to all. Fees are nominal. For information, call 246-3657.

The Union provides headquarters for many student groups such as Polity (the undergraduate student government), the Women's Center, the Gay Students Union, ENACT (Environmental Action) and NYPIRG (a consumer interest group).

The major student publications (*Statesman*, the student newspaper; *Specula*, the yearbook; *Soundings*, the campus literary magazine; *Stony Brook Press*, an alternative student newspaper; *Blackworld*; and *Fortnight*), the University radio station WUSB-FM (90.1), and the campus-wide audio-visual service all operate from the Union.

Further information about the Stony Brook Union or its services can be obtained by calling the Information Center at 246-3636, or the Union Director's Office at 246-7101.

Hours of Operation

During the fall and spring semesters, the Union is open Monday through Thursday, 8 a.m. to 1 a.m.; Friday, 8 a.m. to 2 a.m.; Saturday, 10 a.m. to 2 a.m.; and Sunday, 10 a.m. to 1 a.m. During recesses or intersession it is open Monday through Friday, 8 a.m. to 5 p.m., and is closed Saturday and Sunday.

Summer session hours are Monday through Friday, 8 a.m. to 8 p.m.; and Saturday and Sunday, 10 a.m. to 5 p.m. The Union is closed New Year's Day, Easter Sunday, Memorial Day, Independence Day, Labor Day, Thanksgiving and Christmas Day.

Note: Union hours are subject to change from year to year and even within the year. For building hours information, call 246-3636.

Gymnasium

The gymnasium building, which includes a swimming pool, large and small gyms, squash and handball courts, exercise and universal gym rooms and a dance studio, is open seven days a week from 8 a.m. to midnight except on the eve of a major holiday, when it closes at 4 p.m. The gymnasium is also closed on major holidays.

Other physical education facilities include tennis courts, a quarter-mile track and separate fields for baseball, softball, soccer and intramural football.

Most facilities may be used for recreational purposes when they are not scheduled for classes, intramural or intercollegiate events or special events. Current schedules of recreation hours may be obtained in the Physical Education Office. Hours are subject to change depending on availability of staff.

Services

Health Service

The University Health Service, located in the Infirmary, primarily concerns itself with student health needs. (It is available to facul-

ty and staff on an emergency basis only.) There is a registered nurse on duty in the Infirmary 24 hours a day. During the week there are scheduled hours for physicians; a physician is on call at other times. Specialty services, such as for gynecological or dermatological problems, are also available. For further information or help, call the Infirmary at 246-2273 (6-CARE).

Counseling Center

The University Counseling Center, located on the second floor of the Infirmary, provides individual, group, family and marital counseling and psychotherapy for students experiencing psychological difficulties. The Center also offers programs for personal growth and enrichment. For information, please call the Center at 246-2280, 2281 or 2282.

Veterans Affairs

The Office of Veterans Affairs provides counseling for veterans and veterans' dependents eligible to receive educational benefits. These students are urged to contact that office concerning their eligibility as soon as possible.

Foreign Student Affairs

The Office of Foreign Student Affairs assists students and faculty from other countries with finances, housing, government regulations (including immigration and tax matters), cross-cultural differences and other general matters. Questions relating to academics are usually handled by academic advisors within the individual's school or department. The staff also works with community groups and student organizations to provide a varied program of activities during the year, including tours and trips, discussion groups, home hospitality, speaking engagements and other events.

English as a Second Language

This program includes diagnosis and testing as well as classes aimed at raising students' ability to understand, speak, read and write standard English to the level of United States college students.

American Living Institute

Stony Brook offers a "Summer Institute for American Living," a program of courses and activities in American language and culture designed to meet the separate and special needs of

foreign scholars, their spouses and dependent children. Participants in the Institute attend classes, visit American homes and join excursions to urban, suburban and rural places of cultural and historic interest. Admission is open to all foreign students who have attained a high school education or its equivalent and to dependent spouses and children accompanying them.

Office for the Disabled

The Office for the Disabled coordinates services to disabled students and will assist them in application to the University, admission and orientation procedures. (The academic admission requirements and procedures for disabled students are the same as for all other applicants.) The Office will also help in the following areas: housing, meals, medical assistance (coordination with the Director of the University Health Service), recreation, academic needs and progress, special parking permits, facilities, financial aid and transportation.

A small Center for the Disabled, located in the Reserve Room of the Melville Library, emphasizes service to visually and physically disabled students and faculty. The Library also offers extra services such as special study carrels and a paging service in the stacks for disabled students.

It is strongly recommended that after admission, students who are disabled identify themselves prior to the start of classes. These students should call 246-7011 or 246-6051. An early start will permit the evaluation of possible problems and will provide time to work out solutions.

Child Care Services

The University has day care services for children ranging in age from two months to five years. There are three on-campus facilities staffed with professionals who are assisted by students enrolled in course work practice. Each of the three centers specializes in a particular age group and curricular approach. The centers are open from 7:30 a.m. to 6:00 p.m., and fees are charged on a sliding scale.

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 as-

pirations 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 credentials service is provided to support students in their application for jobs or further 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.

Honorary Societies

At Stony Brook, local chapters of national honorary societies provide recognition for outstanding academic performance. The New York Alpha Beta Chapter of *Phi Beta Kappa* is devoted to the promotion of excellence in liberal arts and sciences. The *Sigma Xi* Chapter honors achievement in pure or applied scientific research. The New York Omicron Chapter of *Tau Beta Pi* recognizes academic excellence in and service to the engineering profession.

Various disciplines have chapters on campus to foster scholarship in specific academic fields. These chapters include the Phi Chapter of *Alpha Kappa Delta* (sociology), Theta Mu Chapter of *Eta Kappa Nu* (electrical engineering), Xi Chapter of *Omicron Delta Epsilon* (economics), Sigma Tau Chapter of *Omicron Kappa Upsilon* (dentistry), Stony Brook Chapter of *Phi Alpha Theta* (history), Sigma Mu Chapter of *Phi Sigma Iota* (romance languages), Delta Chapter of *Phi Sigma Tau* (philosophy), Eta Theta Chapter of *Pi Sigma Alpha* (political science) and Delta Nu Chapter of *Sigma Gamma Epsilon* (earth sciences).

Two additional groups at Stony Brook are *Chi Epsilon Delta*, continuing education honor society, and *Sigma Beta*, freshman honor society.



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.

| <i>Charge or Fee</i> | <i>First Semester</i> | <i>Second Semester</i> | <i>Year</i> |
|---|-----------------------|------------------------|-------------|
| <i>Tuition</i> | | | |
| <i>Full-time graduate student</i> | | | |
| N.Y. State resident | \$ 700.00 | \$ 700.00 | \$1,400.00 |
| Out-of-state resident | 900.00 | 900.00 | 1,800.00 |
| <i>Part-time graduate student (11 credits or less)</i> | | | |
| N.Y. State resident, per semester credit hour | 58.50 | 58.50 | |
| Out-of-state resident, per semester credit hour | 75.00 | 75.00 | |
| <i>Professional schools (Medicine, Dental Medicine)</i> | | | |
| N.Y. State resident | 1,650.00 | 1,650.00 | 3,300.00 |
| Out-of-state resident | 2,420.00 | 2,420.00 | 4,840.00 |
| <i>Part-time professional schools (11 credits or less)</i> | | | |
| N.Y. State resident, per semester credit hour | 137.50 | | |
| Out-of-state resident, per semester credit hour | 201.75 | | |
| Fifth Pathway | 2,250.00 | 2,250.00 | 4,500.00 |
| <i>College Fee</i> | | | |
| Full-time graduate student | 12.50 | 12.50 | 25.00 |
| Part-time graduate student, per credit | .85 | .85 | |
| <i>Housing</i> | | | |
| Advance room deposit* | | | 75.00 |
| Double occupancy, per person | 475.00 | 475.00 | 900.00 |
| <i>Board</i> Fee to be announced | | | |
| <i>Activity Fee^c (full-time students, except professional)</i> | | | |
| | 10.00 | 10.00 | 20.00 |
| <i>Cooking Fee (Residents not on Board Plan)</i> | | | |
| | 50.00 | 50.00 | 100.00 |

*Applied to first semester housing charges.

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

| | |
|---|-----------|
| <i>Lost Identification Card</i> | 3.00 |
| <i>Late Registration Fee</i> ^a | 20.00 |
| <i>Transcript Fee</i> ^b | 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 may be payable to "SUNY at Stony Brook." Post-dated checks are not acceptable. Visa or Master Charge payments may be made in person or by mail. Mail payments must include an Authorization for Use of Visa/Master Charge form. Students with approved tuition waivers, room waiver or activity fee waiver forms should submit those forms in lieu of payment. Graduate teaching assistant tuition waivers may be reduced by the amount of the Tuition Assistance Program Award (TAP).

Students making payment on or after the first day of classes or 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. Award checks will be applied to outstanding balances owed to the University and any excess funds will be refundable to the student. 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. *Tuition Assistance Program (TAP)*: All eligible New York State residents are required to file for Tuition Assistance Awards. Incoming students and students who have not received

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

b The first one is free.

their application form by June 11 should immediately obtain the application form from the Financial Aid Office. (Students should apply for all awards at the earliest possible date, preferably no later than June 10, if they expect to receive award certification from the Higher Education Services Corporation 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.)

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. The Financial Aid Office will return the deferment copy of the award letter, which should be presented along with a notarized power of attorney form to the Bursar's Office. Deferment will be granted upon presentation of the award letter and a notarized power of attorney form 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. Veterans whose educational benefits are paid directly to the University should 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 deferment of payment 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 stipend. 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.

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, State University of New York at Stony Brook, Long Island, New York 11794. Include 1) your full name, 2) your I.D. (Social Security) number, 3) your complete current address, 4) your dates of attendance at Stony Brook, 5) the exact name, office, institution and complete address, including zip code, to which the transcript is to be sent, and 6) 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

University Residence Halls

A limited number of both single and double occupancy rooms is 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 foreign and American graduate and undergraduate 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 \$800 for the academic year.

Housing Charges

The rent for each person sharing a double occupancy room is \$800 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 an application in writing which must be received by the Office of Residence Life before July 1.

Apartment Complex

A new apartment complex designed specifically for graduate and married students is scheduled to open in fall 1980. Rates for these apartments have not yet been established, but it is anticipated that they will be comparable to current University housing rates. For more information, contact the Office of Residence Life, 138 Administration Building.

Off-Campus Housing

The Off-Campus Housing Office provides information concerning rentals of rooms, apartments and houses within a fifteen-mile radius of the University. All landlords listing property with the University must sign a statement assuring non-discriminatory practices; listings do not become available until such assurance is received. The Off-Campus Housing Office and the University may not become parties to landlord-tenant disputes.

The common price per month for a furnished room is \$115-\$170. Kitchen privileges are sometimes included in this price. Rooms available in houses rented by other students are also listed. That is, arrangements can sometimes be made to share a complete house for \$90-\$175 per month plus a percentage of the utilities cost.

Apartment listings cover those available in standard apartment building complexes and those available in private homes. The usual rental rate of a studio apartment (one large room, bathroom, closets, kitchenette) in a house is approximately

\$200–\$250 per month. A studio apartment in one of the apartment facilities is usually \$225–\$280. Apartments in housing complexes usually provide more space and privacy. A conventional one-bedroom apartment, including living room, dining room, kitchenette, bathroom and closet space, usually ranges in price from \$300–\$360 per month. Utility costs, except electricity, are often included in the price.

There are also listings for house rentals in the area. These rentals range from \$250–\$550 per month, not including utilities. The price depends on the number of rooms in the house and the distance from the campus.

Student Health Insurance

Student Health Insurance is available on a 12-month (September through August) basis. Students should contact the Student Health Insurance Office in the Infirmary for further information on coverage and payment.

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, 254 Administration Building, State University of New York at Stony Brook, Long Island, New York 11794. 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/Registrar. A withdrawal card available at the Registrar's Office must be completed and returned to that office on the date of withdrawal. To expedite a refund the Student Accounts copy of the withdrawal card should be submitted with the 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.

Refund of 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*. Refund requests for room must be accompanied by verification of the move-out date by the University Office of Residence Life. Cooking fee will be refundable if the student has enrolled in the Meal Plan. The amount of such refund is to be determined by University policy in effect at the time.

Refund of Student Activity Fee

As determined by 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 Refunds

Meal Plan refund requests must be made in writing to the Faculty Student Association, Stony Brook Union, State University of New York at Stony Brook, Long Island, New York 11794.

Advance Housing Deposit Refunds

Request for refund of the \$75 advance housing deposit, which is applied to first semester housing charges, will be granted if application is made in writing before July 1.

Refund of College Fee, Late Registration Fee and Lost ID Card Fee

These fees are not refundable.

Refunds Caused by Overpayment or Processing Errors

Refunds of amounts paid will be made when a student overpays University fees or when the student pays fees which are erroneous.

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 materials, including letters of recommendation and transcripts, have 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 (\$5137) for the academic year. If a student receives tuition assistance from an outside source, the maximum tuition waiver available will be limited to the unpaid portion of the tuition.

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 up to \$5137 for the academic year. Normally all trainees qualify for a tuition waiver in addition to the stipend.

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 \$7500 for the calendar year and a full tuition waiver. Applications and additional information may be obtained from the Fellowship Committee, Marine Sciences Research Center.

William W. and James W. Catacosinos Fellowship in Computer Sciences

The Catacosinos Fellowship is awarded annually to the graduate student at the State University of New York at Stony Brook who has made the most outstanding contribution during the preceding year in the field of computer sciences, including applications of techniques of computerization in any academic discipline or in business.

The fellowship carries a stipend of \$7,000 for 12 months and is open to new and continuing full-time graduate students enrolled in any of the University's Ph.D. programs. The fellowship is administered by the Stony Brook Foundation.

Intercampus Doctoral Fellowships

The Intercampus Doctoral Fellowship Program was established by the SUNY Doctoral Council in the 1977-78 academic year to encourage doctoral students within SUNY to take advantage of faculty and special program opportunities available at the other

University Centers and cooperating institutions in the State of New York. The fellowships are funded at \$5,000 for the academic year (or \$2,500 for one semester) plus full waiver of tuition.

Applications are open to graduate students who have been formally admitted to a doctoral program and have completed at least two full semesters of graduate study at Stony Brook as of the beginning of the proposed period of study. Applications are not encouraged from students who will already have completed all coursework for the Ph.D. degree, who have already passed comprehensive examinations and who are engaged solely in the research and writing of the dissertation.

Friends of Sunwood Graduate Music Award

The Friends of Sunwood Graduate Music Award is sponsored by the Friends of Sunwood, a non-profit organization, and is open to any full-time graduate students in music at the State University of New York at Stony Brook. The award is given in recognition of excellence in solo performance and will carry with it a monetary award and an opportunity to perform in the Friends of Sunwood Sundays at Five concert series.

Mildred and Herbert Weisinger Fellowship Award

The Stony Brook Foundation presents the Mildred and Herbert Weisinger Fellowship Award annually in the amount of \$250. This award is made to a graduate student in financial need so that he or she may complete a dissertation which otherwise would be delayed. The dissertation must bear scholarly promise.

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 \$3725 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 (NSF). 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: Fellowship Office, National Academy of Sciences, National Research Council, 2101 Constitution Avenue, N.W., Washington, D.C. 20418.

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 biological and medical sciences are eligible to apply for a Brookhaven National Laboratory Research Associate award. These awards carry stipends of \$5000 for the academic year with waiver of tuition.

Tuition Assistance Program

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 Tuition Assistance Program (TAP) Awards whether or not they receive tuition waivers. The award carries amounts of \$100 to \$600 per year depending upon financial need. Applications may be obtained from the Financial Aid Office, each departmental office or the Graduate School. Graduate teaching assistants' tuition waivers may be reduced by the amount of the Tuition Assistance Award.

Application Procedures

Applicants must apply annually to the New York State Higher Education Services Corporation (HESC), Albany, NY 12255. The application deadline for the 1979–80 academic year was March 31, 1980. Application forms were mailed, beginning in April 1979, to all: (1) students who applied for a TAP grant or Regents Scholarship award in 1978–79; (2) high school seniors who applied for a 1979–80 Regents Scholarship; (3) approved post-secondary institutions and high schools in New York State, and (4) central admissions applicants of the State University of New York (SUNY) and The City University of New York (CUNY). Any student or prospective student can obtain a TAP application from any high school guidance office, or college financial aid office.

Before submitting the application, the applicant should review it with the high school counselor or college financial aid officer, especially if there have been questions relating to completion of the application.

The Higher Education Services Corporation determines the applicant's eligibility and mails an award certificate directly to the applicant indicating the amount of the grant. The applicant presents the Institutional Copy of the certificate at the time of payment of tuition. The postsecondary institution *may* defer payment on the basis of receipt of the award certificate. Actual payment is received after the school certifies student eligibility.

Selection of Recipients and Allocation of Awards

Tuition Assistance Program is an entitlement program. There is neither a qualifying examination nor a limited number of awards. The applicant must: (1) be a New York State resident and a U.S. citizen;* (2) be enrolled full time and matriculated at an approved New York State postsecondary institution and program; (3) have, if dependent, a family net taxable income below \$20,001, or if independent and single with no tax dependents, a net taxable income below \$5,667; and (4) be charged a tuition of at least \$200 per year. All income data are subject to verification by the New York State Department of Taxation and Finance.

The current definition of independent status is as follows:**

- 1) 35 years of age or older on July 1, 1979; or

*Or a permanent resident alien, paroled refugee or conditional admittant to the United States.

**Independent status under the State definition does not necessarily insure independent status for Federal aid programs.

- 2) 22 years of age or older on July 1, 1979 and not:
 - a) resident, for more than 2 consecutive weeks in calendar years 1978, 1979, 1980, in any house, apartment or building owned or leased by parents
 - b) claimed as a dependent by parents on their Federal or State income tax returns for 1978 or 1979,
 - c) recipient of gifts, loans or other financial assistance in excess of \$600 from parents in calendar years 1978, 1979, 1980, or
- 3) under 22 years of age on July 1, 1979 and meeting all other requirements of (2) above, and in addition able to meet at least one of the following requirements:
 - a) both parents deceased, disabled or incompetent,
 - b) receiving public assistance other than Aid to Dependent Children (ADC) or food stamps,
 - c) ward of a court,
 - d) unable to ascertain parents' whereabouts,
 - e) unable, due to an adverse family situation, to submit information on parents' income.

Graduate students are exempt from the 22-year-old minimum age requirement in provision (2) above in determination of financial independence.

Undergraduate students may generally receive TAP awards for four years of study. Students enrolled in approved five-year programs, or in a State-sponsored opportunity program, may receive undergraduate awards for five years. Graduate students may receive awards for four years. No student (including opportunity students) may receive awards for more than a total of eight years of undergraduate and graduate study.

Award Schedule

The amount of the TAP award is scaled according to level of study, tuition charge, and net taxable income.* Four award schedules are in effect, as shown in the following table. These awards are examples, and are based on the payment schedule as of October 1, 1979.

*The income measure is the family's (or independent student's) State net taxable income from the preceding tax year plus certain nontaxable income, and (for dependent students) support from divorced or separated parents. This income is further adjusted to reflect other family members enrolled full time in postsecondary study.

Example Awards for the Tuition Assistance Program (TAP)
as of October 1, 1979

| Income (Net Taxable Balance) | UNDERGRADUATE | | | | GRADUATE Awards for all Annual Tuitions Greater Than \$600 | |
|------------------------------------|--|----------|--|----------|---|---|
| | Schedule C (Dependent or Married) Annual Tuition | | Schedule E (Independent and Single) Annual Tuition | | Schedule B Dependent or Married | Schedule D Independent and Single |
| | \$925 | \$1,800* | \$925 | \$1,800* | | |
| \$0- 1,000 | \$925 | \$1,800 | \$925 | \$1,800 | \$600 | \$600 |
| 2,000 | 925 | 1,800 | 625 | 1,500 | 600 | 350 |
| 3,000 | 910 | 1,795 | 325 | 1,200 | 534 | 100 |
| 4,000 | 850 | 1,725 | 200 | 900 | 467 | 100 |
| 5,000 | 790 | 1,665 | 200 | 600 | 400 | 100 |
| 6,000 | 720 | 1,595 | -0- | -0- | 334 | -0- |
| 7,000 | 650 | 1,525 | -0- | -0- | 267 | -0- |
| 8,000 | 580 | 1,455 | -0- | -0- | 200 | -0- |
| 9,000 | 500 | 1,375 | -0- | -0- | 134 | -0- |
| 10,000 | 420 | 1,295 | -0- | -0- | 100 | -0- |
| 11,000 | 340 | 1,215 | -0- | -0- | 100 | -0- |
| 12,000 | 240 | 1,115 | -0- | -0- | 100 | -0- |
| 13,000 | 200 | 1,015 | -0- | -0- | 100 | -0- |
| 14,000 | 200 | 915 | -0- | -0- | 100 | -0- |
| 15,000 | 200 | 795 | -0- | -0- | 100 | -0- |
| 16,000 | 200 | 675 | -0- | -0- | 100 | -0- |
| 17,000 | 200 | 555 | -0- | -0- | 100 | -0- |
| 18,000 | 200 | 415 | -0- | -0- | 100 | -0- |
| 19,000 | 200 | 275 | -0- | -0- | 100 | -0- |
| 20,000 | 200 | 200 | -0- | -0- | 100 | -0- |
| OVER \$20,000 | -0- | -0- | -0- | -0- | -0- | -0- |

*These maximum \$1,800 awards apply only to those first receiving TAP during or after the 1977-78 academic year; all others are eligible for a maximum award of \$1,500.

NOTE: TAP awards are reduced by \$200 per year for Schedule C and Schedule E students who have received four or more payments.

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. 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.

National Direct Student Loan Program (NDSL)

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.

Application Procedures

Application is made through the postsecondary institution financial aid office. Forms, as well as specialized information on loan cancellation provisions for borrowers who go into certain fields of teaching or specified military duty, are available from this source.

Selection of Recipients and Allocation of Awards

Loans are available to students enrolled at least half-time in approved postsecondary institutions.

Award Schedule

Amounts which may be borrowed are: \$2,500 by students who have completed less than two years of a program leading to a bachelor's degree or who are enrolled in a vocational program; \$5,000 by students who have completed two years toward a bachelor's degree, to include any amount borrowed through an NDSL for the first two years of study; \$10,000 for graduate study, to include any amount borrowed through an NDSL for undergraduate study.

Responsibilities of Recipients

Continued eligibility is dependent on maintenance of satisfactory academic progress. The current interest rate, payable dur-

ing the repayment period, is 3 percent on the unpaid principal. Repayment begins 9 months after graduation or leaving school, and may extend over a period of 10 years. Payment is not required for up to three years of active U.S. military service, or service in the Peace Corps, VISTA, or similar national program.

Guaranteed Student Loan Program

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 ½% loan fee charged at disbursement, and repayment at 8% interest begins 9 months after the student leaves school.

Application Procedures

The student should obtain a loan application from a participating New York State lending institution (bank, credit union, etc.) in his/her area of permanent residence. The completed application is presented to the financial aid officer at the postsecondary institution being attended. The application is then routed to the lending institution and the Higher Education Services Corporation.

A counseling session or an interview, or both, may be required. When the loan is approved, a promissory note is signed by the student. For the school year beginning in the fall, funds may not be disbursed earlier than August 1.

Selection of Recipients and Allocation of Awards

To be eligible for a guaranteed loan a student must be: (1) a U.S. citizen or permanent resident alien; and (2) enrolled in or admitted as a matriculated, at least half-time, student at an approved college, university or other postsecondary institution in any of the United States or in a foreign country.

Loan Schedule

An undergraduate may borrow up to \$2,500 per class year, up to a total of \$7,500.

A graduate student may borrow up to \$5,000 per class year, up to a combined total of \$15,000 *including* any loans for undergraduate study.

A student enrolled in a vocational school approved by the U.S. Office of Education may borrow up to \$2,500 per school year. A student enrolled in a vocational school not approved by the U.S. Office of Education may borrow up to \$1,500 per school year provided that the vocational school has been approved by the Regents of The University of the State of New York and the school has made a loan agreement with the New York State Higher Education Services Corporation.

Students enrolled in programs of medicine, dentistry, veterinary medicine, podiatry, optometry and pharmacy may receive a State-guaranteed loan of up to \$7,500 annually, for a total of \$30,000. An annual insurance premium of one-half percent of the loan amount is payable in full at the time the check is issued. This information is shown in the following table.

Every student is eligible for a full interest subsidy during the time he/she is in school, and for a following 9-month grace period.

*Maximum Amounts a Student May Borrow
Through Guaranteed Student Loans*

| <i>Level and Type of Program</i> | <i>Annual Amount</i> | <i>Aggregate</i> |
|----------------------------------|----------------------|------------------|
| Undergraduate | \$2,500 | \$ 7,500 |
| Graduate and Professional | 5,000 | 15,000* |
| Selected Health | | |
| Professional | 7,500 | 30,000** |
| Vocational, USOE Approved | 2,500 | 7,500 |
| Vocational, NYSED | | |
| Approved | 1,500 | 7,500 |

Responsibilities of Recipients

A student may borrow at a relatively low interest rate (currently 7 percent) with no repayment as long as he/she remains enrolled at least half-time, and for 9 months after he/she ceases to be at least a half-time student. Payment of principal may further be deferred during study under a graduate fellowship program approved by the U.S. Commissioner of Education, during up to three years of active U.S. armed forces service, during up to three years as a full-time Peace Corps or VISTA or similar national program volunteer, or during up to 12 months of unsuccessful search for full-time employment.

*Including undergraduate loans

**Including National Direct Student Loans

If a student applies for an additional loan, application must be made to the original lending institution.

Four months after ceasing to be at least a half-time student, the borrower must make formal arrangements with the lending institution to begin repayment. The following regulations apply:

- 1) Depending on the amount of the loan, the minimum monthly payment will be \$30 plus interest. Under unusual and extenuating circumstances the lender, on request, may permit reduced payments.
- 2) The maximum repayment period is 10 years.
- 3) The maximum period of a loan from date of the original note may not exceed 15 years, excluding authorized deferments of payments.
- 4) Repayment in whole or part may be made at any time without penalty.

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 |

College Work-Study (CWS) Program

Application Procedures

Application is made through the postsecondary institutional financial aid office. Eligibility is determined and work arrangements made at this point.

Selection of Recipients and Allocation of Awards

The applicant must be enrolled at least half-time in an approved postsecondary institution.

An institution must make employment reasonably available to all eligible students in the institution who are in need of financial aid. In the event that more students are eligible for CWS than there are funds available, preference is given to students who have great financial need and who must earn a part of their educational expenses.

Award Schedule

The postsecondary institution arranges jobs on campus, or off campus, with public or private nonprofit agencies, such as hospitals, for up to 40 hours per week.

Factors considered by the financial aid office in determining whether, and how many hours, the recipient may work under this program are financial need, class schedule, academic progress and health status.

Level of salary must be at least 80 percent of the minimum wage; maximum wage is dependent on the nature of the job and the applicant's qualifications.

Responsibilities of Recipients

Satisfactory academic progress must be maintained.

Note

Eligibility for SEOG, NDSL and CWS is determined on the basis of a uniform methodology and by means of the same application form, available from the financial aid office of the postsecondary institution.

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 15.

Further Information on Financial Assistance

Students seeking more detailed information on the above-mentioned and other programs of financial assistance may refer to *Standard Current Descriptions of State and Federal Student Financial Assistance Programs*. This booklet is available from the office of the Deputy Commissioner for Higher and Professional Education, The University of the State of New York, State Education Department, Albany, New York 12230 (telephone 518-474-5091).

Other Expenses

Food

The University, through a food service contractor, provides several meal plan options. Meals are served at three dining halls located in the residential areas. The options currently include a Five Meal, a Ten Meal, a Fifteen Meal and a Nineteen Meal Plan, offered for 16 weeks. For fall 1980 costs will range from \$440 for

the minimal plan to \$558 for the maximal plan. Similar plans will be offered in coming years but prices cannot now be predicted. It is expected, however, that future price ranges will not vary greatly from those now in effect, barring unforeseeable inflationary effects.

The residence dining halls also offer meals on a cash basis at prices, depending on the meal and the selection, currently ranging from about \$2.50 to \$6 per meal. Dining halls are open daily but hours of operation vary from year to year. The student is urged to consult dining hall staff for hours applicable during his/her residency.

In addition to the dining halls, the food service contractor operates a restaurant and several cafeterias. The End of the Bridge restaurant in the Stony Brook Union is open for lunch 11:30 a.m. to 2:30 p.m., Monday to Friday; prices range from \$2.50 to \$5.50 per meal. The Union Cafeteria is open Monday to Thursday from 8 a.m. to 9 p.m.; on Friday from 8 a.m. to 5:30 p.m.; and on weekends from 10:30 a.m. to 7:30 p.m. Prices range from \$1.50 to \$3.50 per meal.

There are other eating establishments on campus, some student operated, that offer everything from snacks to complete meals. Prices are generally comparable to those given above. Hours of operation vary from place to place and it is best to inquire at orientation or after arriving on campus.

Resident students who do not sign up for a meal plan are required to pay a cooking fee of \$25 per semester. Students who elect to do this may expect to spend between \$25 and \$35 a week for food.

The area immediately around the campus has several eating places, of differing quality and degree of accessibility. Most are reasonably priced.

Books and Supplies

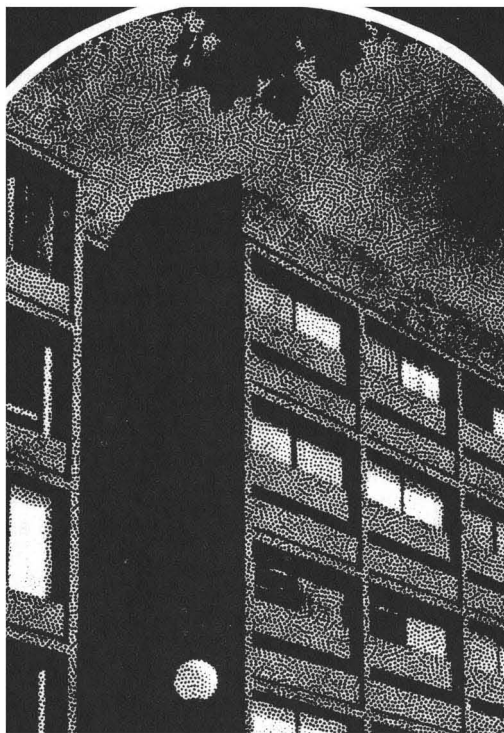
The average estimated expense is \$255 for 9 months (September-May). This figure is included in the basic student aid budget.

