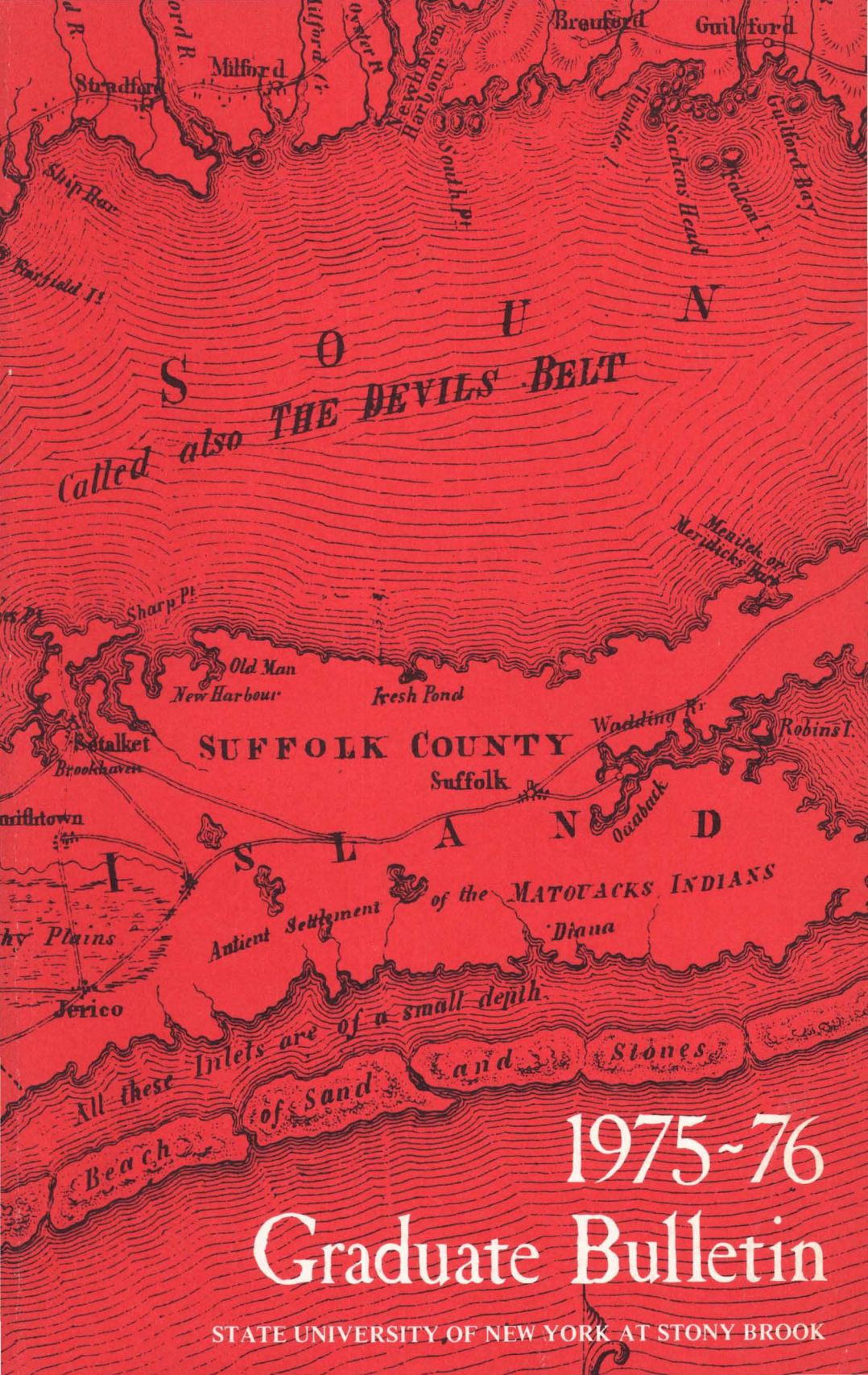

1975-76 Graduate Bulletin

STATE UNIVERSITY OF NEW YORK AT STONY BROOK

The Bicentennial
In observation of the Bicentennial, the cover of this year's catalogs reproduces the Long Island portion of a British engraving made by William Fadden, geographer to the king, in 1779. Stony Brook is located where the word "Brookhaven" appears on the map. The University's Institute for Colonial Studies keeps microfilmed archives of many similar original documents, including a growing collection of materials on Colonial Long Island.

1975-76
Graduate Bulletin

STATE UNIVERSITY OF NEW YORK AT STONY BROOK

Contents

Volume XIII

Press Date January 29, 1975
State University of New York at Stony Brook

Additional Information

For general information about graduate programs and/or application, please write or phone:

The Graduate School, State University of New York at Stony Brook
Stony Brook, N.Y. 11794, (516) 246-5945

Graduate students at Stony Brook may specialize in any of the following fields. Page numbers refer the reader to the graduate department or program in which the particular area of specialization is offered.

1975-76
Academic Calendar

Fall Semester 1975

August 24, Sunday	Foreign Students Must Arrive
August 24-September 1 Sunday-Monday	Foreign Student Orientation
August 25, Monday	All Residence Halls Open
August 26-27 Tuesday-Wednesday	Graduate Student Registration
August 27-29 Wednesday-Friday	Undergraduate Student Registration
August 27-30 Wednesday-Saturday	Undergraduate Student Orientation
September 1, Monday	Labor Day Recess
September 2, Tuesday	Classes Begin—Late Registration Period Begins
September 12, Friday	End of Late Registration Period—All Students (Including Graduate and CED Students) Last Day to Add a Course—Undergraduates
September 6, Saturday	Rosh Hashanah Recess (No Class on Friday, September 5 after 4:00 p.m.)
September 15, Monday	Yom Kippur Recess (No Classes before 5:00 p.m. Monday, September 15)
September 26, Friday	Last Day for Graduate Students to Add or Drop a Course Last Day to File for December Graduation for All Students Who Have Not Applied Previously for this Graduation Date Last Day for Graduate Students to File Degree Cards in the Graduate School Office for December Graduation
October 3, Friday	Last Day for Undergraduate Students to Drop Courses Without Withdrawing from the University Last Day for Undergraduates to Change Courses to or from Pass/No Credit
October 31, Friday	Last Day for Removal of Incompletes and NR (no record) grades from Spring

	Semester and Summer Session for All Students
November 3-7 Monday-Friday	Advance Registration for Spring Semester for Graduate and Undergraduate Students (except CED Students)
November 26, Wednesday	Thanksgiving Recess Begins at Close of Classes
December 1, Monday	Classes Resume
December 15, Monday	Last Day of Classes—Last Day to Withdraw from the University
December 16, Tuesday	Final Examinations Begin
December 19, Friday	Last Day for Graduate Students to Submit Theses and Dissertations for December Graduation
December 20, Saturday	Final Examinations End—Fall Semester Ends
December 21, Sunday	Residence Halls Close Final Grades Due in Registrar's Office 72 Hours After Scheduled Examination or Last Class Meeting
December 22, Monday	Last Day for Departments to Submit Completion Statements for December Masters and Doctoral Candidates

Spring Semester 1976

January 5, Monday	All Residence Halls Open
January 6, Tuesday	Foreign Students Must Arrive
January 6-9 Tuesday-Friday	Final Registration for Graduate and Undergraduate Students
January 8-11 Thursday-Sunday	Undergraduate Student Orientation
January 12, Monday	Classes Begin—Late Registration Period Begins
January 23, Friday	End of Late Registration Period—All Students (including Graduate and CED Students) Last Day to Add a Course—Undergradutes
January 30, Friday	Last Day to File for May Graduation for All Students Who Have Not Applied Previously for this Graduation Date
February 6, Friday	Last Day for Graduate Students to Add or Drop a Course

February 13, Friday	Last Day for Undergraduate Students to Drop Courses Without Withdrawing from the University Last Day for Undergraduates to Change Courses to or from Pass/No Credit Last Day for Graduate Students to File Degree Cards in the Graduate School Office for May Graduation
March 15, Monday	Last Day for Removal of Incompletes and NR (no record) grades from Fall Semester for All Students
March 20, Saturday	Spring Recess Begins at Close of Classes
March 29, Monday	Classes Resume
April 19, Monday	Last Day for Graduate Students to Submit Theses and Dissertations for May Graduation
April 19-23 Monday-Friday	Advance Registration for Fall Semester for Graduate and Undergraduate Students (except CED Students)
May 7, Friday	Last Day of Classes—Last Day to Withdraw from the University
May 10, Monday	Final Examinations Begin Last Day for Departments to Submit Completion Statements for May Doctoral Candidates
May 15, Saturday	Final Examinations End—Spring Semester Ends
May 16, Sunday	Commencement Final Grades Due in Registrar's Office 72 Hours After Scheduled Examination or Last Class Meeting
May 17, Monday	Last Day for Departments to Submit Completion Statements for May Masters Candidates

Summer Session I 1976

May 17, Monday	Registration of All Non-CED Students (CED Students See Special Instructions Issued Separately from this Bulletin)
May 18, Tuesday	Classes Begin—Late Registration Period Begins
May 20, Thursday	Late Registration Period Ends—All Students (Including CED Students) Last Day to Add a Course

May 24, Monday	Holiday—Classes in Session at Discretion of Instructor
May 28, Friday	Last Day for Undergraduates to Change Courses to or from Pass/No Credit
June 11, Friday	Last Day to Drop a Course Without Withdrawing from the Summer Session
June 25, Friday	Summer Session I Ends Last Day to File for August Graduation for Students Who Have Not Applied Previously for this Graduation Date. Last Day for Graduate Students to File Degree Cards in the Graduate School Office for August Graduation Final Grades Due in the Registrar's Office 72 Hours After Last Class Meeting

Summer Session II 1976

July 5, Monday	Registration of All Non-CED Students (CED Students See Special Instructions Issued Separately from this Bulletin)
July 6, Tuesday	Classes Begin—Late Registration Period Begins
July 8, Thursday	Late Registration Period Ends—All Students (Including CED Students) Last Day to Add a Course
July 16, Friday	Last Day for Undergraduates to Change Courses to or from Pass/No Credit
July 30, Friday	Last Day to Drop a Course Without Withdrawing from the Summer Session
August 13, Friday	Summer Session II Ends Final Grades Due in Registrar's Office 72 Hours After Last Class Meeting Last Day for Graduate Students to Submit Theses and Dissertations for August Graduation
August 20, Friday	Last Day for Departments to Submit Completion Statements for August Masters and Doctoral Candidates

Students enrolled in Health Sciences Center undergraduate and graduate programs follow a different academic calendar geared to the demands of professional education.

General Information

Background

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

Since then, Stony Brook has grown to encompass 75 buildings on 1100 acres. The faculty has grown from about 175 to 1200, the student body from 1000 to 15,000, and the annual budget from about $4 million to $55 million. The campus is moving rapidly toward completion, with new facilities for biology, chemistry, physics, mathematics and fine arts recently opened and a Health Sciences Center slated to be substantially completed by the end of the decade.

Of the 72 institutions comprising the State University of New York, Stony Brook is the only comprehensive university center for the entire New York metropolitan area. Located on Long Island, one of the nation's fastest growing population areas, the University has a stated goal of being a responsive university of excellence, dedicated to serving its region. Stony Brook has a particularly urgent mission resulting from its location in Nassau-Suffolk, an area which lags far behind other parts of the state and the nation in higher education facilities.

Location

Stony Brook is about 60 miles east of Manhattan on the wooded north shore of Long Island, within a few miles of picturesque villages, harbors and beaches. Yet the Long Island Expressway and the Long Island Rail Road provide the campus ready access to the cultural, scientific, and commercial resources of New York City.

Students

Stony Brook's 1974-75 enrollment was about 15,000 (9800 undergraduates and 5200 graduate students, including about 2500 part-time graduate students enrolled in continuing education programs). About 60% of Stony Brook's students come from Nassau and Suffolk counties, 90% are from the New York metropolitan area, and 97% are from New York State.

Faculty

Approximately 71% of Stony Brook's 1200 faculty members hold doctorate degrees. The student-faculty ratio is about one faculty member for every 14.8 students. C. N. Yang, Nobel Prize-winning physicist,

serves as Albert Einstein Professor and Director of the Institute for Theoretical Physics. The rank of Distinguished Professor, an honor conferred by the State University Trustees, is held by the following Stony Brook faculty members: the systematic philosopher Justus Buchler, eclectic social scholar Lewis Coser, and geneticist Bentley Glass.

Campus

Libraries: The Frank Melville, Jr. Memorial Library, at the heart of the campus, and its departmental branch libraries for biology, chemistry, earth and space sciences, engineering, mathematics and physics have a total of 812,000 volumes, over one million items in microformat and subscriptions to 6500 periodicals. In addition, the Health Sciences Library has 95,000 volumes, 4000 periodical subscriptions and access, via computer terminals, to 900,000 journal citations in the health care field.

Academic Buildings: Surrounding the library (see the campus map at the end of this publication) are the academic buildings, which are both modern and functional in design. These buildings are the Chemistry, Biology, Fine Arts, Math-Physics, Humanities, Social Sciences, Earth and Space Sciences, Engineering and Administration Buildings as well as the Stony Brook Union, Gymnasium, and the Computing, Lecture and Instructional Resources Centers.

Computing Center: The Computing Center with its IBM 370/155 and PDP-10 computer complex provides concurrent batch processing for student and faculty research work and for administrative data processing. Short courses in programming are held periodically for all users.

Residence Halls: Encircling the academic buildings are six residential quadrangles surrounded by wooded areas. Each quadrangle has living space for about 1000 students in 3-5 coeducational colleges, or residence halls, housing 200-400 students each. The University Housing Office can provide current information on the possible availability of campus housing for married students.

Health Sciences Center: South of the main campus is the 14-acre Ashley Schiff nature preserve. Beyond these woods and linked to the Main Campus by a free shuttle bus service is the South Campus, consisting of single-story buildings which are the temporary home of the Health Sciences Center while its permanent facilities are under construction on a 200-acre site adjacent to the Main Campus. A 17-story Clinical Science Tower nearing completion is already a landmark as Long Island's highest building. Construction has begun on an equally tall University Hospital. The final stage will be a shorter structure to house the School of Dental Medicine and a Basic Health Sciences research facility.

Degree Opportunities

Graduate study is offered in 24 of Stony Brook's present 29 academic departments, as well as in five of the six schools of the Health Sciences Center, and the Center for Continuing Education. The Ph.D. degree is offered through 19 departments, the M.A. through 14 and the M.S. through seven. There are also two interdisciplinary M.S. programs, an M.Mus. (master in music) and a terminal M.A. designed specifically for teachers in biology, 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 D.P.M. by the School of Podiatric Medicine, the M.S. degree by the School of Social Welfare, the M.S. degree by the School of Allied Health Professions and the Ph.D. by the School of Basic Health Sciences. The evening Continuing Education program, primarily for working adults, offers the degree of Master of Arts in Liberal Studies (M.A./L.S.). At the undergraduate level, many departmental major programs and interdisciplinary programs leading to the B.A., B.S. and B.E. (engineering) degrees are offered by the College of Arts and Sciences, College of Engineering and Applied Sciences, and Health Sciences Center.

Accreditation

As part of the State University of New York, Stony Brook is accredited by the Middle States Association of Colleges and Secondary Schools. The College of Engineering is accredited by the Engineer's Council for Professional Development. The Department of Chemistry is accredited by the American Chemical Society.

Organization of the Graduate School

Under the direction of the Office of the Vice President for Academic Affairs, the Graduate School administration rests with the Dean of the Graduate School and his administrative staff in conjunction with the Graduate Council, comprised of faculty, students, and administrators. The chairman and the secretary of the Graduate Council are elected by the Council from among its elected members. The membership of the Council includes the Vice President for Academic Affairs, *ex officio,* the Dean of the Graduate School, one faculty member elected from and by each of the following groups: Arts and Humanities, Behavioral Sciences, Biological Sciences, Engineering Sciences, Mathematical Sciences, Physical Sciences, Social Sciences, and two faculty members elected from the Health Sciences. In addition, one faculty member chosen from and by the CED Policy Committee; one faculty member of the Library elected by the library faculty; one elected member of the Executive Committee designated by the Executive Committee; four graduate student members with no more than one from any graduate department (three chosen by the Graduate Student Council, and one chosen by the CED Graduate Student Council). Elected faculty members shall serve for three years with staggered terms. Among other

duties detailed in the "Faculty By-Laws," the Council must approve all graduate programs before their submission to the SUNY Central Office and the State Department of Education.

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

University Health Service

The University Health Service, located in the Infirmary, primarily concerns itself with student health needs. It is available to faculty and staff only on an emergency basis. 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. For information or help, call the Infirmary at 4-2273 (4-CARE).

Campus Activities

A wide variety of lectures, seminars, concerts, exhibits, theatrical performances, and movies are scheduled regularly during the academic year. Some recent speakers at Stony Brook have included Norman Mailer, author; R. D. Laing, psychiatrist; Eleanor Steber, soprano; Isaac Asimov, author-scientist; Roger Grimsby, newscaster; Betty Friedan, feminist; Dick Gregory, black humorist; and Carlos Castaneda, author. There is a continuing round of solo and group concerts by outside professionals and by students and faculty; and there are continuing exhibitions of works by artists on and off campus. Movies—both vintage and avant-garde—are shown regularly on campus.

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

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

Student Services

The Division of Student Affairs offers many services to both graduate and undergraduate students. Located in the Administration Building, the Office of the Vice President for Student Affairs is the central administrative office of the Division. In addition to the services below, the Division also includes the Office of Records, Office of University Housing, and Financial Aid Office.

Psychological Services
Personal counseling for students is available through Psychological Services, located in Social Science B, jointly sponsored by Student Affairs and the Psychology Department. The Mental Health Unit of University Health Services also offers student counseling by appointment.

Stony Brook Union
The Stony Brook Union provides facilities which include a cafeteria-ballroom, buffet service dining room and lounge, bookstore, auditorium, post office, meeting and conference rooms, recreation area, craft shops, photography darkroom, student activities offices, lounges, bowling alleys, and billiards room to serve the University community.

Office of International Affairs
The Office of International Affairs is located on the third floor of the Administration Building. It assists students and faculty from other countries with problems related to finances, housing, government regulations (including immigration and tax matters), cross-cultural differences, and other general problems. Questions relating to academic problems 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. Included are tours and trips, discussion groups, home hospitality, speaking engagements, and other events.

Veterans Affairs Office
Specialized assistance, support and programming for veterans are coordinated through the Veterans Affairs Office located in the Earth and Space Sciences Building.

Guidance and Career Development
Vocational information, testing services (GRE, MAT, Medical, Dental and Law Boards) and credential gathering services for students are provided by the Guidance Services Bureau and Career Development Office located on the third floor of the Administration Building.

Research

Stony Brook currently draws about $11 million annually in grants and funds to support campus research programs. The majority of these monies is received from the federal government or its agencies; the

remainder comes from corporations and foundations. Lunar rocks, cancer, urban problems, holography, an innovative engineering education program and research into the famous American Adams family are a few examples of the approximately 300 subjects currently under examination on campus. The following academic publications emanate from the University: *American Comparative Literature Association Newsletter, American Naturalist, The Physics Teacher, Quarterly Review of Biology,* and *Stony Brook Anthropologist.*

Community Ties

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

With over 5000 people on the overall campus payroll, Stony Brook is the largest single employer in Suffolk County and one of the five largest on Long Island. Over $124 million annually pours into Nassau and Suffolk from the University in direct economic impact, with a rippling effect of perhaps an additional $200 million or more.

In many ways, the University works with surrounding communities to provide services and to help research and solve area problems. The Computing Center assists numerous colleges, research centers and governmental agencies. Student teachers serve in local schools and numerous educational projects involve close University-school cooperation. The Point of Woods School at the University helps disruptive elementary schoolchildren to be productive students. In the health field, Stony Brook students learn and work in Long Island hospitals and other health-related facilities. In ecology, the Marine Sciences Research Center studies and makes recommendations regarding regional erosion and pollution problems, and the Urban and Policy Sciences Program works with several local governments to help solve problems in fields such as sanitation, waste disposal, zoning and transportation. The Economic Research Bureau conducts research, training and service activities in fields such as educational planning, property ownership, shipping, taxation and poverty. Stony Brook students have organized several community volunteer programs in tutoring, recreation and health care. The Association for Community-University Cooperation works to relieve problems affecting both the University and the community and to improve "town-gown" relations.

Special Centers and Institutes

The *Center for Contemporary Arts and Letters* develops campus art holdings and sponsors visits by practitioners and critics of the arts; the *Economic Research Bureau* brings together the University and public and private agencies in regional research efforts of mutual interest; the *Engineering Concepts Curriculum Project* is a program designed to develop technological literacy in non-science-oriented high school students nationwide; the *Institute for Advanced Studies of World Religions* with its 22,000-volume library seeks to facilitate the study and development of world religions and philosophy with empha-

sis on Buddhism, Islam and Hinduism; the *Institute for Colonial Studies* keeps microfilmed archives of original documents from Western Hemisphere colonies, including a rich section of materials on Colonial Long Island; the *Institute for Research in Learning and Instruction* is researching the human learning process, basic instruction processes, college-level instruction, and economic factors in innovative college instruction; the *Institute for Theoretical Physics* has a faculty of a dozen scholars researching all areas of theoretical physics; the *Institute for Urban Science Research* is currently involved in studies concerning the environment, health, energy and educational financing; the *Institute of American Studies* funds a summer graduate program for outstanding high school social studies teachers; the *International Art of Jazz* is committed to the promotion, preservation and presentation of jazz music; the *Marine Sciences Research Center* administers statewide research projects, offers research cruises, and performs studies in oceans, bays, harbors, lakes and a University-owned tidal salt marsh near campus; the *Museum Computer Network* is an organization of museums working to make their collections and related information more accessible by computerizing museum files and archives; the *Research Foundation* administers all gifts, grants and contract funds supporting sponsored research, training and related programs carried out by, or supervised by, University faculty; the *Science and Mathematics Teaching Center* assists Long Island math and science teachers in curriculum planning and the development of special resource materials; and the *Stony Brook Foundation* seeks and encourages support for the development and enrichment of programs at Stony Brook and administers the majority of the University's scholarships, loans and endowment accounts in conjunction with the Financial Aid Office.

Admission Requirements

Scholastic Requirements

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

Foreign Students

All students who are foreign nationals or have taken their higher education in a non-English-speaking country must demonstrate proficiency in English. This can be done by presenting acceptable scores on the Test of English as a Foreign Language (TOEFL). Admission to the Graduate School is contingent upon satisfactory fulfillment of this requirement. A student must have a minimum score of 450 for admission. Exceptions to this requirement are rare, and only with the approval of the Dean of the Graduate School. A 550 minimum score is needed for most forms of support.

Non-U.S. applicants must provide the University with verification that

the necessary funds are available to finance their education at Stony Brook. The University will provide forms for this purpose.

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

Student Status

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

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

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

Graduate Record Examination

The result of the Aptitude Test of the Graduate Record Examination is a criterion of admission to the Graduate School. Several departments also require the Advanced Area Tests. Students who have taken the GRE should request the Educational Testing Service to forward their scores directly to the departments or schools to which they are applying.

Admission of Undergraduates to Graduate Courses

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

Financial and Residential Information

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

Charge or Fee	First Semester	Second Semester	Year
Tuition			
Full-time graduate student			
(N.Y. State Resident)	$600.00	$600.00	$1,200.00
(Out-of-State Resident)	$750.00	$750.00	$1,500.00
Part-time graduate student (11 credits or less)			
(N.Y. State Resident per semester credit hour).....	$ 40.00	$ 40.00	
(Out-of-State Resident per semester credit hour).....	$ 50.00	$ 50.00	
Professional Schools (Medicine, Dental Medicine)			
(N.Y. State Resident)			$1,600.00
(Out-of-State Resident)			$2,000.00
College Fee			
Full-time graduate student	$ 12.50	$ 12.50	$ 25.00
Part-time graduate student per credit	$ .85 cr.	$ .85 per cr.	

Charge or Fee	First Semester	Second Semester	Year
Housing			
Advance Room Deposit **			$ 75.00
Double Occupancy, per person	$325.00	$325.00	$ 650.00
Board	Fee to be Announced		
Cooking Fee (Residents not on Board Plan)	$ 25.00	$ 25.00	$ 50.00
Lost Identification Card	$ 3.00		
Late Registration Fee [a]	$ 15.00		
Transcript Fee [b]	$ 2.00 each		
Returned Check Charge	$ 5.00		
Late Payment Fee	$ 20.00		

The above fees are subject to change without notice.

Payment

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

Students making payment on or after the first day of classes, during the late registration period, or pre-registered students making payment after pre-billing due date, shall be required to pay a late registration fee of $15.00. This fee may not be waived, and is non-deferrable. The late registration period ends at the close of the second week of classes.

Deferments

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

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

1. Regents College Scholarships and Regents Tuition Assistance Awards: All New York State residents are encouraged to file for Regents Tuition Assistance Awards. Incoming students and students who have not received their application form by June 11 should immediately obtain the application form from the Financial Aid Office. (Students should apply for all Regents Awards at the earliest possible date, preferably no late than June 10, if they expect to receive award cer-

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** Applied to first semester housing charges.

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

[b] The first one is free.

tification from the Regents prior to the beginning of classes in the fall. Students are reminded that failure to file an application in a timely manner can preclude their receiving award credit or deferment.)

When paying bills students should present a notarized Power of Attorney card and award certification to the Bursar's Office to be eligible for an award credit. Students who have not received a Regents award notice may obtain a deferment upon presentation to the Financial Aid Office of the stub from the Regents Scholarship and/or Tuition Assistance Award Notice from the previous year, and the certified return receipt from the Regents Scholarship Examination Center indicating submission of the current year's application.

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

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

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

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

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

5. University Employment: Graduate students employed as Teaching Assistants, Graduate Assistants, or Research Assistants may defer charges up to ½ of their semester salary. Only tuition, room and board charges may be deferred. All deferments expire six (6) weeks after

the first day of classes and must be supported by a notarized power of attorney and deferment form.

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

Housing

A limited number of both single and double occupancy rooms are available for unmarried graduate students in University residence halls. One of the six residential quadrangles is designed to house graduate students in addition to the International College which integrates graduate, undergraduate, foreign, and American students. Admission does not imply nor 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 $650 for the academic year.

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

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

Housing Charges

The rent for each person sharing a double occupancy room is $650 per academic year, payable on a semester basis. A $75 advance room deposit is required; this amount is applied to the first semester's payment. The advance room deposit is refundable by application in writing before July 1.

Refund Schedule

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

Schedule of Tuition Liability

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

Liability During	*Semester*	*Six-Week Term (Summer Session)*
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 college of any intent to cancel registration on or before the second Saturday following the first day of classes shall be deemed to have cancelled registration during the first week.

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

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

Exception

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

Room and Cooking Fee

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

Student Activity Fee

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

Meal Plan

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

Advance Housing Deposit

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

Financial Assistance

Financial assistance is available to graduate students at the State University of New York at Stony Brook through a program of assistantships, fellowships, scholarships, and traineeships. *The awards described below are available only to full-time matriculated students* through the Graduate School, Office of Financial Aid, or from the appropriate government or state agency. An applicant seeking financial assistance is strongly advised to make sure that all application material, including letters of recommendation and transcripts, has been received by the University no later than February 1. 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 ($4800-5000) for the academic year.

Graduate School Traineeships

Graduate traineeships are awarded on a competitive basis, including 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 up to but not more than four years. Traineeships carry stipends of $3000 and tuition exemption for each academic year.

Graduate Council Fellowships

A limited number of Graduate Council Fellowships is available to incoming students. These fellowships carry a stipend of $3500 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.

National Science Foundation Graduate Fellowships

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

Regents Tuition Assistance Awards

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

Loans and Work Study Programs

Both the state of New York and the federal government offer low cost loan programs to help graduate students finance their education. In addition, there are federally funded Work Study Programs which help students earn money through campus employment. Such aid is based on students' financial need which is established by filing financial disclosure forms with the Financial Aid Office. For entering graduate students the GAPSFAS forms are used to determine financial status; continuing students may pick up forms from the Financial Aid Office.

Under the federal National Direct Student Loan program graduate students may borrow up to $2500 per year (depending on availability of funds) with repayment beginning 9 months after the student leaves school, at 3% interest.

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 residents only. Out-of-state students may apply through their home State Guaranteed Loan Association. The maximum amounts available through this program are $2000 for an M.A. candidate and $2500 for a Ph.D. candidate. There is a ½% loan fee charged at disbursement and repayment begins 9 months after the student leaves school.

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

Academic Regulations and Procedures

Registration

All candidates for a graduate degree, 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 masters or doctoral level. Students who hold graduate traineeships, research assistantships, or predoctoral fellowships must be registered as full-time students. Departments or individual faculty members do not have the authority to waive these rules.

Registration after the close of the announced final registration period in the academic calendar requires the payment of a service charge of $15. Registration is not permitted after the end of the second week of classes. A student is not considered registered until the appropriate forms have been filed with the Registrar and arrangements regarding tuition fees have been made with the Bursar's Office.

Changes in Registration

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

Registration for Maintaining Matriculation

Students must register for at least a one-credit course in thesis or dissertation research *each semester or session* for which they are maintaining matriculation and must do so at the regular times designated for graduate registration by the Registrar. Students failing to do so either at advance or final registration may register during the first two weeks at the beginning of the current semester and will be subject to

payment of the $15 late registration fee. After the first two-week period, no student will be permitted to register. Students do not maintain matriculation during the Summer Sessions 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 absences 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 one of the two Summer Sessions to be eligible for the August degree.

Graduate Study Away from Campus

Normally, it is expected that a graduate student's course of study and dissertation research 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. The student must be registered as a graduate student at Stony Brook and must pay the necessary fees. If the student is supported by a stipend or grant from state funds or from University-monitored federal and private sources, he or she must be registered as a full-time student. If the student is employed elsewhere, in a position not under the University's jurisdiction, matriculation may be maintained by registering for at least one credit of research each semester 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 field work, 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 can be served best by taking a course for credit at another unit of the SUNY system, he or she should obtain a statement from the department chairman recommending admission of the student to take the desired course at the visited institution. The recommendation should state that the student has the prerequisites for the course and that, if the course is successfully completed, credit for it will be accepted toward the degree. The statement from the department chairman should be approved by the Dean of the Graduate School of the student's institution. It should then be sent to the Dean of the Graduate School of the visited institution who will clear it with the instructor of the course and the chairman of the department concerned. When approval is obtained, the student will be admitted as a special student for purposes of taking the course requested. The student will pay appropriate tuition and fees at the visited institution. If the student has a waiver of tuition at his or her home institution, that waiver will be recognized by the visited institution. At the completion of the course the visited institution will, on request, send a transcript to the student's home institution. This exchange is restricted to courses not available at the home institution.

Transferred Graduate Credits From Other Universities

A candidate for the masters degree may petition to have transferred a maximum of six graduate credits from another institution toward his or her degree. The student should petition in writing to the appropriate departmental committee. The petition must include a copy of the official transcript. The departmental committee has the responsibility of deciding on the applicability of those credits to their specific program. Approved petitions must be forwarded to the Office of Records for inclusion on the student's permanent record. A candidate for the doctoral degree may transfer those graduate credits which are allowed by the appropriate departmental committee.

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; October 31 for courses of the preceding spring semester. In granting a grade of "I" the instructor signifies a willingness to receive student work and prepare grades in accordance with these deadlines. If final grades are not reported to the Registrar by the specified dates, the grade of "I" will automatically be changed to "F." Extension to the end of the succeeding term may be requested by written faculty petition; any subsequent exception must be appealed by the student with a written letter of support or denial by the faculty member addressed to the Graduate Council.

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

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

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

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

NR (No Record). An instructor may assign a temporary grade of NR only for students who have never, to the instructor's knowledge, participated in the course in any way. An NR report is not to be interpreted as a grade but only as a temporary indication of a state of affairs which requires prompt resolution, leading either to removal of the course from a student's program (whenever it turns out to have appeared as a result of an error in recording the registration information submitted by the student), or to the assignment of a grade. If a final grade is not reported by the deadline date appearing in the Academic Calendar, the grade of F will be recorded.

Auditing

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

Academic Standing

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

Withdrawal from the University

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

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

Involuntary Withdrawal. A student who is called into the Armed Forces during the term should present his orders for induction at the Graduate School along with a formal withdrawal card for appropriate action.

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

Degree Requirements

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

The granting of the masters degree is based upon the completion of 30 graduate credits, residence, examination, supervised teaching, thesis, special departmental requirements, and the recommendation of the student's department. The granting of the doctoral degree is based upon residence, examination, supervised teaching, dissertation, special departmental requirements, and the recommendation of the student's department. Ordinarily, however, certain courses should be taken in preparation for comprehensive examinations and research. The student will follow an approved program of courses, seminars, and individual study, determined so as 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 masters 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.
4. Research and thesis, or the passing of a comprehensive examination or both. The thesis must be prepared in accordance with the guidelines presented in the booklet entitled "Instructions for the Preparation of Masters Theses and Doctoral Dissertations" available from the Graduate School. The State University of New York at Stony Brook does not allow multiple authorship for a thesis.
5. The submission of a signed degree card to the Graduate School in accordance with published deadlines.

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

7. Time limit: All requirements for the masters 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 Ph.D. Degree

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

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

3. Preliminary Examination: The purpose of the Preliminary Examination is to ascertain the breadth and depth of the student's preparation and to appraise readiness to undertake a significant original investigation. At the discretion of the department the Preliminary Examination may be oral or written or both and may consist of a series of examinations. The examining committee is appointed by the Dean of the Graduate School on recommendation of the department chairman and may include one or more members from outside the department. Results of the Preliminary Examination will be communicated to the student as soon as possible and to the Graduate School within one week of the completion of the exam. A repetition of the Preliminary Examination, upon failure, may be scheduled at the discretion of the department. A second repeat must be approved by the Dean of the Graduate School.

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

5. Practicum in teaching under supervision is required.

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

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

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

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

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

8. Time limit: All requirements for the Ph.D. degree must be completed within four years after advancement to candidacy. In rare instances, the Dean of the Graduate School will entertain a petition to extend this time limit, provided it bears the endorsement of the chairmen 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.

Special Ph.D. Degree Program

The development and growth of knowledge is such that particular subject matter included within traditional fields is constantly changing. Thus it is not unusual for a given area of study to claim the attention and talents of scholars and researchers from different disciplines. In recognition of this fact provision is made to support the desire of any student who may wish to work in such an area. A student who desires to undertake an area of study which bridges two or more departments not

regularly associated may do so through the Special Ph.D. Degree Program. This program is not open to incoming graduate students. Interested students should consult with the advisors relevant to their special programs and develop plans of study, i.e., a series of courses, research, examinations, and procedures to be followed for the degree together with the assent of a proposed examining committee. The programs must be directed toward academic specialties which do not duplicate or otherwise parallel existing programs or proposed Stony Brook graduate programs. The student and his dissertation advisors submit the plan of study and the composition of the proposed examining committee to the Special Degree Program Committee, a standing committee of the Graduate School chaired by the Dean. The Special Degree Program Committee, if it approves the plan of study, then formally appoints an examining committee of appropriate faculty. The student is also expected to fulfill the general requirements for the Ph.D. degree, as stated in the previous section, and is responsible for the requirements in the plan of study in lieu of specific departmental requirements.

The Master of Arts (Liberal Studies) Degree

This is a terminal, non-research degree offered by the Center for Continuing Education (CED) primarily for persons interested in studying on a part-time basis. Details of the program and degree requirements may be found on page 94. Additional information is available from the CED Office located in the Humanities Building.

Award of Degree

When all requirements have been completed, the department chairman will so certify to the Dean of the Graduate School and recommend that the degree be awarded. Degrees are awarded three times a year: May, August, and December. Formal investiture, however, will only be at the spring commencement. To be eligible for a degree a student must have completed all University requirements, submitted the appropriate manuscripts, obtained all University clearances, and have maintained matriculation according to the regulations outlined under "Registration for Maintaining Matriculation" on page 25.

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 prorgam director who shall append their reasons for believing that the requested waiver would not result in a breach of the spirit of the regulations.

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

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

The Arts and Humanities

DEPARTMENT OF ENGLISH

Professors: T. Altizer, Erdman, Fry, Goldberg, Gross, Kott, [a]Kranidas, Levin, R. A. Levine, Ludwig, R. Miller, L. Simpson, Stampfer, Stevens *(Chairman),* Thompson, Weisinger

Associate Professors: J. Bennett, Dolan, Fiess, Huffman, T. Maresca, Nelson, Neumeyer, Pequigney, Rogers, Sears, Shaw, Wilson, Zimbardo

Assistant Professors: [a]Awoonor, Baker, Bashford, Collins, Dibble, Fortuna, Hall, Harvey, Newlin, Schreiber, K. Schwartz, Sheehan, Wallis

The Department of English offers programs leading to the degrees of Master of Arts and Doctor of Philosophy.

There are two programs leading to the degree of M.A. in English. Program I is a traditional program in preparation for advanced study for the Ph.D. Program II is designed for those candidates who feel the need for an advanced professional degree as part of their commitment to teaching and who do not intend to go on to the Ph.D.

The program leading to the degree of Ph.D. in English combines a flexible pattern of advanced study with carefully guided training in college teaching and makes it possible for the student to complete the doctorate within four years after taking the B.A. or three years after the M.A. During the first two years of doctoral study the student is expected (1) to take four 600-level seminars, (2) to prepare for the Doctoral Examination by reading independently and by taking 500-level

[a] On leave

courses where necessary, and (3) to teach for at least two semesters. After taking the Doctoral Examination, the student will complete the dissertation.

The Department invites interested applicants to visit the campus to discuss their qualifications and plans for graduate study with the direc- of graduate studies, the director of M.A. programs, and with other members of the Department.

Applicants who will have either earned the degree of Master of Arts or completed equivalent work at other graduate schools prior to admission to Stony Brook will be eligible for graduate traineeships with a stipend of $2900 for the academic year. Tuition is waived for holders of full graduate traineeships.