Miscellaneous Expenses

The average estimated personal expense is \$500 for 9 months. This figure is used for the basic student aid budget.

Travel Expenses

The average estimated expense is \$190 for 9 months on campus for a student residing in a dorm. The average estimated expense is \$1040 for 9 months for a student residing with parents and commuting to the campus. These amounts are also used for the basic student aid budget.



Applicants may be admitted to the Graduate School to pursue the M.A., M.M., M.S., D.A., D.M.A. or Ph.D. degree. To be considered for admission, all students must complete and submit the following:

- A. An official graduate application form.
- B. Three letters of recommendation.
- C. Two official copies of all previous college transcripts.

(Transcripts of both undergraduate and graduate work must be submitted. If a student attended a junior college and these credits are not listed on the senior college transcript with grades, a separate junior college transcript is required.) If transcripts are in a foreign language, certified English translations are required.

D. Scores from the Graduate Record Examination Aptitude Test (some programs also require the advanced test).

E. Proficiency of English for international students (see "Foreign Students" section).

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. A baccalaureate degree is required, and the student must present evidence that such a degree will be awarded by the time he or she begins graduate work.

The undergraduate major will ordinarily be in the chosen field of graduate study with 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.

Provisional Admission

Departmental recommendation and Graduate School approval are required for provisional admission. The departments may set conditions which the provisionally admitted student must satisfy during the early period of graduate work. Normally these conditions include at least two graduate courses in which the student must obtain grades of B or better in the first semester.

Additional Admission Requirements

Additional admission requirements are listed in each departmental section of this *Bulletin*. Admission application forms 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, Long Island, New York 11794. *No application fee is required.*

Students interested in applying to the Center for Continuing and Developing Education's Master of Arts in Liberal Studies program should consult the information described later in this *Bulletin*.

Foreign Students

English Proficiency

Students from non-English speaking countries are expected to read, write and speak English and comprehend the spoken language. Applicants whose first or native language is not English or who have pursued their higher education in a non-English speaking country must demonstrate proficiency in English. This is required as part of the application process. Proficiency can be demonstrated by presenting acceptable scores on the Test of English as a Foreign Language (TOEFL). This test is given at centers throughout the world on several dates each year. The testing schedule and registration information may be obtained by writing to TOEFL, Educational Testing Service, Princeton, New Jersey 08540. Admission to the Graduate School is contingent upon satisfactory fulfillment of the English proficiency requirement. A student must have a minimum score of 500 for admission and 550 for most forms of support. Exceptions to these requirements are rare, and only with the approval of the Dean of the Graduate School.

Financial Verification

Non-United States applicants must also provide the University with verification that the necessary funds are available to finance their education at Stony Brook. The University Form SUSB 1202 must be submitted for this purpose before I-20 documents are sent to the student.

I-20 and I-94 Documents

Government regulations require that every foreign student attend the institution issuing the I-20 used for entry into the United States. Transfers are possible but only if a student can show that he or she has been enrolled at the original institution and then only with the appropriate clearances from Immigration and the institutions concerned. International students on student visas may not be part-time. The State University of New York at Stony

Brook defines a full-time student as one who is currently registered for twelve or more credits a semester.

Student Status

Part-Time Students

Part-time students admitted to the Graduate School will register for no more than eleven credit hours per semester. The proportion of full-time to part-time students is left to the departments, in consultation with the Dean of the Graduate School. Part-time students are classified as either 91 code (fewer than 24 graduate credits earned) or 92 code (more than 24 graduate credits earned). 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 twelve or more credit hours per semester. Responsibility for certifying the full-time status of graduate students rests with the Office of Records/Registrar. A graduate traineeship is considered part of the academic program; therefore, a graduate student on regular appointment will be a full-time student and will register for twelve credit hours. Registration for twelve or more credit hours includes credits for supervised teaching and research. Full-time graduate students are classified as either 91 code (fewer than 24 graduate credits earned) or 92 code (more than 24 graduate credits earned). Students in programs in which the highest degree offered is the master's may not be classified as 92 code.

Graduate Record Examination

The Graduate Record Examination Aptitude Test is required of all prospective graduate students, except part-time master's candidates. Several departments also require the Advanced Area Tests. Please refer to the admission requirements for the specific department of interest. Students who have taken the GRE should request the Educational Testing Service to forward their scores directly to the Graduate School or to the departments or Schools to which they are applying. Part-time master's students who change their status will be required to take the examination.

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 but are not permitted to earn graduate credit. Graduate courses taken while an undergraduate remain part of the undergraduate record, except in *approved* combined five-year bachelor's/master's programs.

and Procedures



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.

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, composed 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 SUSB Senate from each of the following groups: Arts and Humanities, Behavioral Sciences, Biological Sciences, Engineering Sciences, Mathematical Sciences, Physical Sciences, Social Sciences; two faculty members from the Health Sciences; one faculty member of the Library elected by the Library faculty; one member elected by core campus non-teaching professionals; and a graduate student representative chosen by the Graduate Student Organization. Elected faculty members 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.

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.

Late Registration

Registration after the close of the announced final registration period in the academic calendar requires the payment of a late registration fee 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 Office of Records/Registrar and arrangements regarding tuition and fees have been made with the Bursar's Office.

Course Changes

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 Office of Records/Registrar provided the proposed change does not alter the student's status as defined in "Student Status." Courses dropped in this period are deleted from the student's semester registration record. For courses dropped during the first four weeks, tuition is charged at the rates specified in "Schedule of Tuition Liability," page 41. 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. If a petition is approved, courses remain on a student's record and a withdrawal grade of W is recorded.

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 Office of Records/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 the 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 providing 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 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.

Transfer Credits

A. From Other Universities

1. A candidate for the master's degree may petition to transfer a maximum of six graduate credits from another institution toward his or her master's degree.

2. These credits must be from an institution that is authorized to grant graduate degrees by recognized accrediting commissions.

3. Credits must not have been used to fulfill the requirements for either a baccalaureate or another advanced degree.

4. Credits must not be more than five years old at the time the student is admitted to graduate study at Stony Brook. Courses older than five years will be accepted only in rare circumstances.

5. Credits must clearly be graduate level. A course listed as both graduate and/or undergraduate level will not be considered for transfer.

6. Credits must carry the grades of A or B. "Pass" or "Satisfactory" grades are not transferrable unless these grades can be substantiated by the former institution as actually B or better.

7. Work from one master's degree is not transferrable to a second master's degree.

8. A candidate for the doctoral degree may transfer those graduate credits which are allowed by the appropriate departmental committee.

B. From Stony Brook

1. A maximum of twelve graduate credits from non-degree graduate status to matriculated graduate degree status at Stony Brook can be transferred at the discretion of the academic department and with the approval of the Graduate School.

2. If a student transfers six graduate credits from another institution, only six graduate credits from the non-degree graduate status at Stony Brook can be transferred to matriculated graduate degree status.

Students who wish to petition for transfer credit should submit the Transfer Credit Request Form (SUSB 1343) along with an official copy of the transcript to their departmental committee for review. Departmental recommendation is needed before submission to the Graduate School for final approval.

Policies concerning the transfer of credit into the Center for Continuing and Developing Education can be found on page 157.

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 Office of Records/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 Office of Records/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.

Grades other than Incompletes appearing on a student's academic record may not be changed after one calendar year from the end of the term in which the grade was incurred.

Auditing

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

Student Educational Records

The Family Educational Rights and Privacy Act permits current or former students to inspect and review their educational records. Students are also accorded the right to a hearing in order to question the contents of their educational records. Written consent of students may be required before personally identifiable information about them will be released from their educational records as provided by law.

Specific guidelines and procedures are contained in PR-106, "Compliance with Family Rights and Privacy Act," contained in the Administrative Organization, Policies, and Procedures Manual of the University. A copy of this manual is available in the Reference Room of the Melville Library.

After administrative remedies available at the University have been exhausted, inquiries or complaints may be filed with the Family Educational Rights and Privacy Act Office, Department of Health, Education and Welfare, 330 Independence Avenue, S.W., Washington, D.C. 20201.

Equivalent Opportunity/Religious Absences

Some students may be unable to attend classes on certain days because of religious beliefs. Section 224-a of the Education Law provides that:

1. No person shall be expelled from or be refused admission as a student to an institution of higher education for the reason that he or she is unable, because of religious beliefs, to attend classes or to participate in any examination, study or work re-

quirements on a particular day or days.

2. Any student in an institution of higher education who is unable, because of religious beliefs, to attend classes on a particular day or days shall, because of such absence on the particular day or days, be excused from any examination or any study or work requirements.

3. It shall be the responsibility of the faculty and of the administrative officials of each institution of higher education to make available to each student who is absent from school, because of religious beliefs, an equivalent opportunity to make up any examination, study, or work requirements which he or she may have missed because of such absence on any particular day or days. No fees of any kind shall be charged by the institution for making available to the said student such equivalent opportunity.

4. If classes, examinations, study or work requirements are held on Friday after four o'clock post meridian or on Saturday, similar or makeup classes, examinations, study or work requirements shall be made available on other days, where it is possible and practicable to do so. No special fees shall be charged to the student for these classes, examinations, study or work requirements held on other days.

5. In effectuating the provisions of this section, it shall be the duty of the faculty and of the administrative officials of each institution of higher education to exercise the fullest measure of good faith. No adverse or prejudicial effects shall result to any students because of their availing themselves of the provisions of this section.

6. Any student who is aggrieved by the alleged failure of any faculty or administrative officials to comply in good faith with the provisions of this section shall be entitled to maintain an action or proceeding in the supreme court of the county in which such institution of higher education is located for the enforcement of his or her rights under this section.

7. As used in this section, the term "institution of higher education" shall mean schools under the control of the Board of Trustees of the State University of New York, or of the Board of Higher Education of the City of New York, or any community college.

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 stan-

dards and academic honesty.

Withdrawal from the University

A student finding it necessary to withdraw from the University must obtain a withdrawal card from the Office of Records/Registrar. This card must be approved by the appropriate offices indicated on the card and by the Graduate School. The effective date of withdrawal is the date upon which the completed withdrawal card is returned to the Office of Records/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.

Students are urged to discuss all withdrawals with the Graduate Program Director of their department and with their academic advisor before such an action is taken.

Unauthorized Withdrawal

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

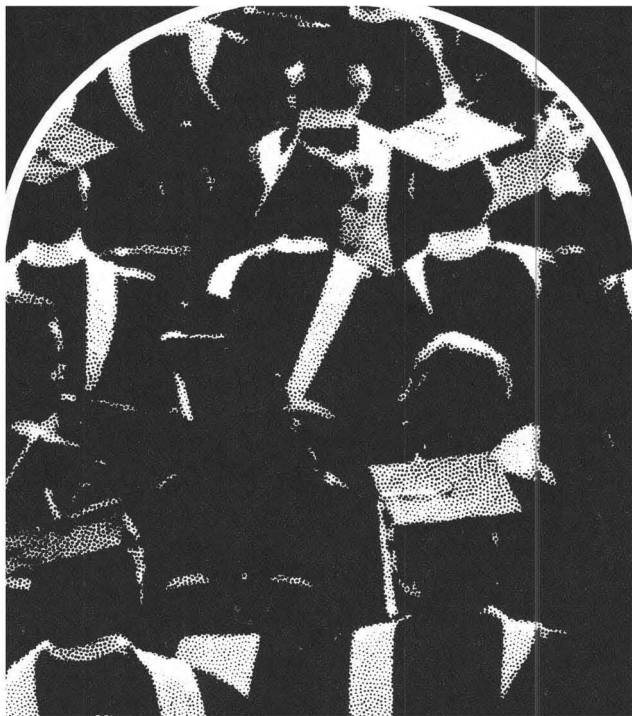
Leave of Absence

Leaves are granted for a maximum of one year at a time, renewable upon request for the second year. In order to request a leave, the student must have been registered for the preceding semester. Students who are admitted to graduate study but never register are not eligible for leaves. Requests for leaves of absence should be made on the Request for a Leave of Absence Form (SUSB 1341) and submitted to the Graduate Program Director of the 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.

Students who have either preregistered or are currently registered must also submit a withdrawal card as described in the section above.

Military leave of absence will be granted for the duration of obligated service to students in good standing.

Students planning to return from leaves should inform their departments and the Graduate School of their intention, preferably three months in advance of the term for which they wish to register. A current address should be given to the department and to the Graduate School.



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 a minimum 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 and 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 "Guide to the

Preparation of Theses and 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 and Developing Education (CED). Details of the program and degree requirements may be found on page 156-157. Additional information is available from the CED Office.

The Ph.D. Degree

1. *Minimum residence:* At least two consecutive semesters of full-time graduate study beyond the baccalaureate is required. 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 stu-

dent'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 "Guide to the Preparation of Theses and 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 who may not serve as advisor. 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:* The candidate must satisfy all requirements for the Ph.D. degree within seven years after completing twenty-four hours of graduate courses in the State University of New York at Stony Brook department or program in which he or she is to receive the degree. 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, satisfied any provisional admission 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 63.

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.



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. A Program in Creative Writing offers courses leading to a Master of Arts. 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 graduate studies 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 and of all doctoral applicants.
- F. Samples of the applicant's creative work (in the case of those applying for entrance to the Program in Creative Writing).
- G. Acceptance by both the Department of English and the Graduate School.

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 graduate 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. The two Pro-Seminars (Backgrounds for the Study of English Literature), as described on page 81 in "The Ph.D. Program in English," are required. 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 that faculty member 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 interrelated 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.

The qualifying examination, as described on page 82 in "The Ph.D. Program in English," must be taken and passed by all master's candidates in English.

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. Program in Creative Writing

Those admitted to the M.A. Program in Creative Writing must take six literature courses designated from our present traditional offerings but in no fewer than four areas of British or American literature. In addition, the candidate will take four writing courses, ordinarily two in each semester, from workshops in the following subjects: poetry, fiction, drama and non-fiction. Each candidate must take workshops in at least two areas.

Finally, the Master of Arts in Creative Writing requires an extended work of substantial literary merit—for example, eight or ten short stories, a novella, a novel, two one-act plays, a full-length play, a volume of poems, a filmscript—to be determined by the candidate and his or her committee. One distinction of this program is that the candidate begins the project under close supervision in the first rather than in the second year.

The M.A. Program 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 Interdisciplin-

ary 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. *Textual commentary.* 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.

H. Acceptance by both the Department of English and the Graduate School.

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; G.R.E. 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, or to proceed to the next stage, or to interrupt their studies in order to take the master's degree.

In the last 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. Students entering with the B.A. will normally take this examination in their third semester; students entering with the M.A. will be expected to take it during their first semester.

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. Training in teaching is stressed by the Department, and 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 offered through the Center for Continuing and Developing Education. During ap-

prenticeship and teaching, students will receive guidance in discussions with the Director of Writing Programs and the professors they assist, and advice from senior members of the department. They will participate in staff meetings of large courses, and in 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. This examination 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 Eighteenth 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 ap-

proved 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 from 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 exist at Stony Brook for further study in Comparative Literature and in the foreign languages departments.

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*, Ph.D., 1955, University of Chicago: Religion and literature; myth and imagination.
- Bashford, Bruce, *Assistant Professor*, Ph.D., 1970, Northwestern University: Literary criticism; rhetoric and the teaching of composition.
- 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., *Professor*,¹ Ph.D., 1955, University of Michigan: Prosody and poetic theory; modern intellectual history.
- Harris, William J., *Assistant Professor*, Ph.D. 1976, Stanford University: Black American literature; nineteenth-century American literature.
- Houle, Peter, *Assistant Professor*, Ph.D., 1972, University of Massachusetts: The Renaissance; medieval studies.
- Huffman, Clifford C., *Associate Professor*, Ph.D., 1969, Columbia University: The Renaissance; Shakespeare.
- Kott, Jan, *Professor*,¹ 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.

- Laurence, David, *Assistant Professor*, Ph.D., 1976, Yale University: Colonial and nineteenth-century American literature.
- Levin, Richard, *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, *Professor*,¹ 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.
- Rogers, Thomas, *Associate Professor and 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*,¹ 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, *Professor*,¹ 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, *Professor*, Ph.D., 1957, Columbia University: The literature of the twentieth century; prosody, literary criticism.

Wallis, Norman R., *Assistant Professor and 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, *Professor and Director of the Poetry Center*,¹ 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.

Zimbardo, Rose, *Associate Professor*, Ph.D., 1960, Yale University: The Restoration and the eighteenth century; the Renaissance; the modern drama.

Estimated number of teaching, graduate and research assistants, fall 1979: 68.

Faculty for Comparative Literature

The names and fields of specialization of other faculty members from the Departments of French, Germanic Languages and Literatures, and Hispanic Languages and Literatures, and who teach in the program in Comparative Literature, are:

Bieber, Konrad, *Professor*, Ph.D., 1953, Yale University: Eighteenth-century and contemporary French literature; comparative literature.

¹Joint appointment, Comparative Literature

- Fainberg, Louise Vasvari, *Associate Professor*, Ph.D., 1969, University of California, Berkeley: Medieval romance literature; romance philology.
- Fry, Joan, *Lecturer*, M.A., 1966, University of California, Berkeley: Classical archaeology; literature; history.
- George, Christopher, *Adjunct Associate Professor*, Ph.D., 1971, University of Pennsylvania: Indic studies.
- Godfrey, Aaron, *Lecturer*, M.A., 1960, Hunter College: Latin; medieval studies.
- Hathorn, Richmond Y., *Professor*, Ph.D., 1950, Columbia University: Myth; Classical drama; Classical languages.
- Karst, Roman, *Professor*, LL.M., 1936, Jagiellonian University, Cracow, Poland: Goethe; modern novel; Kafka; Mann.
- Petrey, D. Sandy, *Associate Professor*, Ph.D., 1966, Yale University: Nineteenth-century French literature.
- Rivers, Elias, *Professor*, Ph.D., 1952, Yale University: Spanish literature, literary theory.
- Rosen, Charles, *Professor*, Ph.D., 1951, Princeton University: Music; interdisciplinary studies in music, literature, art and philosophy.
- Silverman, Hugh J., *Assistant Professor*, Ph.D., 1973, Stanford University: Contemporary European philosophy; philosophy and literature; philosophical psychology.
- Schröter, Klaus, *Professor*, Ph.D., 1961, University of Hamburg, W. Germany: Literary theory; prose of the Weimar Republic; dialectical-materialistic aesthetics.
- Sjöberg, Leif, *Professor*, Ph.D., 1968, Uppsala University, Sweden: Scandinavian literature: Ibsen, Strindberg, Lagerkvist, Ekelof; Old Norse.
- Tejera, Victorino, *Professor*, Ph.D., 1956, Columbia University: Greek philosophy; aesthetics; philosophy of history and myth.
- Zavala, Iris M., *Professor*, Ph.D., 1962, Universidad de Salamanca: Seventeenth- to twentieth-century Peninsular Spanish and Caribbean literature.
- Zimmermann, Eléonore M., *Professor*, Ph.D., 1956, Yale University: Seventeenth-, nineteenth- and twentieth-century French literature; comparative literature.

Estimated number of teaching, graduate and research assistants, fall 1979: 9.

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:

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.

D. Acceptance by both the Department of French and Italian and the Graduate School.

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 or her 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 and French/Italian

The department offers two basic options: one to meet the needs of graduate students interested in a pre-Ph.D. program; and 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.
- Carpetto, George, *Assistant Professor*, Ph.D., 1973, Rutgers University: Fifteenth-century Italian humanism; romanticism.
- Cocco, Maria, *Assistant Professor*, Ph.D., 1976, University of California, Riverside: French and Italian Renaissance literature.
- Franco, Charles, *Assistant Professor*, Ph.D., 1977, Rutgers University: Italian Medieval literature with special emphasis on Dante.
- 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 Emeritus*, 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.
- Rizzuto, Anthony, *Associate Professor*, Ph.D., 1966, Columbia University: Nineteenth- and twentieth-century literature.
- Skubikowski, Hugh, *Assistant Professor*, Ph.D., 1979, Indiana

University: Dante; *Duecento* poetry; history of the Italian language; methodology.

Tursi, Joseph A., *Professor and Chairman*, 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, Eleonore M., *Professor*, Ph.D., 1956, Yale University: Seventeenth-century French drama; nineteenth-century literature, especially lyricism; twentieth-century drama.

Estimated number of teaching, graduate and research assistants, fall 1979: 11.

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.

G. Acceptance by both the Department of Germanic Languages and Literatures and the Graduate School.

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 | |
| | or | 3 |
| GER 526 | Analysis of an Uncommonly Taught Language | |
| 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.

| |
|----------|
| <u>6</u> |
| 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.)

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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, EGL 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 pro-seminars and seminars of the 500- and 600-series in a given semester will be described in announcements prepared and distributed before preregistration 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.

Bethin, Christina Y., *Assistant Professor*, Ph.D., 1978, University of Illinois: Slavic linguistics; general linguistics.

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.

Estimated number of teaching, graduate and research assistants, fall 1979: 23.

Department of Hispanic Languages and Literature

The Department of Hispanic Languages and Literature offers different programs leading to the degrees of Master of Arts, Doctor of Arts and Doctor of Philosophy. Part-time study is permitted; some graduate courses are offered during the late afternoon and in the summer session. At the Ph.D. level at least two consecutive semesters of full-time graduate study in residence are required.

Admission Requirements

Besides filling in the official graduate application forms (no application fee is required), the prospective student is required to provide transcripts covering previous studies, normally including a baccalaureate degree with a major in Spanish; three letters of academic and personal reference; and, if possible, a sample of written work (an essay or term paper). Except in the case of part-time study toward the M.A., all applicants are required to provide their scores on the Graduate Record Examination Aptitude Test (GRE).

Foreign applicants must have a score of at least 500 (TOEFL) in English and must show that they have the necessary funds to finance their education (living expenses plus tuition). In addition to Teaching Assistantships (TA's) for full-time students (with as much as full tuition waiver and a stipend of \$3550), fellowships, loans and work-study programs are available. Student housing is also available.

An applicant whose qualifications seem deficient may be admitted on a part-time trial basis as a Graduate School Special student (GSP) through the Center for Continuing and Developing Education.

Degree Requirements for the Master of Arts

In addition to proficiency in both Spanish and English, there is a general requirement of 36 graduate credit hours for the Master of Arts degree. As many as six of these credits may be earned by completing a special project, thesis and/or examination. A course in teaching methods (a practicum) is required. Students working on a part-time basis should complete all requirements within three years after their first regular graduate registration.

An M.A. program in Hispanic bilingual-bicultural studies re-

quires a total of 15 credits in bilingual courses: SPN 581, 583, 584, 585 (or 586) and 587 (an independent project to be completed in the final semester). This program does not require a third language or a comprehensive examination and is normally a terminal degree program.

Other programs may be terminal or may be combined with the Doctor of Arts or the Ph.D. program. For secondary and junior college teachers who do not intend necessarily to do post-M.A. studies, the usual minimum of 36 graduate credit hours in Spanish is required. These courses *may* include linguistics, problems in bilingual education, Spanish and Spanish-American literature. They *must* include 1) a teaching practicum and 2) either an independent project (essay or thesis) or an examination adapted to the needs and interests of the individual student.

An interdepartmental Romance languages M.A. is offered, requiring 36 credit hours of specified coursework in two different languages and a comprehensive examination based on a special reading list. This M.A. may be combined with the D.A. or Ph.D. program.

A reading knowledge of French is required for the pre-doctoral M.A. in Spanish. Under this program, the required minimum of 36 credit hours would normally include a practicum in teaching problems, at least one course in linguistics, and other courses in Spanish and Spanish-American literature. A comprehensive examination, based on the department's standard list of readings and topics, is required for the pre-doctoral M.A. (see the Ph.D. program as described below); this examination is normally scheduled early in November or early in April.

Degree Requirements for the Doctor of Arts

The D.A. degree is primarily an advanced degree for continuing a career in teaching at the high school, junior college or undergraduate level. Entering students must have at least a B.A., more frequently an M.A. In the Spanish major, 9-18 credits (depending on previous preparation) are to be distributed evenly among literature, advanced language and culture courses. In the minor (French, German, Italian, Slavic or linguistics) 9 credits are required. In addition, one course in advanced composition, one course in general linguistics and three education courses (including one in testing) are required. The requirements of a practicum, an internship and an externship vary. The total number of credits ranges normally from 40 to 50. Practical experience in teaching, a comprehensive examination (written

and oral) and a doctoral project are required. A B average in coursework must be maintained.

Degree Requirements for the Doctor of Philosophy

The Ph.D. degree is the highest teaching and research degree offered by the University; it normally prepares one for a career at the level of the four-year college or the university, or possibly for other careers in humanistic study, research and writing. The entering graduate student who is considering the possibility of working for a Ph.D. should consult immediately with the Chairman and/or the Director of Graduate Studies in order to plan a broad program of reading and coursework in all areas offered by the Department. To insure minimal coverage of basic material, the following three courses are required of all Ph.D. candidates: SPN 528 (Seminar on Cervantes), SPN 549 (Seminar on Spanish-American Modernism), and SPN 609, or CLT 500, or CLT 501. The student should begin by taking courses with as many different faculty members as possible. In addition, the student normally takes at least two courses in Spanish linguistics (see "Comprehensive (Preliminary) Examination," below).

The number of credit hours required in the Ph.D. program depends on the student's previous preparation. A student with a B.A. (or equivalent) and an undergraduate major in Spanish is usually expected to earn 72 graduate credits (three full years of study). A student with an M.A. (or equivalent) in Spanish is usually expected to earn 42 additional graduate credits (about two years of study). A student who has already done a year's work or more in another institution beyond the M.A. level is required to complete at least two consecutive semesters of full-time graduate study (24 credits) at Stony Brook. Teaching experience and two practica are required and may be counted as part of the student's full-time study. Undergraduate courses may also be considered as part of full-time study, but without graduate credit. Before registering for each semester, the student should consult with the Chairman and/or the Director of Graduate Studies and work out an approved combination of courses.

Qualifying Examination

In addition to completing coursework successfully (that is, maintaining at least a B average), all full-time graduate students intending to work for a Ph.D. must pass a qualifying examination shortly after their first full-time semester. This examination, usually given in January, is based on a list of 6 literary works,

and serves to indicate preparation and aptitude for doctoral work in Spanish. It consists of a written part (two hours) and an oral part (one-half hour). This examination may not be repeated.

Language Requirements

In addition to proficiency in Spanish and English, the Ph.D. candidate must demonstrate a reading knowledge of French and another language related to the field of the dissertation. A knowledge of Latin, for example, is required for research in philology or Medieval literature, and may be required for research in Renaissance literature. Students are urged to demonstrate a reading knowledge of French by the beginning of the second year of full-time study; they are required to fulfill both language requirements prior to being advanced to candidacy. A language requirement may be fulfilled by 1) passing the Princeton Graduate School Foreign Language Test (GSFLT); 2) successful completion (that is, with a grade of B or better) of a graduate reading course or regular graduate course in the foreign language; or 3) passing a special reading examination administered by the Department of Hispanic Languages and Literature.

Comprehensive (Preliminary) Examination

When the student has completed the Department's standard reading list for a general coverage of topics in Spanish and Spanish-American literature, he or she may take the *first part* of the comprehensive (preliminary) examination, provided that he or she has a reading knowledge of French and no incomplete grades outstanding. This examination will consist of eight hours of written work and one hour of oral questions and answers. In addition to literature, a section of the examination will be devoted to Spanish linguistics (unless the student has already completed two departmental courses in Spanish linguistics with a grade of at least B). Upon successful completion of this stage of general preparation, the student is granted the degree of Master of Arts.

The *second part* of the comprehensive (preliminary) examination must be taken within six months. It is planned by the student in consultation with the prospective director of his or her dissertation. Both language requirements must by this time have been fulfilled. A specialized bibliography of relevant works is drawn up by the director and is studied by the student. The student then drafts a thesis prospectus to be presented with the bibliography to the department-at-large and to a special ex-

amination committee. An oral examination of one to two hours, based on the bibliography and thesis prospectus, must be satisfactorily passed before the student can be advanced to doctoral candidacy.

Dissertation

After the student has been advanced to candidacy, he or she will concentrate on his or her dissertation (the written results of specialized study and research) under the supervision of a member of the graduate faculty, with the advice of a second reader. After the dissertation is completed, it is judged by a committee of five members, consisting of the director, the second reader, another member of the Spanish faculty, and two faculty members from outside the department who have specialized in related areas. The committee may decide to discuss the dissertation with the candidate before reaching a decision. If the dissertation is approved by this committee, the candidate is recommended to the University for the Doctor of Philosophy degree, and is asked to give a public lecture on the subject of the dissertation.

Faculty

Chaffee, Diane, *Assistant Professor*, Ph.D., 1979, Duke University: Research in progress in Golden Age literature.

De la Campa, Roman, *Associate Professor*, Ph.D., 1975, University of Minnesota: Caribbean culture and literature; Latin American drama; applied linguistics; *Ritualizacion de la sociedad cubana*.

Deutsch, Lou Charnon, *Assistant Professor*, Ph.D., 1978, University of Chicago: Eighteenth- and nineteenth-century Peninsular literature; recent articles on Galdos, Clarin and Alarcón.

Fainberg, Louise Vasvari, *Associate Professor*, Ph.D., 1969, University of California, Berkeley: Medieval Spanish literature; Romance philology; applied linguistics; critical editions of *El laberinto de Fortuna*, *El tratado sobre el titulo de duque*.

Giordano, Jaime A., *Associate Professor*, Universidad de Chile, 1961 (University Professor, Universidad de Concepcion, 1958-1966): Modern and contemporary Spanish-American literature; *La edad del ensueno*; recent articles on Huidobro, Neruda, Fuentes and Mistral.

- Lastra, Pedro, *Professor*, Universidad de Chile, 1967 (University Professor, 1960-1973): Modern and contemporary Spanish-American literature; *Noticias del extranjero*; recent articles on Enrique Lihn, Fuentes and Rilke.
- Lida, Clara E., *Associate Professor*,¹ Ph.D., 1969, Princeton University: Peninsular and Latin American history; cultural and intellectual history; *Anarquismo y revolucion en la Espana del XIX*.
- McKenna, James B., *Associate Professor*, Ph.D., 1965, Harvard University: Twentieth-century Spanish culture and literature.
- Montoro, Adrian, *Associate Professor*, Doctor en Filosofia y Letras, 1963, Universidad de La Habana: Medieval and modern Hispanic literature; *El leon y el azor: simbolismo y estructura trifuncional en la epica espanola*; recent articles on the picaresque novel and contemporary literature.
- Rivers, Elias L., *Professor and Chairman*, Ph.D., 1952, Yale University: Sixteenth- and seventeenth-century literature of Spain; written and oral traditions in literature; *Renaissance and Baroque Poetry of Spain*; *Poesia lirica del Siglo de Oro*; Garcilaso's *Obras completas con comentarios*.
- Sabat Rivers, Georgina, *Associate Professor*, Ph.D., 1969, Johns Hopkins University: Spanish Golden Age and Colonial literature; *Sor Juana Ines de la Cruz: Obras selectas*; *El Sueno de Sor Juana Ines de la Cruz: Tradiciones literarias y originalidad*.
- Zavala, Iris M., *Professor*, Ph.D., 1962, Universidad de Salamanca: Seventeenth- to twentieth-century Peninsular and Caribbean literature; *Historia social de la literatura espanola*; *Clandestinidad y libertinaje erudito en los albores de la Ilustracion*.

Estimated number of teaching, graduate and research assistants, fall 1979: 13.

¹Joint appointment, Department of History

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.

Facilities

Stony Brook's new Fine Arts Center includes an acoustically excellent theatre-concert hall and a more intimate recital hall. The music building contains a full range of rehearsal and teaching facilities, over 70 practice rooms and studios for graduate students and more than 40 Steinway grand pianos. The Fine Arts Center offers electronic music studios and a recording studio, and the Music Library contains 20,000 books and scores as well as microfilms, recordings and sound reproduction equipment.

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.
 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).

F. Acceptance by both the Department of Music and the Graduate School.

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 Sixteenth-century or Eighteenth-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, Pro-seminar 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 Twentieth 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. One examination must be taken at the beginning of the first semester of study. Both examinations must have been taken by the second semester.

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

Students will choose to concentrate on either the history of theory (Option I) or problems in speculative theory (Option II).

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 Pro-seminar 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. Seminars in Music Theory: MUS 531 and two courses from the group MUS 532-534.

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. One examination must be taken at the beginning of the first semester of study. Both examinations must have been taken by the second semester.

C. Comprehensive examinations: Projects, to be done over a period of one week, involving analytically based problems, criticism of theoretical texts, and problems in the history of theory. Students who have chosen Option I must also write an examination in the history of Western music theory.

D. Thesis: Required only of students who have chosen Option II. The paper should be submitted no later than the first week of the semester in which the student expects to receive the degree. The thesis must be prepared in accordance with the guidelines presented in the booklet entitled "Guide to the Preparation of Theses and Dissertations," available from the Graduate School.

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 Pro-seminar 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. One course in the history of music before 1900.

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 at the beginning of the first 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).

F. Acceptance by both the Department of Music and the Graduate School.

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

MUS 561 Orchestral Conducting

MUS 563 Choral Conducting

MUS 565 Graduate Orchestra

MUS 570 Twentieth-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. All students except those in the conducting programs must be enrolled in MUS 571 during each semester of full-time 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 them-

selves 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 who intend to work in a secondary area of specialization must demonstrate to the pertinent faculty competence commensurate with a master's degree at a distinguished level in that area.

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," p. 00, 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 a member of the academic faculty, to be appointed by the Director of Graduate Studies after consultation with the student and appropriate members of the faculty. 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 of specialization: Progress during residence in the program will be demonstrated to the directing committee through the presentation of four recitals, not including the Doctoral Recital, showing ability to perform in a wide range of musical styles. Two of these must be solo recit-

als, unless otherwise specified by the directing committee. Students who propose to work as well in a secondary area of specialization should see section H below.

B. Public lecture-recital.

C. Essays: Two papers, one on an analytical topic, one on an historical topic. These essays may be on performance-oriented subjects. Each must grow out of work in a separate graduate music course.

D. Work in the area of twentieth-century music: Either a substantial portion of one of the recitals, described above in section A, or the lecture-recital, described above in section B, must be devoted to twentieth-century music.

E. 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.

F. Teaching: A minimum of two semester courses, either or both of which may comprise individual lessons, ensemble coaching, or classroom teaching.

G. Doctoral jury examination: A thirty-minute examination, to be taken at the end of the period of residency covered under the contract toward candidacy. The jury examination must be passed as a condition for Advancement to Candidacy.

H. Work in a secondary area of specialization: Students who propose to do work in composition, history or theory as an integral part of the program must 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.

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 who intend to work in a secondary area of specialization must demonstrate to the pertinent faculty competence commensurate with a master's degree at a distinguished level in that area.

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," p. 00. 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.

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 musi-

cianship, theory or literature. Students must also participate in the Seminar on the Teaching of Music for a minimum of one semester 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; twentieth-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; twentieth-century wind performance.

Bonvalot, E. Antony, *Associate Professor*, Ph.D., 1966, Harvard University: Bibliography; English Renaissance music.

Brooks, Marguerite L., *Assistant Professor and Director of the University Chorus*, M.Mus., 1975, Temple University: Choral conducting.

Canin, Martin, *Performing Artist in Residence*, M.S., 1956, Juilliard School of Music: Piano; piano pedagogy.

- Chafe, Eric T., *Assistant Professor*, Ph.D., 1975, University of Toronto: Seventeenth-century music; J. S. Bach; Baroque music theory.
- 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; twentieth-century percussion ensemble.
- de Zeeuw, Anne Marie, *Instructor*, M. Mus., 1971, University of Texas, Austin: Theory.
- Eddy, Timothy, *Performing Artist in Residence and Coordinator of Chamber Music*, M. Mus., 1970, Manhattan School of Music: Cello; chamber music; twentieth-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.
- Kalish, Gilbert, *Performing Artist in Residence*, B.A., 1956, Columbia University: Piano; twentieth-century piano performance.
- Karasick, Simon, *Director of the University Band*, B. Mus., 1933, Eastman School of Music: Trombone; wind ensemble.
- Keiler, Allan, *Associate Professor*, Ph.D., 1964, Harvard University: Theories of tonal music; linguistic applications to music theory; analysis.
- Kramer, Richard, *Associate Professor and Director of Graduate Studies*, Ph.D., 1974, Princeton University: Eighteenth-century theory; Beethoven.
- Kreiselman, Jack, *Performing Artist in Residence*, Manhattan School of Music; pupil of Simeon Bellison and Simon Kovar: Clarinet; twentieth-century wind performance.
- Lawton, David, *Associate Professor and Director of the University Orchestra*, Ph.D., 1973, University of California, Berkeley: Orchestral and opera conducting; nineteenth-century studies.
- Layton, Billy Jim, *Professor*, Ph.D., 1960, Harvard University: Composition; analysis.
- Lessard, John, *Professor*, Diploma, 1940, Ecole Normale; Di-

- ploma, 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.
- McCalla, James, *Assistant Professor*, Ph.D., 1976, University of California, Berkeley: Twentieth-century music; aesthetics and criticism.
- Purvis, William W., *Performing Artist in Residence*, B.A., 1971, Haverford College; pupil of Forrest Standley and James Chambers: French horn; chamber music.
- Roseman, Ronald, *Performing Artist in Residence*, B.A., 1955, Queens College: Oboe; chamber music; twentieth-century wind performance.
- Rosen, Charles, *Professor*,^a Ph.D., 1951, Princeton University; D. Mus., H.C., 1976, Trinity College, Dublin; D. Mus., H.C., 1977, University of Leeds: Classical and Romantic music; music of the twentieth century; criticism in art, music and literature; piano.
- Semegen, Daria, *Assistant Professor*, M. Mus, 1971, Yale University: Composition; electronic music.
- Silver, Sheila, *Assistant Professor*, Ph.D., 1976, Brandeis University: Composition; analysis.
- Treitler, Leo, *Professor and Chairman*, Ph.D., 1966, Princeton University: Medieval and early Renaissance music; twentieth-century music; history of music theory; historiography; music criticism.
- Weisberg, Arthur, *Performing Artist in Residence and Conductor of the Graduate Orchestra*, Juilliard School of Music; pupil of Simon Kovar: Bassoon; orchestral conducting; twentieth-century ensemble.
- Willard, Jerry, *Performing Artist in Residence*; pupil of Sophocles Papas: Guitar, lute.
- Winkler, Peter, *Associate Professor*, M.F.A., 1967, Princeton University: Composition; theory and history of popular music.
- Yajima, Hiroko, *Performing Artist in Residence*, Diploma, Juilliard School of Music; pupil of Dorothy DeLay and Ivan Galamian: Violin; chamber music.

Estimated number of teaching, graduate and research assistants, fall 1979: 73.

^aOn leave academic year 1980-81

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 with experience or expectations in other areas, but who 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.
- 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.

G. Acceptance by both the Department of Philosophy and the Graduate School.

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 or 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 or 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 or 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 philosoph-

ical perspective on contemporary social and moral issues that he or 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 or 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 four *Style Seminars* is required. These are courses in which philosophical issues are addressed in one of three main contemporary modes of pursuing the activity of philosophy. Ordinarily the Style Seminars offered in the fall semester of each year (PHI 590, 591, 592) will be pro-seminars, which are advanced introductions to the particular styles, and will be followed by the more advanced Style Seminars, PHI 600, 601, and 602. Pro-seminars assume a general background in philosophy and serve to acquaint the beginning graduate student with the methods, presuppositions and operational modes of the philosophies involved. The more advanced Style Seminars (PHI 600, 601, 602) have as prerequisites some advance preparation on the part of the students involved.

Of the four Style Seminars required of each student, no more than two of the courses may be in any one Style, and at least one of the four must be on the 600 level.

C. Participation in two *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 ordinarily team taught with staff members acquainted with fields of study outside philosophy. Interface Seminars will draw upon visiting and interdepartmental participants as well.

D. A Practicum in the teaching of philosophy, PHI 622 Supervised Teaching, in relation to other teaching experience; is also required.

E. Performance: An overall average grade of B or better is required, but no more than six credits of C will be permitted to count toward the degree.

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.

M.A. Degree Requirement

Students whose goal is a master's degree will not ordinarily be accepted into the Ph.D. program. A student already enrolled in the program may, however, be awarded an M.A. degree upon completion of 30 graduate credits of course work, all of which must be graded, and upon satisfaction of two of the following three committee-judged requirements:

History of Philosophy Examination

Philosophical Style Essay

Interface Essay.

(In addition, there is the entirely distinct program leading to the Master of Arts in Philosophical Perspectives, listed above.)

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 *Style Seminars*, each exploiting a major contemporary method of philosophical reasoning. These styles comprise principally analytic philosophy, phenomenology and systematic philosophy. These seminars will meet once each year in a tracked sequence.

The 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 Style Seminar is to display the way a philosophical style or sensibility works.

There will also be an unspecified number of *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.

In addition to the above structures there is flexibility allowed for independent and directed studies. There are also opportunities for individual reading and research projects under faculty direction.

Faculty

- Allison, David, *Associate Professor*, Ph.D., 1974, Pennsylvania State University: Phenomenology; structuralism.
Buchler, Justus, *Distinguished Professor*, Ph.D., 1938, Columbia University: Systematic philosophy.
Casey, Edward S., *Professor*, Ph.D., 1967, Northwestern University: Aesthetics; phenomenology; philosophy of psychology.
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.
- Grim, Patrick, *Assistant Professor and Director, Master's Program in Philosophical Perspectives*, Ph.D., 1963, Boston University: Contemporary ethics and social philosophy; philosophy of the social sciences; analytic philosophy and philosophy of language.
- Heelan, Patrick, *Professor*, 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, philosophy of technology.
- Kittay, Eva, *Assistant Professor*, Ph.D., 1978, City University of New York: Philosophy of language; philosophy and literature; feminism.
- Kuspit, Donald B., *Professor*,¹ D.Phil., 1960, University of Frankfurt; 1971, University of Michigan: Art criticism; twentieth-century art; Northern Renaissance art.
- Miller, Clyde Lee, *Assistant Professor*, Ph.D., 1974, Yale University: History of philosophy.
- Neville, Robert, *Professor*,² Ph.D., 1963, Yale University: Philosophy of religion, process philosophy.
- Nolan, Rita D., *Associate Professor*, Ph.D., 1965, University of Pennsylvania: Analytic philosophy.
- Pomerantz, David, *Assistant Professor*, Ph.D., 1979, Vanderbilt University: Ethics; social philosophy; logic.
- Rawlinson, Mary C., *Assistant Professor*, Ph.D., 1978, Northwestern University: Philosophy of medicine and medical ethics; phenomenology; philosophical psychology; modern philosophy.
- Ringelheim, Joan, *Visiting Assistant Professor*, Ph.D., 1968, Boston University: Philosophy of history; philosophy of social science.
- Silverman, Hugh J., *Associate Professor*, Ph.D., 1973, Stanford University: History of ideas; continental philosophy; structuralism.
- Simon, Michael, *Associate Professor and Doctoral Program Director*, 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*, Ph.D., 1958, University of Chicago: History of philosophy.
- Welton, Donn, *Assistant Professor and Undergraduate Program Director*, Ph.D., 1973, Southern Illinois University: Phenomenology and social philosophy.
- Williams, Peter, *Assistant Professor*,³ Ph.D., 1973, Harvard University: Philosophy of law, ethics.
- Wood, Susan B., *Assistant Professor*, Ph.D., 1976, State University of New York, Buffalo: Logic.
- Zyskind, Harold, *Professor*, Ph.D., 1964, University of Chicago: Philosophic rhetoric; history of philosophy.

Estimated number of teaching, graduate and research assistants, fall 1979: 33.

¹Joint appointment with Department of Art

²Joint appointment with Program in Religious Studies

³Joint appointment with Community and Preventive Medicine

Doctor of Arts in Foreign Language Instruction

General Aims of the Doctor of Arts

The program leading to the Doctor of Arts degree is designed to train professionals in the field of foreign language teaching on the secondary, junior college and college levels. It is also appropriate for providing a basis in language training for language education specialists and specialists in bilingual media and communications, and for marketing consultants whose expertise in the foreign language(s) will aid business or advertising. The program is flexible, competency based and, where possible, tailored to individual needs.

Requirements for Admission into the Doctoral Program

The program is open to both full-time and part-time students who have either a bachelor's degree or a master's degree or its equivalent with specialization in one of the following languages: French, German, Italian, Russian or Spanish.

All applications for admission to the program will be reviewed by the Doctor of Arts Committee and, where necessary, candidates will be interviewed personally. Selection will be based on official transcript of undergraduate and/or graduate courses plus three letters of recommendation, language proficiency, and background in major and minor fields. The general GRE scores will be necessary and all applicants must demonstrate mastery of English. The procedure and requirements are the same as described by the Graduate School.

Requirements of the Doctor of Arts

The program is competency based and does not specify a maximum number of credits to be taken. Linguistic, methodological, pedagogical and literary progress of each candidate will be checked periodically by a committee consisting of the Doctor of Arts Committee and the major and minor advisors. Students found deficient in one or more areas will be placed on probation until all deficiencies are eliminated or will be asked to withdraw from the program.

Candidacy for the Doctor of Arts is attained after all approved course work has been completed and reviewed by the Doctor of Arts Committee. If upon completion of 18 credits the students entering with a B.A. do not wish to continue on to a doctorate but wish to obtain an M.A., they will be directed by

the major advisor and the director of the program toward the traditional M.A. in the appropriate department of specialization.

Distribution of Course Requirements

1. Major field (to be chosen among French, German, Italian, Slavic, Spanish): 9-18 credits depending on prior preparation.
2. Minor field, competence to be demonstrated in a related field: 9 credits (humanities or social sciences).
3. One course in advanced composition and stylistics.
4. One course in general linguistics.
5. Three professional courses including one in testing.
6. Practicum: Teaching an elementary or intermediate course in the major field.
7. Internship: Team teaching a course of literature, linguistics or culture for one semester.
8. Externship: Full-time teaching for one semester, three courses, at the secondary or college level.

Final Evaluation

The final evaluation is to be based directly on the specific program of study that the candidate has completed. In addition to demonstrating mastery of the individual curriculum requirements, the candidate is expected to evidence a certain synthesis of knowledge based on the component parts of the program.

A. The final evaluation is to include both a written and an oral comprehensive examination and will include topics from all areas covered in the program. The comprehensive examination will be administered only after the candidate has demonstrated competence in verbal fluency in the target language and in language instruction and methodology. A doctoral committee will test the verbal fluency of all candidates.

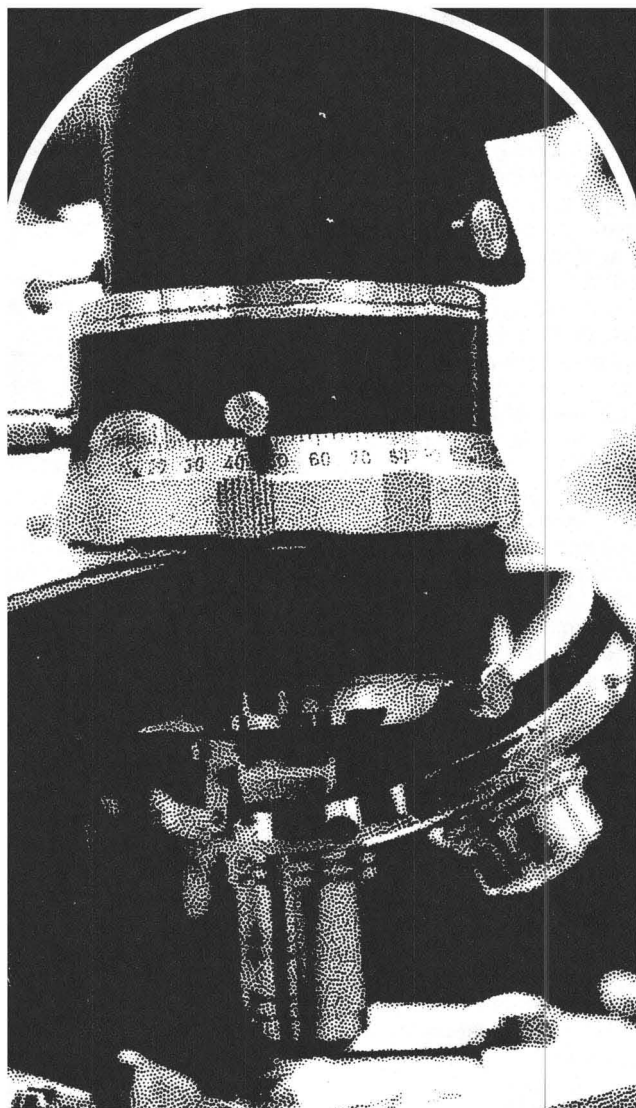
It will be the responsibility of the candidate to prepare, with his or her major and minor advisors, a reading list to cover his or her individual specialties. This list must be submitted and approved one semester prior to taking the comprehensive examination.

B. Project: All doctoral candidates must complete a creative research project. The subject of the research project will be determined by the candidate's professional interest and training. The project will be undertaken after the students have completed all course work and have been reviewed by the doctoral committee, which will make final determination for confer-

ral of the degree of Doctor of Arts in Foreign Language Instruction.

Faculty

The faculty teaching in the program will be drawn from the following departments or programs: French and Italian; Germanic and Slavic Languages and Literatures; Hispanic Languages and Literatures; Linguistics; Comparative Literature; Center for Continuing and Developing Education.



Division of Biological Sciences

The Division of Biological Sciences consists of four academic departments: Biochemistry, Biology, Ecology & Evolution, and Neurobiology & Behavior. The faculty of these four departments, together with individual members of the Departments of Chemistry, Earth and Space Sciences, and Psychology, 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 Sciences 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 molecular and cellular bases of growth, differentiation and morphogenesis of biological systems. Faculty members are drawn from departments of both the Biology Division and the Health Sciences Center and are engaged in research on a large variety of organisms ranging from viruses and eucaryotic microorganisms to higher plants and animals. Methodologies and levels of analysis vary from the molecular to the cellular to the organismic. Emphasis is placed on the control mechanisms which define and regulate growing and developing systems.

Facilities

The Division of Biological Sciences is well equipped for work in developmental and cellular biology. The modern laboratory facilities include constant temperature rooms, equipment for continuous and synchronized cell culture as well as equipment for all major molecular biological and biochemical analyses. The electron microscope facility houses two transmission scopes and one scanning scope along with all accessory equipment. Besides course work and seminars, students in the program have an early opportunity to work in the laboratories of selected faculty members to gain laboratory experience and help them decide which area of cellular and 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.

C. Acceptance by both the program and the Graduate School.

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 four 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 laborato-

ries 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 or her graduate career (BIO 600).

Comprehensive Examination

At the beginning of the fourth semester, the student will take a 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 dissertation nears completion. The dissertation exam-

ining 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.

Delilhas, 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 and Chairman*, Ph.D., 1966, Pennsylvania State University: Structure and function of tRNA, mRNA and viral RNA.

Edmunds, Leland N., *Professor*,³ 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 eukaryotic DNA from synchronized cells.

Hillman, William S., *Adjunct Professor*,¹³ Ph.D., 1954, Yale University: Biological rhythms and physiological timing in flowering plants.

Katz, Eugene R., *Associate Professor*³ and *Director, Graduate Program in Cellular and Developmental Biology*, 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.
- Lucas, Joseph J., *Assistant Professor*,⁴ Ph.D., 1972, University of Pennsylvania: Mechanisms and control of gene expression during eukaryotic cell growth and development.
- Lyman, Harvard, *Associate Professor*,³ Ph.D., 1960, Brandeis University: Control mechanisms in the biogenesis, development, and replication of chloroplasts and other cellular organelles.
- Marcu, Kenneth, *Assistant Professor*,² Ph.D., 1975, State University of New York, Stony Brook: Organization and mechanisms of expression and evolution of eukaryotic multigene systems.
- Merriam, Robert W., *Associate Professor*³ and *Chairman*, Ph.D., 1953, University of Wisconsin: The role of actins in the structure and function of eggs and early embryos.
- Palatnik, Carl, *Research Assistant Professor*,¹ Ph.D., 1975, State University of New York, Stony Brook: Gene regulation and messenger RNA processing in cellular slime molds.
- Privis, Joav, *Assistant Professor*,¹ Ph.D., 1969, McGill University, Montreal, Canada: Differentiation of surface membranes in muscle cells developing in culture; the regulation of cell surface components; interactions of cell surface receptors with cytoskeleton.
- 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., *Associate Professor*,¹⁶ Ph.D., 1971, University of Wisconsin; M.D., 1965, University of Toronto: Epithelial keratinization and differentiation.
- 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.
- Wigler, Michael H., *Senior Staff Investigator and Head*,¹⁹ Ph.D., 1978, Columbia University: Gene expression in genetically transformed animal cells.
- 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, *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.

Estimated number of teaching, graduate and research assistants, fall 1979: 20.

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 approach, 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.

Facilities

Ample laboratory, greenhouse and environmental facilities as well as all of the normal laboratory equipment for physiological and biochemical studies are available in a modern biology building. All the equipment typically found in a modern labora-

¹Department of Anatomical Sciences

²Department of Biochemistry

³Department of Biology

⁴Department of Microbiology

⁵Department of Pharmacological Sciences

¹³Brookhaven National Laboratory

¹⁶Department of Oral Biology and Pathology

¹⁹Cold Spring Harbor Laboratory

tory concerned with biochemistry of proteins is available, including high speed and ultracentrifuges, generous facilities for sonicators, fraction collectors, spectrophotometers, water baths (both refrigerated and electrofocusing systems), liquid scintillation, spectrofluorimeter and flat plate high voltage electrophoresis system. The department has two medium sized minicomputers with graphic capabilities.

Field and marine study areas are available at Flax Pond, a University-affiliated laboratory four miles from campus. Some terrestrial studies can be performed at the Ashley Schiff Memorial Ecology Preserve, a 28-acre forested area on the campus. Several large tracts of land (4,000 acres in aggregate) are available for research within a 30-minute drive of the campus. The University is a member of the Organization for Tropical Studies, which maintains a field station in Costa Rica. In addition, collaboration is possible with scientists at Brookhaven National Laboratory. Several field stations are maintained by other University centers and colleges of the State University of New York. The Marine Sciences Research Center of the State University is located on the Stony Brook campus. Stony Brook is also close enough to New York City and Washington, D.C. for arrangements to be made for consultation and work at museums and other institutions in those cities.

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. 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 Dissertation

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

Final Examination

The completed dissertation 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 dissertation is scheduled, at which the student presents his or 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 and experimental approaches to population dynamics and community structure; theoretical ecology.
- Arnheim, Norman, *Associate Professor*,² Ph.D., 1965, University of California, Berkeley: Structure and genetic behavior of ribosomal DNA in mammals.
- Baylor, Edward R., *Professor*,^{6,8} Ph.D., 1949, Princeton University: Surface chemistry; oil spills; ethology.
- Bell, Michael A., *Assistant Professor*,⁶ Ph.D., 1976, University of California, Los Angeles: Evolutionary biology; ecology, population genetics and ichthyology.
- 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: Paleoecology and evolution of benthic marine communities.
- Carpenter, Edward J., *Associate Professor*,⁸ Ph.D., 1969, North Carolina State University: Nitrogen cycling in the marine environment, physiology of nitrogen incorporation by marine algae; phytoplankton ecology.
- Carroll, C. Ronald, *Assistant Professor*,⁶ Ph.D., 1974, University of Chicago: Insect ecology; agricultural ecology; plant-animal interactions; tropical biology.
- Creel, Norman, *Associate Professor*,¹ Ph.D., 1967, Eberhard-Karls University, Tübingen, Germany: Quantitative taxonomy of primate populations; polyfactorial inheritance; primate evolution.
- Farris, James S., *Associate Professor*,⁶ Ph.D., 1965, University of Michigan: Theory of phylogenetic inference.
- Futuyma, Douglas J., *Associate Professor*,⁶ Ph.D., 1969, University of Michigan: Population genetics; 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 models of demographic and genetic structure of populations; mathematical description of species interactions.
- Hechtel, George J., *Associate Professor*,⁶ Ph.D., 1962, Yale University: Systematics and zoogeography of marine demospongiae.
- Koehn, Richard K., *Professor*,⁶ 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*,⁷ Ph.D., 1950, University of Minnesota: Cambrian paleobiogeography and stratigraphy; trilobite systematics.
- Prestwich, Glenn D., *Assistant Professor*, Ph.D., 1974, Stanford University: Chemical ecology of plant-insect interactions.
- Riley, Monica, *Professor*,² Ph.D., 1960, University of California, Berkeley: Macromolecular evolution in bacteria and mechanisms of genetic recombination in bacteria.
- 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 and Program Director*,⁶ Ph.D., 1955, University of Chicago: Applied ecology; environmental impact analysis; public interest environmental law.
- Sokal, Robert R., *Leading Professor*,⁶ Ph.D., 1952, University of Chicago: Ecological genetics; numerical taxonomy; theory of systematics; geographic variation.

¹Department of Anatomical Sciences

²Department of Biochemistry

⁶Department of Ecology and Evolution

⁷Department of Earth and Space Sciences

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

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

Estimated number of teaching, graduate and research assistants, fall 1979: 41.

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. Training is offered in a broad range of research areas, among them 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.

Facilities

A full range of modern facilities is available for research in all these areas. Traditional department organization is transcended: the faculty is comprised of all the members of the Department of Biochemistry plus faculty drawn from other departments in the Division of Biological Sciences, from the Department of Chemistry and from the School of Basic Health Sciences and the School of Medicine.

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 the Graduate Record Examination scores.

⁶Department of Ecology and Evolution

⁸Marine Sciences Research Center

¹³Brookhaven National Laboratory

C. Acceptance by the program and by the Graduate School. In special cases, students not meeting all of the requirements listed in 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 364).
3. Enzymology (BMO 513).
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 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 explain 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 dissertation 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 dissertation research, and when the research nears completion a dissertation examining committee is appointed by the Dean of the Graduate School.

Dissertation Defense

The dissertation defense, which completes the requirements for the Ph.D., consists of a public seminar presentation of the dissertation 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 Ph.D., 1965, University of California, Berkeley: Structure and genetic behavior of multigene families; ribosomal genes in mammals.
- Bauer, William R., *Professor*,⁴ Ph.D., 1968, California Institute of Technology: Structure and interactions of the nucleic acids, especially circular DNA's; mechanism of action of antitumor 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*,² Ph.D., 1953, University of California, Los Angeles: Mechanisms and regulation of sugar transport processes.
- Cohen, Seymour, *Distinguished Professor of Pharmacological Sciences*,⁵ Ph.D., 1941, Columbia University: Comparative biochemistry; function of polyamines.
- Dudock, Bernard S., *Associate Professor and Chairman*,² Ph.D., 1966, Pennsylvania State University: Structure and function of organelle and mammalian tRNA's; organization and structure of mammalian tRNA genes.
- Edmunds, Leland N., *Professor*,³ Ph.D., 1964, Princeton University: Interrelationships among cell cycle, biological clock and membrane transport control systems in yeast; photosynthetic rhythms in *Euglena*.
- Eisenberg, Moises, *Assistant Professor*,⁵ Ph.D., 1972, California Institute of Technology: Effect of pore-forming antibiotics on the movements of small molecules and ions across membranes.
- 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: Membrane biogenesis; control mechanisms of cell division; developmental biology of myxobacteria.

Jesty, Jolyon, *Assistant Professor*,¹⁰ Ph.D., 1972, Oxford University, England: Biochemistry of control mechanisms in coagulation.