Admission to the M.A. Programs

For admission to graduate study in English the following are required:

A. A bachelors degree from a recognized institution.
B. An average of at least B in undergraduate literature courses.
C. An official transcript of undergraduate record.
D. Letters of recommendation from three previous instructors.
E. The Graduate School requires all applicants to take the GRE Aptitude Test.
F. Proficiency in a foreign language equivalent to two years of college work.

Any deficiencies in these requirements 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.

Requirements for the M.A. Degree

A. Formal course requirements: A student preparing for the degree of Master of Arts is required to take at least 30 graduate credit hours of courses. For a candidate in Program I, these courses will include one graduate course in the literature of a *period,* one graduate course devoted to one or two authors, and at least five additional graduate courses in the English Department.

A candidate in Program II must complete one graduate course in the literature of a *period,* one graduate course in one or two authors, three graduate courses, EGL 592 Problems in Teaching Writing or Composition, EGL 593 Problems in Teaching Literature, and EGL 594 Contexts of Literary Study, and additional courses in the English Department. EGL 594 should be taken after EGL 592 and 593; EGL 596 may be substituted for either 592 or 593.

Before a masters degree is granted, candidates in both programs will be required to have taken one course in Shakespeare and one course in Chaucer or Milton. A course entirely devoted to the writer taken while the student was an undergraduate will be accepted as fulfilling this requirement. Such a course on the graduate level will

also fulfill the requirement of one graduate English course devoted to one or two authors as stated above.

For candidates in Program I 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 masters degree. EGL 599 may be elected during the second semester only if the student has a B+ average the first semester and only if he or she has no Incompletes at the time of registering for EGL 599. A proposal for a 599 course should be submitted in writing before the end of the first semester to that member of the faculty under whose direction the student plans to study. The proposal must be approved in writing by both the director and the Graduate Program Committee of the department before the student registers for EGL 599.

Candidates for the M.A. in Program I must cover seven major areas of British and American literature before the degree is awarded. These areas may be covered either by courses completed while the student was an undergraduate or by courses taken as an M.A. candidate. The areas are:

Medieval Literature
Renaissance Literature
Restoration or 18th Century Literature
19th Century British Literature
20th Century British Literature
American Literature: Beginnings to 1870
American Literature: 1870 to Present

A period course, a major authors course, or a genre course will satisfy the requirement for that area.

NOTE: EGL 597 may not be counted toward the course requirement in either program.

B. Performance: An average grade of B in all course work is the minimum required, but no more than two C's will be permitted.

C. Departmental Examination: A student in Program I must pass the written Departmental Examination which is designed to test mastery of analytical and scholarly techniques.

D. Foreign language proficiency: In Program I, candidates must demonstrate as early as possible ability to read texts of moderate difficulty in one approved foreign language.

E. Credit for work done elsewhere: A maximum of six hours of credit for graduate work done at another institution may be allowed toward the degree of Master of Arts in English at State University of New York at Stony Brook. Such work must have been done when the student was registered at the other institution as a graduate student in English and American literature and language, and must have been at the graduate level; that is, the courses must be comparable to Stony Brook's 500-level courses. Stony Brook does not grant transfer credit automatically. It considers granting such credit only upon written application to the director of graduate studies in English after the student has been admitted to the program.

Satisfying these minimum requirements will not guarantee a degree. The final departmental decision as to the awarding of the degree will be made by the Graduate Program Committee.

Admission to the Ph.D. Program

Applicants who have either earned the degree of Master of Arts or completed equivalent work at other graduate schools prior to admission to Stony Brook must submit the following:

A. Official transcripts of both undergraduate and graduate work.

B. Letters of recommendation from three previous instructors, two of whom must have instructed the applicant during graduate study.

C. The Graduate School requires all applicants to take the GRE Aptitude Test.

D. A sample of recent critical or scholarly writing may be required.

Applicants who have earned the M.A. at Stony Brook in Program I will be admitted to the Ph.D. program only upon recommendation of the Graduate Admissions Committee of the English Department.

Requirements for the Ph.D. Degree

A. Course requirements and program: In order to keep requirements at a minimum and make it possible to design programs to fit particular needs, the student is normally required to take four 600-level seminars covering at least two areas of English and American literature and language. (No transfer credit is accepted at the seminar level.) *The student's doctoral advisor may recommend and the Graduate Committee may require that the student take courses in addition to the required seminars.* It is recommended that in any single semester a student who is teaching take no more than two courses in any combination of 600-level seminars and 500-level courses, and that when not teaching the student take no more than four courses in any combination of 600-level seminars and 500-level courses. Whenever there is a prerequisite to a 600-level seminar, the course which has been designated as the prerequisite may, with the permission of the instructor of the seminar, be taken concurrently with the seminar. The average of the grades in the required 600-level seminars must be B or higher.

Every student must have passed (1) one course in Shakespeare, (2) one course in either Chaucer or Milton, and (3) one course in linguistics or the history and structure of the English language. These requirements can be met by courses taken while the student was an undergraduate. If they have not had a similar course when M.A. students, doctoral students are urged to take EGL 500 Introduction to Graduate Studies during their first semester at Stony Brook.

B. Residence requirements: Every full-time student is normally expected to make a three-year commitment to study toward the doctorate. Every student will be considered in full-time residence during any semester in which he/she: (1) is taking at least one 500-level course or 600-level seminar or is, in the opinion of the Graduate

Program Committee, properly preparing for the Doctoral Examination; (2) is holding no position other than that required under the teaching program below; (3) is 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 the student is taking and the teaching assignment, the total of all these credits and teaching hours to be no more than 12.

C. Teaching program: Every student is required to teach responsibly one course for at least two semesters. The English Department regards training in teaching as a necessary and valuable part of work toward the Ph.D. degree. Such training may take the form of apprenticeship to a senior professor during the first and, possibly, second semester of preparation for the doctoral degree. During the second or later semesters, in some special cases possibly even during the first semester, the student may be asked to instruct in sections of large lecture courses or even to conduct a section of the composition course or a section of one of the Universty Lecture courses. During apprenticeship and teaching, the student will receive guidance in discussions with the director of teaching interns and the professor he/she assists, advice from senior members of the department who visit classes, participation in staff meetings of large courses, and seminars in which he/she and fellow students are joined by senior members of the staff. During those semesters in which he/she is teaching, the student is required to be enrolled in EGL 697 or EGL 698 Practica in Teaching.

The director of teaching interns 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.

D. Foreign language requirements: the student must complete one of two options before taking the Doctoral Examination.

Option I. The student must, on examination, demonstrate ability to translate and/or comprehend 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 student and his/her advisor.

Option II. The student 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. The student's advisor should consult the Director of Graduate Studies about setting up such examinations. The passing of the reading and/or compre-

hension examination at the M.A. level shall *not* be sufficient evidence that the student has met Option II.

E. Doctoral Examination: Following the completion of the course work, there will be a single oral examination (from two to three hours in length), normally taken at the end of the second year of full-time study, which will cover a substantial portion of English literature, including the field of the proposed dissertation. Normally the oral examination will cover three related historical periods or an equivalent combination of genre, topic, and periods. The student will be responsible for primary as well as major secondary works. Materials outside English and American literature will be included where relevant.

Each candidate will submit a description and, if necessary, a justification of the areas to be covered, which must be approved by his/her advisor and then by the Graduate Program Committee.

Historical Periods:
- Medieval
- Renaissance
- Neo-Classical
- Nineteenth Century
- Modern British (from 1890) and American (from 1870)
- American to 1870

Other formulations by petition to Graduate Program Committee

Genre and Topics:
- Comedy
- Tragedy
- Lyrics
- Epic
- Novel
- Prose
- The English Language
- Literary Criticism

Others by petition to Graduate Program Committee

The examining board is appointed by the Dean of the Graduate School on recommendation of the department chairman 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.

The student who fails an area or areas of the Doctoral Examination may be granted a re-examination at the discretion of the Graduate Program Committee of the department upon the recommendation of the student's examining committee which will recommend the nature of the repeat. If the Doctoral Examination or an area of it is failed twice, the student will be dropped from the doctoral program with reinstatement possible only through a successful appeal to the campus-wide Graduate Council.

F. Dissertation: The dissertation may take the form of either a single long study or a series of related papers of the length of articles in learned journals. This study (or these studies) may be critical in nature as well as scholarly.

As soon as possible after the student has passed the Doctoral Examination, he/she must prepare a statement setting out the scope and method of the dissertation and submit it to his/her advisor 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 must recommend acceptance of the dissertation before it can be approved by the Graduate Program Committee of the department.

G. Thesis colloquium: The student 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 Both Degrees

A. Advisory program: Every graduate student will at the beginning of graduate studies at Stony Brook be assigned an advisor. The advisor will help the student plan his/her program on the basis of the individual's wishes and needs and in the light of total preparation, both undergraduate and graduate.

During the first semester of Ph.D. study, the student will be asked to recommend to the director of graduate studies the names of one or two professors he/she would like to have serve as doctoral advisor. As soon as possible after the advisor has been selected, the student and the advisor will discuss the student's academic background in order to reach a decision about the necessity of course work beyond the four seminar minimum requirement.

B. 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 normally for one year at a time.

C. Incompletes: The Graduate Program Committee has established as sufficient grounds for the granting of Incompletes either medical reasons on the part of the student himself/herself or emergencies arising within the student's family.

D. 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.

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 or 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 four seminars as stated in "Requirements for the Ph.D. Degree" above.

Courses Open to All Graduate Students

EGL 500 History of English Literature
3 credits; Fall and Spring

EGL 501 Studies in Chaucer
3 credits; repetitive

EGL 502 Studies in Shakespeare
3 credits; repetitive

EGL 503 Studies in Milton
3 credits; repetitive

EGL 505 Studies in Genres
3 credits; repetitive

EGL 506 Studies in Literary Theory
3 credits; repetitive

EGL 509 Studies in Language and Linguistics
3 credits; repetitive

EGL 510 Studies in Old English Language and Literature
3 credits; repetitive

EGL 515 Studies in Middle English Language and Literature
3 credits; repetitive

EGL 520 Studies in the Renaissance
3 credits; repetitive

EGL 525 Studies in 17th Century Literature
3 credits; repetitive

EGL 530 Studies in the Age of Dryden
3 credits; repetitive

EGL 535 Studies in Neoclassicism
3 credits; repetitive

EGL 540 Studies in Romanticism
3 credits; repetitive

EGL 545 Studies in Victorian Literature
3 credits; repetitive

EGL 547 Studies in Late 19th Century British Literature
3 credits; repetitive

EGL 550 Studies in 20th Century British Literature
3 credits; repetitive

EGL 560 Studies in Early American Literature
3 credits; repetitive

EGL 565 Studies in 19th Century American Literature
3 credits; repetitive

EGL 570 Studies in 20th Century American Literature
3 credits; repetitive

EGL 580 Studies in British and American Literature
3 credits; repetitive

EGL 590 Masters Paper Direction
3 credits

EGL 592 Problems in Teaching Writing or Composition
Variable and repetitive credit

EGL 593 Problems in Teaching Literature
Variable and repetitive credit

EGL 594 Contexts of Literary Study
Variable and repetitive credit

EGL 596 Problems in Teaching Language and Literature to the Open Admissions Students
Variable and repetitive credit

EGL 597 Practicum in Methods of Research
Variable and repetitive credit

EGL 599 Independent Studies
3 credits

Advanced Seminars

EGL 601 Problems in the History and Structure of the English Language
3 credits; repetitive

EGL 602 Problems in Bibliography, Editing, and Textual Criticism
3 credits; repetitive

EGL 603 Problems in Literary Theory and Criticism
3 credits; repetitive

EGL 604 Problems in Literary Analysis
3 credits; repetitive

EGL 605 Problems in Convention and Genre
3 credits; repetitive

EGL 606 Problems in Period and Tradition
3 credits; repetitive

EGL 607 Problems in Individual Authors
3 credits; repetitive

EGL 608 Problems in the Relation of Literature to Other Disciplines
3 credits; repetitive

EGL 609 Problems in Comparative Literature
3 credits; repetitive

Special Advanced Courses

EGL 690 Thesis Research
Variable and repetitive credit

EGL 697 Practicum in the Teaching of English Composition
3 credits

EGL 698 Practicum in the Teaching of Literature
3 credits; repetitive

EGL 699 Directed Reading for Doctoral Candidates
Variable and repetitive credit

DEPARTMENT OF FRENCH AND ITALIAN

Professors: Bieber, F. Brown, Haac, Laidlaw, Tursi, Whitney, Zimmermann (Chairman)

Associate Professors: Allentuch, Blum, Mills, Rizzuto

Assistant Professors: Petrey, Riggs

Lecturer: Goldman

Subject Specialist Librarian: Vasco

Admission to Graduate Study

For admission to graduate study in French, the following are required:

A. A baccalaureate degree with preparation substantially equivalent to that of a French major of this institution.

B. Letters of recommendation from three previous instructors.

C. Oral proficiency in French.

D. The results of the Graduate Record Examination.

A student whose background in French is inadequate will be accepted as a candidate on a provisional basis during which time he or she will be able to complete undergraduate requirements in French before starting on the masters program.

Requirements for the M.A. Degree

The Master of Arts degree in French requires a minimum of 30 hours of graduate course work. The selection of courses is to be made in consultation with an Advisory Committee and will normally include six graduate offerings in French investigating those authors, literary movements, and genres which are especially germane to the student's preparation, aims, and program of study. With the permission of the Advisory Committee, six hours may be taken in approved graduate courses in related fields. FRN 507-508 Advanced Stylistics and *Explication de Texte* are required courses. FRN 509 Introduction to Research and Literary Criticism, is highly recommended.

Candidates interested primarily in teaching may follow a program of studies ordinarily incorporating work in applied linguistics for teachers and prospective teachers of French, a methods and materials course in language teaching, and a course in contemporary French culture and institutions. Also, in the place of two graduate courses, in order to allow for greater flexibility, candidates may elect, with the permission of the Advisory Committee, to write a Masters Essay. The study of another foreign language is strongly recommended.

After the completion of required courses, the candidate must pass an examination for which his or her course will serve as the basis. The examination will be organized around a basic reading list and the

choice of a topic to be determined by the student together with his or her advisors.

The following graduate courses will normally be offered at least once within a period of two years. Not all of them will be given in each academic year. A special departmental brochure identifying courses to be offered and clearly setting out their perspectives and content will be prepared for distribution toward the end of each semester preceding the one in which it will be offered.

Courses

FRN 501 Contemporary French Culture and Institutions
Spring, 3 credits

FRN 503 Seminar in Applied Linguistics for Teachers and Prospective Teachers of French
Fall, 3 credits

FRN 505 Methods and Materials in Language Teaching and Learning
Spring, 3 credits

FRN 507-508 Advanced Stylistics and *Explication de Texte*
Fall and spring, 6 credits

FRN 509 Introduction to Research and Literary Criticism
Spring, 3 credits

FRN 511 History of the French Language
Fall, 3 credits

FRN 514 Seminar in Medieval Literature
Spring, 3 credits

FRN 521, 522 Seminar in French Renaissance Literature
Fall and spring, 3 credits each semester

FRN 531 Studies in the Classical Theater
Fall, 3 credits

FRN 532 Studies in Classical Prose
Spring, 3 credits

FRN 541, 542 Studies in 18th Century French Literature
Fall and spring, 3 credits each semester

FRN 551 Studies in Romanticism
Fall, 3 credits

FRN 552 Studies in 19th Century French Literature
Spring, 3 credits

FRN 561 Studies in the Modern Novel
Fall, 3 credits

FRN 562 Studies in Contemporary Literature
Spring, 3 credits

FRN 571, 572 Free Seminars
Fall and spring, 3 credits each semester

FRN 581 Independent Individual Studies
Variable and repetitive credit

FRN 590 Masters Essay Research
Variable and repetitive credit

FRN 599 Practicum in Teaching
Variable and repetitive credit

DEPARTMENT OF GERMANIC LANGUAGES AND LITERATURES

Professors: [c]Karst, Schröter, Sjöberg

Associate Professors: Berr, R. Brown, [c]Elling, Ruplin (Chairman), Russell

Assistant Professors: O'Neil

Admission to the M.A. Program

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

A. A bachelors 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. Proficiency in a second foreign language equivalent to two years of college work. Preference will be given to French, Spanish, Italian, or Russian but each case will be treated on its individual merits.

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

If the applicant's credentials and background seem to indicate deficiencies in the German language, he or she may be required at the outset of the first semester of study to take a written and oral examination testing command of the language. If judged insufficiently prepared, the student may be required to enroll in GER 209 and perhaps GER 210 in addition to the other course requirements listed below.

Other relevant graduate courses of the minimum requirements listed below if they are approved in advance by the department.

Requirements for the M.A. Degree

A. Formal course requirements:			Credit Hours
1.	GER 502	Language Practicum	3
	GER 556	Bibliography and Methodology	3
	GER 539	Contrastive Structures	
		or	
	GER 557	History of the German Language	3
2. Seven 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.			21
			30

[c] On leave spring semester 1976

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

C. Language examination: Passing an examination testing the candidate's knowledge of 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.

Admission to the Ph.D. Program

Applicants who have either earned the Master of Arts degree or completed equivalent work at other graduate schools prior to admission to Stony Brook must submit the following:

A. Official transcripts of undergraduate and graduate work.

B. Letter of recommendation from at least two instructors familiar with the applicant's graduate work.

C. A sample of recent critical or scholarly writing; for example, the candidate's masters thesis or a seminar paper.

Applicants who have earned the M.A. degree at Stony Brook will be admitted to the Ph.D. program only upon recommendation 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 masters 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 masters degree, students must take the following courses:

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

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

2. Six additional offerings at the graduate level from courses within the department or, with prior approval by the department, from those of other departments within the Graduate School. (Students should note that the Comprehensive Examination can be expected to cover material drawn from not only the four courses listed under the M.A. requirements but also GER 558 Middle High German and GER 563 Old High German.) 18

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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, ELG 515, or EGL 601.

Granting of the Ph.D. Degree

After the student's dissertation has been accepted, it must be successfully defended in an oral examination.

Matters Pertaining to Both M.A. and Ph.D. Degrees

A. Graduate instruction in the Department of Germanic Languages will be given as far as possible by tutorial and seminars. At the beginning of their graduate studies at Stony Brook, students will be assigned tutors. Tutors will be members of the department of professorial rank who 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 both the M.A. and Ph.D. degree programs, 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 program for research seminars.

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

C. Incompletes: If a student wishes to request an Incomplete, he or she must get the course instructor's approval, as well as that of the director of graduate studies.

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

Courses

Graduate Seminar and Tutorial Offerings

Candidates should understand that these seminars are given general titles. The specific topics to be offered in proseminars and seminars of the 500- and 600-series in a given semester will be described in

announcements prepared and distributed before 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 sequence of seminars.