Kaplan, Allen P., *Professor*,¹⁰ M.D., 1965, State University of New York, Downstate Medical Center: Biochemical events in the initiation of coagulation and its role in inflammation.

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.

Marcu, Kenneth B., *Assistant Professor*,² Ph.D., 1975, State University of New York, Stony Brook: Organization, mechanisms of expression and evolution of eukaryotic multigene systems.

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; structural proteins of the contractile apparatus.

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 and biophysics; the role

- of membrane fluidity changes in virus transformation of mouse fibroblasts and in the fertilization of sea urchin eggs.
- Schechter, Nisson, *Assistant Research Professor of Psychiatry*,¹⁴ Ph.D., 1971, Western Michigan University: Molecular basis of neuronal specificity.
- Schmidt, Jakob, *Associate 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 of proteolytic enzymes (purification, structure and function); synthetic inhibitor of proteases.
- Silverberg, Sidonie, *Assistant Professor*,¹⁰ Ph.D., 1973, Oxford University, England: Determination of kinetic parameters that govern coagulation and its control.
- 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.
- 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: Biochemistry of contractile proteins in nonmuscle cells; regulation of actin polymerization.
- 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., *Professor*,⁴ Ph.D., 1962, University of Göttingen, Germany: Structure and function of cellular and viral ribonucleic acids and proteins; replication of poliovirus.
- Wishnia, Arnold, *Associate Professor*,¹¹ Ph.D., 1957, New York

University: Globular proteins, ribosomal subunit association and membrane models.

Estimated number of teaching, graduate and research assistants, fall 1979: 41.

NEUROBIOLOGY AND BEHAVIOR (BNB)

The Department of Neurobiology and Behavior offers doctoral training in the rapidly expanding field of neuroscience. Through course work and independent research students are trained to approach research problems in neuroscience with a broad perspective involving the application of concepts and methods from a variety of disciplines including anatomy, biochemistry and physiology. Faculty research accommodates a wide range of student interests such as developmental neurobiology, neuroanatomy including comparative, visual system organization, motor system organization, the neural basis of behavior including learning, invertebrate neurobiology, central autonomic function and neural plasticity.

Facilities

Research facilities are excellent and there is ample opportunity for interaction with neuroscientists in other departments of the University and with visiting neuroscientists.

Admission Requirements

A. Baccalaureate degree, including the following preparation: two semesters of calculus, two semesters of physics, two semesters of inorganic chemistry, two semesters of organic chemistry, four semesters of biological sciences. Physical chemistry is recommended but not required.

B. Grade point average of B or better.

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 Laboratory

¹⁴Department of Psychiatry

C. Submission of scores of Graduate Record Examination and letters from three previous instructors.

D. Acceptance by the Department and the Graduate School. Students may be admitted to the program without some of the above undergraduate courses, but deficiencies must be satisfied, without graduate credit, before taking the preliminary exam.

Ph.D. Requirements

Course Requirements

A. Basic Biology and Behavior

1. Principles of Biochemistry (BIO 361, 362)
2. Comparative Cell and Tissue Biology (BCD 656)
3. One elective course selected from an approved list

B. Introduction to Neurobiology I, II, a two-semester course in which the student is introduced to a broad variety of topics in neurobiology in the form of lectures, seminars and tutorials by members of the staff. Some laboratory experience will be included.

C. Advanced Neuroscience: Students must take two one-semester courses in neuroscience from an approved list.

D. Quantitative methods

1. Statistics for Biologists (BIO 305)
2. One elective course

E. Enrollment every semester in BNB 697, a one-credit seminar series in which faculty, postdoctoral fellows and advanced graduate students present their current research activities. Visiting scientists also participate in this series.

Teaching Requirements

All students, as part of their training, 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 or she must participate in teaching each semester the assistantship is held.

Residence Requirement

The student must complete at least three years of full-time study, two of which must be in residence.

Preliminary Examination

In February of the second year after admission, each student must take the preliminary exam. The exam will consist of both

written and oral parts and will include content from courses required prior to the preliminary exam. Synthesis of information will be stressed in this exam.

Advancement to Candidacy

The 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 which constitutes an original and significant contribution to the field of Neurobiology and Behavior is required for the Ph.D. The work must be of a quality acceptable for publication in a recognized scientific journal. By the end of the second year, the student should initiate a dissertation research program in the laboratory of a member of the department. After consultation with an advisory committee appointed to guide the dissertation research, the student should present and defend a dissertation proposal. Upon completion of the dissertation research the student will present a departmental seminar based on the dissertation. Following this the student will be given an oral examination on the dissertation research and related areas by the dissertation committee.

Faculty

Cabot, John B., *Assistant Professor*,¹ Ph.D., 1976, University of Virginia: Neural control of the cardiovascular system.

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

Cohen, David H., *Professor and Chairman*,² Ph.D., 1963, University of California, Berkeley: Cellular mechanisms of conditioning; neural control of the heart.

Karten, Harvey J., *Professor*,³ M.D., 1959, Albert Einstein College of Medicine: Avian nervous system; comparative neuroanatomy.

Mendell, Lorne, *Professor*,⁴ Ph.D., 1965, Massachusetts Insti-

¹Joint appointment, Department of Physiology and Biophysics

²Joint appointment, Department of Anatomical Sciences

³Primary appointment, Department of Psychiatry; Joint appointment, Department of Anatomical Sciences

⁴Joint appointment, Department of Physiology and Biophysics

tute of Technology: Spinal physiology; modifiability of spinal circuitry.

Moore, Robert Y., *Professor*,⁵ M.D., Ph.D., University of Chicago: Organization, development and plasticity of central monoamine neuron systems; central neural mechanisms in circadian rhythm regulation.

Scott, Sheryl A., *Assistant Professor*, Ph.D., 1976, Yale University: Developmental neurobiology.

Sherman, S. Murray, *Professor*,⁶ Ph.D., 1969, University of Pennsylvania: Plasticity of developing visual systems.

Walcott, Charles, *Professor*, Ph.D., 1959, Cornell University: Animal orientation and communication.

Yazulla, Stephen, *Associate Professor*, Ph.D., 1971, University of Delaware: Electrophysiology and ultrastructure of the retina in vertebrates.

Zipser, Birgit, *Adjunct Associate Professor*,⁷ Ph.D., 1972, Albert Einstein College of Medicine: Invertebrate neurophysiology; neuropeptide immunocytochemistry; monoclonal antibodies and neuronal specificity.

Estimated number of teaching, graduate and research assistants, fall 1979: 10.

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

⁵Primary appointment, Department of Neurology (Chairman)

⁶Primary appointment, Department of Anatomical Sciences

⁷Program Director for Neurobiology, Cold Spring Harbor Laboratory

have completed six 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, Division of Biological Sciences, Graduate Biology Building, SUNY at Stony Brook, Long Island, 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 GRE 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., *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 cul-

³Department of Biology

⁶Department of Ecology and Evolution

tured plant cells; biochemical differentiation in cultured cells of angiosperms.

Laser, Kenneth D., *Associate Professor*,³ Ph.D., 1972, Iowa State University: Developmental anatomy and morphology of vascular plants: ultrastructure, microsporogenesis, secretory structures.

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



Center for Continuing and Developing Education

The Center for Continuing and Developing Education (CED) provides part-time liberal studies opportunities to persons seeking a broader post-baccalaureate education than is ordinarily found in programs which focus on a single discipline. The Center offers two options for part-time graduate study. One leads to a Master of Arts in Liberal Studies (MA/LS). The other provides an opportunity for graduate study at the University to individuals not interested in the degree who want to take graduate courses to satisfy other goals.

A wide variety of courses offered by the University's divisions of Arts and Humanities, Social Sciences, Biological Sciences, Physical Sciences, and Mathematics; by the Marine Sciences Research Center; by the Health Sciences Center; by the College of Engineering and Applied Sciences; and by the W. Averell Harriman College for Urban and Policy Sciences is open to students under either option. Most courses are taught by full-time University faculty members who combine practical experience in their fields with theoretical rigor.

The Master of Arts in Liberal Studies Degree Program

Students seeking the Master of Arts in Liberal Studies are required to complete a 30-graduate-credit program of study. Eighteen credits must be selected to form a cluster of thematically related courses. The twelve remaining credits are selected to complement the main cluster. In addition, students are required to submit two major papers or projects used to satisfy course requirements or prepared specifically for this purpose.

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, N-201 Social & Behavioral Sciences Building, State University of New York at Stony Brook, Long Island, New York

11794 (516-246-5936). When a student is ready to submit an application, he or she should call 516-246-3301 to schedule an appointment with a CED advisor to plan an approved program of study. The completed application should be given to the advisor at the time of the conference.

To avoid registration problems, students should arrange interviews as far in advance as possible of the start of the semester when they want to start taking courses.

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.

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.

Transferring Graduate Credits from Other Institutions

Rules and Regulations

1. 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.

2. Credits must be in keeping with graduate liberal arts studies offered at SUNY at Stony Brook.

3. Credits must carry the grades of A or B. "Pass" or "Satisfactory" grades are not transferrable unless these grades can be substantiated by the former institution as having at least B quality. The A or B grades for credits transferred from other institutions are not included in any calculation of a CED student's grade point average or in any evaluation of his or her academic standing in the MA/LS degree program.

4. Credits must be no more than 10 years old at the time a student is admitted to CED.

5. No credits used to fulfill a requirement for either a baccalaureate or another degree may be transferred toward MA/LS degree credit.

6. Credits must clearly be graduate level. A course listed as both graduate and/or undergraduate level will not be considered for transfer.

7. Credits transferred will be applied toward the six elective credits allowed among the 30 credits required for the MA/LS degree. If a student wishes to fulfill the distribution requirements or cluster requirements with a transferred course, he or she may be asked to supply additional detailed information about it.

8. When a transferred course has been determined to have a Stony Brook equivalent, this equivalent may not be taken for credit toward the MA/LS degree.

9. No credits may be transferred until a student has completed one course as a CED student.

10. After admission into CED, students must obtain prior approval from the Transfer Credit Advisor to take courses at another institution for MA/LS credit. However, in the case of special programs such as weekend college, mini-courses, field studies, etc., no prior approval will be granted. Requests to transfer such credits will only be considered after completion of such courses when the request can be completely documented with information about the courses as noted on the CED transfer credit "Form for Providing Additional Information." Students should understand that they take special programs with no assurance that they later will transfer toward the MA/LS degree.

Applications to request the transfer of credits are available in the CED office together with instructions for filing.

Time Limit

All requirements for the MA/LS program must be completed within seven years of the time a student first starts taking courses. Students seeking an extension of the seven-year period must petition to the CED Committee on Academic Standing for approval of an extension and justify their failure to complete their MA/LS requirements within the required period.

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. Students wishing to register after a two-semester absence should ask to have their file reactivated.

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.

Professional education courses and many subject area courses have always been available through CED, and now a complete teacher preparation program which includes student teaching is also available in the following secondary school subjects:

| | |
|-------------------|---------------|
| English | Biology |
| Foreign Languages | Earth Science |
| Social Studies | Physics |
| Mathematics | |

Advisement about eligibility for provisional teacher certification through CED study may be obtained from the Office of Teacher Certification (N-221 Social and Behavioral Sciences Building, 516-246-3301).

B. Permanent Certification: New permanent certification requirements were put into effect on January 1, 1978, and it is recommended that persons check with the campus office of Teacher Certification (N-221 Social & Behavioral Sciences Building, 516-246-3301); with the Division of Teacher Education and Certification, Cultural Education Center, Empire State Plaza, Albany, New York 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

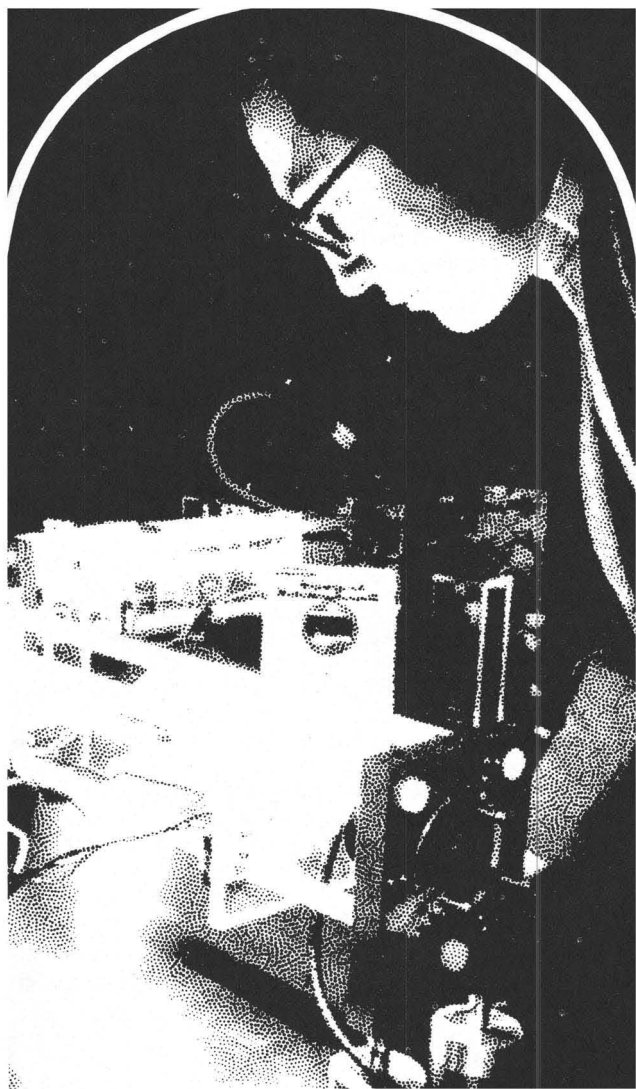
With few exceptions, the faculty of the Center for Continuing Education are members of the faculty of the State University of New York at Stony Brook.

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., 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.



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, robust tests of hypotheses, data analysis, applied graph theory, stochastic modeling and nonparametric methods, sequential analysis, Bayesian models, queueing theory and game theory.

Admission to Graduate Study

For admission to graduate study in Applied Mathematics and Statistics, the minimum requirements are as follows:

A. A bachelor's degree in engineering, mathematics, physics, chemistry or the social sciences with a strong mathematics background.

B. A minimum grade average of at least B in all courses in pertinent or related fields.

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

D. Acceptance by both the Department of Applied Mathematics and Statistics and the Graduate School.

Requirements for the M.S. Degree

A. The M.S. degree in the Department of Applied Mathematics and Statistics requires the satisfactory completion of a minimum of 30 graduate credits.

B. All credits in satisfaction of the degree must be at the graduate level. The department may impose additional requirements as described below. In addition, the grades in courses totaling at least 18 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 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. The part-time student, although not bound by time limits, must demonstrate satisfactory progress at a reasonable rate to be permitted to continue in Applied Mathematics and Statistics towards the M.S. degree.

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:* An oral examination mainly of a research proposal 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 departmental Director of Graduate Studies.

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 must represent a significant contribution to the scientific literature and its quality must be comparable with the publication standards of appropriate and reputable scholarly journals.

G. *The student must defend the dissertation* before the Ph.D. examining committee. On the basis of the recommendation of

this committee, the Chairman of the Department of Applied Mathematics and Statistics 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 seven years after the completion of 24 graduate credits in the program.

I. Language requirement: The student must demonstrate a reading ability in one of the following three languages: French, German or Russian. Proficiency may be demonstrated in a number of ways to be outlined by the Graduate Program Director.

The Department of Applied Mathematics and Statistics offers several areas of specialization. They include applied mathematics, statistics and operations research, all of which are offered on a full-time and part-time basis in both M.S. and Ph.D. programs. The Department of Applied Mathematics and Statistics administers a part-time master's track in Industrial Management for the College of Engineering and Applied Sciences. All of the M.S. programs in Applied Mathematics and Statistics, when pursued on a full-time basis, should be completed in three to four semesters. However, students with strong background may have certain requirements waived and thus may be able to complete studies in two semesters. It is strongly urged that all students in Applied Mathematics have some familiarity with computer programming. Requirements in each of the three tracks are listed below.

A. Core Requirements

1. Applied Mathematics

MSA 501 Differential Equations and Boundary Value Problems

MSA 503 Applications of Complex Analysis

MSA 504 Foundations of Applied Mathematics

MSA 505 Applied Algebra I

MSA 526 Numerical Analysis I

2. Operations Research

MSA 505 Applied Algebra I

MSA 530 Linear Programming

MSA 535 Stochastic Processes

MSA 540 Modeling Laboratory

MSC 530 Simulation and Modeling

or

MSC 548 Analysis of Algorithms

One course in statistics

3. *Statistics*

- MSA 504 Foundations of Applied Mathematics
- MSA 505 Applied Algebra I
- MSA 570 Mathematical Statistics I: Estimation
- MSA 571 Mathematical Statistics II: Hypothesis Testing
- MSA 572, 573 Exploratory Data Analysis I, II
- MSA 575 Data Analysis Laboratory
- MSA 578 Regression Theory
- MSA 581 Analysis of Variance
- MSA 604 Probability Theory I

B. *Elective Requirements*

1. *Applied Mathematics and Operations Research*

Any graduate level MSA or other related graduate level courses in a related discipline approved by the Director of Graduate Studies may be used to satisfy the credit requirement beyond the core course requirement. In addition, six elective credits may be earned by completion of a Master's thesis.

2. *Statistics*

Recommended electives:

- MSA 584 Sequential Analysis
- MSA 585 Sampling Techniques
- MSA 586 Time Series
- MSA 588 Biostatistics
- MSA 605 Probability Theory II
- MSA 691 Topics in Applied Mathematics
- ECO 620, 621 Advanced Econometrics I, II
- BEE 553 Multivariate Analysis in Biology
- BEE 557 Numerical Taxonomy
- MSC 530 Simulation and Modeling

Other graduate level courses with prior approval of advisor.

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 Daniel Dicker, Director of the Postgraduate Extension Program of the College of Engineering and Applied Sciences, or Mrs. Esther Weitzman, Administrator of the Postgraduate Extension Program of the College of Engineering and Applied Sciences.

Core Requirements for Industrial Management:

EMP 504 Quantitative Management Methods

and

At least four of the five courses below:

EMP 500 Management Policy and Planning by Case Study

EMP 501 Behavioral and Organizational Aspects of Management

EMP 502 Management Accounting and Financial Decision Analysis

EMP 503 Legal and Regulatory Aspects of Management

EMP 509 Management Information Systems

One course in Economics chosen from the M.A. program in Economic Policy Analysis

Electives shall be selected with approval of faculty advisor from a broad selection of programs.

Postgraduate Extension Program

In addition to the resident full-time graduate program leading to the M.S. and Ph.D. in Applied Mathematics, Operations Research and 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, and at 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 and industrial management. 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 the Applied Mathematics 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 Administrator of the Postgraduate Extension Program, Esther Weitzman, at the Department of Applied Mathematics and Statistics, State University of New York at Stony Brook, Long Island, New York 11794.

Faculty

Beltrami, Edward J., *Professor*, 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 Postgraduate Extension Program*, D.Eng.Sc., 1961, Columbia University: Boundary value problems of solids and fluids; aeroelastic 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, *Associate Professor*, Ph.D., 1974, Princeton University: Robust estimation and non-parametric statistics.

Frauenthal, James, *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 area.

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; management analysis.
- Provan, Scott, *Assistant Professor*, Ph.D., 1977, Cornell University: Operations research.
- Robbins, Herbert, *Leading Professor*, Ph.D., 1938, Harvard University; Sc.D. (Honorary), 1974, Purdue University: Sequential analysis; stochastic approximation; Bayesian models and tests of power.
- Schreiber, Heinz, *Visiting Assistant Professor*, Ph.D., 1972, Polytechnic Institute of New York: Communications systems analysis; quantitative methods in management.
- 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.
- Slote, Leslie, *Visiting Assistant Professor*, Ph.D., 1970, Columbia University: Organizational behavior.
- 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, *Professor and Chairman*, Ph.D., 1965, Stanford University: Graph theory; combinatorial algorithms.

Estimated number of teaching, graduate and research assistants, fall 1979: 57.

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, professional M.S. students will, for the most part, be emphasizing more practical and applied subject matter, excluding themselves 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 through either 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 semesters of calculus, one course in linear algebra (e.g., MSM 231) and one course in discrete mathematics (e.g., MSA 302).

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

D. At least three college-level courses in computer science, covering programming in a higher level structured language such as PASCAL or PL1, 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 both 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.

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

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 graduate 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 the student's 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 graduate credits of course work with a B average 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 532 | Information Organization and Retrieval |
| 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 prelim-

inary 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.

Facilities

The department operates a PDP-11/60 minicomputer with extensive peripherals including CRT vector graphics and a printer-plotter. This computer is normally operated under time shared UNIX in conjunction with the Amsterdam PASCAL compiler but Concurrent Modula is also available. The PDP-11/60 has connections to an experimental multiprocessor network with up to 18 LSI-11 microcomputers with specially designed linkages. There are also terminals which connect to the University UNIVAC 1100/80 computer, Brookhaven National Laboratory and the ARPANET. A further 32KB Ontel OP-1 system with flexible disk drives and printer can either be operated in self-contained mode or in connection with the UNIVAC.

Faculty

Bernstein, Arthur J., *Professor*, Ph.D., 1962, Columbia University: The design and correctness of operating systems; concurrent programming; 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; computer security; computer networks.
- 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; data base management systems; humanities data processing.
- Henderson, Peter B., *Assistant Professor*, Ph.D., 1975, Princeton University: Software engineering; software reliability; scheduling theory; concurrent processes; operating systems.
- Kieburz, Richard B., *Professor*, Ph.D., 1961, University of Washington, Seattle: Software engineering; programming languages; concurrent programming; theory of computation.
- Larsen, David, *Assistant Professor*, Ph.D., 1973, Yale University: Computer applications; artificial intelligence.
- Maier, David, *Assistant Professor*, Ph.D., 1978, Princeton University: Computational complexity; algorithm analysis; data base systems.
- Russell, Bruce, *Assistant Professor*, Ph.D., 1974, National University of Ireland: Programming languages; formal semantics; programming methodology.
- Salveter, Sharon, *Assistant Professor*, Ph.D., 1978, University of Wisconsin: Artificial intelligence; data base design; data structures.
- Smith, David R., *Professor*, Ph.D., 1961, University of Wisconsin: Computer architecture; digital system design; computer systems.
- Warren, David, *Assistant Professor*, Ph.D., 1979, University of Michigan: Natural language processing; data base systems; algorithms.
- Zorat, Alessandro, *Assistant Professor*, Ph.D., 1979, University of Southern California: Distributed computing; computer architecture.

Estimated number of teaching, graduate and research assistants, fall 1979: 28.

Department of Electrical Engineering

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.

Admission to Graduate Study

For admission to graduate study in the Department of Electrical Engineering the minimum requirements are:

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 point 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 both the Department of Electrical Engineering and the Graduate School.

Requirements for the M.S. Degree

The M.S. degree in the Department of Electrical Engineering requires the satisfactory completion of a minimum of 30 graduate credits. This requirement may be satisfied by either one of the following two options:

I. M.S. Non-Thesis Option

A. At least 30 graduate credits with a grade point average of 3.0 or better. Among these 30 credits, up to 6 credits may be ESE 506, ESE 507, ESE 599, ESE 597, ESE 691, ESE 698, or ESE 699.

B. Minimum of 8 regular courses with at least 3.0 grade point average. At least 5 regular courses must be in the Department of Electrical Engineering.

C. ESE 506, ESE 507, ESE 597, ESE 599, ESE 698 and ESE 699 are not counted as regular courses in B. Courses which permit repetitive credits, such as research, seminars or special topics, can be counted only once (3 or 4 credits) in B.

- D. Up to 6 transfer credits may be applied toward the degree with the approval of the graduate program committee (see section on Transfer Credits under "Academic Regulations and Procedures").

II. M.S. Thesis Option

- A. At least 30 graduate credits with a grade point average of 3.0 or better. At least 6 credits of ESE 599. No more than 12 credits total may be taken from ESE 506, ESE 507, ESE 599, ESE 597 or ESE 698.
- B. Minimum of 6 regular courses with at least 3.0 grade point average. At least 4 regular courses must be in the Department of Electrical Engineering.
- C. ESE 506, ESE 507, ESE 597, ESE 599, ESE 698 and ESE 699 are not counted as regular courses in B. Courses which permit repetitive credits, such as research, seminars or special topics, can be counted only once (3 or 4 credits) in B.
- D. Up to six transfer credits may be applied toward the degree with the approval of the graduate program committee (see section on Transfer Credits under "Academic Regulations and Procedures").
- E. Satisfactory completion of a thesis.

Upon the fulfillment of the above requirements the faculty of the department 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.

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 written qualifying examination to ascertain ability for study for the Ph.D. degree.

C. Course study plan: Within six months after passing the qualifying examination, the student must arrange a course study plan with his or her thesis advisor and file it with the Graduate Program Committee; later it must be approved by the preliminary examination committee.

D. Preliminary examination: Within 12 months after passing the qualifying examination, the student must take a comprehensive oral examination, which may be supplemented by a

written examination. Both a thesis topic and the thesis background area are emphasized.

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 department.

F. Dissertation: The most important requirement for 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 seven years after completing 24 hours of graduate courses in the department.

Graduate Programs and Areas of Emphasis

Particular areas of emphasis in current research and instruction in the graduate programs of the department are optimal control and system theory, digital signal processing, coherent optics and optical information processing, solid state electronics and integrated circuits, digital systems and computer architecture, communication theory and data and computer communications, biomedical electronics and instrumentation, integrated and fiber optics and microwave acoustics. Theoretical and experimental programs reflecting these areas are currently operative and students are encouraged to actively participate in these efforts. In addition to its emphasis on modern electrical engineering, the department participates in interdepartmental graduate programs in computer science, in urban and policy sciences and in bioengineering. These are described in adjoining sections of this *Bulletin*.

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 and 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, and 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, 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 that it is 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

ate to this area are: ESE 318, ESE 545, ESE 546, ESE 549, ESE 551, ESE 552, MSC 502.

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 Bioengineering

The Department of Electrical Engineering is a participating department of the Bioengineering Graduate Program in the College of Engineering and Applied Sciences. In addition, the department offers courses in bioelectronics, cardiovascular dynamics, 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 596, 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 exam-

ple, 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 bio-medical 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 circuits. 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 B.E.-M.S. 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.

Facilities

The Department of Electrical Engineering operates two laboratories for both teaching and research, a microelectronics laboratory and a minicomputer laboratory.

The microelectronics laboratory, which includes equipment covering RF, microwave and optical frequencies, and photo-

lithographic processing equipment for integrated electronics, is available for teaching and graduate research. The microcomputer laboratory has equipment for research and teaching in digital electronics, microcomputer hardware design and interface, and digital system study and research.

Faculty

- Barry, Patrick E., *Adjunct Associate Professor*, Ph.D., 1969, State University of New York, Stony Brook: Systems and control; optimization theory.
- Carleton, Herbert R., *Professor*,¹ Ph.D., 1964, Cornell University: Optical materials; electro-optics; ultrasonics; optical instrumentation.
- Chang, Sheldon S.L., *Professor and Chairman*, Ph.D., 1947, Purdue University: Optimal control; energy conservation; information theory; economic theory.
- Chen, Chi-Tsong, *Professor*, Ph.D., 1966, University of California, Berkeley: Systems and control theory; digital signal processing.
- Driscoll, Timothy J., *Adjunct Associate Professor*, M.S., 1970, Polytechnic Institute of Brooklyn: Electrical power and distribution systems.
- Eslami, Mansour, *Assistant Professor*, Ph.D., 1978, University of Wisconsin, Madison: Systems and control.
- Fajer, Jac, *Adjunct Professor*, Ph.D., 1962, Brandeis University: Electrochemistry; organic fuel cells.
- 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.
- Marsocci, Velio A., *Professor*,² Eng. Sc. D., 1964, New York University: Solid state electronics; integrated electronics; biomedical engineering.
- Rappaport, Stephen S., *Associate Professor and Undergraduate Program Director*, Ph.D., 1965, New York University: Communication theory; systems.

¹Joint appointment with Department of Materials Science and Engineering

²Also Clinical Professor of Health Sciences

- Richman, Paul, *Adjunct Professor*, M.S., 1964, Columbia University: Field effect transistors and integrated circuits.
- Short, Kenneth L., *Associate Professor*, Ph.D., 1973, State University of New York, Stony Brook: Digital system design; instrumentation.
- Smith, David R., *Professor*,³ Ph.D., 1961, University of Wisconsin: Logic design; computer architecture.
- Truxal, John G., *Professor*,⁴ Sc.D., 1950, Massachusetts Institute of Technology: Control and systems engineering; science education.
- Tuan, Hang-Sheng, *Professor and Graduate Program Director*, Ph.D., 1965, Harvard University: Electromagnetic theory; integrated and fiber optics; microwave acoustics.
- Ucci, Donald R., *Assistant Professor*, Ph.D., 1979, The City College of the City University of New York: Communications; digital communication systems and signal processing.
- Waters, Charles R., *Adjunct Assistant Professor*, Ph.D., 1975, State University of New York, Stony Brook: Control and systems engineering.
- Zemanian, Armen H., *Professor*, Eng.Sc.D., 1953, New York University: Network theory; food system modelling.

Estimated number of teaching, graduate and research assistants, fall 1979: 52.

³Joint appointment with Department of Computer Science

⁴Full-time appointment with Department of Technology and Society

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.

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 are exempt.)

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

Degree Requirements

In addition to the College of Engineering and Applied Sciences 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 fifth semester. If a second examination is required, this must be completed by the tenth week of the sixth semester. Students entering the program with a master's degree must complete the examination by the tenth 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 seven years after completing 24 hours of graduate courses in the department.

Faculty

Bilello, John C., *Dean, College of Engineering and Applied Sciences, and Professor*, Ph.D., 1965, University of Illinois: Mechanical properties; lattice defects; fracture; refractory metals; surface coatings; synchrotron topography.

Carleton, Herbert R., *Professor*,² Ph.D., 1964, Cornell University: Optical and ultrasonic properties; Brillouin scattering in crystals; surface acoustics.

Clayton, Clive R., *Assistant Professor*, Ph.D., 1976, Surrey University, England: Corrosion science; ESCA; ion implantation.

Goland, Allen N., *Adjunct Professor*,¹ Ph.D., 1956, Northwestern University: Solid-state physics; defects; interaction of radiation with condensed matter.

Herley, Patrick J., *Professor*,⁵ 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: Phase transformations; small-angle scattering; protective coatings; marine materials.

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 In-

stitute (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.

Liu, John M., *Assistant Professor*, Ph.D., 1973, Johns Hopkins University: Mechanical properties; fracture; non-destructive evaluation; synchrotron topography.

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.

Estimated number of teaching, graduate and research assistants, fall 1979: 27.

¹Adjunct, Brookhaven National Laboratory

²Joint appointment, Department of Electrical Engineering

³Adjunct, Grumman Aerospace Corporation

⁴Joint appointment, Department of Earth and Space Sciences

⁵Joint appointment, Department of Chemistry

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 atmospheric sciences, energy systems, fluid mechanics and solid mechanics. Research specialities include turbulent transport, dynamic meteorology, energy transfer in planetary atmospheres, rheology, combustion, energy technology, environmental fluid dynamics, statistical mechanics, thermodynamics, suspension flows, spectroscopy, experimental solid mechanics including photoelasticity and moire methods, and energy transfer in solids. Research laboratories include: fluid mechanics and heat transfer, two-phase flow, turbulent chemical reacting flows, photomechanics, etc.

In addition to the regular graduate offerings within the department, three special interdepartmental programs are available. These are:

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. 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. A major portion of the preliminary examination will be devoted to problems in atmospheric physics and chemistry. A research advisor for the dissertation will normally be selected from the LPAR faculty.

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 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.

In addition to the above, the mechanical engineering graduate program offers the following:

Combined B.E.-M.S. Degree

Undergraduate students may enter this special five-year Bachelor of Engineering-Master of Science 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 M.S. degrees, including the M.S. thesis. Further information may be obtained from the departmental Graduate Program Director.

Admissions to Graduate Study

For admission to graduate study in mechanical engineering, the following are normally required:

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

B. A 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 are exempt.) Applicants are encouraged to submit GRE test scores for the advanced examination as well.

D. Acceptance by both the Department of Mechanical Engineering and the Graduate School.

Requirements for the M.S. Degree

A. Course Requirements:

1. *M.S. with thesis*: Twenty-four (24) approved graduate credits. No credit for ESC 599 (Research) or ESC 698 (Practicum in Teaching) is approved for fulfilling this requirement.

2. *M.S. without thesis*: Thirty (30) approved graduate credits. A maximum of six (6) credits for ESC 599 (Research) and no credit for ESC 698 (Practicum in Teaching) are approved for fulfilling this requirement.

B. The average for all courses taken must be B or better.

C. A maximum of six (6) graduate credits from another institution can be transferred at the discretion of the department and with the approval of the Graduate School. A maximum of twelve (12) credits (including transferred credits, if any) from other departments can be approved at the discretion of the department.

D. Thesis requirements: 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 the student's 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.

Requirements for the Ph.D. Degree

A. *Course requirements*: At least fifteen (15) approved credits of formal courses over and above the M.S. degree requirement. This does not include credit for ESC 699 (Research) or ESC 698 (Practicum in Teaching). In addition, three (3) credits of ESC 699 are required as a prerequisite or corequisite for taking the preliminary written examination. The faculty advisor may impose additional course requirements.

B. *Major and minor requirements*: The student must major in

one of three areas within the department. These major areas are:

1. Energy systems and fluid mechanics
2. Solid mechanics
3. Atmospheric sciences

Students are advised to secure a dissertation advisor as early as possible but no later than after passing the preliminary written examination. In addition, the student must select a minor from one of the following academic disciplines:

1. Fluid mechanics
2. Heat transfer
3. Thermokinetics
4. Statistical mechanics
5. Solid mechanics
6. Atmospheric sciences
7. Other approved disciplines outside the department

The minor requirement consists of three 3-credit courses within one of the above areas; a grade of at least B in each course is necessary to complete the requirement. There will be no preliminary examination questions on these courses.

C. Preliminary written examinations: During the last two weeks of each semester, written examinations for doctoral programs will be offered in each of the three areas. A student in the doctoral program must take the preliminary written examination in his or her major area by the fourth semester in that program (second semester for a student with an M.S. degree). Only for a good reason and by a petition presented six months in advance may this examination be deferred.

In the area of energy systems and fluid mechanics, the examination consists of two parts chosen from any two of the following four academic disciplines:

1. Fluid mechanics
2. Heat transfer
3. Statistical mechanics
4. Thermokinetics

D. Advancement to candidacy. Within one year after passing the preliminary written examination, the student must complete all formal course requirements and should submit a dissertation proposal to his or her oral examination committee. The examination committee will consist of three (3) members of the department and one (1) member from outside the department. The student will defend orally his or her dissertation proposal. Three of the four members of the examination committee must approve the student's performance before he or she is admitted to candidacy for the Ph.D. degree.

E. Research and dissertation: A dissertation is required for the Ph.D. degree. The dissertation must be approved by a dissertation committee. The dissertation committee shall have four (4) members—three (3) from the Department of Mechanical Engineering and one (1) from outside the department. The Graduate Program Director, in consultation with the dissertation advisor, will make the tentative selection of the members of the committee in the department. The official recommendation for the appointment of the entire dissertation committee will be made to the Dean of the Graduate School when the candidate's dissertation is near completion.

Dissertation defense orals are open to the faculty. Questioning is open to the dissertation examining committee and the faculty of the University. The decision is by majority vote of the dissertation committee.

Prior to the formal dissertation defense, presentation at a seminar is considered desirable and is to be scheduled by the advisor. The dissertation is to be distributed to the committee members at least three (3) weeks before the dissertation defense. One (1) copy is to be kept in the departmental office for examination by the faculty.

Facilities

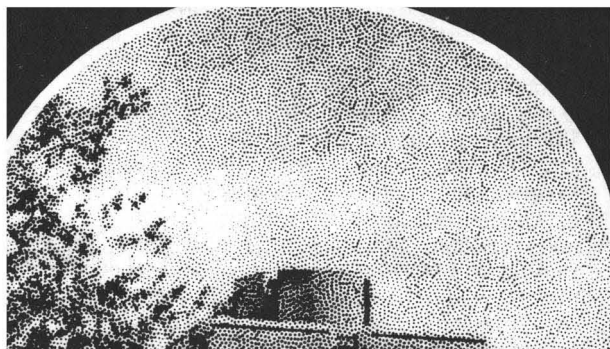
The department has a number of laboratories dedicated to graduate training and research. In addition, graduate student research may be carried out at nearby Brookhaven National Laboratory, using the facilities there. The department has specialized laboratories for two-phase flow measurements; they include laser-Doppler velocimetric instrumentation supported by a PDP-11 computer. The turbulence laboratory is equipped with hot-film devices; fast-response pH probes are available for studying chemical reactions in turbulent media. There are additional laboratories dedicated to the experimental investigation of combustion phenomena, heat transfer, and fluid mechanics. The photomechanics laboratories contain a number of unusual diagnostic devices including a laser speckle interferometer and a camera that enables the entire surface of a cylindrical object to be displayed in a single photographic image. All of the department's laboratories are supplied with a full range of electronic instrumentation and equipment.

Faculty

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, René, *Professor*, Ph.D., 1967, University of Iowa: Transport and turbulent flows.
- Chiang, Fu-Pen, *Professor*, Ph.D., 1966, University of Florida: Experimental mechanics; photoelasticity; moire and other optical methods for stress analysis.
- Hameed, Sultan, *Adjunct Associate Professor*, Ph.D., 1968, University of Manchester: Air pollution dispersion.
- Harris, Stewart, *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; biomedical 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, Lin-Shu, *Associate Professor*, Ph.D., 1966, University of California, Berkeley: Dynamic meteorology; energy technology.
- Yang, Ching H., *Professor*, Ph.D., 1951, Lehigh University: Thermokinetic systems.

Estimated number of teaching, graduate and research assistants, fall 1979: 36.



Health Sciences Center

The Health Sciences Center is a major division of the State University of New York at Stony Brook, located on the north shore of Long Island 50 miles east of New York City. It is the fourth and newest health center in the SUNY system.

The decision to develop a new Health Sciences Center at Stony Brook grew out of the Muir Commission Report presented to former Governor Rockefeller in 1963, which assessed the State's immediate health manpower and service needs. Noting that the then 2½ million residents of the two Long Island counties of Nassau and Suffolk were among the largest populations in the United States not served by an academic medical center, the Muir Commission recommended the development of a Health Sciences Center within the State University at Stony Brook to meet the health teaching and related service needs of the Long Island geographic area.

The Health Sciences Center now consists of six Schools: the Schools of Allied Health Professions, Basic Health Sciences, Dental Medicine, Medicine, Nursing and Social Welfare. The Schools are linked to the University Hospital, a central teaching facility for all the educational programs of the Health Sciences Center. In addition, a full range of professional, technical and laboratory resources are available to the Center, providing academic support services for students and faculty.

The Health Sciences Center has also established a partnership with four Long Island hospitals, referred to as "clinical campuses," where students receive their essential patient care experience in the "field." These are the Hospital of the Medical Research Center, Brookhaven National Laboratory; Long Island Jewish-Hillside Medical Center and its Queens Hospital Center Affiliation of LIJ-HMC; Nassau County Medical Center; and Northport Veterans Administration Medical Center. In addition, the six Schools have affiliation agreements with over 80 other hospitals and health agencies in the Long Island area.

The date each School opened and the degrees now conferred are:

| | | |
|-------------------------------------|------|--------------|
| School of Allied Health Professions | 1970 | B.S., M.S. |
| School of Basic Health Sciences | 1970 | Ph.D. |
| School of Dental Medicine | 1973 | D.D.S. |
| School of Medicine | 1971 | M.D. |
| School of Nursing | 1970 | B.S., M.S. |
| School of Social Welfare | 1971 | B.S., M.S.W. |

Objectives of the Center

- To increase the supply and proficiency of health professionals in fields of demonstrated regional, state and national need.
- To provide health care of sufficient variety and quality to enable professional education and related research to occur.
- To sustain an environment in which research in health and related disciplines can flourish.
- To emerge as a regional resource for advanced education, patient care and research in broad areas of health.

Buildings and Facilities

The Health Sciences Schools share instructional space, multi-disciplinary laboratories, lecture halls and the support services of the Division of Laboratory Animal Resources, the Health Sciences Center Library, Media Services and the Office of Student Services.

The 19 floors of the University Hospital include surgical suites, laboratories, emergency and ambulatory care units capable of handling up to 300,000 visits per year and ancillary facilities. When fully operational, nearly half of the 540-bed hospital will be dedicated to intensive and specialty care.

Specialized services in the hospital will include an open heart surgery program, a comprehensive renal dialysis facility, a transplant service, full perinatal care (including high-risk obstetrics and neonatal and pediatric intensive care units), acute psychiatric services for adults and children and a broad-based diagnostic and therapeutic rehabilitation program.

While the University Hospital will provide a hospital teaching environment for students, the Health Sciences Center will continue to utilize the clinical facilities currently being provided for its students in Long Island hospitals and health agencies which have entered into partnership agreements with the Health Sciences Center.

Planning for a new dental facility as part of the Center is presently underway, and it is expected that the School of Dental Medicine will move from its temporary facilities in the early 1980's, bringing all of the six Schools of the Center to one location.

The Center and the Community

At present, over 1,000 skilled professionals from the Long Island region have faculty appointments and participate in the Schools of the Center. All Health Sciences Center students, as

part of their clinical training or field work, work for a specific time with some of the Long Island health and welfare agencies. Continuing education for many health professions is offered by the Schools. The Center also sponsors conferences, workshops and lectures on major health issues for the general community.

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 Oral Biology and Pathology
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 Dental Medicine
Department of Oral Biology and Pathology
Department of Oral and Maxillofacial Surgery
Department of Periodontics
Department of Restorative Dentistry

School of Medicine

Department of Anesthesiology
Department of Community and Preventive Medicine
Department of Dermatology
Department of Family Medicine
Department of Medicine

Department of Neurology
Department of Obstetrics and Gynecology
Department of Ophthalmology
Department of Orthopaedics
Department of Otorhinolaryngology
Department of Pediatrics
Department of Physical Medicine and Rehabilitation
Department of Psychiatry
Department of Radiology
Department of Surgery
Department of Urology

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 the academic calendar.

The *Health Sciences Center Bulletin* can be obtained by writing or telephoning the Health Sciences Center Office of Student Services (516-246-2111), or the Office of the Dean of a specific School.

Allied Health Professions

The School of Allied Health Professions offers a program leading to the degree of Master of Science in Health Sciences. The program is designed for professionals who wish to gain proficiency in teaching, supervision or research. Students must successfully complete 36 credits of study including a 12-credit internship or practicum and courses to demonstrate understanding and competence in medical care delivery, written communication, research methodology and interpersonal skills. A plan of study, which includes a 14-credit specialty track in teaching, supervision or research, will be designed jointly by each student and a faculty advisor from the School of Allied Health Professions.

All candidates must hold a baccalaureate degree, have professional status in one of the health professions, have one year's experience in the field, submit a graduate record score and aspire to a career in teaching, supervision or research.

Further information may be obtained from the program director:

Rose A. Walton, Ed.D.
Department of Allied Health Resources
School of Allied Health Professions
Health Sciences Center
State University of New York at Stony Brook
Long Island, New York 11794
(516-246-2393)

Basic Health Sciences

The School of Basic Health Sciences offers programs leading to the Ph.D. degree in Anatomical Sciences, Microbiology, Oral Biology and Pathology, 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.

All questions concerning admission to the School of Dental Medicine should be addressed to:

Office of Admissions
School of Dental Medicine
Health Sciences Center
State University of New York at Stony Brook
Long Island, New York 11794
(516-246-2805)

Medicine

Admission to the School of Medicine is highly selective.

All questions concerning admission to the School of Medicine should be addressed to:

Office of Admissions
School of Medicine
Health Sciences Center
State University of New York at Stony Brook
Long Island, New York 11794
(516-246-2113)

Nursing

The School of Nursing offers a full-time and part-time 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:

Paula Hunter, Ph.D.
Director, Graduate Program in Nursing
School of Nursing
Health Sciences Center
State University of New York at Stony Brook
Long Island, New York 11794
(516-246-2385)

Social Welfare

Graduate Program

The School of Social Welfare is seeking applicants committed to social change—students concerned with the insufficient commitment of existing institutions to the needs of people in this society. As the School is part of the Health Sciences Center, a major thrust of its curriculum is in the broad areas of health, mental health and human service programs. The Master's program of the School of Social Welfare is structured to provide students with theoretical and practice expertise so that they can function with maximum competence in areas of social welfare practice, utilizing a range of methods and skills.

Applicants to the graduate program will be evaluated in part on the basis of the congruence of their interests with the School's resources and commitments. A major attempt is made to build into the student body a large degree of ethnic, income and sexual diversity.

All questions concerning admission to the School of Social Welfare should be addressed to:

Janet Steele-Holloway
Assistant Dean for Admissions and Recruitment
School of Social Welfare
Health Sciences Center
State University of New York at Stony Brook
Long Island, New York 11794
(516-246-2141)

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 Anatomy-

cal Sciences, Biochemistry, Microbiology, Pathology, Pharmacological Sciences, and Physiology and Biophysics. These departments, in conjunction with appropriate components of the Division of Biological Sciences, have principal responsibility for preclinical instruction of students in all Schools of the Health Sciences Center. They also have 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 (Basic Health Sciences 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: mathematics through one year of calculus, chemistry 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 Aptitude Test of the Graduate Record Examination and the Advanced Area Test.

D. Acceptance by both 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.

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, and 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 physiology including neurocytology, neurohistology, electrophysiology and animal behavior. Further details of the program in anatomical sciences may be obtained from the program chairman, Dr. Benjamin Walcott.

Faculty

- Brink, Peter R., *Assistant Professor*, Ph.D., 1976, University of Illinois: Physiology and biophysics of junctional and excitable membranes.
- Cohen, David H., *Professor*, Ph.D., 1963, University of California, Berkeley: Cellular mechanisms of conditioning; neural control of the heart.
- Creel, Norman, *Associate Professor*, Ph.D., 1967, Eberhard-Karls University: 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., *Associate Professor*, Ph.D., 1976, Harvard University: Evolutionary biology of higher primates; vertebrate paleontology; behavioral and experimental analysis of comparative musculoskeletal anatomy; skeletal growth and development.
- Fusco, Madeline, *Professor and Associate Dean, School of Basic Health Sciences*, Ph.D., 1959, University of Pennsylvania: Neurophysiology; 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 composition during differentiation; tissue culture.

- 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.M.D., 1960, University of Halle/Saale, East Germany; Ph.D., 1961, University of Halle/Saale, East Germany: Quantitative morphology of the human brain; physical anthropology.
- Jungers, William L., *Research Assistant Professor*, Ph.D., 1976, University of Michigan: Paleoanthropology; comparative primate anatomy; biomechanics; primate paleontology and systematics.
- Karten, Harvey J., *Professor*, M.D., Albert Einstein College of Medicine: Comparative and developmental biology of the vertebrate nervous system with emphasis on morphological and histochemical studies of nervous tissue; evolution of the nervous system.
- Owen, W. Geoffrey, *Assistant Professor*, Ph.D., 1970, University of London: Neurophysiology and neuroanatomy of the retina; synaptic transfer of information between sensory neurons; signal processing by neural networks.
- Palatnik, Carl M., *Research Assistant Professor*, Ph.D., 1975, State University of New York, Stony Brook: Messenger RNA metabolism and relation to development in *Dictyostelium*; cellular aspects of development.
- Panessa-Warren, Barbara, *Assistant Professor*, Ph.D., 1974, New York University: Transmission and scanning electron microscopy; X-ray microanalysis; quantitative elemental analysis of cells.
- Prives, Joav M., *Assistant Professor*, Ph.D., 1968, McGill University: Differentiation of excitable membranes during development in tissue culture; regulation of biosynthesis of cell membrane components.
- Schwartz, Jeffrey M., *Assistant Professor*, M.D., 1972, New York Medical College: Human locomotion; orthopaedic surgery and sports medicine.
- Sherman, S. Murray, *Professor*, Ph.D., 1969, University of Pennsylvania: Studies of the central visual pathways of cats; visual development; neuroanatomy.
- Stern, Jack T., Jr., *Associate Professor*, Ph.D., 1969, University of Chicago: Functional gross morphology; relationship between primate locomotor behavior and structure; human muscle function in relation to athletic activity and orthopaedics; radiotelemetered electromyography.

- Susman, Randall L., *Assistant Professor*, Ph.D., 1976, University of Chicago: Functional morphology and behavior of primates; evolution of apes and humans; gross anatomy.
- Twarog, Betty M., *Professor*, Ph.D., 1952, Radcliffe College: Comparative function and structure of smooth muscle; neural control of smooth muscle; neurotoxins.
- Walcott, Benjamin, *Associate Professor*, Ph.D., 1968, University of Oregon: Comparative neurophysiology; comparative muscle structure and function; sensory integration; electron microscopy.
- Williamson, David L., *Associate Professor*, Ph.D., 1959, University of Nebraska: Genetics; maternally inherited infections; biology of spiroplasmas.
- Wilson, James R., *Research Assistant Professor*, Ph.D., 1976, University of Virginia: Neurophysiology and neuroanatomy of mammalian visual pathways (CNS); ultrastructure of synaptic relationships of central visual pathways; developmental visual anatomy and physiology.
- Witkovsky, Paul, *Professor*, Ph.D., 1972, 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 to excellent central facilities which support this research. The recommended course work is 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.

Faculty

- Abrahams, Irving, *Clinical Associate Professor*, Ph.D., 1952, Cornell University Medical College: Cellular immunity; fungal immunology; host-parasite interactions.

- Anderson, Carl W., *Adjunct Associate Professor*, Ph.D., 1970, Washington University: Molecular biology of *in vitro* protein synthesis; genetic analysis of tumor virus expression.
- Bauer, William R., *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.
- Broach, James R., *Assistant Professor*, Ph.D., 1973, University of California, Berkeley: Investigations of gene expression in the yeast *S. cerevisiae*.
- Brugge, Joan S., *Assistant Professor*, Ph.D., 1975, Baylor College of Medicine: Investigations of the function of the transforming protein of avian sarcoma virus which is responsible for oncogenic transformation.
- 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 A., *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.
- Jacobson, Ann B., *Lecturer*, Ph.D., 1962, University of Chicago: Electron microscopy; structure of viral RNA; regulation of gene expression.
- Katz, Eugene R., *Associate Professor*, Ph.D., 1969, University of Cambridge, England, Churchill College: Developmental genetic studies on cellular slime molds.
- 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*.
- Levine, Arnold J., *Professor and Chairman*, Ph.D., 1966, University of Pennsylvania School of Medicine: The isolation, characterization and function of viral tumor antigens: SV40, the adenoviruses; teratocarcinomas as a model system for the study of development and malignancy.
- Lucas, Joseph J., *Assistant Professor*, Ph.D., 1972, University of Pennsylvania: Application of techniques of cellular enucle-

ation and nuclear transplantation in studies of the control of gene expression during differentiation.

Ohtsubo, Eiichi, *Associate 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.

Ohtsubo, Hisako, *Research Assistant Professor*, Ph.D., 1975, Kanazawa University, Japan: Nucleotide sequence analysis of insertion sequences and transposons in prokaryotes; cloning of the repeated sequences in prokaryote chromosome.

Pavlova, Maria, *Adjunct Associate Professor*, Ph.D., 1969, Charles University, Prague, Czechoslovakia: Interaction between chemical carcinogens and tumor viruses in carcinogenesis.

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.

Topp, William C., *Adjunct Assistant Professor*, Ph.D., 1973, Princeton University: Mechanisms of viral transformation; the genetic basis for the transformed phenotype.

Weitzman, Stephen, *Associate 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, *Professor*, Ph.D., 1962, University of Göttingen, 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. Jerry Pollock.

Faculty

Archard, Howell O., *Associate Professor*, D.D.S., 1955, Columbia University: Acquired and inherited morphologic changes affecting the oral mucosa and teeth; oral manifestations of metabolic and systemic diseases; clinical oral allergic disorders.

Chatterjee, Robi, *Research Assistant Professor*, D. Phil., 1965, University of Allahabad, India: Degradation of salivary proteins and peptides by bacterial proteases and peptidases; involvement of salivary proteins in formation of dental plaque through alteration of salivary pH levels.

Eisenbud, Leon, *Professor*, D.D.S., 1940, New York University: Clinical and pathologic correlation of lichen planus; gold compounds in mucosal pemphigoid; oral biopsy and immunofluorescence of lupus erythematosus.

Garant, Philius R., *Professor*, D.M.D., 1965, Harvard University: Electron microscopic autoradiographic, freeze fracture and cytochemical techniques to determine the role of the fibroblast in collagen fibrillogenesis and regeneration of periodontal ligament fibers; the fibroblast in periodontitis lesions; odontogenesis and enamel maturation.

Golub, Lorne M., *Professor*, D.M.D., 1963, University of Manitoba, Canada; M.Sc., 1965, University of Manitoba: Synthesis maturation and degradation of collagen in oral tissues; effect of inflammation on diabetes and collagen metabolism and on the flow, cellular and chemical constituents of gingival fluid and relevance to diagnosis and management of the periodontal patient.

Gwinnett, John A., *Professor*, B.D.S., 1959, University of Birmingham, England; Ph.D., 1964, University of Bristol, England: Scanning electron and light optical microscopy of hard and soft dental tissue; dental biomaterials in the restoration of teeth; acid-etch resin technique in the bonding and debonding of orthodontic brackets; analysis of ancient teeth.

Kaufman, Hershell W., *Associate Professor*, D.M.D., 1963, University of Manitoba, Canada; Ph.D., 1967, University of Manitoba: Role of phytic acid and its inositol phosphate deriv-

atives in protection against dental caries and in inhibition of bone resorption in organ cultures; quantitation of carious lesion formation by contact microradiography.

Kleinberg, Israel, *Professor and Chairman*, D.D.S., 1952, University of Toronto, Canada; Ph.D., 1958, University of Newcastle, England: Identification of peptides and salivary factors involved in the growth and metabolism of oral mixed bacterial populations; pharmaceutical application of salivary components in the control of dental caries and oral odor; mechanisms of dental plaque formation; new oral diagnostic techniques.

McNamara, Thomas F., *Associate Professor*, Ph.D., 1959, Catholic University of America: Microbial etiology of dental caries and periodontal disease; immune mechanisms involved in dental pathogenesis; viral infection in oral microorganisms; significance of secretory IgA in caries prevention.

Pollock, Jerry J., *Associate Professor and Graduate Advisor*, Ph.D., 1969, Weizmann Institute of Science, Israel: Determination of the biological role of lysozyme; mobilization and mechanism of action of host antibacterial factors in dental pathogenesis; structural and functional organization of bacterial and mammalian cell surfaces; bacterial adherence.

Ramamurthy, Nungavarm S., *Research Assistant Professor*, M.V.Sc., 1965, University of Agra, India; Ph.D., 1970, University of Manitoba, Canada: Collagen synthesis and remodeling in health and systemic disease; leukocyte metabolism and chemotaxis in diabetes.

Sciubba, James J., *Associate Professor*, D.M.D., 1967, Fairleigh Dickinson University; Ph.D., 1974, University of Illinois: Cell deletion phenomena in salivary gland tumors; ultrastructure of cultured keratinocytes; electron microscopy of oral odontogenic tumors.

Sreebny, Leo M., *Professor*, D.D.S., 1945, University of Illinois; Ph.D., 1954, University of Illinois: Diet and dental disease; relationship of sugar, other refined carbohydrates and sugar substitutes to dental caries.

Taichman, Lorne B., *Associate Professor*, M.D., 1965, University of Toronto, Canada; Ph.D., 1971, University of Wisconsin: Epithelial keratinization and differentiation; carcinogenesis in cultured human epithelial cells; epithelial-mesenchymal interactions in determining regional specificity; DNA-protein cross-linking as a consequence of ultraviolet radiation.

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.
- Bachvaroff, Radoslav, *Associate Professor*, M.D., 1959, Higher Medical Institute of Sofia, Bulgaria: B-cell differentiation, transplantation biology, immunocyte surface markers.
- Chandor, Stebbins B., *Associate Professor*, M.D., 1960, Cornell University Medical College: Immunopathology.
- Coller, Barry S., *Associate Professor*, M.D., 1970, New York University: Platelet physiology and coagulation.
- Cottrell, Thomas, *Associate Professor*, M.D., 1965, Columbia University, College of Physicians & Surgeons: Pulmonary pathology and pathophysiology.
- 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.
- Floering, David, *Assistant Professor*, M.D., 1965, Harvard Medical College: Clinical pathology (chemistry, quality control); trace metal detection.
- 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 polymorphonu-

- clear 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.
- Kaplan, Cynthia, *Assistant Professor*, M.D., 1974, New York University School of Medicine: Pediatric pathology; obstetrical and gynecological pathology; placental disease; transplacental infection.
- Kuschner, Marvin, *Professor and Dean, School of Medicine*, 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.
- McDevitt, Cahir, *Assistant Professor*, Ph.D., 1977, University of London, England: Proteoglycan structure and function; biomechanical-structural correlates of connective tissue.
- Miller, Frederick, *Professor and Chairman (Acting)*, M.D., 1961, New York University: Immunopathology; renal disease, protein and glycoprotein chemistry and analysis of cytoskeleton.
- Peress, Nancy S., *Associate Professor*, M.D., 1967, Downstate Medical Center: Pathology of the nervous system; experimental neuroimmunopathology.
- 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.
- Rapaport, Felix, *Professor*, M.D., 1954, New York University School of Medicine: Transplantation biology; experimental and clinical organ transplantation.
- Singer, Richard, *Clinical Associate Professor*, M.D., 1945, New York University College of Medicine: Clinical pathology; laboratory management; comparative (particularly invertebrate) pathology.
- Sokoloff, Leon, *Professor*, M.D., 1944, New York University: Pathogenesis of degenerative and other joint diseases studied by cell culture; biomechanical and morphologic means.
- Thorn, Ralph, *Assistant Professor*, M.D., 1966, Tufts University: Clinical anatomic and laboratory pathology; cytology.

Pharmacological Sciences

The faculty of the Department of Pharmacological Sciences, in

conjunction with faculty in other departments at Stony Brook, offers a graduate program in the pharmacological sciences (pharmacology, toxicology and medicinal chemistry) 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, Dr. Moises Eisenberg.

Faculty

Brynes, Paul J., *Assistant Professor*,² Ph.D., 1975, Cornell University: Synthesis and biological studies of tumor-promoting natural products; preparation of fluorogenic substrates for proteolytic enzymes.

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 mechanisms of ion transport through membranes mediated by pores; fundamental physical-chemical properties of lipid bilayer membranes.

Grollman, Arthur P., *Professor and Chairman*,¹ M.D., 1959, The Johns Hopkins University: Mechanisms of action of anti-tumor drugs; anti-viral agents and toxins.

Iden, Charles R., *Instructor*, Ph.D., 1971, The Johns Hopkins University: Biomedical applications of mass spectrometry; toxicology; heavy metal toxicity.

Johnson, Francis, *Professor*,² Ph.D., 1954, University of Strathclyde, Scotland: Synthesis of natural products; medicinal chemistry.

Krantz, Allen, *Associate Professor*,² Ph.D., 1967, Yale University: Enzyme reaction mechanisms; rational approaches to drug design; physiological role of amine oxidases.

Malbon, Craig C., *Assistant Professor*, Ph.D., 1976, Case

- Western Reserve University: Biochemistry of hormone action: modulation of catecholamine and peptide hormone action by thyroid hormones.
- McLaughlin, Alan C., *Adjunct Assistant Professor*, Ph.D., 1973, University of Pennsylvania: Nuclear magnetic resonance techniques to study the binding of divalent cations to the dynamic structure of model and biological systems.
- Raisfeld, Ilene H., *Associate Professor*,¹ M.D., 1964, New York University: Reducing drug toxicity; toxicology and clinical pharmacology.
- Reich, Edward, *Professor*,³ 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.
- Wu, Cheng-Wen, *Professor*, M.D., Ph.D., 1969, Case Western Reserve University: Mechanisms and regulation of gene expression.
- Wu, Felicia Y.-H., *Research Associate Professor*, Ph.D., 1969, Case Western Reserve University: Chemical carcinogenesis; role of metals in RNA polymerase.