GER 501 Strategies of Teaching German
3 credits

GER 502 Language Practicum
3 credits

GER 503 Literature Practicum
3 credits

* * *

A. PROSEMINARS:

GER 539 Contrastive Structures: German-English
3 credits

GER 540 Proseminar I: The Middle Ages
3 credits

GER 541 Proseminar II: Literature of the Goethe Period
3 credits

GEP 542 Proseminar III: Literature of the Romantic Period
3 credits

GER 543 Proseminar IV: The Age of Realism: Prose and Poetry
3 credits

GER 544 Proseminar V: 19th Century Drama
3 credits

GER 545 Proseminar VI: 20th Century Prose and Poetry
3 credits

GER 546 Proseminar VII: 20th Century Drama
3 credits

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B. TUTORIAL OFFERINGS FOR M.A. CANDIDATES.

GER 547 Special Author Studies
3 credits

GER 548 Special Period Studies
3 credits

* * *

C. SEMINARS:

GER 549 Seminar I: Theory and Criticism
3 credits

GER 550 Seminar II: The Middle Ages
3 credits

GER 551 Seminar III: Reformation, Baroque, Enlightenment
3 credits

GER 552 Seminar IV: The Classical Period
3 credits

GER 553 Seminar V: Romanticism and Realism
3 credits

GER 554 Seminar VI: 20th Century Literature
3 credits

GER 555 Seminar VII: Scandinavian Literature
3 credits

GER 556 Bibliography and Methodology
3 credits

GER 557 History of the German Language
3 credits

GER 558 Middle High German
3 credits

GER 561 Goethe
3 credits

GER 562 Gothic and Indo-European
Required for philologists only.
3 credits

GER 563 Old High German
3 credits

GER 564 Old Saxon or Old Norse
May be taken outside the department. Required for philologists only.
3 credits

GER 565 Middle High German Literature
3 credits

GER 570 Historical Linguistics
3 credits

GER 571 Comparative Germanic Linguistics
3 credits

GER 572 German Syntax
3 credits

GER 599 Masters Thesis
Variable and repetitive credit

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D. TUTORIAL OFFERINGS FOR ADVANCEMENT TO Ph.D. CANDIDACY.

GER 601 Special Author
3 credits each semester

GER 602 Special Period
3 credits each semester

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E. ADVANCED SEMINARS.

GER 603 Seminar VIII: The Middle Ages
Repetitive, 3 credits each semester

GER 604 Seminar IX: Humanism, Baroque, Enlightenment
Repetitive, 3 credits each semester

GER 605 Seminar X: German Literature: 1749-1832
Repetitive, 3 credits each semester

GER 606 Seminar XI: 19th Century German Literature
Repetitive, 3 credits each semester

GER 607 Seminar XII: 20th Century German Literature
Repetitive, 3 credits each semester

GER 608 Seminar XIII: Problems in Comparative Literature
Repetitive, 3 credits each semester

GER 609 Seminar XIV: Scandinavian Literature
Repetitive, 3 credits each semester

GER 699 Doctoral Dissertation
Taken after advancement to candidacy.
Repetitive, 3 credits each semester

DEPARTMENT OF HISPANIC LANGUAGES AND LITERATURE

Professors: Lastra, Llorens, Zavala

Associate Professors: Giordano, *(Chairman),* Lida

Assistant Professors: Fainberg, Little, Perissinotto

Lecturer: Greenfield

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

Requirements for Admission

M.A. Students

1. B.A. degree with preparation equivalent to that of a standard undergraduate Spanish major. Students with a major in other disciplines will be admitted subject to their fulfilling deficiencies.
2. Three letters of recommendation.
3. G.R.E. scores.
4. Official transcripts of all college work.

Ph.D. Students

1. B.A. or M.A. degree (or equivalent).
2. Superior preparation in Spanish language and literature.
3. Three letters of recommendation from Spanish professors.
4. G.R.E. scores.
5. Official transcripts of all college work. It is also recommended that a senior thesis paper, an M.A. thesis, or one or more research papers written during previous studies, accompany the application.

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

Students who are admitted to the Ph.D. program are considered provisional, until they pass the Qualifying Examination. They are formally admitted to Ph.D. candidacy upon passing the Comprehensive Examination.

Degree Requirements for the M.A. Program

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

Degree Requirements for the Ph.D. Program

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

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

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

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

b) Ph.D. students holding an M.A. or equivalent: Generally, a minimum of 42 graduate credits is advisable. These may include courses in allied subjects when such work is of demonstrable importance to the field of the projected dissertation (preferably in another language, comparative studies, Luzo-Brazilian studies or linguistics). Approximately half of the total graduate credits should be taken in the field of concentration, either Spanish or Spanish-American literature. For transfer students who have already worked a year or more in another University toward the Ph.D. in Spanish, and above the M.A. level, the minimum requirement is 24 credit hours.

Language Requirements:

All Ph.D. students must prove reading knowledge in *French* and in a *second language* of their choice related to the field of the dissertation

or allied fields. In addition, students specializing in Medieval, Pre-Renaissance Literature or Philology, should show competence in Latin. Other languages are accepted if they are justified and approved by the committee of advisors. The student is strongly advised to complete at least one of the language requirements by the end of the first year of graduate study. He or she must have completed both language requirements prior to the Comprehensive Examination.

Specific Courses Required:

Three courses are required: 1) Literary theory, 2) Cervantes, 3) One course in Linguistics.

Field of the Dissertation:

During the last year of courses, the student is advised to work closely with a faculty member in the proposed field of the dissertation. This is very important, since the Comprehensive Examination places great emphasis on this area. At this time, the candidate should also have chosen at least one other specialized reader and counselor for his dissertation.

Procedures to Satisfy the Language Requirements

Any of the following procedures is considered satisfactory:

1. Reading examination administered by the Department of Hispanic Languages and Literature.
2. The Princeton Graduate School Foreign Language Test (GSFLT).
3. Successful completion of a graduate reading course in that language.
4. Completion of a regular graduate course in the foreign language with a grade of B or better.

Examinations

M.A. Program:

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

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

Ph.D. Program:

Toward the end of the first year of study (usually the second week of November or the second week of April), a brief *qualifying examination* based on a list of six works of literature and criticism will be administered to gauge the candidate's potential and determine the nature of

his or her further studies. This qualifying examination serves as an indicator of the advisability of continuing toward doctoral work. It consists of a written part (usually two hours), and a half-hour oral. This examination, due to its nature and purpose, may normally not be repeated.

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

It will consist of 12 hours of written questions and one hour of oral. These 12 hours will be equally divided in three parts which are as follows:

1) Questions directly related to the specific field of the dissertation (which, consequently, should be decided in advance as explained above);

2) Questions on Spanish *or* Spanish-American literature, whichever is the general area indicated by the field of the dissertation;

3) Questions on the other fields, including Spanish linguistics, not covered in points 1 and 2 above.

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

The second and third parts of the written examination are based on a reading list. The first part, which refers to the field of the dissertation, is based on the pertinent material decided in advance with the director of the dissertation. The Comprehensive Examination must be taken in its entirety. In case of failure, the student may repeat one of the three written parts, plus the oral. A failure in two or more written parts normally means failure in the examination as a whole.

Dissertation

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

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

Courses

SPN 501, 502 Seminar in Linguistics
3 credits each semester, repetitive

SPN 521, 522 Seminar in Renaissance Literature
3 credits each semester, repetitive

SPN 523, 524 Seminar in Golden Age Literature
3 credits each semester, repetitive

SPN 531, 532 Seminar in Spanish Literature of the 18th Century
3 credits each semester, repetitive

SPN 541, 542 Seminar in Modern Spanish Literature
3 credits each semester, repetitive

SPN 543, 544 Seminar in Contemporary Spanish Literature
3 credits each semester, repetitive

SPN 511, 512 Seminar in Medieval Literature
3 credits each semester, repetitive

SPN 551, 552 Seminar in Spanish-American Literature (Colonial Period)
3 credits each semester, repetitive

SPN 561, 562 Seminar in Spanish-American Literature (Independence to 1914)
3 credits each semester, repetitive

SPN 571, 572 Seminar in Modern and Contemporary Spanish-American Literature
3 credits each semester, repetitive

SPN 595, 596 Independent Individual Studies
Variable and repetitive credit

SPN 601, 602 Problems in Linguistics
3 credits each semester, repetitive

SPN 611, 612 Problems in Genres
3 credits each semester, repetitive

SPN 621, 622 Problems in Comparative Hispanic Literature
3 credits each semester, repetitive

SPN 641, 642 Problems in Textual Criticism
3 credits each semester, repetitive

SPN 691 Practicum in Lower Division Teaching
3 credits, Fall semesters only

SPN 693 Practicum in the Teaching of Advance Language and Literature
3 credits, Fall semesters only

SPN 695, 696 Directed Doctoral Research
Variable and repetitive credit

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Graduate Reading Courses

SPN 580 Spanish for Reading Knowledge
Not given to Graduate Spanish Students
Spring, 3 credits

Reading Portuguese

POR 500 Reading Portuguese
Fall, 3 credits

DEPARTMENT OF MUSIC

Professors: Arel, Baron, Layton, Lessard, Lewin, Nemiroff, Rosen, Treitler *(Chairman)*

Associate Professors: Bonvalot, Fuller, [a]Lawton, Zukofsky

Assistant Professors: Kaiser, [a]R. Kramer, Starr, Winkler

Instructors: deZeeuw, Semegen, Wolf

Director of the University Band: Karasick

Performing Artists in Residence: Addison, Anderson, Brehm, Canin, DesRoches, Eddy, Glazer, Graham, Greenhouse, Ingraham, G. Kalish, Kreiselman, Roseman, Weisberg

Degree Programs

The Department of Music offers graduate programs leading to the Master of Arts degree in musicology and in composition, and the Master of Music degree in performance. All important areas of study are represented, but special emphasis is placed upon the music of the 20th century.

Admission to the M.A. Program

The following are required for admission to the M.A. program in musicology 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. Submission of examples of undergraduate research papers (for musicology students) or musical compositions (for composition students).

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

Applicants are invited to submit any other evidence of their abilities in support of the applications for admission, such as recordings of musical 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.

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[a] On leave

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

5. The analysis of representative examples of 18th and 19th century music.

6. The history of music *(musicology students only).*

7. The composition of one of the following *(composition students only)*:

a. A motet in four or more voices in 16th century style.

b. A fugue in four voices in 18th century style.

c. A sonata or chamber work movement in the homophonic style of the 18th century.

A student who is found deficient in any of the areas of harmony, counterpoint, ear training, or keyboard must continue to retake pertinent examinations as they are given, until the deficiency is removed. A student may not take the comprehensive examinations for the degree until he or she has passed examinations in those four areas. A student who is found deficient in analysis will be required to take pertinent courses immediately. A composition student who does not write an adequate example of a fugue, motet, or sonata will be required to take the examination again, or to take and pass the relevant course.

Requirements for the M.A. Degree in Musicology

A. *Courses:* Thirty graduate credit hours, chosen in consultation with the student's advisor. The program must include MUS 501, 503, 505, and two courses from those numbered 543-555. At least two semester courses, or one year course, outside the area of musicology are also required. If a course in a department other than music is taken toward the degree, approval by the Graduate Studies Committee must be obtained.

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

C. *Comprehensive examinations:* Written and oral examinations in the 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 Composition

A. *Courses:* Thirty graduate credit hours chosen in consultation with the student's advisor. The program must include MUS 523 during each semester of residence, and MUS 515, 516. At least two semester courses, or one year course, outside the area of composition and theory are also required. If a course in a department other than music

is taken toward the degree, approval by the Graduate Studies Committee must be obtained.

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

C. *Comprehensive examinations:* Written and oral examinations on important musical works of all periods and in the analysis of pre-assigned compositions.

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

Admission to the M.Mus. Program

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

A. A baccalaureate degree from a recognized institution.

B. An official transcript of undergraduate record.

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

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

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

Requirements for the M.Mus. Degree

A. *Courses:* Thirty graduate credits, chosen in consultation with the student's advisor, of which up to fifteen may be in individual study of the major instrument or voice. 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 studio courses: MUS 561, 563, 565, 570, 571, 573, 575, 583. MUS 565 is required of all students who play orchestral instruments during each semester of residence. If a course in a department other than music is taken toward the degree, approval by the Graduate Studies Committee must be obtained.

B. *Jury examinations:* These will be offered each semester.

1. The student must take one jury examination during each academic year.

2. The student must take and pass the jury examination offered in the penultimate semester of his or her program.

C. *A public recital.*

Courses

Any student wishing to take a graduate course outside the major area (composition, musicology, performance) must take the qualifying examination or audition for that course.

The department is prepared to offer the following graduate courses, although not all of them are given in each academic year:

MUS 501 Introduction to Musical Research
3 credits

MUS 502 Proseminar in Tonal Analysis
3 credits

MUS 503 Music in the 20th Century
3 credits

MUS 505 Introduction to Early Notation
3 credits

MUS 506 20th Century Notation
3 credits

MUS 507 Proseminar in Music History
Variable credit

MUS 508 Proseminar in Composition
Variable credit

MUS 509 Performance Studies for Composers and Musicologists
Variable up to 4 credits
Not more than 8 credits of MUS 507, 508, and 509 combined may be counted toward any degree.

MUS 511, 512 Compositional Techniques of the 20th Century I, II
3 credits each semester

MUS 513 Musical Applications of Modern Mathematics
3 credits

MUS 515 The Fundamentals of Electronic Music
3 credits

MUS 516 Electronic Music Workshop
3 credits

MUS 517 The Literature of Electronic Music
3 credits

MUS 523 Advanced Composition
3 credits

MUS 531 Seminar in Music Theory
3 credits

MUS 535 Lecture-Workshop in the Performance of Baroque Music
3 credits

MUS 537 Seminar in Analysis and Performance
3 credits

MUS 539 Contemporary Criticism and Analysis in Music, Literature, and Art
3 credits

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Special Topics Courses
3 credits

MUS 543 Topics in Medieval Music

MUS 545 Topics in Renaissance Music

MUS 547 Topics in Baroque Music

MUS 549 Topics in 18th Century Music

MUS 553 Topics in 19th Century Music

MUS 555 Topics in 20th Century Music

MUS 559 Topics in Analysis

MUS 561 Orchestral Conducting
3 credits

MUS 563 Choral Conducting
3 credits

MUS 565 University Orchestra (Advanced)
1 credit

MUS 569 Performance Problems in 20th Century Music
2 credits

MUS 570 20th Century Conducted Ensemble
Prerequisite: MUS 569 or the equivalent.
Variable credit

MUS 571 Advanced Instruction in Instrument or Voice
6 credits

MUS 573 Chamber Music
2 credits

MUS 575 Master Class in Solo Repertory for Instrument or Voice
2 credits

MUS 577 Master Class in Performance Pedagogy
2 credits

MUS 581 20th Century Repertory for Instrument or Voice
2 credits

MUS 583 Works for Piano and One Other Instrument or Voice
2 credits

MUS 585 Renaissance and Baroque Brass Performance Practice
2 credits

MUS 591 Practicum in Teaching
Variable credit

MUS 599 Independent Studies
Variable credit

MUS 611 Workshop in Composition and Performance
2 credits

MUS 615 Electronic Music Composition
Prerequisite: MUS 516 or the equivalent.
3 credits

DEPARTMENT OF PHILOSOPHY

Professors: Buchler, Gelber, Heelan, Ihde *(Chairman),* Sternfeld, Tejera, Zyskind

Associate Professors: de Nicolas, Dilworth, Hill, Slote, Spector, Watson, Zemach

Assistant Professors: Allison, A. Dallery, C. Dallery, Howard, Miller, Silverman, Welton, Williams

Instructors: Ray, Wood

Lecturers: Ackley, Federici

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

The Masters Program

The Master of Arts in Philosophical Perspectives (MA/PP) concentrates on the development of an *appreciation* of the contribution of philosophical perspective to the self-understanding of men and women in a changing world. The principal focus of the program is on contemporary problems.

The program is designed with principally two kinds of students in mind: (a) those currently enrolled in Stony Brook's MA/LS program

(i.e., CED); and (b) those who received their baccalaureate degree some years ago, and who are desirous of returning to school to broaden or continue their education in this area.

Admission to the M.A. Program

For admission to the M.A. program in philosophical perspectives, the following are required:

A. A bachelors 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 programs.

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

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

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

Requirements for the M.A. Degree

A. *Formal course requirements:* A student preparing for the degree of Master of Arts in Philosophical Perspectives is required to take a total of ten courses amounting to 30 graduate credit hours. These courses will include seven courses on contemporary problems, two courses (PHI 524–5) in the history of philosophical perspectives and one course (PHI 527 or 528, or 586 or 587) in the detailed analysis of a philosophical text.

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. (See below.)

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

2. *The M.A. Practicum.* For those students who are teaching in high school and who can obtain permission to introduce a philosophy course into the curriculum, the supervised preparation and teaching of this course will substitute for the M.A. paper. The student will be required

to present course plans, bibliographies and other evidence of his/her academic readiness prior to the teaching of the course. During the course, the construction and grading of exams and papers will be supervised and several classes will be visited. Overall evaluation will take place at the conclusion of the course. The Philosophy Department has some resources to locate programs or schools where the student might teach such a course.

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.

Courses Open to Masters Students

PHI 524, 525	History of Philosophical Perspectives
PHI 527, 528	Individual Thinkers in the History of Philosophy
PHI 530	Anglo-American Philosophy in the Twentieth Century
PHI 531	Existentialism and Phenomenology
PHI 532	Marxism and Communism
PHI 533	Oriental Views of Man and Nature: China
PHI 534	Oriental Views of Man and Nature: Japan
PHI 542	The Structure of Inquiry
PHI 543	Logic
PHI 544	Perspectives on Communication
PHI 545, 546, 547	Perspectives on Social and Political Issues (Variable topics, including equality, genetics, the cities, technology, etc.).
PHI 549	Perspectives on Law
PHI 550, 551	Perspectives on Contemporary Moral Problems
PHI 552	Perspectives on Feminism
PHI 553	Perspectives on the Environment
PHI 554	Perspectives on Death
PHI 555, 556	Perspectives on Education
PHI 581	Moral Theories of the Modern World
PHI 582, 583	Colloquium: Contemporary Problems
PHI 584, 585	Teaching Practicum
PHI 586, 587	Directed Readings
PHI 588, 589	Directed Research

Additional Information

In view of the intended audience for the MA/PP program, nearly all courses will be scheduled after 5 p.m. or on Saturdays.

N.Y. State Permanent Certification can be gained by the successful completion of this program, if the student already has Temporary Certification. The program *cannot* confer Temporary Certification.

The M.A. in Philosophical Perspectives is considered to be a terminal degree. There is no doctoral program in this University for which it is prerequisite or to which it guarantees admission.

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

Requirements of the Doctoral Program

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

A. Four doctoral courses or seminars in the history and the traditional core areas of philosophy. Doctoral students must take PHI 500 History of Philosophy and Philosophical Texts which will be offered every year. In addition, they will take their choice of three out of six graduate courses or seminars offered in a two-year cycle, where at least one course will have to be taken from each of the following groups:

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

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

B. Participation in two Ongoing Style Seminars, one in the style the student prefers for his or her own philosophical activity, and one in some other style.

C. Participation in two Ongoing Interface Seminars where communication is established between philosophy and some other discipline.