Physiology and Biophysics

The Department is especially strong in biophysics and in cellular aspects of the physiology of: the nervous system, skeletal and cardiac muscle, transport in red blood cells, epithelia and the kidney, visual receptors, and the mechanism of hormone action. 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. Further details concerning the programs in physiology and biophysics may be obtained from the program chairman, Dr. Paul LeFevre.

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.

¹Joint appointment, Department of Medicine

²Joint appointment, Department of Chemistry

³Part-time

- Cabot, John, *Assistant Professor*, Ph.D., 1976, University of Virginia: Neurophysiology.
- Clausen, Chris, *Assistant Professor*, Ph.D., 1979, University of California, Los Angeles: Epithelial membrane transport.
- Cohen, Ira, *Assistant Professor*, M.D., Ph.D., 1974, New York University: Electrophysiology of the heart.
- LeFevre, Marian E., *Associate Professor*, Ph.D., 1969, University of Louisville: Gastrointestinal tract.
- 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.
- McLaughlin, Stuart, *Associate Professor*, Ph.D., 1968, University of British Columbia, Canada: Biophysics of membranes.
- Moore, Leon, *Assistant Professor*, Ph.D., 1976, University of Southern California: Kidney micropuncture.
- Shukla, Kamal, *Research Assistant Professor*, Ph.D., 1977, State University of New York, Stony Brook: Muscle physiology and biochemistry.
- 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 M.S. program offered by the Marine Sciences Research Center (MSRC) 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.

Five-year B.S.–M.S. programs are sponsored jointly with MSRC and the Department of Earth and Space Sciences, and MSRC and the College of Engineering and Applied Sciences. The joint program with the Department of Earth and Space Sciences is for students concentrating in geological oceanography, and the joint program with the College of Engineering and Applied Sciences is for students concentrating in coastal engineering and marine sciences.

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 one of 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 seven years after completing 24 hours of graduate courses in the department.

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 Marine Sciences Research Center's 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, Univer-

- sity 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.
- Capone, Douglas G., *Assistant Research Professor*, Ph.D., 1978, University of Miami: Microbial nutrient cycling and ecology.
- Carpenter, Edward J., *Associate Professor*, Ph.D., 1969, North Carolina State University: Nitrogen cycling among plankton and ambient 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.
- Dagg, Michael J., *Adjunct Associate Professor*,² Ph.D., 1975, University of Washington: Zooplankton ecology; continental shelf ecosystems.
- Dayal, Ramesh, *Adjunct Associate Professor*,² 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.
- Falkowski, Paul G., *Adjunct Assistant Professor*,² Ph.D., 1975, University of British Columbia: Marine phytoplankton ecology; phytoplankton physiology.
- Goodman, Joel M., *Adjunct Professor*,⁷ M.S., 1959, Georgia Institute of Technology: Coastal zone planning; aquaculture.
- Herman, Herbert, *Professor*,⁹ Ph.D., 1961, Northwestern University: Ocean engineering; undersea vehicles; marine materials.
- 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.
- Okubo, Akira, *Professor*, Ph.D., 1963, The Johns Hopkins University: Oceanic diffusion; animal dispersal; mathematical ecology.
- Pritchard, Donald W., *Professor*,⁶ Ph.D., 1951, Scripps Institution of Oceanography: Estuarine and coastal dynamics; coastal zone management.
- Reeburgh, William S., *Adjunct Professor*,¹⁰ Ph.D., 1967, The Johns Hopkins University: Gases in marine sediments; sediment-water interactions.
- 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.
- Scranton, Mary I., *Assistant Professor*, Ph.D., 1977, Massachusetts Institute of Technology: Marine geochemistry; biological-chemical interactions in seawater.
- Slobodkin, Lawrence, B., *Professor*,¹⁰ Ph.D., 1951, Yale University: Theoretical ecology; evolutionary strategy with reference to species; timing of responses; self-image.
- Smith, Sharon L., *Adjunct Assistant Professor*,² Ph.D., Duke

University: Plankton ecology; nutrient regeneration by zooplankton.

Squires, Donald F., *Professor and Director, New York Sea Grant Institute*, Ph.D., 1955, Cornell University: Marine affairs and science policy.

Terry, Orville W., *Research Associate Professor*, Ph.D., 1970, State University of New York, Stony Brook: Aquaculture, especially of seaweed; wetlands management.

Vaughn, James M., *Adjunct Associate Professor*,² Ph.D., 1972, University of New Hampshire: Transport, fate and effects of viruses in the aquatic environment.

Walsh, J.J., *Adjunct Associate Professor*,² Ph.D., 1969, University of Miami: Upwelling ecosystems; phytoplankton ecology; modeling of continental shelf ecosystems.

Wang, Franklin F.Y., *Professor*,⁹ Ph.D., 1956, University of Illinois: Ocean engineering; ocean structurals; energy.

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.

Estimated number of teaching, graduate and research assistants, fall 1979: 52.

¹Bellport High School

²Brookhaven National Laboratory

⁴U.S. Geological Survey

⁵Joint appointment, Department of Earth and Space Sciences

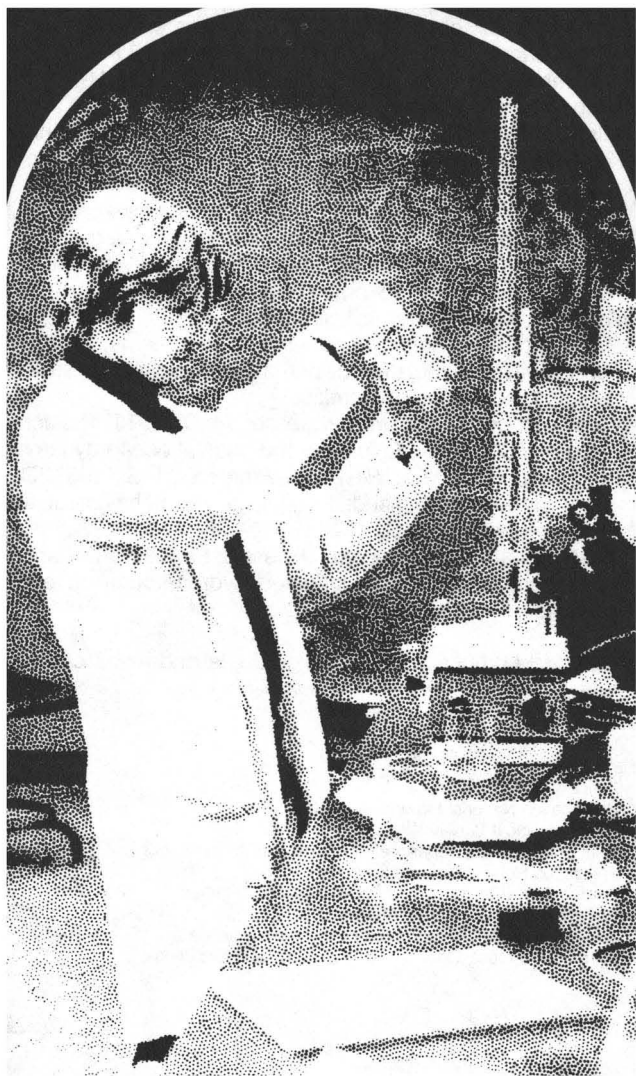
⁶The Johns Hopkins University

⁷Fredric R. Harris, Inc.

⁸Reilly, Like and Schneider, Attorneys

⁹Joint appointment, Department of Materials Science

¹⁰Joint appointment, Department of Ecology and Evolution



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 exist with several departments, and 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 the appropriate examinations may be remedied by 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 of study 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 all degree requirements except the dissertation have been completed. 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 discussion of literature material.

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 after the middle of the first semester and usually before the middle of the second semester. 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 a course option for students whose interests lie in both chemistry and biology. A graduate student who is admitted to the Chemistry Department or another appropriate department may elect, with the consent of the chairmen, this program. The course of study can provide more extensive training in biology than is normally required for a chemistry graduate degree and more extensive exposure to fundamental chemical studies for students in other departments. In addition, a student may select a research advisor in any appropriate department, subject to the approval of the chairmen involved.

Each student in the program will have an advisory committee consisting of members from more than one department. 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.

Facilities

The new Graduate Chemistry Building is a modern, seven-story (170,000 sq. ft.) structure designed for research and upper division instructional activities. The equipment available to faculty, postdoctorals and students is outstanding. While much of it has been commercially obtained, a substantial proportion of the instrumentation in the department has been designed and constructed at Stony Brook and represents "the state of the art" in various fields. The faculty takes great pride in the quality and sophistication of the instrumentation, and faculty members have the responsibility of maintaining certain pieces of equipment within their own research group.

The construction and maintenance of this instrumentation is effected by the faculty in conjunction with a staff of non-teaching professionals in the electronic, glass and machine shops.

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; application to study of 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., *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., *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, Philip M., *Professor*, Ph.D., 1967, Cornell University: 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, mechanisms of their reactions; complexes of fulvenes, 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.
- Okaya, Yoshi, *Professor*, Ph.D., 1956, Osaka University, Japan: Crystallography: development of on-line computer-controlled system for 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 photocatalyzed 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.
- Stell, George R., *Professor*,² Ph.D., 1961, New York University: Statistical thermodynamics.
- 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.

Estimated number of teaching, graduate and research assistants, fall 1979: 83.

¹Joint appointment, Department of Pharmacology

²Joint appointment, Department of Mechanical Engineering

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 with concentrations in astronomy-planetary sciences, crystallography, petrology, geochemistry, geophysics, tectonophysics, paleontology and 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 Earth and Space Sciences Building. The campus computing facilities and the proximity of Brookhaven National Laboratory 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, mathematics or engineering.

B. A minimum average of B for all undergraduate course work and a B average for courses in the sciences.

C. Results of the Graduate Record Examination Aptitude Test. The advanced exam in physics is required of astronomy applicants.

D. Acceptance by both the Department of Earth and Space Sciences and 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 exploration of the solar system, planetary atmospheres, infrared astronomy, interstellar molecules, stellar atmospheres, nuclear astrophysics and extragalactic astronomy. 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.

Facilities

Astronomy facilities on campus include a radio-astronomy data analysis laboratory, an infrared instrumentation laboratory, a molecular spectroscopy laboratory, a computer-operated microdensitometer, and a 30 cm telescope for instrument testing and laboratory course programs. Off-campus facilities include our 61 cm telescope and optical instrumentation at the Mt. Hopkins Observatory, Arizona. At the Five College Radio Astronomy Observatory at Quabbin, Massachusetts there is a 45-foot antenna with instrumentation partially supplied by Stony Brook for high resolution spectral-line observations. One quarter of the observing time on this telescope is allocated to Stony Brook. Also, Stony Brook astronomers make regular use of the national observatories for research in infrared, optical and radio astronomy.

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, Crystallography, Petrology

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.

Facilities

Equipment for 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, Tectonophysics

Courses of study are available in seismology, solid-state geophysics, tectonophysics and structural geology. Among the topics of research interest are tectonics and upper mantle structure, regional seismicity, the elasticity and constitution of the Earth's deep interior, strain history of high-grade metamorphic rocks and mechanisms of cleavage formation. Other research includes the driving mechanism of plate tectonics, the thermal and chemical evolution of the earth, convection, the mechanics of lithospheric plates, fault mechanisms, impact cratering and the tectonics of other terrestrial planets.

Facilities

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.

Paleontology

Courses of study are available with concentrations in invertebrate paleobiology, paleoecology and biostratigraphy. Accompanying field and laboratory programs focus on problems in Paleozoic strata of the Appalachian and Cordilleran region. 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 that of the Department of Ecology and Evolution.

Facilities

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, cathode-luminescence and a scanning electron microscope are housed in the departmental building.

Sedimentary Geology

Graduate studies in sedimentary geology include emphasis on marine and non-marine systems, with advanced courses in physical processes, facies models, sedimentary geochemistry and diagenesis. Active research includes comparative studies of ancient and modern lacustrine/fluvial systems; regional carbonate diagenetic studies, trace elements, isotope and crystallographic studies of diagenetic calcites and dolomites. Students are encouraged to undertake research during their first year of graduate studies.

Facilities

There are excellent facilities for conventional and cathodoluminescence petrography, scanning electron microscopy, electron microprobe analyses, rock preparation and atomic absorption analyses.

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.

Requirements for the Ph.D. Degree

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

B. *Language*: None.

C. *Formal course work*: Successful completion of an approved course of study. The number of credit hours required is unspecified and will be set according to the student's background and interests.

D. *Qualifying examination*: Acceptable performance on the written Ph.D. qualifying examination. (Applicable to astronomy only.)

E. *Preliminary examination*: Successful defense of one to three research proposals.

1. *Invitation*: The Department signifies its willingness to consider a graduate student for Ph.D. candidacy by a written invitation to submit abstracts of proposed research to serve as the basis of the Ph.D. preliminary examination. This invitation will normally be tendered no later than the beginning of the fourth semester of full-time graduate study for students with a bachelor's degree or by the beginning of the third semester for students who enter the graduate program with an advanced degree. The invitation will specify the number of abstracts required and will set a time limit, normally one semester, for the completion of the several steps that constitute the preliminary examination.

2. *Abstracts*: The student will submit abstracts of research proposals to the graduate committee for approval. A single abstract must be endorsed, in writing, by three ESS faculty members. If more than one abstract is submitted, then each must be endorsed by two ESS faculty members. Endorsement signifies that the preparation by the student of a written proposal based on the stated topic is acceptable. One or more of the signatories must be identified as a potential sponsor(s), a designation that signifies a willingness, but not a binding commitment, to supervise the proposed research. This procedure does *not* commit a student to work with the indicated sponsor(s), but provides the student with an early indication that a potential thesis advisor is available for the proposed research topic.

3. *Preliminary examination committee*: Upon approval of the abstracts, the department chairperson, in consultation with the graduate committee, will nominate a preliminary examination committee, and a chairperson thereof, for appointment by the Dean. The committee will consist of five members, one of

whom may be from outside the department. The student will be informed of the membership of the committee.

4. *Research proposal*: Following the approval of the abstracts, the student will be instructed to prepare the proposals in depth—a process which normally takes about two months. Each proposal shall state an idea for research, indicate why it was selected and outline the procedures to be used to explore and develop it. A proposal must include a list of the principal references used in its preparation.

The prepared proposals will be submitted to the members of the examination committee, the graduate committee, and other interested faculty members. The examination committee will judge each proposal for soundness of idea, suitability as a Ph.D. topic and quality of development. Within one week after receiving the proposals, the examination committee must either a) approve the proposals and set the time and place for a preliminary examination to be held within one week; or b) inform the student that one or more of the proposals are unacceptable as written and request that they be resubmitted within a given time, not greater than four weeks; or c) reject the proposals, in which case there is no preliminary examination and the student is terminated. If the proposals are accepted, the student will circulate and post a notice of the time and place of the examination and the title of the proposals as soon as possible after acceptance of the proposals by the examining committee.

5. *Preliminary examination*: The student will be given time at the examination to set forth briefly the research proposals, after which, in closed session, there will be questions from the committee and other faculty members. The questioning may be extended beyond the specific topics of the proposals to include related subjects. At the end of the defense, the student and all faculty members other than the committee will be excused, unless the committee requests specific information from a faculty member not on the committee. After the defense, the committee will evaluate the proposals with regard to the quality of its development and defense and the adequacy of the student's background knowledge. In summary, it will judge whether the student has demonstrated the ability to conceive, plan and carry out original and significant research. A grade of "pass" from at least three members of the committee shall constitute a successful defense. A student may pass with qualifications which must subsequently be met for a successful defense.

The chairperson of the preliminary examination committee will inform the student of the committee's decision and submit a written report of the examination (signed by all committee members) to the graduate committee. If the student does not pass the examination, the examination committee will recommend further action to the graduate committee. This recommendation will be implemented by the graduate committee, in consultation with the faculty.

F. Advancement to candidacy: Upon successful completion of the preliminary examination, including any associated qualifications, and meeting of the requirements of the course of study, the student will be considered for advancement to candidacy. This recommendation is made by the graduate committee, through the department chairperson, to the Dean. Candidacy signifies that the student has successfully completed all Graduate School and departmental requirements for the Ph.D. degree, except the dissertation.

G. Dissertation research: The student must submit a statement to the graduate committee describing the research that will be undertaken for the dissertation. A time limit for the submission of the statement, normally less than three months after the examination, will be set by the examination committee at the time of the preliminary examination. The statement must be endorsed by the candidate's faculty advisor. If the subject of the dissertation research differs from that in the research proposals defended at the preliminary examination, the dissertation statement must be endorsed by two faculty members in addition to the thesis advisor. Thereafter, a brief oral report on the dissertation research will be presented yearly to the department until the dissertation is completed.

H. Dissertation: The finished dissertation must be approved by a dissertation examining committee which shall consist of five members of faculty rank, at least one of whom must be outside the department. The committee and its chairperson shall be appointed by the Dean of the Graduate School on the recommendation of the department chairperson in consultation with the graduate committee. The chairperson must not be the supervisor of the dissertation. This committee must receive the dissertation at least two weeks before the oral defense of the dissertation. Before the oral defense can be held, the majority of the examining committee must certify in writing that the dissertation is ready to defend. The committee will then conduct the oral defense of the dissertation. The presentation will be open to all faculty members and to others by invitation of the student.

I. Time limit: All requirements for the Ph.D. degree must be met within three years of advancement to candidacy. Extension beyond this limit will be at the discretion of the graduate committee in consultation with the student's thesis advisor.

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.

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.

- Bokuniewicz, Henry J., *Assistant Professor*,¹ Ph.D., 1976, Yale University: Marine geophysics.
- Bretsky, Peter W., *Professor*, Ph.D., 1967, Yale University: Evolution of Paleozoic benthic marine communities.
- Caldwell, John J., *Adjunct Associate Professor*, Ph.D., 1971, University of Wisconsin: Theoretical studies of atmospheres, particularly the outer planets and Titan.
- Dodd, Robert T., *Professor*, Ph.D., 1962, Princeton University: Chondritic meteorites; metamorphic history of the Precambrian rocks in southeastern New York.
- Duedall, Iver W., *Associate Professor*,¹ Ph.D., 1973, Dalhousie University, Nova Scotia: Chemical oceanography.
- Forman, Miriam, *Adjunct Associate 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.
- Hager, Bradford H., *Assistant Professor*, Ph.D., 1978, Harvard University: Plate dynamics mantle convection and the chemical and thermal evolution of the Earth; lateral heterogeneities in the mantle.
- 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., *Professor*, Ph.D., 1969, University of California, Berkeley: Infrared astronomy; spectroscopy of planets and nebulae; galaxies and quasistellar objects; interstellar grains.
- Lattimer, James M., *Assistant Professor*, Ph.D., 1976, University of Texas: High-energy astrophysics; gravitational collapse, supernovae, neutron star matter; geochemistry: grain formation, isotopic anomalies, chemical condensation in early solar nebula.
- 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.

¹Joint appointment, Marine Sciences Research Center

- Lindsley, Donald H., *Professor*, Ph.D., 1961, The 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.
- Melosh, H. Jay, *Associate Professor*, Ph.D., 1972, California Institute of Technology: Plate tectonics, rheology of the Earth's interior, post-seismic rebound, impact cratering and planetary surfaces.
- Meyers, William J., *Associate Professor*, Ph.D., 1973, Rice University: Carbonate diagenesis, geochemistry and sedimentology.
- Owen, Tobias C., *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 metasedimentary 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.
- Reeder, Richard J., *Assistant Professor*, Ph.D., 1977, University of California, Berkeley: Low-temperature geochemistry, mineralogy, and mineral-solution equilibria.
- 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, The Johns Hopkins University: Sedimentary facies analysis and comparative sedimentology of modern and ancient sediments.

Solomon, Philip, *Professor*, Ph.D., 1964, University of Wisconsin: Interstellar molecules; radio astronomy; physics of interstellar medium; galactic structure; stellar mass loss; quasi-stellar objects.

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, *Associate Professor*, Ph.D., 1970, California Institute of Technology: Galaxies, clusters of galaxies; physical cosmology; extragalactic X-ray sources; accretion processes.

Estimated number of teaching, graduate and research assistants, fall 1979: 67.

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, including two-year college teaching.

Doctoral Program

This program (three to four years, full time), an extension of 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), the results of the Graduate Record Examination Aptitude Test, and acceptance by both the Department of Mathematics and the Graduate School. 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 and in advanced calculus is 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 de-

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, 534, 535, 542, 544, 550, or equivalent (including placing out by examination). Students preparing for the doctoral program ordinarily take, in addition, MSM 590, 591, 592. Students preparing for two-year college teaching ordinarily take, in addition, teaching practica, which include the teaching and observation of mathematics courses at the two-year college level. 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 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, A., *Professor*, Ph.D., 1956, University of California, Los Angeles: Differential geometry and mathematical economics.

Ax, J., *Professor*, Ph.D., 1961, University of California, Berkeley: Algebraic number theory and logic and foundations of physics.

Barcus, W., *Professor*, Ph.D., 1955, University of Oxford: Algebraic topology.

Charlap, L., *Professor*, Ph.D., 1962, Columbia University: Homological algebra; differential geometry.

Cheeger, J., *Professor*, Ph.D., 1967, Princeton University: Differential geometry.

Denef, J., *Assistant Professor*, Ph.D., University of Louvain: Logic and algebra.

Doss, R., *Professor*, Ph.D., 1944, University of Cairo: Harmonic analysis.

Douglas, R., *Professor*, Ph.D., 1962, Louisiana State University: Operator theory; functional analysis.

Ebin, D., *Professor*, Ph.D., 1967, Massachusetts Institute of Technology: Global analysis.

Farkas, H., *Adjunct Professor*, Ph.D., 1965, Yeshiva University: Complex analysis.

Fox, W., *Associate Professor*, Ph.D., 1955, University of Michigan: Complex analysis.

- Geller, D.N., *Assistant Professor*, Ph.D., 1977, Princeton University: Analysis.
- Gohberg, I., *Adjunct Professor*, Ph.D., 1964, Moscow State University: Operator theory and integral equations.
- Gromoll, D., *Professor*, Ph.D., 1964, University of Bonn: Differential geometry.
- Gromov, M., *Professor*, Ph.D., 1969, Moscow State University: Differential topology and geometry.
- Hill, D., *Professor*, Ph.D., 1966, New York University: Partial differential equations; several complex variables.
- Jones, L., *Associate Professor*, Ph.D., 1970, Yale University: Topology.
- Kleinstein, J., *Assistant Professor*, Ph.D., 1976, Cornell University: Algebra and mathematical education.
- Kra, I., *Professor and Chairman*, Ph.D., 1966, Columbia University: Complex analysis; Kleinian groups.
- Kuga, M., *Professor*, Ph.D., 1961, University of Tokyo: Complex manifolds; algebraic groups.
- Kumpel, P., *Associate Professor*, Ph.D., 1964, Brown University: Algebraic topology.
- Laufer, H., *Professor*, Ph.D., 1966, Princeton University: Several complex variables.
- Lawson, H.B., *Professor*, Ph.D., 1968, Stanford University: Differential geometry, topology.
- Lister, W., *Professor*, Ph.D., 1951, Yale University: Algebra.
- Maskit, B., *Professor*, Ph.D., 1964, New York University: Complex analysis, Kleinian groups.
- Matelski, J.P., *Instructor*, Ph.D., 1978, Princeton University: Complex analysis.
- McDuff, M.D., *Assistant Professor*, Ph.D., 1971, University of Cambridge: Operator theory; topology.
- Meyer, W., *Adjunct Professor*, Ph.D., 1965, University of Bonn: Differential geometry.
- Michelsohn, M.L., *Assistant Professor*, Ph.D., 1974, University of Chicago: Topology, differential geometry.
- Parry, W.R., *Assistant Professor*, Ph.D., 1976, University of California, Berkeley: Number theory.
- Phillips, A., *Professor*, Ph.D., 1966, Princeton University: Differential topology.
- Pincus, J., *Professor*, Ph.D., 1959, New York University: Operator theory and integral equations.
- Sah, C-H., *Professor*, Ph.D., 1959, Princeton University: Group theory and its applications.
- Shen, C-L., *Instructor*, Ph.D., 1979, University of Pennsylvania: Operator theory.

- Simmons, J., *Adjunct Professor*, Ph.D., 1961, University of California, Berkeley: Differential geometry.
- Spencer, J., *Associate Professor*, Ph.D., 1970, Harvard University: Combinatorics.
- Stein, E., *Assistant Professor*, Ph.D., 1975, Princeton University: Topology.
- Strasser, E., *Professor*, Ph.D., 1956, New York University: Combinatorial group theory.
- Szusz, P., *Professor*, Ph.D., 1951, University of Budapest: Analytic number theory.
- Thorpe, J., *Professor*, Ph.D., 1963, Columbia University: Differential geometry.
- Zaustinsky, E., *Associate Professor*, Ph.D., 1957, University of Southern California: Differential geometry.

Estimated number of teaching, graduate and research assistants, fall 1979: 65.

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 I, II, 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 at the beginning of each semester, 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 |

Research and Facilities

Experimental High Energy Physics

The proximity of the 33 GeV proton synchrotron at Brookhaven National Laboratory makes access to a first-class national facil-

ity unusually convenient. In addition, Stony Brook faculty and students are currently conducting experiments at the Fermi Laboratory (Batavia, Illinois), and at the Intersecting Storage Rings at CERN (Geneva, Switzerland). Areas of current interest include measurement of proton-proton total cross sections up to equivalent energies of 1500 GeV, particle correlations in ultra-high energy proton-proton collisions, particle production spectra in pp collisions, proton-antiproton charge exchange scattering, heavy meson resonant states produced in πp reactions, studies of nuclear structure through π -nucleus scattering in the coulomb interference region, and strange particle weak decays. The experimental techniques used in particle detection are principally those of scintillation counters, bubble chambers, multiwire proportional and spark chambers, and solid-state detectors. In the case of the bubble chamber technique, photographs obtained at particle accelerators are brought back to the University where measuring machines are available for extraction of the data. Extensive use is made of computers both for on-line data collection and off-line for later data analysis.

Experimental Nuclear Physics

The Stony Brook Nuclear Structure Laboratory conducts a broad program of experimental nuclear research utilizing a tandem Van de Graaff accelerator which produces 19 MeV proton beams, 27 MeV alpha beams, and higher energy beams of heavier ions. The accelerator is housed in a laboratory building with two well-equipped target rooms containing a total of fourteen experimental beam stations. Every effort has been made to establish a flexible program of research which can examine the entire field of nuclear structure. Research emphasis has recently been on capture gamma rays, pulsed-beam spectroscopy, heavy-ion reactions, fission isomers, and nuclear moments. The latter studies involve a unique in-beam superconducting magnet. All of these experiments are facilitated by sophisticated on-line data processing with two PDP-11/60 computers. Faculty and students in the Nuclear Structure Laboratory also have frequent access to the outstanding nuclear research facilities at nearby Brookhaven National Laboratory. Accelerator is presently being upgraded for use with heavy ions and will be utilized with a new super-conducting linear accelerator to provide beam energies up to 450 MeV.

Experimental Solid-State and Low-Temperature Physics

An active and expanding program of solid-state and low-temperature physics is being carried out in several laboratories at

Stony Brook. Areas of study include electronic structure of metals and semimetals, the Josephson effects, properties of superconducting thin films, fluctuation effects in superconductors, and physical properties of amorphous systems. Also under intensive study are some fundamental static and transport properties of liquid helium and He³-He⁴ mixtures, superfluid phenomena, and nuclear magnetic properties of solid hydrogen and hydrogen-deuterium at ultra-low temperatures. Several projects involving neutron scattering in liquid and solid helium are underway at the High Flux Beam Reactor at Brookhaven National Laboratory.

The experiments at Stony Brook make use of a wide variety of techniques, such as quantum oscillations in a 100-kilogauss magnetic field, microwave absorption and cyclotron resonance, superconducting quantum interference, and nuclear magnetic resonance at 400 MHz. Ultra-low temperatures are produced by He³-He⁴ dilution, and thin film microstructures are fabricated by means of electron beam lithography using a scanning electron microscope.

Experimental Atomic and Molecular Physics, Quantum Electronics

Modern spectroscopic techniques such as optical pumping, optical double resonance, and level crossing are being used in conjunction with tunable lasers constructed in the department's quantum electronics laboratory to carry out research in several areas of quantum electronics, atomic physics, and molecular physics. Topics of prime interest are precision measurements useful in the determination of fundamental constants; the precision measurement of molecular and atomic excited state lifetimes with astrophysical relevance; and atomic g-factors, magnetic moments, fine and hyperfine interactions, etc. Areas of applied research include the development of very narrow band tunable dye lasers and parametric optical amplifiers to provide tunable narrow band radiation throughout the infra-red, optical, and ultraviolet spectrum. Research has also recently been initiated on a study of exotic ionic transitions and on the fluorescence of meteoric materials using the facilities of the department's Van de Graaff Laboratory.

High Energy Theory

Research into the properties and interactions of elementary particles is pursued on the fundamental level in the context of quantum field theory and of S-matrix theory, as well as on a

phenomenological level. At the present time, a major concern of faculty members, postdoctoral fellows, and research graduate students in the group is the development of a unified theory of weak and electromagnetic interactions. In addition, the work of members of the Institute for Theoretical Physics, often in close collaboration with Stony Brook's High Energy Experimental Groups, continues to make Stony Brook a principal center for the study of high energy collisions.

Nuclear Theory

In nuclear physics, studies range from the investigation of the origin of the nucleon-nucleon force in meson theory and the translation of this force into an effective force valid for nuclear matter and nuclei to the interpretation of the observed complexities of nuclear structure with the aid of appropriate nuclear models. Topics of current interest include microscopic investigations of the dynamics of the fission process and studies of a variety of infinite Fermi systems including neutron stars. In anticipation of significant experimental advances in medium-energy nuclear physics, considerable attention is being given to meson-nucleon and meson-nucleus interactions.

Solid State Theory and Statistical Mechanics

Research in theoretical and solid state physics includes studies of properties of superconductors, solid surface phenomena, electron-phonon interactions, disordered solids, magnetic critical phenomena, properties of molecular crystals, and electronic properties of narrow-band materials.

In statistical mechanics there is very active research into simplified model systems on which exact computations can be done. These models are extremely useful in providing insight into complex physical situations such as phase transitions, disordered materials, and the approach to thermal equilibrium.

X-Ray and Surface Physics

The Department of Physics uses two high-intensity, rotating Anode X-Ray generators for investigations using EXAFS techniques, X-ray microscopy, and crystallography studies.

This research group will also have access to the new National Synchrotron Light Source being constructed at nearby Brookhaven National Laboratory.

Faculty

- Allen, Philip B., *Associate Professor*, Ph.D., 1969, University of California, Berkeley: Theoretical solid state physics: superconductors and superconductivity.
- Archie, Charles N., *Assistant Professor*, Ph.D., 1978, Cornell University: Experimental solid state physics.
- 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.
- Braun-Munzinger, Peter, *Assistant Professor*, Ph.D., 1972, University of Heidelberg, W. Germany: Experimental nuclear physics.
- Brown, Gerald E.,* *Professor*, Ph.D., 1950, Yale University; D.Sc., 1957, Birmingham, England: Theoretical physics; the many-body problem.
- Chakravarty, Sudip, *Assistant Professor*, Ph.D., 1976, Northwestern University: Theoretical solid state physics.
- 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, Alfred S.,* *Professor*, Ph.D., 1964, Princeton University: Theoretical physics, nuclear theory; particle physics.
- Goldhaber, Maurice, *Adjunct Professor*, Ph.D., 1936, University of Cambridge, England: Nuclear and 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.
- Kahn, Peter G., *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 B.D., *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.
- Mazurek, Thaddeus, *Visiting Assistant Professor*, Ph.D., 1973, Yeshiva University: Theoretical nuclear astrophysics.
- McCarthy, Robert L., *Associate Professor*, Ph.D., 1971, University of California, Berkeley: Experimental elementary particle physics.
- McCoy, Barry M.,* *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., 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, * *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.
- Shrock, Robert, * *Assistant Professor*, Ph.D., 1975, Princeton University: Theoretical physics.
- Silsbee, Henry B., *Professor*, Ph.D., 1951, Harvard University: Experimental physics; molecular and atomic beams; magnetic resonance.
- Smith, John, * *Professor*, Ph.D., 1963, University of Edinburgh, Scotland: Theoretical physics; elementary particle physics.
- Sprouse, Gene D., *Professor*, Ph.D., 1968, Stanford University: Experimental nuclear structure.
- Stephens, Peter W., *Assistant Professor*, Ph.D., 1978, Massachusetts Institute of Technology: Experimental solid state physics; synchrotron radiation.
- Sterman, George, * *Assistant Professor*, Ph.D., 1974, University of Maryland: Theoretical physics.
- Strassenburg, Arnold A., *Professor*, 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/Emeritus*, Ph.D., 1952, Princeton University: Scattering; elementary particle theory.
- Van Nieuwenhuizen, Peter, * *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.

Estimated number of teaching, graduate and research assistants, fall 1979: 155.

*Member, Institute for Theoretical Physics

**Executive Officer and Member, Institute for Theoretical Physics



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 anthropological theory, culture history, archaeology, 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 departmental 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. Degree Program

The Ph.D. program is designed to prepare students for academic and applied research and teaching in archaeology, culture history, social anthropology and linguistic anthropology. The comparative study of civilizations, social anthropology of small-scale societies, and modern complex societies are among the specialties.

Minimum residence is four semesters beyond the baccalaureate, including at least two consecutive semesters of full-time study. A minimum of 48 graduate credits must be completed.

The first year is directed at general study in the field of anthropology. After satisfactory performance in the first year's course work and the progress examination, a study plan is prepared for the student by his or her three-member faculty guidance committee. The Director of Graduate Studies and Academic Committee appoint the guidance committee and approve the study plan. The plan includes:

A. Three fields of specialization. One or two of these will be topical or theoretical fields and the rest ethnographic or geographical areas. One or more fields may be interdisciplinary, and may involve study with faculty in other departments. For each field of specialization the student will write an essay defining the field, reviewing the literature and stating his or her views on the subject's theoretical and research problems. A bibliography is included.

B. Studies in anthropological method and training in research methods and techniques appropriate to his or her field of interest.

C. Demonstration of proficiency in the language or lan-

guages necessary for the fields of specialization. The language or languages should be used in preparing the preliminary essays and tested by a procedure approved by the student's guidance committee.

D. Preparation of dissertation research plan in the student's field of specialization. This will demonstrate the student's ability to formulate and plan independent research. The research will normally include field work.

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. Dissertation research, including field-work gathering material for the dissertation, is frequently carried out away from the Stony Brook campus. Dissertation writing and submission procedures and award of the Ph.D. follow Graduate School requirements. A final defense and/or presentation to a colloquium is required.

Facilities

Laboratory space in the Graduate Chemistry and Social and Behavioral Sciences Buildings totals approximately 7,000 square feet. The physical anthropology laboratory has human skeletons, copies of fossil human material and comparative primate skeletal material as well as osteometric boards, calipers and other measuring devices available for student use. There are archaeological laboratories for advanced analytical work with chemicals and radioactivity. Surveying, excavation and laboratory equipment, storage space, computing facilities and reference collections (Mesoamerica and Eastern, Southwestern and Midwestern United States) are available.

Museum facilities in the Social and Behavioral Sciences Building consist of about 1,100 square feet of laboratory and collection storage space, and about 900 square feet of exhibition and preparation areas. The museum has two major ethnographic collections, a large variety of audiovisual equipment, fixed and modular system exhibit cases, a carpentry workbench with basic hand tools and various equipment for graphic techniques used in exhibition work.

Faculty

Arens, W., *Associate Professor, Ph.D.*, 1970, University of Virginia: Social anthropology; Africa.

- Bonvillain, Nancy L., *Associate 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; ethno-history.
- Gilmore, David D., *Assistant Professor*, Ph.D., 1975, University of Pennsylvania: Complex societies; stratification; peasant culture; Europe; Mediterranean.
- Glick, Paula Brown, *Professor*, Ph.D., 1950, University of London, England: Oceania; social anthropology; ecology and economy; multiethnic societies; politics; social change; contemporary United States.
- Hicks, David, *Professor*, Ph.D., 1971, University of London, England; D.Phil., 1972, University of Oxford, England: Oral literature; Indonesia.
- Kennedy, Theodore R., *Assistant Professor*, Ph.D., 1974, Princeton University: Symbolic anthropology; kinship and social organization; urbanism; culture as a system of symbols in complex societies; social and cultural change; Afro-American culture; U.S. and the Caribbean.
- Lanning, Edward, *Professor*, Ph.D., 1960, University of California, Berkeley: Pre-history; 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., 1979, University of Chicago: Old World pre-history; Near East; state development; 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.

Estimated number of teaching, graduate and research assistants, fall 1979: 33.

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, labor economics, analysis of economic systems, advanced microeconomic 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 or her 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, Applied Econometrics. 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., *Professor*, Ph.D., 1962, University of Chicago: Theory of measurement and econometric estimation in human capital, industrial organization and applied microeconomics.
- Hool, Bryce R., *Associate Professor*, Ph.D., 1974, University of California, Berkeley: Macro theory; general equilibrium.
- Hurd, Michael, *Associate Professor*, Ph.D., 1971, University of California, Berkeley: Labor economics; econometrics.
- Hoffmann, Charles, *Professor*, Ph.D., 1954, Columbia University: Chinese economy: work incentives, industrial organization, economic development.
- James, Estelle, *Professor*, 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.
- Lee, Young Goo, *Assistant Professor*, Ph.D. expected 1980, University of Minnesota: Macro theory, monetary theory.
- Li, Mingche M., *Assistant Professor*, Ph.D., 1977, Harvard Uni-

versity: Dynamics of mobility decision and tenure choice; statistical modeling of qualitative choices; external diseconomies in urban environment.

Miners, Laurence A., *Assistant Professor*, Ph.D., 1979, 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, *Associate 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.

Walker, Mark, *Associate Professor*, Ph.D., 1970, Purdue University: Informational and incentive properties of collective decision procedures.

Willis, Robert J., *Professor*, Ph.D., 1971, University of Washington: Labor economics; economic demography.

Winn, John, *Lecturer*, Ph.D. expected 1980, 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.

Estimated number of teaching, graduate and research assistants, fall 1979: 49.

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

Proficiency in at least one foreign language must be demonstrated before a student may be advanced to Ph.D. candidacy. The student and his or her advisor will decide which language is most suitable, with the approval of the Graduate Committee.

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 univer-

sity 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.

Latin America since independence, with emphasis on Brazil, Argentina and Mexico.

Expansion of Europe, 1500-1750 or 1750-recent times.

Courses

The M.A. program is designed to provide background in the department's three major areas of concentration (U.S., Europe, Latin America) for students in each field. It will also provide

training in research and writing skills. To achieve these goals, the M.A. curriculum consists of required courses which full-time students are expected to complete in one academic year. These courses are as follows:

1. History 500 (3 units, fall): introduction to historiography, writing and research techniques.

2. HIS 501-502, 521-522, 545 (3 units each semester): introductory field seminars surveying the literature and controversies in each of the major fields (U.S., Europe and Latin America).

3. HIS 510-511, 530-531 (3 units fall, 6 units spring): one-year sequence reading-research seminars to introduce students to the literature and methods of broad areas such as social or intellectual history. The first semester is introductory reading and discussion oriented toward formulation of a research topic. The second will concentrate on production of a research paper. Normally two of these seminars will be offered each year; students will choose the one more appropriate to their interests and needs.

4. HIS 582 (3 units each semester): exam preparation workshop, a study group under faculty supervision which will help the student prepare for the special emphasis (e.g., political history) within his or her M.A. examination field.

For students holding an assistantship (and, therefore, enrolled in HIS 581, Supervised Teaching) required courses will amount to the full 30 credits; those without assistantships (and, therefore, without HIS 581) will make up the needed 6 credits through directed readings with individual faculty members.

Examination

A committee of three faculty members, chosen by the student in consultation with his or her M.A. advisor, will assess the student's knowledge of his or her field in an oral examination. This examination will be taken in the student's final semester of M.A. work.

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 1 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

Candidates in the History Education option must complete satisfactorily 30 units of graduate course work. They must also submit an M.A. project, described above, which must be approved upon completion by two members of the faculty. A student's program will include the following courses described under Option 1: HIS 500; HIS 501-502 or 521-522 or 545; HIS 581 (if a Teaching Assistant). In lieu of the other M.A. courses the student will take: HIS 597-598 (3 units each semester), the teaching of history, and HIS 599 (3 units each semester), research for M.A. project.

If the student does not hold an assistantship, he or she will fulfill the remaining units required by directed readings with individual faculty members.

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 committee will assist the student in defining and mastering two 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: Comparative Field: An area of study comprising a second, distinct field based on selected historical problems or themes and the methods used in studying them. The topics chosen should cover more than one country or region. In Field 2, the department will offer four options which reflect the faculty's strengths and interests:

1. *Social history*, with emphasis on, e.g., women, urbanization, industrial working class, blacks, peasantry, the family.

2. *Intellectual history*, with emphasis on, e.g., ideas, popular culture, political economy.

3. *Political history*, with emphasis on, e.g., institutions, parties or movements, ideologies, foreign policy.

4. *History of science and technology*, with emphasis on, e.g., intellectual or social history of physical or biological sciences, history of medicine.

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.

Ph.D. level seminars are of three types: Reading (numbered above 500), which are principally discussion and written analysis of selected historical works; Research (numbered above 600), which provide the opportunity for original research and writing of a substantial paper based on the research; and Methods (numbered above 600), which examine social science or other methods pertinent to historical research through discussion and written analysis of works incorporating the methods. Reading and Research seminars, depending on their content, may be appropriate preparation for either Field 1 or Field 2; Methods seminars are most suitable for Field 2. In addition to

regular courses, students may take directed readings with faculty members to cover specialized fields.

Qualifying Examinations

The Ph.D. examination will be an oral examination covering both the dissertation and comparative fields, each given equal emphasis. The examining committee will be expected to take into consideration the student's overall graduate record before recommending advancement to candidacy.

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. All students will be required to complete a preliminary dissertation prospectus at least one semester before taking their qualifying examination. The prospectus will contain a preliminary survey of the literature relevant to the student's topic and a statement of the hypotheses he or she wishes to explore. The completed prospectus will be reviewed by the Ph.D. committee at a meeting with the student.

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 must 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 seven years after completing 24 hours of graduate

courses in the department. 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 75 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.
- Angrang, 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 and Chairman*, Ph.D., 1965, University of California, Berkeley: Tudor-Stuart England and Ireland; the English Civil War; overseas expansion.
- Burner, David, *Professor*, Ph.D., 1965, Columbia University: Twentieth-century U.S.; political and social history; Herbert Hoover.
- Chinchilla-Aguilar, Ernesto, *Professor*, Ph.D., 1952, Escuela Nacional de Antropología de México: Central America and the Caribbean; colonial history; archival training and diplomacy.
- 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, The 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.
- 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.
- Landsman, Ned, *Assistant Professor*, Ph.D., 1979, University of

- Pennsylvania: U.S. colonial; local history; Anglo-American world.
- 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; paleography.
- Levine, Robert M., *Professor*, Ph.D., 1967, Princeton University: Latin America and Brazil; political and social history.
- Lida, Clara, *Associate Professor*,¹ Ph.D., 1969, Princeton University: Spain and Latin America; labor and political history.
- Main, Jackson T., *Professor*, Ph.D., 1949, University of Wisconsin: Colonial and revolutionary U.S.
- Marcus, Robert D., *Associate Professor*, Ph.D., 1967, Northwestern University: Nineteenth- and twentieth-century U.S. political and cultural history.
- Marker, Gary A., *Assistant Professor*, Ph.D., 1979, University of California, Berkeley: Russian social and intellectual history.
- Miller, Wilbur R., *Associate Professor*, Ph.D., 1973, Columbia University: Nineteenth-century U.S. social and urban history; crime, police, criminal justice; Civil War and Reconstruction.
- Owens, Leslie H., *Associate Professor*,² Ph.D., 1972, University of California, Riverside: Afro-American history; U.S. Southern history.
- Pratt, John W., *Associate Professor*, Ph.D., 1960, Harvard University: U.S. constitutional and political history; New York history.
- 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., *Associate Professor*, Ph.D., 1974, Stanford University: Latin America; Peru; social history and popular culture.
- Taylor, William R., *Professor*, Ph.D., 1956, Harvard University: Nineteenth- and twentieth-century U.S. history; cultural and intellectual history.
- Tomes, Nancy J., *Assistant Professor*, Ph.D., 1978, University of Pennsylvania: Nineteenth-century U.S. social; medicine and psychiatry; women and family.

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.

Williams, John A., *Associate Professor*, Ph.D., 1963, University of Wisconsin: British Empire; Africa; the Commonwealth; expansion of Europe.

Estimated number of teaching, graduate and research assistants, fall 1979: 36.

¹Joint appointment, Department of Hispanic Languages and Literatures

²Joint appointment, Africana Studies Program

Department of Political Science

Master's Program in Political Science

Objectives: The M.A. Program in Political Science is designed to provide individuals with the analytical training and policy expertise which will make them effective public administrators. 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) The Graduate Record Examination Aptitude Test scores (Qualitative and Quantitative).

E. Acceptance by both the Department of Political Science and the Graduate School.

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 533 and POL 535 concentrate on the formulation, implementation and evaluation of public policy; POL 510 and POL 511 cover basic research methods and statistics for public policy analysis. Under exceptional circumstances, a student may petition the M.A. Program Director for permission to waive the requirement for POL 511. It is up to the Program Director, after consultation with the relevant faculty, to grant or refuse such a request, and to indicate appropriate alternative courses as a substitute.

Ph.D. Program in Political Science

The Department of Political Science offers Ph.D. training in two areas of specialization: (1) political psychology, and (2) public policy.

Political Psychology

The political psychology program is interdisciplinary. All students take formal course work in both political science and psychology. The focus is on experimentation. In addition to formal training in experimental methods, students are apprenticed throughout their course of training to ongoing laboratory research projects. The department's nine laboratories, four of which are computer-based, are equipped to record verbal, psychophysical, psychophysiological and behavioral responses to auditory, visual and tactile stimuli.

The substantive concerns of the political psychology program include, but are not confined to, those facets of psychology that can be applied to the study of political behavior: e.g., communication and interaction, group influence, attribution, attitude change, social cognition, public opinion, psychophysiological and psychophysical measurement, multidimensional scaling, cognitive processes, decision making, the political organization of planned environments and the influence of environmental design on political structures.

Public Policy

The doctoral program in public policy has several goals: (1) to provide students with an introduction and an in-depth exposure to the latest analytical and methodological skills in the study of public policy; (2) to expose students to a wide-ranging introduction to contemporary theories of the policy process; (3) to encourage the student's development as a productive member of the political science profession specializing in research and/or teaching in the field of public policy; and (4) to provide these students with the requisite skills for participating in and advising on actual public policy decisions. In addition to the required course work (see Degree Requirements), the program is designed to give the student considerable opportunities to design his/her own individual policy specialization and to participate in public policy research with individual faculty members.

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 57 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. Psychology
3. Mathematics or statistics
4. Economics or sociology.

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

D. Acceptance by both the Department of Political Science and the Graduate School.

Degree Requirements

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

A. *Required courses* (all students): The Department of Political Science recognizes two broad goals in the education and training of graduate students: (1) to provide broad substantive knowledge and methodological expertise important for all professional and productive political scientists, regardless of the particular area of specialization; and (2) to provide the student with the opportunity to specialize in a particular area of concentration in which he/she expects to work, to teach and to conduct research at the end of the period of graduate study. With regard to the former, all students enroll in the following graduate courses:

Foundations in Political Science: The Department offers graduate seminars in the following foundation areas: (1) Political Behavior; (2) American Politics; (3) Public Policy; (4) Comparative Politics; (5) Methods of Political Analysis. The fifth area, Methods of Political Analysis, is composed of two required graduate courses in statistics and research methods.

Students should anticipate enrolling in these seminars early in their graduate careers.

In the first year of graduate study, all students enroll in the two-semester statistics sequence designed to introduce them to basic and advanced statistical and quantitative methods in political research. This sequence is a central element in graduate training and serves as the foundation in research methods from which more advanced work in research methods, for both political psychology and public policy, develop.

B. *Course Requirements—Political Psychology Program*: The course requirements in the highly structured Program in Political Psychology fall into four clusters.

1. The Political Psychology Sequence: All students, during their first 18 months in the program, must complete a three-course sequence in political psychology. After an introduction to experimental design, the first two courses review the literature from social, cognitive, experimental and psychophysiological psychology instructive for attacking problems in political behavior. The third course continues the emphasis on experimental design and gives special attention to laboratory instrumentation.

2. The Foundation in Political Science Sequence: All graduate students are required to take the seminars in the five foundation areas described in Section A above. These courses provide students with an introduction to the broad questions of political analysis and the acquisition of substantive knowledge necessary for the formulation of research problems and the teaching of undergraduate courses in these areas.

3. The Quantitative Methods Sequence: All new students enroll in the two-semester statistics sequence described in Section A above.

4. Advanced Topics in Political Psychology: Each student will select at least five advanced courses in substantive areas of psychology that have applicability to political science: e.g., social psychology, cognitive psychology, psychophysiology, and psychophysical and multidimensional scaling. The advanced courses in these areas will normally include both graduate courses offered by the Psychology Department and independent research courses with those faculty members with whom the student wishes to do specialized work.

C. Course Requirements—Public Policy Program: For the Public Policy Ph.D. Program, it is useful for the student in planning his or her graduate course work to think in terms of the following four sequences:

1. The Graduate Public Policy Sequence: The faculty of the Department of Political Science offers three graduate seminars in public policy which provide the core work in public policy, one introductory and two dealing with more advanced topics. The student should plan to enroll in these seminars when they are first offered. The introductory seminar (Foundations in Public Policy) provides the student with an introduction to contemporary theories of and research on public policy. The advanced seminar provides the opportunity for more intensive analysis as well as the setting for beginning research projects by the student. The Special Topics seminar is offered periodically by different faculty members on selected topics—e.g., decision making, implementation, impact, evaluation, regulation,

institutions. The student may enroll in this seminar more than once as long as the topic is different.

Finally, the student should anticipate enrolling in independent research with a faculty member with whom he or she would like to work in the longer term. Preferably, this should be done at the beginning of the third semester of graduate work. The student will then, on several occasions, enroll in independent research with that faculty member. In that capacity, students should anticipate conducting their own research projects and preparing research reports.

2. The Foundations in Political Science Sequence: All graduate students are required to take the seminars in the five foundation areas described in the section on Degree Requirements. These courses provide students with an introduction to the broad questions of political analysis and the acquisition of substantive knowledge necessary for teaching undergraduate courses in these areas.

3. The Quantitative Methods Sequence: All new students enroll in the two-semester statistics sequence described in Section A above. In addition, a one-semester calculus course (usually, Math 121) is required; and this should be taken early in the graduate career. Finally, the department requires two additional semesters of advanced graduate work in quantitative methods. These courses are usually taken outside the department. Students in the public policy program are strongly advised that this additional requirement be satisfied by enrolling in econometrics courses. The particular courses chosen should be done so in consultation with the student's faculty advisor.

4. The Policy Specialization Sequence: The student should select one or possibly two substantive areas in public policy in which he or she will specialize. This specialization (or specializations) should be chosen with considerable care, for it is likely to provide the substantive focus for both teaching and research in the future. Depending on the particular program of study, as many as five or six electives may be chosen with this specialization in mind. These policy electives will ordinarily be chosen from (1) the courses offered in the Master of Arts in Public Affairs Program, or (2) graduate courses in particular areas outside the department (e.g., health sciences, economics).

D. Student Evaluation: Graduate students in the Ph.D. program are evaluated by a variety of criteria from the very beginning of graduate work. Unlike the experiences which students would likely have had in undergraduate schools, graduate training is constituted by a much richer and broader set of intellec-

tual and professional activities and demands. In this context, grades serve as only one of several criteria by which the department evaluates the performance of its graduate students. It is worth emphasizing that graduate students are not viewed as simply fifth or sixth year undergraduate students but rather as the newest members of an intellectual community. As such, their contribution to the intellectual vitality of the department is critical. The department has an especially strong responsibility to provide an accurate and fair evaluation of the student's performance throughout the graduate career—from the standpoints of the student's, the department's and the profession's interest. Students will be informed of the precise date of any examination at least two months prior to the date on which that examination is to take place. The methods of evaluation are institutionalized in the following ways:

1. *Course grades:* The grades which students receive in courses serve as one of several components in the overall evaluation of student performance.

2. *Performance as graduate assistants:* Students in the Ph.D. program serve as graduate assistants throughout their graduate training. The department considers this kind of activity to be an integral part of graduate work, providing students with experiences both in the classroom and on faculty research projects. Students may be assigned at various points in their graduate careers as teaching assistants or as research assistants. Graduate students must have at least two semesters' experience in each capacity (research and teaching). In making assignments, the department considers both the interests of the students and the needs of the department. The faculty members under whom each student works provide a formal evaluation of the student's performance and that evaluation becomes a part of the student's permanent file.

3. *First-year evaluation:* Graduate students in the Ph.D. program are formally evaluated in the middle of the second semester of graduate work. The first-year evaluation committee for each student is composed of faculty members with whom the student has worked, both in courses and in a teaching/research capacity. The committee's charge is to make one of the following three possible determinations with regard to the student's progress: (a) recommend continuation of graduate study toward the Ph.D.; or (b) recommend that the student be allowed to continue toward an M.A. but not to continue in the Ph.D. program; or (c) recommend that the student not be permitted to enroll in additional graduate courses in the department. The student's performance in an oral examination

before the committee may be required. The first-year evaluation also serves as the basis for the decision on whether the student is to receive financial support during subsequent semesters of graduate work.

4. *Comprehensive examinations for the Ph.D.:*

a. *Timing of Examinations:* Students making normal progress toward the Ph.D. should anticipate taking comprehensive examinations no later than the end of the third year of course work. Examinations are offered twice during each academic year, once in November and once in May. Written examinations in four fields compose the doctoral comprehensive examinations.

b. *Examination Fields:* In order to become a candidate for the Ph.D. degree, the student is examined in four fields. A distinction is made between two types of examinations: 1) foundation examination (offered in each of the five foundation areas described in Section A, above), and 2) advanced examination (offered in each of the two Ph.D. program specializations, political psychology or public policy). Students specializing in political psychology are required to take the advanced examination in political psychology and the foundation examination in methods of political analysis and two additional foundation areas. Students specializing in public policy are required to take the advanced examination in public policy and the foundation examination in methods of political analysis and two additional foundation areas, except that students specializing in public policy may not take the foundation examination in public policy as a separate examination. In each case, the total number of written examinations is four.

5. *Doctoral examination committee:* The student, in consultation with his/her faculty advisor and the Director of Graduate Studies, selects a committee of four faculty members, three from the Department of Political Science and one with whom the student has worked from outside the department. The committee should be selected no later than three months prior to the taking of comprehensive examinations. This committee will ordinarily continue to serve as the student's dissertation committee after the comprehensive examinations, although some changes may be made according to the student's needs and interests. It is the responsibility of the student's doctoral examination committee (not including the outside member) to certify the performance on the written examinations. That committee may, at its discretion, require that an oral examination follow the written examinations if such additional information is deemed necessary in making a judgment. Stu-

dents must pass examinations in *all* four fields in order to be admitted to candidacy for the Ph.D. degree. Students failing comprehensive examinations on the first try may be permitted to retake examinations during the next examination period (usually about six months). In no case will a reexamination be given earlier. Only one retake of examinations is permitted. Failure on the second try means dismissal from the Ph.D. program.

E. 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.

Faculty

- Brown, Stephen P., *Assistant Professor*, Ph.D., 1976, University of Rochester: Public budgeting; statistical methods for policy analysis; congressional policy making.
- Cross, David, *Associate Professor*, Ph.D., 1965, University of Michigan: Psychophysics; psychological scaling; mathematical psychology.
- Cowart, Andrew T., *Professor*, Ph.D., 1971, University of Michigan: Comparative public policy; econometric approaches to the study of public policy; public budgeting.
- Enelow, James M., *Assistant Professor*, Ph.D., 1977, University of Rochester: Formal political theory; models of decision making.
- Gormley, William T., Jr., *Assistant Professor*, Ph.D., 1976, University of North Carolina: Public policy and regulation; policy analysis; mass media and public opinion.
- Jukam, Thomas O., *Assistant Professor*, Ph.D., 1977, Michigan State University: Mass political behavior; attitude change.
- Koppelman, Lee E., *Professor*, Ph.D., 1967, New York University: Planning; energy policy; local government and intergovernmental relations.
- Linehan, William J., *Assistant Professor*, Ph.D., 1977, Indiana University: Formal theory and methodology; comparative politics; international relations.
- Lodge, Milton G., *Professor*, Ph.D., 1967, University of Michigan: Political psychology; scaling; political cognition.
- Myers, Frank E., *Associate Professor and Provost*, Ph.D., 1965, Columbia University: Comparative politics; political theory; political change.
- Norpoth, Helmut, *Assistant Professor*, Ph.D., 1974, University of Michigan: electoral behavior and political parties; legislative behavior; quantitative methods.
- Quattrone, George A., *Lecturer*, Duke University: Social psychology; statistics.
- Scarrow, Howard A., *Professor*, Ph.D., 1954, Duke University: Comparative politics; political parties.
- Schneider, Mark S., *Associate Professor*, Ph.D., 1974, University of North Carolina: Urban public policy; urban service delivery; administration and public policy.
- Scholz, John T., *Assistant Professor*, Ph.D., 1977, University of California, Berkeley: Policy implementation and evaluation; regulation; economic development and comparative policy analysis.

- Tanenhaus, Joseph, *Professor*, Ph.D., 1953, Cornell University: Political psychology; judicial behavior; political cognition.
- Travis, Martin B., *Professor*, Ph.D., 1948, University of Chicago: International law and international relations; Latin America; the Middle East.
- Tursky, Bernard, *Professor,¹ and Chairman of Department*, 1954, Lowell Institute, Massachusetts Institute of Technology: Political psychology; psychophysiology; scaling.
- Valins, Stuart, *Professor,¹ Ph.D.*, 1964, Columbia University: Social ecology; cognitive and affective processes; environmental determinants of behavior change.
- Williams, Jay C., Jr., *Professor*, Ph.D., 1955, University of Chicago: Political theory; political propaganda.

Estimated number of teaching, graduate and research assistants, fall 1979: 24.

¹Joint appointment, Department of Psychology

Department of Psychology

Admission to Graduate Study

A. A baccalaureate degree with either a major in psychology, or a program providing adequate preparation for the intended area of specialization (ordinarily including statistics, psychology laboratory and learning courses).

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 Aptitude Examination are required, and Advanced Test results are strongly recommended for undergraduate psychology majors.

E. Acceptance by both 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. 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 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, Sensa-

tion and Perception, and Measurement and Scaling (Experimental); Neuropsychology, and Comparative Behavior (Psychobiology); Contemporary Issues in Social and Community Psychology (Social); History of Psychology, and Psychophysiology (General). 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 the 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 program area faculty must vote to recommend the student 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, accredited by the American Psychological Association, 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 behavioral approach to therapy.

*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 the 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 psy-

chology 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.

Facilities

The Psychology Department has a number of laboratories used for graduate instructions. The laboratory facilities in which graduate students participate are *Point of Woods University Laboratory School* (a facility for 10 children with hyperkinesia and conduct disorders); *Suffolk Developmental Center* (a University facility for 50 autistic children); *Psychological Center* (with a reading program for children with learning disabilities and severe reading problems).