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.

Combined Ph.D. in Philosophy and M.A. or M.S. in Some Other Discipline

Courses in departments other than philosophy may be accepted as part of a doctoral program in philosophy or even required by such if the director of graduate studies so decides in a particular case. Students who wish to pursue extensive work in another department may be able to meet the requirements of that department for an M.A. or M.S. degree while earning a Ph.D. in philosophy.

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 main figures, areas, or developments in history of philosophy;

B. Submit a philosophical essay in a major philosophical style;

C. Submit a philosophical essay in an interface area;

D. To have fulfilled the symbolic logic requirement, which is to have reached a degree of proficiency equivalent to having taken one semester of symbolic logic;

E. To have fulfilled the foreign language requirement, which is to have passed the appropriate ETS language exam before the end of the student's first year and to have used that language for a piece of philosophical research in the succeeding year;

F. To have passed the candidacy Preliminary Exam (see below);

G. To have been recommended by the graduate faculty to begin work on a dissertation.

The Preliminary Exam will ordinarily be oral. The material for the exam will be drawn up by the student with the help of the faculty advisor, and is subject to the approval of the director of graduate studies and the Graduate Committee of the department. This will be contained in an extended outline of about 4000 words of the area of the student's special competency (usually, the domain in which he or she intends to write the dissertation) and an attached bibliography.

Principal Structures on the Doctoral Level

There will be Ongoing Style Seminars, each exploiting a major contemporary method of philosophical reasoning. These styles comprise principally semiotic (or analytic) philosophy, phenomenology or existentialism, and systematic philosophy. These seminars will meet once

every four semesters or more often. Participants will be both members of the faculty and students.

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

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

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

Courses and Seminars (Open to Doctoral Students)

I. Area Courses: The following courses are designed to provide advanced work in the traditional areas of philosophical concern. These courses are deliberately broad in coverage and emphasize the development of research tools and resources in each area covered.

PHI 500 History of Philosophy and Philosophical Texts
3 credits

PHI 501 Philosophy of Science and Logic
3 credits

PHI 502 Metaphysics and Systematic Philosophy
3 credits

PHI 503 Epistemology, Philosophy of Mind, Perception and Experience
3 credits

PHI 504 Philosopny of Value, Culture, and Society
3 credits

PHI 505 Aesthetics and Rhetoric
3 credits

PHI 506 Oriental Philosophy
3 credits

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II. Proseminars: Advanced introductions to contemporary philosophical styles. Proseminars assume a general background in philosophy and serve to acquaint the beginning graduate student with the methods, presuppositions, and operational style of the philosophies involved. Proseminars balance readings of important texts with projects, papers,

and discussions designed to prepare the student for the advanced Ongoing Style Seminars.

PHI 590 Analytic Philosophies
3 credits

PHI 591 Phenomenological-Existential Philosophies
3 credits

PHI 592 Contemporary Systematic Philosophies
3 credits

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

PHI 600 Ongoing Style Seminar: Analysis
3 credits

PHI 601 Ongoing Style Seminar: Phenomenology and Existentialism
3 credits

PHI 602 Ongoing Style Seminar: Systematic Philosophies
3 credits

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IV. Ongoing Interdisciplinary Seminars: Three interface seminars are regularly offered between philosophy and a second discipline in each of the major divisions of the Arts and Sciences. Interface seminars are to be chaired by staff members acquainted with fields of study, particularly the sciences, outside philosophy. Interface Seminars will draw upon visiting and interdepartmental participants as well.

PHI 610 Interface Seminar: Philosophy-Natural Science
3 credits, repetitive

PHI 611 Interface Seminar: Philosophy-Social Science
3 credits, repetitive

PHI 612 Interface Seminar: Philosophy-Humanities
3 credits, repetitive

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V. Independent and Directed Studies: The following listings include a variety of independent study routes, all of which must be submitted and passed by the Graduate Committee and the professor(s) involved. The flexibility and variety of choices open to the special interests of students

and staff are to be matched through a program of advisement. Staff vitae with appended summaries of current interests will be available for graduate students and, in counter fashion, the graduate student may present proposals to the committee for projects he or she may wish to develop in conjunction with staff supervision.

PHI 620 Advanced Problems in Philosophy
Variable and repetitive credit

PHI 621 Independent Study
Variable and repetitive credit

PHI 622 Supervised Teaching
3 credits, repetitive

PHI 690 Dissertation
Variable and repetitive credit, maximum 6 hours

Political Science
Psychology
Sociology

The Behavioral Sciences

DEPARTMENT OF POLITICAL SCIENCE

Professors: El-Ayouty (*Adjunct*), Koppelman (*Adjunct*), Pesonon, Reichler (*Adjunct*), Scarrow, Tanenhaus, Travis, Tursky, Wildenmann, Williams (*Chairman*)

Associate Professors: Ames (*Adjunct*), Cross (*Adjunct*), Kunz (*Adjunct*), Lodge, Muller, Myers

Assistant Professors: Friedland, Grofman, Hamilton, Jukam, Landis, Monroe, Pool, Schneider, Whitmore

Lecturers: Reeder, Gonzalez-Stratmann

Technical Staff: M. A. Foley, H. Foley

Masters Program in Public Affairs

Objectives: The M.A. program in Public Affairs is a highly-structured, non-thesis program designed to provide its participants with basic skills and substantive knowledge for handling staff and managerial responsibilities in the public sector. Although principally intended for full-time students who can complete the sequence of courses in one academic year, the program can accommodate a limited number of half-time students.

Admission Requirements

1. A baccalaureate degree or its equivalent.
2. A minimum grade point average of 3.0 in undergraduate major; in exceptional cases, students who cannot meet the G.P.A. requirement may be admitted on a provisional basis.
3. Two letters of recommendation and results of the Graduate Record Examination Aptitude Test.

Degree Requirements

The Department will recommend the granting of the M.A. degree upon successful completion of 30 credits of formal graduate courses. These

consist of the 24 credits of the core curriculum, and 6 credits of special projects. The special projects may include participation in field research or an internship assignment. A 3.0 average must be earned in the 24 credits of core courses.

Half-Time Students: Half-time students must enter the program in the fall semester, and successfully complete POL 510 before they become eligible for admission to any other course. They cannot enroll in POL 601 until they have completed the entire sequence of core courses.

Ph.D. Degree Program in Political Science

Objectives: The Ph.D. degree program in political science is designed to prepare a very limited number of exceptionally promising students for creative careers in teaching and research. The program emphasizes (1) broad theoretical scope encompassing a wide spectrum of political science areas rather than intensive specialization in any one field; (2) systematic and conscious effort to integrate the macro (political systems, institutions, processes) and micro (uniformities and universalities of individual political behavior) aspects of political study; (3) methodological rigor; and (4) intensive training and experience in both teaching and research. Successful candidates must attain *both* a systematic command of major substantive areas in political science, *and* an unusually high level of technical skill in either micro or macro analysis. Although the program is not scheduled for full implementation until the fall of 1976, the department is prepared to consider applications for admission in the fall of 1975 from unusually well-qualified candidates with strong undergraduate training in both political science and experimental psychology.

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 pages 33-35 of this *Bulletin*):

1. Submission of G.R.E. Scholastic Aptitude Test Scores (Verbal and Quantitative) from the Graduate Record Examination Board.
2. Prior training to include at least two of the following:
   a) Basic work in political science.
   b) Basic work in economics or mathematical sociology.
   c) Basic work in mathematics and statistics.
   d) Basic work in biology or psychology.
3. In those cases where the departmental admissions committee deems it desirable, personal interviews with departmental representativs.

Degree Requirements

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

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

POL 500-501 Foundations of Political Science
POL 590, 690 Teaching Practica
POL 591, 691 Research Practica
POL 692-693 Advanced Research Colloquium

B. *Familiarity with the basic literature and substantive knowledge of political science:* Requisite level of attainment is demonstrated by passing a Preliminary Examination (normally at the end of the first year) and a Comprehensive Examination (normally at the end of the second year) with a grade of at least B in each.

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

D. *Competence in Teaching and Research Operations:* Satisfactory completion of POL 590, 690, 591, and 691. Graduate Assistants engaged in research will enroll in POL 591 or 691; those engaged as teaching assistants will enroll in POL 590 or 690, as advised by the Director of Graduate Study.

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

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

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

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

The Department will also administer *equivalency examinations* in cases where a candidate believes he is sufficiently skilled in the areas described above to justify his 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 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 that he has previously done and/or work yet to be done, in order to meet the department's stringent dissertation requirement.

The dissertation is a substantial and significant piece or collection of original work that conclusively demonstrates the student's ability to contribute new knowledge to the scientific literature on politics. In form, the dissertation is either a single monograph, two or more full-length articles, or the equivalent. In the case of dissertations comprising two or more articles, the topic may vary from one to another. The quality of the dissertation must be demonstrated by (1) approval of the candidate's Dissertation Examining Committee, after an informal Dissertation Colloquium, *and* (2) acceptance of the monograph or the articles for publication by publishers or in journals deemed appropriate by the Dissertation Examining Committee, or alternatively, if the Dissertation Examining Committee so recommends, attestation of publishable quality by *two* appropriately qualified scholars outside the department invited by the Committee to review the dissertation. Acceptance of the Dissertation after the Colloquium constitutes the last formal requirement before award of the degree.

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

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

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

Courses

Not all courses will be offered every year. They will be scheduled as required. POL 500-501 must be taken by all graduate students in their first year. POL 512-513 is a core methodology course normally taken by all Ph.D. candidates. POL 692-693 is required of all Ph.D. students in their second year and may be attended by other qualified students.

POL 500-501 Foundations of Political Science
Two semesters, not separable, 6 credits each.

POL 510, 511 Foundations of Public Affairs Analysis
Fall and Spring, 6 credits each semester.

POL 512-513 Research Design and Data Analysis
Two semesters, not separable, 3 credits each.

POL 533 Administration and Public Policy
Fall, 3 credits.

POL 580, 581 Topics in Public Affairs
Fall, 6 credits; spring, 3 credits.

POL 601 Special Projects
Spring, 6 credits.

POL 610 Experimental Research Design
One semester, 3 credits.

POL 612 Social Economic and Political Indicators
One semester, 3 credits.

POL 617 Mathematical Models in Political Science
One semester, 3 credits.

POL 618 Computer Simulation
One semester, 3 credits.

POL 657 Advanced Topics in Political Analysis
Repetitive, 3 credits.

POL 658 Advanced Topics in Governmental Institutions and Processes
Repetitive, 3 credits.

POL 659 Advanced Topics in Political Behavior
Repetitive, 3 credits.

POL 590 Teaching Practicum
One semester, 3 credits.

POL 591 Research Practicum
One semester, 3 credits. For first-year Ph.D. candidates.

POL 690 Advanced Teaching Practicum
One semester, 3 credits. For advanced Ph.D. candidates.

POL 691 Advanced Research Practicum
One semester, 3 credits. For advanced Ph.D. candidates.

POL 692-693 Research Colloquium
2 semesters, not separable, 3 credits per year.

POL 698 Doctoral Dissertation Research
Variable Credit.

POL 699 Independent Study
Variable Credit.

DEPARTMENT OF PSYCHOLOGY

Professors: Birns, Bramel, [a]Davison, Gagnon, Gazzaniga, Geer (*Chairman*), Goldfried, Green, Kalish, Krasner, M. Levine, Liebert, LoPiccolo, Menzel, D. O'Leary, [a]Palmer, [a]Rachlin, Ross, Rubenstein, Singer, Stamm, Tursky, Vallins, Wyers

Associate Professors: D'Zurilla, Emmerich, [a]Friend, M. Johnson, Kaye, Morrison, [a]Neale, Pomeranz, Schvaneveldt, Whitehurst

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[a] On leave

Assistant Professors: Calhoun, Copemann, Coulter, Jones-Emmerich, Kent (*Visiting*), F. Levine, MacDonald, S. O'Leary (*Visiting*), Polite, Poulos (*Visiting*), Sharon Rosen, Steven Rosen, Springer, Sternglanz, Tweedy, Wanat

Lecturer: Cross

Clinical Associate: McConnell

Admission to Graduate Study

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

Requirements for the Ph.D. Degree

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

A. Residence: Minimum residence required is two years, including at least two consecutive semesters of full-time study. (Resident students 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: The Preliminary Examination ordinarily must be completed by the end of the fifth semester of graduate study and consists of two parts: (1) The General and (2) the Specialty Examination. The General Examination is a combination of written examinations and a review paper. The Specialty Examination is designed individually for each student depending upon the area of specialization.

C. Successful completion of an approved program of study, with a grade of B in each required course.

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

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

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

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 of Psychology may be asked to withdraw. Under certain circumstances a student may be permitted to obtain a terminal Master of Arts degree after passing the Preliminary 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.

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 limits the general requirement in course work and 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:

Clinical Psychology

The clinical training program prepares the student to function as both a behavioral scientist and as a practicing professional psychologist by providing the necessary theoretical background and specific techniques. The program stresses the application of operant, cognitive, and social principles in the study of behavior disorders, and emphasizes a behavioral approach to therapy.

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 Biological Sciences Department and focuses on behavioral psychology, ethology, and animal social behavior, with emphasis on both field and laboratory methods.

Developmental Psychology

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

*Experimental Psychology**

The experimental psychology program offers training in a broad range of experimental areas including sensation and perception, psychophysics, and measurement theory, operant and classical conditioning, and cognition and memory.

*Social Psychology**

The program is exploring innovative directions for social psychology in addition to providing training in traditional theories and methods. The newer areas include historical and critical studies of society and of the social sciences (with focus on economic, class, race, and sex factors); and community, environmental, and organizational psychology.

Courses

PSY 500 Quantitative Background
Fall, 3 credits

PSY 501 Quantitative Methods II
Fall or spring, 3 credits

PSY 502 Quantitative Methods I
Fall or spring, 3 credits

PSY 507 Distribution-Free Statistics
Spring, 3 credits

PSY 510 History of Psychology
Spring, 3 credits

PSY 511 Learning
Fall, 3 credits

PSY 512 Learning
Spring, 3 credits

PSY 514 Sensation and Perception
Fall, 3 credits

PSY 515, 516 Research Practicum in Experimental Psychology
Fall and spring, 3 credits each semester

PSY 518 Clinical Research
3 credits

PSY 520 Proseminar in Developmental Psychology I
Fall, 3 credits

PSY 521 Proseminar in Developmental Psychology II
Spring, 3 credits

PSY 522 Children's Learning
Fall, 3 credits

PSY 523 Complex Learning Processes
Spring, 3 credits

PSY 524 Cognitive Development
Fall, 3 credits

PSY 533 Behavior Modification: Theory, Research, and Practicum
Fall, 4 credits

PSY 534 Behavior Assessment: Theory, Research, and Practicum
Spring, 4 credits

PSY 537 Behavior Problems in Children
Fall, 3 credits

PSY 538 Behavior Problems of Adolescents and Adults I
Spring, 3 credits

PSY 539 Behavior Problems of Adolescents and Adults II
Fall, 3 credits

PSY 550, 551 Topics in Social Psychology
Fall and spring, variable and repetitive credit each semester

PSY 560 Neuropsychology
Spring, 3 credits

PSY 561, 562 Physiological Methods
Fall and spring, 3 credits each semester

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

PSY 563, 564 Physiological Methods Lab
Fall and spring, 3 credits each semester

PSY 571, 572 Comparative Behavior
Fall and spring, 3 credits each semester

PSY 573, 574 Comparative Behavior Lab
Fall and spring, 3 credits each semester

PSY 575 Psychobiology of Primates
Fall or spring, 3 credits

PSY 581, 582 Comparative Physiological Colloquium
Fall and spring, 3 credits each semester

PSY 583, 584 Experimental Psychology Colloquium
Fall and spring, 3 credits each semester

PSY 590 Theories of Child Development
Spring, 3 credits

PSY 599 Instructional Methods for Child Development
Fall and spring, 3 credits

PSY 600 Teaching Methods and Practicum
Variable and repetitive credit

PSY 601 Clinical Practicum
Fall and spring, 1 credit

PSY 602 Internship: Child
Variable and repetitive credit

PSY 603 Internship: Adult
Variable and repetitive credit

PSY 604 Internship: Community and Institutions
Variable and repetitive credit

PSY 605 Orientation to Clinical Psychology
Fall and spring, 1 credit

PSY 606 Clinical Case Conference and Colloquium
Fall and spring, 1 credit

PSY 610, 620 Seminars in Selected Topics
Variable and repetitive credit each semester

PSY 621 Seminar on Teaching Methods
Fall, 2 credits, repetitive

PSY 630 Intervention Efforts
Prerequisites: PSY 520, 521, and Permission of Instructor.
Fall or spring 3 credits

PSY 631 Evaluation Strategies
Prerequisites: PSY 520, 521, 631, Permission of Instructor.
Spring, 3 credits

PSY 640 Interdisciplinary Approaches to Human Sexuality
Prerequisite: Permission of Instructor.
Fall, 3 credits

PSY 641 Interdisciplinary Approaches to Human Sexuality
Prerequisite: Permission of Instructor.
Spring, 3 credits

PSY 642 Psychology of Women
Spring, 3 credits

PSY 696 Readings
Variable and repetitive credit

PSY 697 Experiments in Psychology
Variable and repetitive credit

PSY 698 Research
Variable and repetitive credit

PSY 699 Doctoral Research
Variable and repetitive credit

DEPARTMENT OF SOCIOLOGY

Professors: [a]Cole, [a]L. Coser, [a]R. Coser, Dogan (*Adjunct*), [a]Gagnon, Goodman (*Chairman*), Hodge, Kelman (*Adjunct*), G. Lang, K. Lang, Perrow, Schild (*Adjunct*), Selvin, Singer, Suttles, E. Weinstein

Associate Professors: Collver, Feldman, E. Goode, Polsky, Rule, Tyree, [a]Weitman

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[a] On leave

Assistant Professors: Davis, Dill, Gronbjerg, [a]Harrison, Logan, Rosenberg, M. Schwartz, Tanur, Wedow

Instructor: Henry, Zeitz

M.A. Degree Program for Social Studies Teachers

This program is designed to provide a graduate-level introduction to sociological analysis for a select group of 20 to 25 teachers of social studies in secondary schools and community colleges. The program is meant to help teachers develop the analytical perspectives of academic sociology and its methodological approaches in order to enrich their teaching in all social sciences as well as to prepare them to teach sociology in high school. The curriculum is related to the ongoing experiences of the students and consideration is given to the problems of teaching high school sociology and of incorporating sociological perspectives into other courses. The program is thus a logical extension of the department's current offerings in the Continuing Education Department and draws in part on those courses.

Requirements for admission to this program will normally include:

A. A baccalaureate degree or its equivalent.

B. Six hours of undergraduate sociology.

C. A B (3.0) average or above is *desirable.*

D. One year of teaching experience at the junior high school level or above.

E. Students must be planning to teach (at least partly in social studies) while enrolled in the first two semesters of the program or be willing to be placed (without remuneration) for a few hours a week in a secondary school. This requirement is designed to make it possible for students to explore ideas and methods in a regular teaching situation.

F. Graduate Record Examinations are strongly recommended.

Minimum residence is two semesters of full-time study. The degree will be awarded upon successful completion of 30 graduate credits in sociology, approved by the director of the masters program for teachers. The courses would normally include the following:

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

Spring Semester: SOC 523, SOC 695, and a graduate course in sociology selected by the student in consultation with the director of the program.

Summer Session: SOC 598 (a six credit seminar on sociological analysis involving participation in a collective research project on a topic chosen during the spring and an individual research paper as part of this project).

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

Admission to the Doctoral Programs in Sociology

Requirements for admission will normally include:

A. An average of 3.0 in undergraduate course work.

B. Five courses in sociology.

C. A one-semester course in statistics.

D. Proficiency in a foreign language (preferably French or German) equivalent to two years of college work.

E. Results from the Graduate Record Examination.

F. Acceptance by the Department of Sociology and by the Graduate School.

In special cases, some of the above requirements may be waived, to be made up as soon as possible.

Applicants with a masters degree from an accredited university seeking admission to the Ph.D. program at Stony Brook must submit evidence (including GRE scores and a masters thesis or its equivalent) that their preparation is similar to the work described under requirement E below. Deficiencies must be made up before students receive permission to take the Preliminary Examination for the Ph.D. degree.

Requirements for the Ph.D. Degree

A. *Residence:* Minimum residence is generally two years of full-time study including at least two consecutive semesters. In certain cases, however, one year of full-time study is sufficient. 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:* Students must successfully complete an approved program of study including two courses in sociological theory (SOC 505 and 506) and three courses in methods of research (SOC 501, 502, and a third course of the student's choice in either quantitative or qualitative methods).

C. *Track I:* Students may choose either "Track I" or "Track II," but most are advised, and most do, choose the former. This consists of a written Comprehensive Examination to evaluate the student's general preparation. 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. Only under special circumstances will a student who fails to pass this examination at the required level but whose performance is satisfactory in all other respects be permitted to take a *terminal* M.A. by completing 30 credits of graduate course work and submitting an acceptable research report.

D. *Track II:* Instead of taking the comprehensive examination, the student may choose Track II, which involves completing a paper

judged to be of publishable quality. The paper may be either empirical or theoretical. Students opting for this track must submit a memorandum to this effect, together with a favorable statement from a faculty sponsor, by the end of the third semester in residence. The paper is normally to be presented during the fourth semester in residence. It will be judged by a three-person evaluation committee, consisting of two members of the department and an off-campus expert. If judged publishable it will substitute for the research report, providing either it or the student's dissertation is empirical; if the paper is not judged publishable, it still may be evaluated as satisfying the requirement for a research report.

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

F. *Teaching requirement:* Graduate training includes supervised teaching experience. After completing either C or D above, students are required to teach one undergraduate course in their specialty area (those in Track II are strongly advised to teach a section of the introductory course), and to repeat that course if their teaching is satisfactory.

G. *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.

H. *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.

I. *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.

J. *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.

Courses

During the spring of 1975 the following information will be made available about each course for the academic year 1975-76: (a) the semester in which the course is to be given; and (b) the professor who will teach it.

SOC 501 Research Design
3 credits

SOC 502 Quantitative Analysis of Social Data
3 credits

SOC 503 Multivariate Analysis of Social Data
3 credits

SOC 505 Foundations of Sociological Theory
3 credits

SOC 506 Contemporary Issues in Sociological Theory
3 credits

SOC 508 Experimental Methods
3 credits

SOC 509 Field Work
3 credits

SOC 511 Population Analysis
Prerequisite: One course in statistics.
3 credits

SOC 513 The Metropolitan Community
3 credits

SOC 514 Sociological Methods
4 credits

SOC 521 Social Interaction
3 credits

SOC 522 Socialization and the Self
3 credits

SOC 523 Sociology of Education
4 credits

SOC 531 Stratification
3 credits

SOC 532 Complex Organizations
3 credits

SOC 541 Conflict and Violence
3 credits

SOC 542 Deviance
3 credits

SOC 545 Social Movements and Collective Behavior
3 credits

SOC 546 Sociological Perspectives on American Society
4 credits

SOC 549 Social Change
3 credits

SOC 556 Political Sociology
3 credits

SOC 561 Sociology of Intellectual Life
3 credits

SOC 562 Sociology of the Arts
3 credits

SOC 563 Sociology of Science
3 credits

SOC 564 Communications
3 credits

SOC 571 Sociology of Health and Medicine
3 credits

SOC 590 Independent Study
Credit to be arranged

SOC 591, 595 Special Seminars
3 credits each semester

SOC 598 Research
Variable and repetitive credit

SOC 603 Advanced Topics in Quantitative Analysis
Prerequisites: SOC 501 and SOC 502.
3 credits

SOC 604 Advanced Topics in Qualitative Analysis
3 credits

SOC 606 Sociological Theory Construction
Prerequisites: SOC 361 and SOC 362 or permission of instructor.
3 credits

SOC 691 Practicum in the Teaching of Sociology
3 credits

SOC 694, 695 Practicum in the Teaching of Social Studies
4 credits each semester

SOC 698 Research for Ph.D.
Variable and repetitive credit

Biochemistry
Cellular and Developmental Biology
Ecology and Evolution

The Biological Sciences

DIVISION OF BIOLOGICAL SCIENCES

Acting Provost: A. D. Carlson

The Division of Biological Sciences consists of three academic departments: Biochemistry, Cellular and Comparative Biology, and Ecology and Evolution. The faculty of these departments, together with those from the Marine Sciences Research Center and the Departments of the School of Basic Health Sciences, interact to offer a wide variety of graduate programs at the masters and the doctoral level. Other participating faculty include representatives from the Departments of Chemistry, Earth and Space Sciences, and Psychology. By this interaction provision is made to meet the needs of students with diverse professional interests in the various fields of the biological sciences.

Graduate studies in the biological sciences are centered around a number of programs, each under the direction of a program chairman and an executive committee. Within the Division of Biological Sciences these programs are in Cellular and Developmental Biology, Ecology and Evolution, Molecular Biology, and Neurobiology and Behavior (Psychobiology). With the exception of the Molecular Biology program, which accepts only students seeking the Ph.D. degree, the programs accept students for the M.A. and Ph.D. degrees. A special M.A. program in Biology for High School Teachers is also offered.

A special masters program—an M.S. program in Marine Environmental Sciences, is offered in association with the Marine Sciences Research Center.

Several other doctoral training opportunities are offered in the School of Basic Health Sciences. These include programs in Anatomical Sciences, Microbiology, Pathology and Physiology and Biophysics. Descriptions of these particular programs, their faculties, and their respective course offerings are presented in the Health Sciences section of this *Bulletin.*

DEPARTMENT OF BIOCHEMISTRY

Professors: Cirillo, Shaw (*Adjunct*), M. Simpson (*Chairman*)

Associate Professors: [a]Arnheim, Dudock, [a]Freundlich, Gesteland (*Adjunct*), Inouye, Moos, Riley, Studier (*Adjunct*)

Assistant Professors: Sarma, Scandella, Schmidt, S. Simon, R. Sternglanz

DEPARTMENT OF CELLULAR AND DEVELOPMENTAL BIOLOGY

Professors: E. Carlson (*Distinguished Teaching Professor*), Erk, Glass (*Distinguished Professor*), Hillman (*Adjunct*), Soucek (*Visiting*), Steward (*Research*), C. Walcott (*Chairman*)

Associate Professors: [a]Battley, [a]A. Carlson (*Acting Provost*), Edmunds, Krikorian, Lent, [a]Lyman, Merriam, Tunik

Assistant Professors: J. Fowler, E. Katz, Laser, Palevitz, Poccia, D. Smith, Yazulla

Lecturer: Mallon

DEPARTMENT OF ECOLOGY AND EVOLUTION

Professors: Rohlf (*Acting Chairman*), Sanders (*Adjunct*), Slobodkin, Sokal, G. Williams

Associate Professors: J. Farris, Hechtel, Koehn, Smolker, Turner

Assistant Professors: Bentley, Futuyma

Lecturer: C. R. Carroll

FACULTY HOLDING JOINT APPOINTMENTS

Professors: E. Baylor, R. F. Jones, E. Menzel

Associate Professors: V. Farris, Wurster

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[a] On leave

General Admission Requirements for Graduate Study in Biological Sciences

A. A baccalaureate degree with the following minimal preparation is required: 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 Graduate Record Examination.

D. Acceptance by the Division of Biological Sciences and Graduate School.

In special cases, students not meeting requirements A through C may be admitted on a provisional basis. These students must act immediately to fulfill deficiencies in basic courses before being enrolled as regular students. Credits earned in these courses do not count toward graduate degree requirements. Detailed information about admission to specific programs and their degree requirements may be obtained from the program chairman.

Brief Description of Graduate Programs

Cellular and Developmental Biology (BCD)

Program Chairman: Dr. H. Lyman

The Cellular and Developmental Biology Program is designed to produce investigators and teachers who can define experimentally attack, and communicate fundamental problems associated with the development of biological systems. The staff members of the program are drawn from the faculties of the Division of the Biological Sciences and the Departments of Anatomical Sciences and Microbiology of the School of Basic Health Sciences, and are engaged in research upon developmental problems in microorganisms, lower and higher plants, insects, and vertebrates. Their interests cover problems from the molecular to the systemic levels of organization. The viewpoint of most of the staff is experimental and the program emphasizes a high level of competence in the genetic, cellular, biochemical, and molecular analyses of developing systems.

Ecology and Evolution (BEE)

Program Chairman: Dr. F. J. Rohlf

The Ecology and Evolution Program includes staff members engaged in research in a broad spectrum of theoretical, laboratory, and field problems involving the major groups of organisms and geographical regions ranging from the Red Sea and the Caribbean to the Arctic. Staff interests represent a broad diversity of approaches to ecological and evolutionary problems. The staff includes persons who are working in population dynamics from a behavioral, mathematical, and

Additional Program Requirement for the Ph.D.

Language Requirement: The Neurobiology and Behavior program requires a reading knowledge of one foreign language. The appropriate language for the graduate student will be determined in consultation with the student's committee members.

General Requirements for the M.A. Degree

A. Residence: One year.

B. Formal course requirements: Successful completion of an approved course of study of at least 30 graduate semester credits.

C. Thesis: Independent laboratory, field, or theoretical research under the supervision of a staff member.

D. Comprehensive Examination: When the thesis is completed, a Comprehensive Examination will be given no later than two weeks before the end of the semester in which the final work in the masters program is done.

E. Oral defense of thesis: Upon acceptance of the thesis by a reading committee, an oral examination on the thesis will be given.

General Requirements for the Ph.D. Degree

In order for a student to continue in a program of study toward the Ph.D. degree, the Executive Committee of each graduate program must have reached consensus that the overall first-year performance of the student has been satisfactory.

A. Formal course requirements: Successful completion of an approved course of study.

B. Language or Special Skills Requirement: A graduate program may require proficiency in a foreign language or other special skill.

C. Preliminary Examination: After completing the major portion of course work, a student may apply for the Preliminary Examination. Normally the examination will be oral and/or written, and may be taken no later than the sixth semester after entrance.

D. Advancement to candidacy: The division's recommendation with respect to candidacy for the Ph.D. degree will be based upon the satisfactory completion of the above requirements.

E. Dissertation Examination: An examining committee will read the dissertation and give the candidate an oral examination on the dissertation research and related areas. The Dissertation Examination Committee will consist of at least four members of the faculty appointed by the Dean of the Graduate School.

F. Residence: At least two consecutive semesters of full time study. A graduate program may require a longer period of residence.

SPECIAL MASTERS PROGRAMS

M.A. Program in Biology for High School Teachers (BHT)

Program Co-Chairmen: Dr. K. Laser and Dr. E. Mallon

This program is concerned with the further education of high school teachers leading to the development and maintenance of the highest quality of high school biology teaching. Emphasis will be placed on modern developments in the areas of Physiological and Biochemical aspects of cell growth and differentiation; Marine and Environmental biology; the behavior and social patterns of animals; the way in which microorganisms, plants and animals reproduce, develop and function; and the strategies and techniques of biological research.

Requirements for Admission

Applicants meeting the following criteria will be considered for admission into the program:

A. A baccalaureate degree with a science major (Biology or Science Education).

B. Provide acceptable GRE scores in biology.

C. Submit official transcripts of undergraduate grades for evaluation of an acceptable grade point average.

D. Provide evidence indicating he/she is currently teaching biology on a full time basis in grades 7-12 and will hold a teaching position in biology for the following year. Others may seek admission into the program by special permission of the Chairmen.

E. Submit three letters of recommendation from professional colleagues, including current principal or other administrator. Recent graduates may submit two letters from professional colleagues and one from a former undergraduate instructor.

F. Provide evidence of professional growth in at least one of the following:

1. Membership in national, state and/or local biology or science teacher organizations.
2. Publications
3. Fellowships, grants-in-aid or awards in biology.

G. The student admitted into the program must complete the requirements for the BHT program within a five year period after acceptance.

Requirements for M.A. Degree

A. Residence: None required.

B. Course Requirements:

1. Formal Course Requirements: Successful completion of an approved course of study of 30 graduate semester credits. No more than six graduate credits may be transferred from another institution or program, and these must be approved by the program Chairmen.

2. All candidates are required to take Research Techniques for

High School Teachers. In this one-semester course a candidate, under direction, will experiment with teaching methods which will include demonstrating and analyzing biological processes in a high school laboratory. Emphasis will be placed on simple and innovative techniques for handling plants and animals, methods of quantitative observation and analysis, and procedures for the analysis of quantitative observations.

3. Proposed Thesis Research: A formal meeting with the student's advisor and program Chairmen will be held on the subject matter of the proposed research to ensure that the student is ready to conduct the research and write the thesis. .

4. Thesis: Independent laboratory, field or theoretical research project under the supervision of a staff member. The thesis must be accepted by a reading committee of at least 3 members of the program staff. The reading committee will consist of the program Chairmen and other members who will be selected by the program Chairmen after consultation with the candidate and his sponsor.

5. Comprehensive Examination: Upon acceptance of the thesis by the reading committee, an oral examination of the thesis will be given to the candidate on the subject matter of the dissertation. This examination will be comprehensive in nature and will include all areas of biology. This will be given no later than one week before the end of the semester in which the final work in the masters program is done.

6. After satisfactory completion of the above requirements, a recommendation will be made to the Dean of the Graduate School for the award of the M.A. degree.

M.S. Program in Marine Environmental Studies (BMS)

Program Chairman: Dr. C. F. Wurster

The M.S. Program in Marine Environmental Studies seeks to prepare students for careers in environmental management and coastal oceanography. Wise utilization of natural resources can contribute to the protection of environmental quality and the enhancement of human values.

Environmental management involves tbe utilization of many disciplines. Complex relationships between biological, physical, chemical, geological, oceanographic and meteorological, as well as social, legal, political, and economic factors all must be evaluated before intelligent environmental decisions can be made. This interdisciplinary, problem-oriented curriculum attempts to meet that challenge by a combination of formal courses and practical experience in cooperation with The Marine Sciences Research Center. In addition to full-time students, the program offers training on a part-time basis to professionals who wish to upgrade their skills or redirect their careers.

Requirements for Admission

A. A baccalaureate degree (B.S. or B.A.).

B. Courses in the following areas: (1) mathematics through cal-

culus and statistics; (2) physical or earth sciences; (3) biological sciences; (4) social sciences.

C. A minimum grade point average of 2.75 (B–) in all undergraduate work, and 3.00 (B) in courses relevant to the program.

D. Official undergraduate transcripts, letters of reference from three previous instructors and/or employers in relevant professional fields, and the results of the Graduate Record Examination must accompany applications for admission. In special cases students not meeting all requirements may be admitted on a provisional basis.

Requirements for M.S. Degree

A. Residence and language requirements: None.

B. Formal course work: Maintenance of a B average in an approved course of study, totaling 30 graduate credits, of which not more than six credits may be MAR 580 Seminar and/or MAR 590 Research. Students must take the following courses or their equivalents:

1. MAR 501 Physical Aspects of the Marine Environment
2. MAR 502 Topics in Biological Oceanography
3. MAR 503 Chemical Oceanography
4. MAR 511 Techniques and Instrumentation in Marine Science Part I
5. MAR 521 General Problems of the Marine Environment
6. MAR 580 Seminar 2 (2 semesters required)

C. Research: A scientific research paper on a topic, and of a standard, acceptable to the program Graduate Studies Committee is required.

Teaching Responsibilities

As part of their graduate training, all students in the division are required to participate in the teaching activities of the division for a minimum of one year. Certain forms of financial support may require that a student teach more than one year. *High School teachers are exempt from this teaching requirement.*

Graduate Courses

Specific courses associated with a particular graduate program are identified by their program code. All graduate students, however, should consult with their program chairman in planning and executing an appropriate program of study.

Students should note that certain advanced undergraduate courses which appear in the *Undergraduate Bulletin* are particularly suitable for additional training in some areas of specialization.