Faculty

Abramson, Lyn Y., *Assistant Professor*, Ph.D., 1978, University of Pennsylvania: Depression; attribution of causality; perception of contingency.

Baars, Bernard, *Assistant Professor*, Ph.D., 1977, University of California, Los Angeles: Psycholinguistics; cognitive psychology.

Birns, Beverly, *Affiliate 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.

*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.

- 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 and Director of Resources*, Ph.D., 1965, University of Michigan: Psychophysics; psychological scaling; mathematical psychology.
- Dube, Ernest Fred, *Affiliate Assistant Professor*,² Ph.D., 1976, Cornell University: Cross-cultural studies of cognition; attitudes and racism.
- Dwyer, James, *Assistant Professor*, Ph.D., 1975, University of California, Santa Cruz: Structural equation models of socioeconomic status allocation; locus of control and economic well-being.
- D'Zurilla, Thomas, *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, *Affiliate Professor*,³ Ph.D., 1969, University of Chicago: Behavior; marriage and the family; social change.
- 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.
- Gewirtz, Jacob, *Professor*, Ph.D., 1948, University of Iowa: Social learning and development; infancy, life span development.
- 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, *Affiliate Professor*,⁴ 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.
- Kalish, Harry I., *Professor*, Ph.D., 1952, University of Iowa: Applied learning; biofeedback; animal learning.
- 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, Frederic, *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.
- Logue, Alexandra, *Assistant Professor*, Ph.D., 1978, Harvard University: Learning and motivation.
- LoPiccolo, Joseph, *Affiliate Associate Professor*,⁴ Ph.D., 1969, Yale University: Sexual dysfunction.
- 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, *Part-time Assistant Professor*, Ph.D., 1972, State University of New York, Stony Brook: Child and family problems; hyperactivity in children.

- 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.
- Ross, Alan O., *Professor and Director of Clinical Training*, Ph.D., 1953, Yale University: Psychological disorders of children; learning disabilities; reading difficulties.
- Silverstein, Brett, *Assistant Professor*, Ph.D., 1976, Columbia University: Appetitive behavior; addiction; psychonutrition.
- Springer, Sally, *Associate 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.
- Tursky, Bernard, *Affiliate Professor*,⁵ Lowell Institute, Massachusetts Institute of Technology: Psycho-physiology; biofeedback; psychophysics; 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.
- Waters, Everett, *Assistant Professor*, Ph.D., 1977, University of Minnesota: Infancy; personality and social development.
- Waters, Harriet, *Assistant Professor*, Ph.D., 1976, University of Minnesota: Cognitive and memory development; social cognition.
- 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*, Ph.D., 1955, University of California, Berkeley: Comparative psychology; evolution of behavior; memory consolidation; learning.

Estimated number of teaching, graduate and research assistants, fall 1979: 132.

¹Interdisciplinary Program in Social Sciences

²Africana Studies Program

³Department of Sociology

⁴Department of Psychiatry

⁵Department of Political Science

Department of Sociology

M.A. Degree Program in Applied Sociology

The program is designed to provide basic understanding of the theoretical perspectives and research methods of the discipline. Emphasis is given to the research tools of sociology, including use of available data such as the census, design and analysis of surveys, evaluation research and observation techniques. The curriculum is adaptable to students' ongoing experiences and career goals, including teaching of sociology or other subjects in the high school or community college, and the planning, implementation and evaluation of various types of social programs in business, public agencies or voluntary organizations. The degree requirements of 30 graduate credits may be completed in one year (including summer session) of full-time study, or extended over a longer period of part-time study. Courses are scheduled late in the day or in the evening to avoid conflicts with employment.

Requirements for admission to this program will normally include:

- A. A baccalaureate degree.
- B. Six hours of undergraduate sociology.
- C. B (3.0) average or above (desirable).
- D. Graduate Record Examinations.
- E. Personal interview.
- F. Acceptance by both the Department of Sociology and the Graduate School.

A program of full-time study will normally include the following:

Fall semester: SOC 514, SOC 546 and SOC 580.

Spring semester: SOC 581 and two graduate courses in sociology selected by the student in consultation with the Graduate Program Director.

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.

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

Admission to the Doctoral Program 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 both the Department of Sociology and 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 upon petition for students who enter the program with demonstrability of high levels of expertise in subjects required for the Ph.D.) Certain requirements may be waived if proof of comparable work at other institutions is submitted.

Requirements for the Ph.D. Degree

A. Residence: Minimum residence is generally one year of full-time study. Students may be 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 (one each semester) will consist of independent readings or, for those holding graduate traineeships, teaching experience under the supervision of a faculty member.

C. M.A. Requirement: This requirement is designed to demonstrate that a student has basic knowledge and professional competency in the field of sociology. The student must complete one of the following two options for the M.A. degree:

Option 1—The Three Papers: In this option, a student can meet M.A. requirements and proceed to the second half of doctoral work through the submission of three papers written under faculty supervision. These should normally be completed before the beginning of the third academic year; each of the three papers is designed to allow the student to demonstrate a different competence. Each paper should be more substantial

than a seminar paper and less substantial than an M.A. thesis; two substantive areas must be represented in the three papers. The areas to be covered by the papers will be the following:

1. Theory paper—An attempt to say something original, focused on theoretical questions, *i.e.*, how they should be addressed or refined. Evaluating alternative theoretical positions in light of available evidence or data is an acceptable possibility in such a paper.

2. Empirical paper—Should include some justification for why this particular manipulation of data is necessary or desirable. Of the three papers, this is the one that is intended to look most like a research report. A wide variety of methods is permitted.

3. Analytic review of the state of the art in some substantive area in sociology. This paper can take various forms, for example:

a) A review essay (see *Journal of Economic Literature* or *Psychological Review*).

b) An essay which outlines a field for use in teaching a graduate seminar.

Upon successful completion of all of the above requirements, along with completion 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.

Option 2—Comprehensive Examination and M.A. Research Report: In this option, the adequacy of a student's general preparation is evaluated by means of a written comprehensive examination. This examination, to be taken between the beginning of the fifth and the beginning of the sixth semester of graduate study, must be passed at the standard set by the department for Ph.D. level work. A student who fails to pass this examination at the required level, but whose performance is satisfactory in all other respects, may, under special circumstances, be permitted to take a terminal M.A. by completing 30 credits of graduate course work and submitting an acceptable research report. Upon passing the comprehensive examination the 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 of 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. Recip-

ients of the terminal M.A. will not be granted permission to continue.

D. 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.

E. 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.

F. 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.

G. 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.

H. 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.

Facilities

The Sociology Department has a Microsociology Laboratory for research and education in such areas as child development, group processes, social interaction and communications.

Faculty

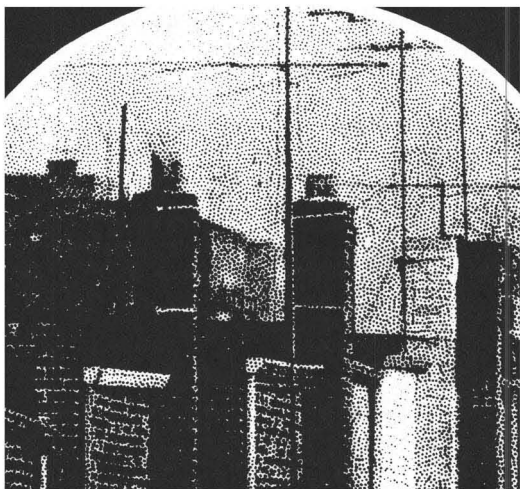
- Arjomand, Said, *Assistant Professor*, Ph.D., 1978, University of Chicago: Comparative, historical, political.
- Barthel, Diane, *Assistant Professor*, Ph.D., 1977, Harvard University: Urban; community; race and ethnicity; sex roles.
- Chase, Ivan, *Assistant Professor*, Ph.D., 1972, Harvard University: Social inequality; stratification; comparative.
- 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.
- Feld, Scott, *Assistant Professor*, Ph.D., 1975, Johns Hopkins University: Methodology; political.
- Feldman, Kenneth A., *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.
- 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., *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.
- Zeit, Gerald, *Assistant Professor*, Ph.D., 1976, University of Wisconsin: Organizations; theory.

Estimated number of teaching, graduate and research assistants, fall 1979: 75.

¹Joint Appointment, Department of Psychology

*On leave Fall 1980



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 upon 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 Federal Graduate Cooperative Program, the New York State Assembly Fellowship and the New York City Urban Fellowship.

The purpose of the internship 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 overall 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
Long Island, 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.

Bever, James, *Lecturer*,¹ M.S., 1977, Georgetown University School of Foreign Service: International energy policy.

Brody, Adele, *Associate Professor*,¹ MLL, New York University School of Law; Urban law and public administration in a policy analysis framework.

Carlucci, Carl, *Lecturer*,¹ M.S., 1974, State University of New York, Stony Brook: Management information systems.

Carroll, T. Owen, *Associate Professor*,¹ Ph.D., 1968, Cornell University: Energy systems; educational finance; mental health.

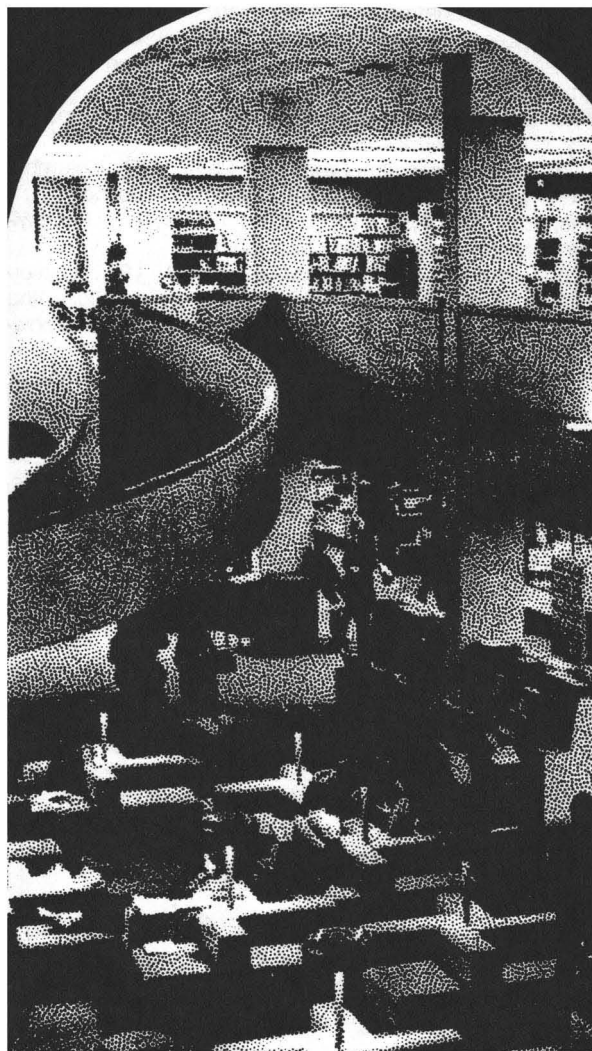
Chatterjee, Romir, *Lecturer*,¹ Ph.D., 1978, New School for

Social Research: Economic development; economics for energy policy.

- Cohn, Barbara, *Lecturer*,¹ B.A., New York University: Analysis of municipal services.
- Kamer, Pearl M., *Associate Professor*,¹ Ph.D., 1976, New York University: Regional economic planning.
- Koppelman, Lee E., *Adjunct Professor*,¹ D.P.A., 1967, New York University: Regional planning and urban planning, environmental and natural resource policy.
- Lefkowitz, Gary, *Lecturer*,¹ MPA, Harvard University: Manpower policy; quality of work life; productivity.
- Marcuse, William, *Associate Professor*,¹ 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.
- Saar, Shalom S., *Assistant Professor*, Ed.D., Harvard University: Developing alternative methods of assessing the quality of public and social programs.
- Sexton, Thomas R., *Assistant Professor*, Ph.D., 1979, State University of New York, Stony Brook: Operations research, specifically as applied to the analysis of transportation problems.
- Silkman, Richard H., *Assistant Professor*, Ph.D., 1978, Yale University: Public policy toward education and health.
- Walsh, John P., *Assistant Professor*, Ph.D., 1975, State University of New York, Stony Brook: Application of economic analysis problems of health policy.
- Weiner, Harry, *Associate Professor and Dean of the W. Averell Harriman College for Urban and Policy Sciences*, S.M., 1970, Massachusetts Institute of Technology: Redesign 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.

Estimated number of teaching, graduate and research assistants, fall 1979: 55.

¹Adjunct faculty



Directories

State University of
New York

Trustees

General Statement

Campuses

State University at
Stony Brook

Council

*Officers of
Administration*

*Staff of the
Graduate School*

State University of New York

BOARD OF TRUSTEES

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|---|---------------|
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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 355,000 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 the 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 and 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.

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 705,000 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: "To Learn—To Search—To Serve."

CAMPUSES

UNIVERSITY CENTERS

State University of New York at Albany
State University of New York at Binghamton
State University of New York at Buffalo
State University of New York at Stony Brook

COLLEGES OF ARTS AND SCIENCE

Empire State College
State University College at Brockport
State University College at Buffalo
State University College at Cortland
State University College at Fredonia
State University College at Geneseo
State University College at New Paltz
State University College at Old Westbury
State University College at Oneonta
State University College at Oswego
State University College at Plattsburgh
State University College at Potsdam
State University College at Purchase

COLLEGES AND CENTERS FOR THE HEALTH SCIENCES

Downstate Medical Center at Brooklyn
Upstate Medical Center at Syracuse
College of Optometry at New York City
Health Sciences Center at Buffalo*
Health Sciences Center at Stony Brook*

AGRICULTURAL AND TECHNICAL COLLEGES

Agricultural and Technical College at Alfred
Agricultural and Technical College at Canton
Agricultural and Technical College at Cobleskill
Agricultural and Technical College at Delhi
Agricultural and Technical College at Farmingdale
Agricultural and Technical College at Morrisville

SPECIALIZED COLLEGES

College of Environmental Science and Forestry at Syracuse
Maritime College at Fort Schuyler
College of Technology at Utica/Rome
Fashion Institute of Technology at New York City**

STATUTORY COLLEGES***

College of Agriculture and Life Sciences at Cornell University
College of Ceramics at Alfred University
College of Human Ecology at Cornell University
School of Industrial and Labor Relations at Cornell University
College of Veterinary Medicine at Cornell University

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 Williamsville, Buffalo and Orchard Park
Fashion Institute of Technology at New York City**
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

*The Health Sciences Centers at Buffalo and Stony Brook are operated under the administration of their respective University Centers.

**While authorized to offer such baccalaureate and master's degree programs as may be approved pursuant to the provisions of the Master Plan, in addition to the associate degree, the Fashion Institute of Technology is financed and administered in the manner provided for community colleges.

***These operate as "contract colleges" on the campuses of independent universities.

Rockland Community College at Suffern
Schenectady County Community College at Schenectady
Suffolk County Community College at Selden, Riverhead and
Brentwood
Sullivan County Community College at Loch Sheldrake
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 ten-member Council. Nine are appointed by the Governor; the tenth, a student member with all the rights and responsibilities of the other members, is elected by the student body. All positions listed are correct as of June 10, 1980.

R. Christian Anderson, *Chairman*
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Peter J. Papadakos
St. James

Leonard L. Eichenholtz
Valley Stream

John V. Scaduto
Long Beach

L. Donald Jaffin
Manhasset

Ena Townsend
Central Islip

Donald J. Leahy
Douglaston

Andrew E. Ullmann
Cold Spring Harbor

Betty G. Ostrander
Southampton

Lawrence Siegel
(Student; term expires 7-1-80)
Patchogue

OFFICERS OF ADMINISTRATION

All positions are correct as of June 9, 1980.

- | | |
|--|--|
| John H. Marburger, III, B.A., Ph.D. <i>President (7-1-80)</i> | Sheldon Ackley, A.B., M.A., Ph.D. <i>Deputy to the President</i> |
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| James B. Black, B.S. <i>Vice President for University Affairs (8-1-80)</i> | John C. Bilello, B. Met., M.S., Ph.D. <i>Dean, College of Engineering and Applied Sciences</i> |
| Michael Elliott, B.A., M.S. <i>Vice President for Hospital Affairs; Executive Director of the University Hospital</i> | Richard Brown, A.A.S., B.A., C.P.A. <i>Assistant Vice President for Finance and Business; Controller</i> |
| Sidney Gelber, A.B., M.A., Ph.D. <i>Academic Vice President</i> | Robert L. Cornute, A.A.S., B.A., M.A. <i>Director of Public Safety</i> |
| Carl E. Hanes, Jr., B.S.C. <i>Vice President for Finance and Business</i> | Peter De Maggio <i>Director, General Insti- tutional Services</i> |
| J. Howard Oaks, A.B., D.M.D. <i>Vice President for Health Sciences</i> | Alan Entine, B.A., M.A., Ph.D. <i>Assistant Academic Vice President; Acting Special Assistant to the Presi- dent for Affirmative Action (7-1-80)</i> |
| Elizabeth Wadsworth, A.B., M.A., Ph.D. <i>Vice President for Student Affairs</i> | |

William Fornadel,
B.A., M.S.
*Acting Director,
Stony Brook Union*

Daniel M. Fox, A.B.,
A.M., Ph.D.
*Assistant Vice President
for Health Sciences
(Academic Affairs)*

Daniel Frisbie, A.B., E.D.M.
Director of Admissions

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M.A., M.B.A., P.E.
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Vice President*

John Gibbs, B.A., C.P.A.
*Director of Student
Accounts*

Robert Gilleece, B.A., M.A.
Director of Financial Aid

Edward J. Gunnigle,
B.S., LL.B., LL.M.
*President and Executive
Director, Stony Brook
Foundation*

John Hale, B.S.C.E., M.S.
*Director, Computing
Center*

Gerald Hartman, B.S., M.D.
*Acting Clinical
Director of University
Health Service*

Claudia Justy, B.A., M.A.
*Director of
Residence Life*

James Keene, A.B., M.S.
*Director of Career
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Charles W. Kim, B.S., M.S.,
Ph.D.
*Associate Dean of the
Graduate School*

Richard Koehn, B.A., Ph.D.
*Provost for Biological
Sciences*

Paul Madonna, B.A., M.A.,
D.Ed.
*Assistant Vice President
for Finance and
Business; Business
Manager*

Robert Marcus, B.A., M.A.,
Ph.D.
*Dean for Undergraduate
Studies*

George Marshall, B.B.A.
*Director, Department of
Environmental Health
and Safety*

Joseph McConkey, B.B.A.
*Assistant Vice President;
Director of Management
Systems*

Anne McKeen
Bursar

James McKenna, B.A., M.A.,
Ph.D.
*Associate Academic
Vice President*

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Supervisor of University Disbursements
- 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 and Director of Libraries
- Richard Solo, B.Sc., Ph.D.
Director of Orientation
- 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
- Harry Weiner, Ph.D.
Dean, W. Averell Harriman College for Urban and Policy Sciences
- David Woods, B.A., M.A.
Director of University Relations
- Lee Yasumura, B.A.
Director of Personnel

STAFF OF THE GRADUATE SCHOOL

Jacob Bigeleisen, Ph.D.
*Vice President for
Research; Dean of
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Lois Branch, B.A.
*Assistant for Sponsored
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D. Ann Carvalho, M.A.
Assistant to the Dean

Michael S. Denci, M.A.
*Assistant Dean of the
Graduate School*

Susan Firestone, B.A.
*Assistant for Sponsored
Research*

Joan B. Fry, M.A.
Assistant to the Dean

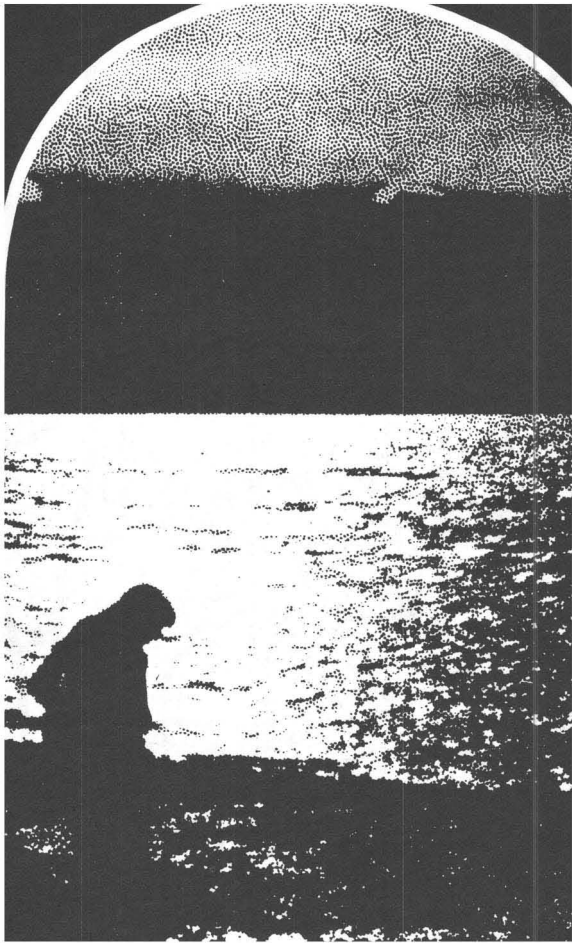
Charles W. Kim, Ph.D.
*Associate Dean of the
Graduate School*

Phyllis A. Reed, M.A.
Assistant to the Dean

Kathryn S. Rockett,
M.A./L.S.
*Assistant for Sponsored
Research*

Peter M. Saal, M.S./L.S.
*Assistant for Sponsored
Research Information*

Robert F. Schneider, Ph.D.
*Associate Dean for
Research*



Main Campus

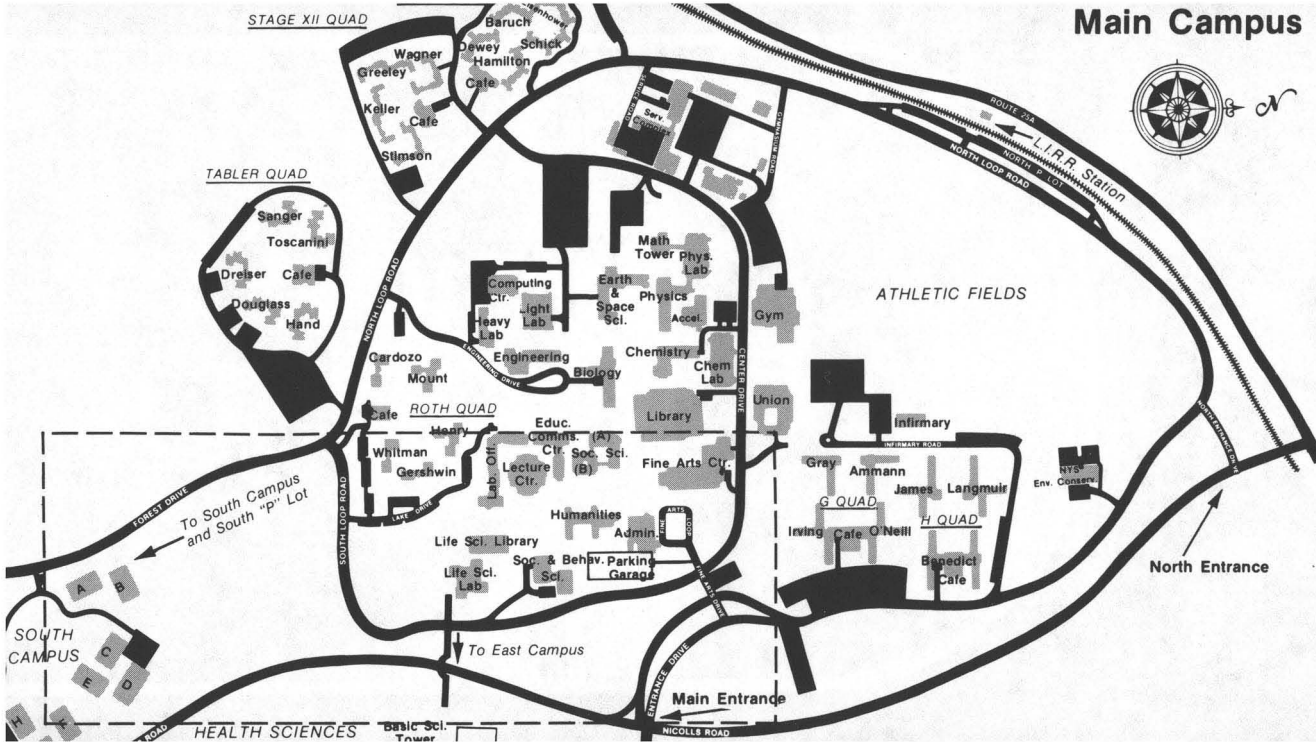


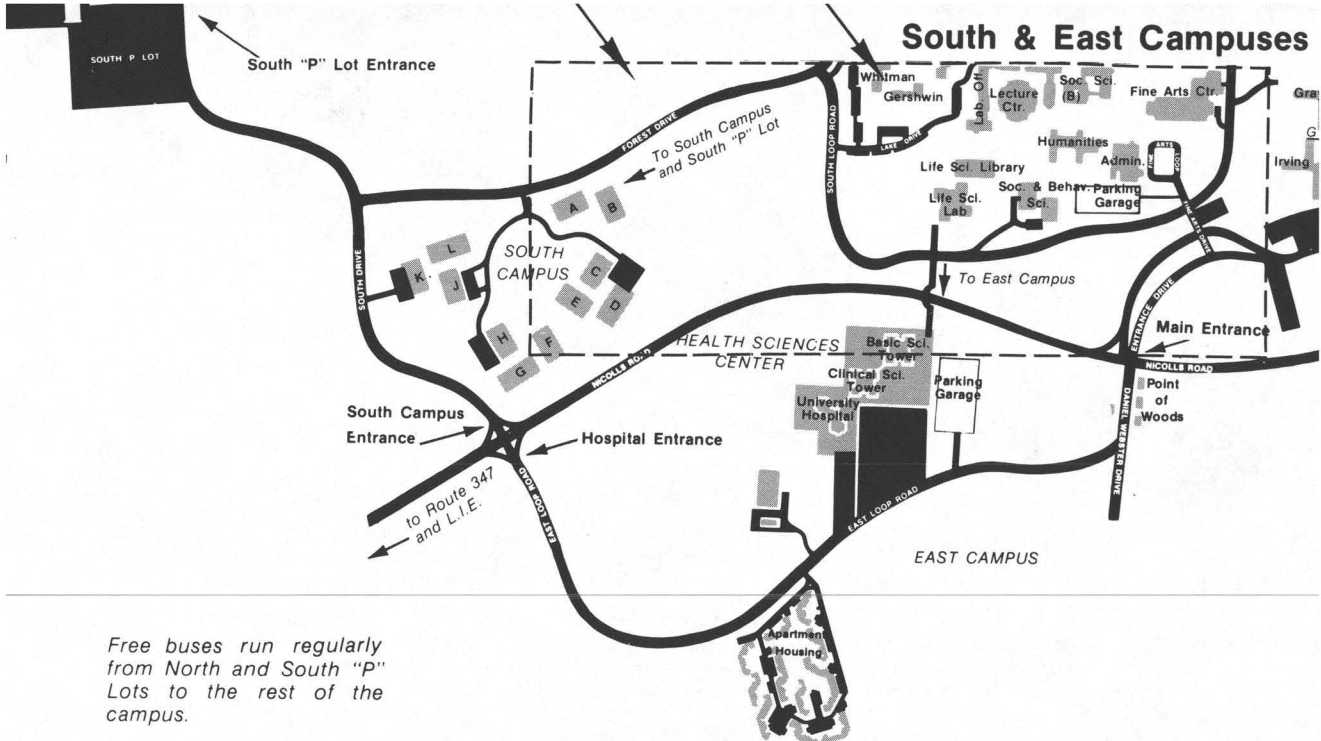
STAGE XII QUAD

TABLER QUAD

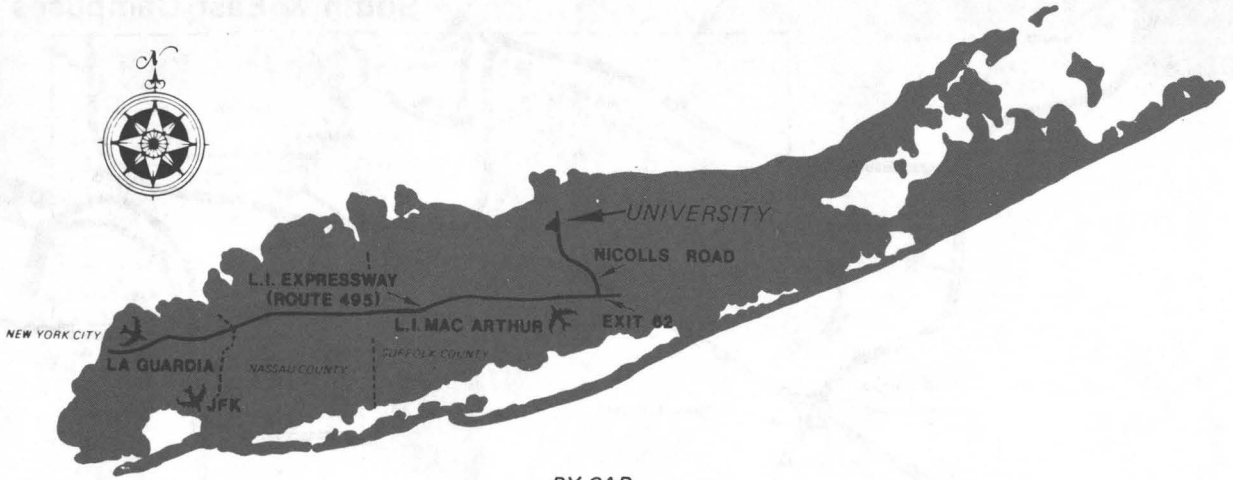
ROTH QUAD

ATHLETIC FIELDS





Free buses run regularly from North and South "P" Lots to the rest of the campus.



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.

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.

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Additional Information

For general information about graduate programs and/or application, please write or phone:

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For assistance in obtaining updated information for the 1981-82 academic year, call the Graduate School Office (516-246-5945) or the Office of University Relations (516-246-3580.)

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