BIO 600 Practicum in Teaching
Fall and spring, 3 credits

Courses in Cellular and Developmental Biology

BCD 523 Topics in Animal Development
Fall, 3 credits

BCD 524 Cellular Aspects of Development
Spring, 4 credits

BCD 526 Principles of Development
Spring, 3 credits

BCD 527 Photoperiodic Control of Plant and Animal Development
Fall of even-numbered years, 3 credits

BCD 528 Problems in Cell Differentiation
Spring, 3 credits

BCD 530 Projects in Developmental Biology
Fall and spring, 2 credits

BCD 531, 532 Graduate Seminar in Developmental Biology
1 credit each semester

BCD 535 Physiology and Development of Higher Plants
Fall, 2 credits

BCD 537 Physiology and Biochemistry of the Cell Cycle
Fall of odd-numbered years, 3 credits

BCD 599 Research
Fall and spring, credit to be arranged

BCD 621, 622 Developmental Biology Seminar
Fall and spring, 1 credit each semester

BCD 681-684 Advanced Seminars
Variable and repetitive credit

BCD 699 Research
Fall and spring, credit to be arranged

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Courses in Ecology and Evolution

BEE 551 Principles of Ecology
Spring, 4 credits

BEE 552 Biometry
Fall, 4 credits

BEE 553 Multivariate Analysis in Biology
Prerequisite: BEE 552.
Spring of odd-numbered years, 3 credits

BEE 554 Population Genetics
Prerequisite: BEE 552 or equivalent).
Spring of even-numbered years, 3 credits

BEE 555 Isoenzyme Methods in Ecological Genetics
Spring of odd-numbered years, 4 credits

BEE 556 Research Areas of Ecology and Evolution
Fall and spring, 2 credits

BEE 557 Systematics and Numerical Taxonomy
Prerequisite: BEE 552.
Spring of odd-numbered years, 2 credits

BEE 558 Tutorial Readings in Ecology and Evolution
Fall and spring, variable credit

BEE 559 Individual Studies in Organisms
Fall and spring, variable credit

BEE 560 Evolutionary Genetics
Prerequisites: BEE 552 and BIO 141 or equivalent.
Fall, 3 credits

BEE 587 Computer Programming Techniques in Ecology and Evolution
Prerequisites: BEE 552 or equivalent.
Fall, 2 credits

BEE 588 Current Topics in Ecology and Evolution
Variable and repetitive credit

BEE 599 Research
Fall and spring, credit to be arranged

BEE 658 Advanced Invertebrate Zoology
Spring, 2 credits repetitive

BEE 671-672 Seminar in Ecology and Evolution
Fall and spring, no credits

BEE 689 Seminar on Ecology and Evolution in the Marine Environment
Fall, 2 credits, repetitive

BEE 690 Seminar on Evolutionary Processes
Fall, 2 credits, repetitive

BEE 691 Seminar on Systematics
Spring, 2 credits, repetitive

BEE 692 Seminar on Applied Aspects of Ecology and Evolution
Spring, 2 credits, repetitive

BEE 693-694 Seminar on Ecology of Population and Communities
Fall and spring, 2 credits, repetitive

BEE 699 Research
Prerequisite: Advancement to Ph.D. Candidacy.
Fall and spring, credit to be arranged

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Courses in Molecular Biology

BMO 502 Physical Biochemistry
Spring, 3 credits

BMO 503 Crystallography of Biological Macromolecules
Prerequisite: BMO 502.
Fall, 2 credits

BMO 505 Regulation and Metabolism
Prerequisite: BIO 361 or equivalent.
Spring, 3 credits

BMO 506 Membranes and Transport
Spring, 2 credits

BMO 507 Neurochemistry
Prerequisite: BIO 361.
Spring of even-numbered years, 2 credits

BMO 508 Immunochemistry
Spring, 2 credits

BMO 509-510 Experimental Biochemistry
Fall and spring, variable credit, minimum two credits each semester

BMO 513 Enzymology
Fall, 3 credits

BMO 514 Muscle and Contractile Mechanisms
Spring, 2 credits

BMO 515 Macromolecular Evolution
Fall, 1 credit

BMO 599 Research
Fall and spring, credit to be arranged

BMO 601, 602 Colloquium in Molecular Biology
Fall and spring, no credits

BMO 603, 604 Student Seminar in Molecular Biology
Fall and spring, no credits

BMO 605, 606 Molecular Biology Workshop
Fall and spring, no credits

BMO 685-688 Advanced Seminars
Variable and repetitive credit

BMO 699 Research
Prerequisite: Advancement to Candidacy.
Fall and spring, credit to be arranged

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Courses in Neurobiology and Behavior (Psychobiology)

BNB 541 Topics in Sensory Physiology
Prerequisite: Permission of instructor.
Spring, 3 credits

BNB 542 Neurophysiological Techniques
Prerequisite: Permission of instructor.
Spring, 3 credits

BNB 543 Topics in Animal Behavior and Physiology
Fall, 3 credits

BNB 547 Readings in Neurophysiology
Prerequisite: Permission of instructor.
Fall and spring, 3 credits

BNB 548 Readings in Animal Behavior
Prerequisite: Permission of instructor.
Fall and spring, 3 credits

BNB 549 Computer Analysis of Biological Communication
Prerequisite: Permission of instructor.
Fall, 3 credits

BNB 583-586 Special Seminars
Variable and repetitive credit

BNB 599 Research
Fall and spring, credit to be arranged

BNB 693-696 Advanced Seminars
Variable and repetitive credit

BNB 697 Advanced Neurobiology and Behavior Seminar
Prerequisite: Permission of instructor.
Fall and spring, 3 credits

BNB 699 Research
Prerequisite: Advancement to Ph.D. Candidacy.
Fall and spring, credit to be arranged

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Courses for High School Teachers

BHT 560 Comparative Physiology of Marine Organisms
Fall, 3 credits

BHT 561 Human Genetics
Spring to fall, alternate years, 3 credits

BHT 563 Research Techniques for High School Teachers
Spring, 3 credits

BHT 571 Biology and Ethics
Spring, 3 credits

BHT 580 Special Topics in General Biology for High School Teachers
Fall and spring, 3 credits

BHT 593-598 Special Seminars
Variable and repetitive credit

BHT 599 Research
Fall and spring, credit to be arranged

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Courses in Marine Environmental Studies

MAR 501 Physical Aspects of the Marine Environment
Fall, 3 credits

MAR 502 Topics in Biological Oceanography
Spring, 3 credits

MAR 503 Chemical Oceanography
Fall, 3 credits

MAR 504 Circulation, Exchange and Transport Processes
Spring, 3 credits

MAR 511 Techniques and Instrumentation in Marine Science Part I
Fall, 3 credits

MAR 512 Techniques and Instrumentation in Marine Science Part II
Spring, 2 credits

MAR 521 General Problems of the Marine Environment
Fall, 3 credits

MAR 522 Case Studies in Environmental Problems
Spring, 3 credits

MAR 544 Environmental Law
Spring, 2 credits

MAR 550 Topics in Marine Sciences
Fall or spring, variable and repetitive credit

MAR 553 Fishery Management
Fall, 3 credits

MAR 580 Seminar
Fall and spring, 1 credit, repetitive

MAR 590 Research
Fall and spring, variable and repetitive credit

Continuing Education

CENTER FOR CONTINUING EDUCATION

Dean of Continuing and Developing Education: Kreuter (Acting)

Associate for Continuing Education: Fusco

Assistant Dean: Kempner (Acting)

Assistant for Continuing Education: Lett

The Center for Continuing Education is the arm of the State University of New York at Stony Brook that reaches beyond the traditional concerns of the academic disciplines to the community at large, to persons who would not otherwise be able to use the University's facilities, services, and knowledge. Through the Center for Continuing Education, the University makes a contribution to society by providing lifelong opportunities to part-time students. At the present time the Center offers a terminal M.A. degree in Liberal Studies. This degree is not a prerequisite for any doctoral program at the University, nor will it guarantee admission to any graduate department. The MA/LS program is based on 30 credits of graduate study distributed in such a way as to provide an interdisciplinary learning experience. It requires no thesis or comprehensive examination.

Admission to the MA/LS Program

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.

Requirements for Matriculation

To be admitted as a matriculated student, an applicant must have obtained a B average during the last two years of his undergraduate studies, or have completed 6 credits of B or better in graduate work at an accredited institution of higher learning. Baccalaureate holders who do not meet these requirements will be admitted as non-matriculated students but may become matriculated in one of the following ways:

A. Complete six credits of graduate courses at Stony Brook with grades of B or better. (These credits may be included among the 30 credits required for the degree.)

B. Take the Graduate Record Examination Aptitude Test and secure a combined score of 1200.

Special Student Status

Students who do not hold a baccalaureate or advanced degree and who wish to take courses in the Center for Continuing Education may petition the CED Academic Standing Committee for admission as a special student. Individual cases are judged on their merits. All special students are admitted on a non-matriculated basis, pending satisfactory completion of specified requirements.

Requirements for the MA/LS Degree

A. Formal course requirements: Students are required to divide their 30 graduate credits among the three general subject areas: Natural Sciences, Social and Behavioral Sciences, Arts and Humanities, as follows:

1. a minimum of nine credits from each of two general areas.
2. a minimum of six credits from the third general areas.
3. six remaining credits chosen from any of the three areas a student desires.

Natural Sciences—includes all CEB or CEN courses, appropriate CEI courses, and graduate courses from the Departments of Biological Sciences, Chemistry, Earth and Space Sciences, Mathematical Sciences, Physics, College of Engineering.

Social and Behavioral Sciences—includes all CEE, CEM, CES or CET courses, appropriate CEI courses, and graduate courses from the Departments of Anthropology, Economics, History, Psychology, Sociology.

Humanities and the Arts—includes CEH courses, appropriate CEI courses and graduate courses from the Departments of Art, English, Philosophy, Music, French, Germanic Languages, Hispanic Languages.

Admission to all courses outside the Center's offerings is by permission of the department concerned and depends on the satisfactory fulfillment of the department's academic requirements and on the availability of space.

B. Time Limit: All requirements for the MA/LS degree must be completed within seven years of admission to the program.

C. Work Load: No students may register for more than eight hours or more than two courses per semester except under extraordinary circumstances and with the approval of the CED Academic Standing Committee.

D. Performance: Students in the MA/LS Program are expected to maintain a B average (3.0). Any matriculated student who accumulates two grades of C or below will be automatically dematriculated. Rematriculation will be considered by the Committee on Academic Standing of CED upon the student's petition after completion of 6 credits of grade B or better. A dematriculated student who receives

two further grades of C or below—a total of four grades below B during his attendance at Stony Brook—will be ineligible for rematriculation. Such students may continue to take courses on a non-matriculated basis for as long as they like, but will not be readmitted to candidacy for the degree.

Transfer Credit

A maximum of 6 graduate credits taken at accredited institutions may be transferred toward the MA/LS degree, but no courses will be considered for transfer until after a student has completed one course as a CED student. Transfer is not automatic. All credit transfers must be approved on a course-by-course basis by the appropriate academic departments. These credits must be less than ten years old at the time the student is admitted and must carry grades of A or B. Courses used to fulfill degree requirements at other institutions may not be transferred.

New York State Teaching Certification

A. Provisional certification: This program requires education courses and fulfillment of a fulltime practice teaching requirement. While education courses are available to post-baccalaureate students at SUNY at Stony Brook, student teaching *is not.*

B. Permanent certification: It is possible for persons with provisional certification to meet the requirements for permanent certification by fulfilling the requirements for the MA/LS degree. To determine individual requirements, interested persons should call or write to the nearest Regional Teacher Certification Office or directly to the Bureau of Teacher Certification in Albany.

Applications

Applications and further information may be obtained by writing or calling:

Center for Continuing Education
Room 198, Humanities Building
State University of New York at Stony Brook
Stony Brook, New York 11794
Telephone: (516) 246-5936

Applications for admission to CED must be received for the fall semester by July 15; for the spring semester by November 15. The MA/LS program does not normally admit students initially for the summer term, but applications received before March 15 of any year, will be considered for admission in the next summer term.

Applied Mathematics and Statistics
Computer Science
Electrical Sciences
Materials Science
Mechanics

The Engineering and Applied Sciences

GRADUATE PROGRAMS IN ENGINEERING SCIENCES

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

Admission to Graduate Study

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

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

Requirements for the M.S. Degree

A. The M.S. degree in the College of Engineering and Applied Sciences requires the satisfactory completion of a minimum of 30 graduate credits.

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

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

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

Requirements for the Ph.D. Degree

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

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

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

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

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

F. Dissertation: The most important requirement 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 compatible with the publication standards of appropriate and reputable scholarly journals.

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

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

DEPARTMENT OF APPLIED MATHEMATICS AND STATISTICS

For detailed description of admission requirements and degree programs, see page 124.

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DEPARTMENT OF COMPUTER SCIENCE

For detailed description of admission requirements and degree programs, see page 128.

DEPARTMENT OF ELECTRICAL SCIENCES

Professors: Braun, Chang, Chen, Marsocci, Piel (*Adjunct*), D. Smith, Stroke, Thomas (*Chairman*), Truxal

Associate Professors: Carleton, Dollard, Rappaport, Tuan

Assistant Professors: Barry, Harrison, E. Lee, Liao (*Adjunct*), Short, Wayne

M.S. and Ph.D. Degrees

The Department of Electrical Sciences offers graduate programs leading to the M.S. and Ph.D. degrees. Graduate Programs are tailored to the needs of each student so as to provide a strong analytical background helpful to the study of advanced engineering problems. Ample opportunities exist for students to initiate independent study and to become involved in active research programs, both experimental and theoretical. In addition to its emphasis on modern electrical engineering, the department participates in interdepartmental graduate programs in computer science and in urban and policy science; these are described in adjoining sections of this *Bulletin.*

Some of the research areas currently under investigation by faculty members and graduate students of the department include the following: optimal control theory, systems theory, modern energy conversion, digital communications techniques, pattern recognition, synthesis of logic networks, artificial intelligence, systems programming, laser physics, non-linear optics, electromagnetic waves in plasmas, microwave acoustics and integrated optics, coherent optics and holography, solid state electronics, magneto-optics.

Evening Extension M.S. Degree Program

This program is designed to help practicing engineers meet today's advancing technology. A set of carefully selected courses fulfilling the requirements of the M.S. degree in Electrical Sciences is offered in two-year cycles during evening hours at the campus of the College at Old Westbury, SUNY. 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.

Combined BE-MS Degrees

Undergraduate students may enter this special 5 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 M.S. degree and for the M.S. Thesis.

M.S. in Applied Science Degree

The department also offers a part-time applied science program which leads to the M.S. in Applied Science degree.

Requirements for Graduate Degrees

The faculty of the Electrical Sciences Department has set the following regulations, which are in addition to the College of Engineering requirements.

Immediately upon arrival, every graduate student entering the department is assigned by the graduate program chairman to a temporary advisor, with whom the student plans the first semester of courses. Before the start of the second semester a student should seek the permission of a faculty member to act as research advisor, and with his approval compose a plan of course work which is then filed with the graduate program chairman. Any subsequent changes of advisor or courses should also be reported to the graduate program chairman. To qualify for the M.S. degree a student must either pass a comprehensive written examination or complete a thesis. There is no residence requirement for the M.S. degree. Passing of the doctoral qualifying examination is one of the requirements for the Ph.D. degree. The residence requirement for the Ph.D. is two consecutive semesters of full-time study. Both the M.S. comprehensive examination and Ph.D. qualifying examination are normally given once each semester.

Financial support in the department is subject to annual review by the faculty based on available funds and satisfactory progress. Such support is not normally renewed for M.S. candidates after the second year.

There can be identified, within the total body of graduate courses offered by the Department of Electrical Sciences, sequences which, together with associated research work, constitute a program in specific subject areas of academic interest. These sequences provide a means for the student to focus his work, in depth, within an area of specialization for the M.S. or the Ph.D. degree. The listings below are given as a guide and are not intended to represent a required sequence of courses. It is to be especially noted that the sequences are of a multidisciplinary nature.

Graduate Program in Systems Science and Engineering

Since the research emphasis and the applications of systems sciences have been broadened to include socio-economic, urban, transportation, power-distribution and health-services systems, a considerable expansion in faculty-student interests and closer ties with other related departments is necessary to meet this rising challenge. The present academic and research programs in Electrical Sciences form an excellent basis for such activities. The relevant course sequence is: ESE 502, ESE 503, ESE 531–532, ESE 535, ESE 539, ESE 540, ESE 541, ESE 542, ESE 543–544, ESE 545, 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 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. The course offerings which relate to these subject areas are: ESE 510, ESE 511, ESE 512, ESE 514, ESE 515, ESE 516–517, ESE 518, ESE 610. Relevant courses from other departments include: ESM 536, ESM 615, ESM 618, ESM 652–653, PHY 511–512, PHY 540, PHY 555, CHE 521–522.

Graduate Program in Biomedical Systems Engineering

The Department of Electrical Sciences has established graduate-course offerings in the subject areas of biomedical systems engineering and bioelectronics. Research work in these areas is presently underway and is expanding. The course offerings from which the student may make a selection include: ESE 570, ESE 660, ESE 535, ESE 540, ESE 516–517, ESE 542, HBY 532, HBY 551, HAD 510, BIO 544.

Graduate Program in Applied Sciences

This is a 30-credit part-time M.S. program intended for secondary school and community college educators and others who are interested in design, and implementation of inter-disciplinary curricula, and the application of science and technology to education. A bachelors degree in Engineering, natural sciences or social sciences and an average of B in course work is required for admission into the program. The unique feature of the program is its flexibility to meet individual needs and interests. Only five courses, CEN 580, CEN 581, CEN 582, ESE 583, and ESE 584 are required courses. The other 15 credits may be selected from other departments.

Courses

ESE 501 Graduate Laboratory in Electrical Sciences
3 credits

ESE 502 Deterministic Systems
3 credits

ESE 503 Stochastic Systems
3 credits

ESE 504 Random Processes in Communications
Prerequisite: ESE 503 or permission of the instructor.
3 credits

ESE 510 Fundamentals of Physical Electronics
3 credits

ESE 511 Solid State Electronics I
3 credits

ESE 512 Solid State Electronics II
3 credits

ESE 514 Semiconductor Electronics
Prerequisite: ESE 511.
3 credits

ESE 515 Quantum Electronics I
3 credits

ESE 516, 517 Integrated Electronic Devices and Circuits I and II
3 credits each semester

ESE 518 Quantum Electronics II
3 credits

ESE 520 Electronics II—Fundamentals of Electromagnetics
3 credits

ESE 521 Applied Electromagnetic Theory
3 credits

ESE 522 Wave Propagation in Plasma
3 credits

ESE 523 Integrated and Fiber Optics
3 credits

ESE 531 Theory of Digital Communications I
3 credits

ESE 532 Theory of Digital Communication II
Prerequisite: ESE 531.
3 credits

ESE 539 Communications, Transportation and Power Nets
3 credits

ESE 541 Discrete Time Systems
Prerequisite: ESE 502.
3 credits

ESE 542 Non-Linear Control Systems
Prerequisites: ESE 315 or ESE 502.
3 credits

ESE 543, 544 Optimum Design of Feedback Control Systems I and II
3 credits each semester

ESE 545 Computer Architecture
Prerequisite: ESE 318.
3 credits

ESE 546 Analysis and Synthesis of Computer Communication Networks
3 credits

ESE 547 Digital Signal Processing
3 credits

ESE 551 Switching Theory and Sequential Machines
Prerequisite: ESE 318 or equivalent.
3 credits

ESE 560, 561 Optical Information Processing
Prerequisites: Bachelors degree or equivalent in the physical sciences or biological sciences. Mathematics training through calculus.
3 credits each semester

ESE 570 Bioelectronics
3 credits

ESE 597 Practicum in Engineering
Variable and repetitive credit

ESE 599 Research
Variable and repetitive credit

ESE 610 Seminar in Solid State Electronics
3 credits

ESE 630 Seminar in Communication Theory
3 credits

ESE 640 Seminar on Systems Theory
3 credits

ESE 650 Advanced Topics in Digital Systems
3 credits

ESE 660 Seminar in Biomedical Systems Engineering
Prerequisites: ESI 310, ESE 370 or equivalent.
Spring, 3 credits

ESE 670 Topics in Electrical Sciences
Variable, repetitive credit

ESE 698 Practicum in Teaching
Variable, repetitive credit

ESE 699 Research
Variable, repetitive credit

Courses CEN 580, 581, 583, and ESE 583, 584, and 585 are for the M.S. program in Applied Science.

CEN 580 Socio-Technological Problems
3 credits

CEN 581 Decision-Making in Technology-People-Environment Problems
3 credits

CEN 582 Systems Approach to Technology-People-Environment Problems
3 credits

ESE 583 Computer Literacy
3 credits

ESE 584 Project Seminar in Applied Science
Prerequisite: CEN 581.
3 credits

ESE 585 Independent Study in Applied Science Education
Prerequisite: CEN 582.
Up to 3 credits

DEPARTMENT OF MATERIALS SCIENCE

Professors: Goland (*Adjunct*), [a]Herman (*Chairman*), Jona, S. Levine, Nathans, Prewitt, Seigle, F. Wang

Associate Professors: Bilello, Carleton, Jach, Preece, [a]Siegel, Strozier (*Adjunct*)

Assistant Professor: Herley

The Department of Materials Science 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. Current research interests of the faculty include studies of the structure and properties of metals and ceramics, imperfections in solids, mechanical properties, thermodynamics, diffusion in solids, phase transformations, mechanisms of solid state sintering, surface structure, x-ray and neutron diffraction, radiation effects, magnetism, optical properties, amorphous materials, marine materials, composite materials and deterioration of materials.

Surface Science and Technology

A multidisciplinary laboratory has been established within the Department of Materials Science 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.

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[a] On leave

In addition to the College of Engineering 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 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 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 to the Graduate Program Committee of the Materials Science 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 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 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. Students entering with an M.S. degree, and who are considered by virtue of background and experience to be well qualified by the Graduate Program Committee, with the concurrence of the department faculty, shall not be required to take the 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 Program 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 Department, and one member from outside the department. Students entering the program with a baccalaureate degree must take the Preliminary Examination before the end of the 5th semester. If a second examination is required, this must be completed by the 10th week of the 6th semester. Students entering the program with a masters degree must complete the examination by the 10th week of the second semester.

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

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

G. *Defense:* The candidate shall defend the dissertation before an examining committee consisting of four members including the research advisor, two members of the Materials Science Department, and one member from outside the department.

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

Courses

ESM 502 Techniques of Materials Science
4 credits

ESM 506 Mechanical Properties of Engineering Materials
3 credits

ESM 509 Thermodynamics of Solids
3 credits

ESM 510 Kinetic Processes in Solids
3 credits

ESM 511 Imperfections in Crystals
3 credits

ESM 525 Diffraction Techniques and the Structure of Solids
4 credits

ESM 526 Materials and Environment
3 credits

ESM 530 Physical Properties of Polymers
3 credits

ESM 536 Electronic Properties of Solids
3 credits

ESM 537 Electric and Magnetic Polarization of Materials Science I
3 credits

ESM 540 Advanced Techniques of Materials Research
4 credits

ESM 550 Statistical Theory of Matter
Prerequisite: ESM 509.
3 credits

ESM 551 Materials in Medical and Dental Sciences
3 credits

ESM 555 Processing of Materials
Prerequisite: Permission of the instructor.
3 credits

ESM 570 Chemical Foundations of Biomedical Engineering
3 credits

ESM 599 Research
Variable and repetitive credit

ESM 603 Surfaces and Interfaces
3 credits

ESM 606 Strength and Plasticity of Solids
3 credits

ESM 609 Diffusion in Solids
3 credits

ESM 610 Phase Transformations
Prerequisite: ESM 515.
3 credits

ESM 615 Electron Theory of Solids
3 credits

ESM 620 Theory of Diffraction
Prerequisite: ESM 520 or permission of instructor.
3 credits

ESM 652 Optical Properties of Matter
3 credits each semester

ESM 656 Advanced Thermodynamics of Solids
Prerequisite: ESM 509.
3 credits

ESM 696 Special Problems in Materials Science
3 credits, repetitive

ESM 697 Materials Science Colloquium
1 credit, repetitive

ESM 698 Practicum in Teaching
3 credits, repetitive

ESM 699 Research
Variable and repetitive credit

DEPARTMENT OF MECHANICS

Professors: Berlad, Bradfield *(Chairman),* Castleman *(Adjunct),* Cess, Chiang, Irvine, R. S. Lee, O'Brien, Stell, Tasi, C. H. Yang

Associate Professors: Chevray, S. Harris, Hogan (*Visiting*), Varanasi, L. S. Wang

Degree Programs

The Department of Mechanics offers graduate work leading to the Master of Science and Doctor of Philosophy degrees. The department offers a broad program emphasizing fundamental knowledge in the basic academic areas of energy transfer and thermokinetics, thermodynamics, solid mechanics, and fluid mechanics. Faculty research interests include convective and radiative heat transfer, magnetohydrodynamics, statistical mechanics, gas dynamics, turbulence, combustion, thermokinetics, photoelasticity, theory of structure, anelasticity, fluid mechanics, solid mechanics, biomechanics, experimental methods, atmospheric study, fire research, and suspension flows. In each area students are encouraged to participate in research. Only two areas are required for Ph.D. Preliminary Examinations.

Requirements for the M.S. and Ph.D. degrees are listed on pages 33-35. In addition, for admission to the doctoral program in the Department of Mechanics, a defense of a Ph.D. thesis proposal is required as part of the preliminary examination, unless the student has earned his masters degree, with thesis.

The residence requirement for the Ph.D. degree is two consecutive semesters of full-time study; there is no residence requirements for the M.S. degree.

Laboratory for Planetary Atmospheres Research

The Laboratory for Planetary Atmospheres Research (LPAR) comprises an interdepartmental teaching and research program for students interested in the physics and chemistry of the atmospheres of the Earth and other planets. This program is available to students in the College of Engineering and Applied Science and the Division of Physical Sciences. A graduate student in any of the departments of these divisions may, with the consent of his or her chairman, elect to participate in the program. The basic degree requirements are set by the department in which the student is enrolled; they are the same as those for any other student in that department. The student will normally be advised to take two or more courses from the list drawn up by the LPAR faculty in order to obtain a basic background in the atmospheric sciences. He or she must then satisfy departmental requirements regarding a preliminary examination. However, a major portion of this examination will be devoted to problems in atmospheric physics and chemistry; at least one member of the examining

committee will be from the LPAR faculty. A research advisor for the dissertation will normally be selected from the LPAR faculty, subject to the approval of the department chairmen.

Courses

ESC 501 Convective Energy Transfer
3 credits

ESC 502 Radiative Energy Transfer
3 credits

ESC 503 Heat Conduction and Heat Exchangers
3 credits

ESC 511, 512 Advanced Fluid Mechanics I and II
3 credits each semester

ESC 513 Transport Phenomena
3 credits

ESC 514 Introduction to Turbulence
3 credits

ESC 515 Dynamical Meteorology
3 credits

ESC 516 Climatology
3 credits

ESC 521, 522 Energy Transfer in Gases I and II
3 credits each semester

ESC 524 Statistical Mechanics
3 credits

ESC 528 Introduction to Experimental Stress Analysis
3 credits

ESC 529 Vehicular Dynamics
3 credits

ESC 530 Viscous Fluids
3 credits

ESC 531 Compressible Gas Dynamics
3 credits

ESC 532 Structural Dynamics
3 credits

ESC 533 Statistical Theory of Fluids
3 credits

ESC 534 Magnetofluid Dynamics
3 credits

ESC 535 Dynamical Oceanography
3 credits

ECS 537 Experimental Fluid Mechanics
3 credits

ESC 540 Geophysical Fluid Dynamics
3 credits

ESC 541, 542 Elasticity I and II
3 credits each semester

ESC 543 Plasticity
3 credits

ESC 545 Theoretical Meteorology
3 credits

ESC 551 Mechanics of Continua
3 credits

ESC 552 Analysis of Composite Solids
3 credits

ESC 561 Photoelasticity
3 credits

ESC 591 Thermodynamics
3 credits

ESC 599 Research
Variable and repetitive credit

ESC 601 Nonlinear Mechanics
3 credits

ESC 611 Advanced Reactive Media I
3 credits

ESC 612 Advanced Reactive Media II
3 credits

ESC 613 Phase Transitions and Critical Phenomena
3 credits

ESC 614 Applications of Equilibrium Statistical Mechanics
3 credits

ESC 615 Seminar in Radiative Transfer
3 credits

ESC 616 Topics in Climatology
Prerequisite: ESC 515, 516
3 credits

ESC 620 Chemical Kinetics of Combustion & Atmospheric Reactions
3 credits

ESC 621 Combustion Theory
3 credits

ESC 622 Environmental Fluid Mechanics
3 credits

ESC 625 Turbulent Diffusion
3 credits

ESC 631 Kinetic Theory
3 credits

ESC 632 Non-Equilibrium Statistical Mechanics
3 credits

ESC 642 Advanced Mechanics of Continua
3 credits

ESC 661 Measurements System Design
3 credits

ESC 671 Interferometric Methods in Experimental Stress Analysis
3 credits

ESC 681 Planetary Atmospheres
3 credits

ESC 696 Special Problems in Mechanics
3 credits, repetitive

ESC 698 Practicum in Teaching
3 credits, repetitive

ESC 699 Research
Variable and repetitive credits

Allied Health Professions
Basic Health Sciences
Dental Medicine
Medicine
Nursing
Podiatric Medicine
Social Welfare

The Health Sciences

The Health Sciences Center is an integral part of the Stony Brook campus, offering a comprehensive education in the health professions. It consists of seven Schools set up to provide the special education needed for the training of the total range of health professionals: the Schools of Allied Health Professions, Basic Health Sciences, Dental Medicine, Medicine, Nursing, Podiatric Medicine and Social Welfare. These Schools receive support services in academic, scientific and administrative functions that are common to the programs and needs of more than one School from the following divisions: Biomedical Computer Services, Media Services, Laboratory Animal Resources, Social Sciences and Humanities, the Health Sciences Center Library and the Office of Student Services.

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: Brookhaven National Laboratory Hospital; Long Island Jewish-Hillside Medical Center/Queens Hospital Center; Nassau County Medical Center; and Northport Veterans Administration Hospital. An agreement has also been signed between the Health Sciences Center and the Hamptons Hospital and Medical Center, currently being built in Westhampton Beach, establishing this as a future clinical campus for Stony Brook. In addition, the Schools have limited affiliation agreements with other hospitals in the region including: Central Islip Hospital, Good Samaritan Hospital, Huntington Hospital, Mercy Hospital, Nassau Hospital, North Shore Hospital, Saint Francis Hospital, Saint Charles Hospital, Saint John's Hospital, South Nassau Communities Hospital, South Oaks Hospital and Southside Hospital.

All the Schools, except the School of Podiatric Medicine, are now in operation with a combined full and part time student enrollment of approximately 1,000. At present, the Health Sciences Center is in

temporary facilities located on the south campus occupying nine "surge" buildings; and on the main campus occupying facilities in the laboratory/office building and in the graduate biology building. By the end of the 1970's when the Health Sciences Center is expected to be fully functioning, the 250-acre campus site will house a total of 3500 full-time undergraduate and graduate students and an equal number of students in continuing and part-time clinical education.

Construction is planned in three stages. The permanent facility, stage I, will be housed in a three-tower megastructure on the east side of Nicolls Road adjacent to the main campus. Six of the Schools —Allied Health Professions, Basic Health Sciences, Medicine, Nursing, Podiatric Medicine and Social Welfare—will occupy this one building which will also have a library, classrooms, and a computer center.

Second stage plans encompass a 550-bed university hospital that will serve the Nassau-Suffolk community as a teaching hospital and a tertiary care facility. The final stage of the Health Sciences Center complex will be a Basic Health Sciences building and a Dental School.

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 and divisions:

School of Allied Health Professions
Division of Administrative Programs
Division of Community and Mental Health Programs
Division of Diagnostic Programs
Division of Therapeutic Programs

School of Basic Health Sciences
Department of Anatomical Sciences
Department of Biochemistry
Department of Biomathematics
Department of Microbiology
Department of Pathology
Department of Pharmacological Sciences
Department of Physiology and Biophysics

School of Dental Medicine
Department of Children's Dentistry
Department of Dental Health
Department of Oral Biology
Department of Oral Surgery
Department of Periodontics
Department of Restorative Dentistry

School of Medicine

Department of Anesthesiology
Department of Community Medicine
Department of Family Medicine
Department of Medicine
Department of Neurology
Department of Obstetrics and Gynecology
Department of Pediatrics
Department of Psychiatry
Department of Radiology
Department of Surgery

School of Podiatric Medicine

Department of Podiatric Biomechanics
Department of Podiatric Medicine
Department of Podiatric Surgery
Department of Public Health and Community Podiatry

School Information: Specific and detailed information about the professional programs offered by the seven schools is contained in the *Health Sciences Center Bulletin.* Since the Center's training of health professionals requires special academic programming and supportive services, significant sections of the data contained in this *Graduate Bulletin* are *not* applicable to the Health Sciences Center; e.g. admission procedures and requirements; registration; student services; educational expenses; financial aid; and academic calendar.

The *Health Sciences Center Bulletin* can be obtained by writing or telephoning the Health Sciences Center Office of Student Services (516-444-4211), or at the Office of the Dean of a specific school.

The School of Allied Health Professions

Program Leading to the Degree of Master of Science in Health Services Administration: The Division of Administrative Programs offers a masters program in Health Services Administration where qualified candidates are trained in the theory and methodology of administering high quality medical service. Requirements for the masters degree include 54 semester hours of didactic work, 7 months of full-time administrative residency, and a masters thesis. All questions concerning admission to this graduate program of the School of Allied Health Profession should be addressed to:

Thomas Dunaye, Dr.P.H.
Director of Administrative Programs
School of Allied Health Professions
Health Sciences Center
State University of New York at Stony Brook
Stony Brook, New York 11794
(516) 444-2253

Program Leading to the Degree of Master of Science in Allied Health Sciences: The program leading to the degree of Master of Science in Allied Health Sciences was first offered in Fall 1974. It is open to qualified, experienced professionals in any health field who now wish to direct their careers into teaching, supervisory, or research roles. The program requires completion of 44 credits of study, including a six month internship or practicum. All students will complete a required "core" program, plus an individually-planned sequence of courses chosen in consultation with a special committee of three faculty members. Both full-time and part-time students are accepted in this program.

Eligibility Requirements: This program is open ONLY to fully qualified members of the health or allied health professions with prior experience in the practice of their profession. Applicants must be credentialed by whatever mechanism is appropriate in their specific field (registration, certification, or licensure); proof of such qualification will be required. A minimum of one year of practice is also required; ordinarily, more than one year will be necessary for admission. Possession of a recognized baccalaureate degree will be required except in very exceptional circumstances.

Further information may be obtained from the project director:

Martin H. Rosenfeld, Ph.D.
Assistant Dean for Graduate Program
School of Allied Health Professions
Health Sciences Center
State University of New York at Stony Brook
Stony Brook, New York 11794
(516) 444-2258

Basic Health Sciences

The School of Basic Health Sciences offers programs leading to the Ph.D. degree in Anatomical Sciences, Microbiology, Pathology, Pharmacological Sciences and Physiology and Biophysics. These programs are designed to lead to careers in research and teaching. The currently-offered programs are described on the following pages.

Dental Medicine

The School of Dental Medicine: Admission to the school is highly selective. The School of Dental Medicine does not have a separate application form but participates in the centralized American Association of Dental Schools Application Service. The pre-doctoral program will lead to a dental degree after a period of approximately 3½ years of study containing about 4900 hours of clinical and non-clinical instruction.

Medicine

The School of Medicine: Admission to the school is highly selective and students must take the Medical College Admissions Test in the year prior to the year for which admission is being sought to be considered for acceptance. The school offers a four-year program leading to the M.D. degree.

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

The Committee on Admissions (name of School)
Health Sciences Center
State University of New York
Stony Brook, New York 11794
(516-444-2113)

Nursing

Plans are underway for the School of Nursing to offer a full-time, two-year multidisciplinary Master of Science program for the preparation of nurse-practitioners in Family Health Care and Critical Care Management. The curriculum will include a third track combining nursing and administration of health services. All questions concerning future admission requirements, application and admission procedure should be addressed to

Dr. Lenora McClean
Director Graduate Program in Nursing
School of Nursing
Health Sciences Center
State University of New York at Stony Brook
Stony Brook, New York 11794
(516-444-2380)

Social Welfare

The School of Social Welfare: This school offers an MSW degree, a 4-semester program which includes academic courses and field work. The curriculum in the School of Social Welfare is organized into three concentrations:

1. intervention with individuals, families and small groups,
2. theory and analysis,
3. policy planning, research, administration and community organization.

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

Director of Admissions
School of Social Welfare,
Health Sciences Center,
State University of New York at Stony Brook,
Stony Brook, New York 11794
(516-444-2143)

SCHOOL OF BASIC HEALTH SCIENCES

Dean:
Upton

Associate Dean:
Fusco

The preclinical disciplines fundamental to the health professions are organized in a School of Basic Health Sciences. These disciplines are represented by Departments of Anatomical Sciences, Microbiology, Pathology, Pharmacological Sciences, and Physiology and Biophysics. Also included for certain administrative purposes is the Department of Biochemistry which is housed in the Division of Biological Sciences. These departments, in conjunction with appropriate components of the Division of Biological Sciences, has principal responsibility for preclinical instruction of students in all schools of the Health Sciences Center. It also has university-wide responsibility to students in all other schools on the campus, as well as on affiliated clinical campuses, for undergraduate and graduate training and research in the disciplines basic to health.

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.*

DEPARTMENT OF ANATOMICAL SCIENCES

Professors: Dewey (*Chairman*), [1]Fusco, [a]Inke, Karten, Twarog, Witkowsky

Associate Professors: Creel, Stern, Williamson

Assistant Professors: Blaustein, L. T. Brown, Gordon, Hauber, Irving, B. Walcott, Wells

DEPARTMENT OF BIOCHEMISTRY

Professors: Cirillo, E. Shaw (*Adjunct*), M. Simpson

Associate Professors: [a]Arnheim, Dudock, [a]Freundlich (*Acting Chairman*), Gesteland (*Adjunct*), Inouye, Moos, Riley, Studier (*Adjunct*)

Assistant Professors: Sarma, Scandella, Schmidt, S. Simon, R. Sternglanz

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[1] Associate Dean of the School of Basic Health Sciences
[a] On leave

DEPARTMENT OF MICROBIOLOGY

Professor: Kates (*Chairman*)

Associate Professors: Bauer, Delihas, Kim, Pollack, Wimmer

Assistant Professors: Bukhari (*Adjunct*), C. A. Carter, Gough, Keegstra, Ohtsubo

DEPARTMENT OF ORAL BIOLOGY AND PATHOLOGY

Professors: Kleinberg (*Chairman*), Leon Eisenbud

Associate Professors: Garant, Golub, Gwinnett, Kaufman, McNamara, Pollock

Assistant Professor: Taichman

DEPARTMENT OF PATHOLOGY

Professors: Janoff, Kuschner (*Chairman*), Sokoloff, Upton

Associate Professors: Lane, F. Miller

Assistant Professor: Habicht

Instructor: Malemud

DEPARTMENT OF PHARMACOLOGICAL SCIENCES

Professors: Albert, Grollman (*Chairman*), F. Johnson, Reich (*Visiting*)

Associate Professor: Raisefeld (*Adjunct*)

Assistant Professors: Eisenberg, Horwitz (*Visiting*), D. Williams

DEPARTMENT OF PHYSIOLOGY AND BIOPHYSICS

Professors: LeFevre, Levy, Van der Kloot (*Chairman*)

Associate Professor: Mendelson

Assistant Professors: Fara, Masiak, McLaughlin

Graduate Programs in Basic Health Sciences

Doctoral programs are being offered in Anatomical Sciences, Microbiology, Pathology, Pharmacological Sciences, and Physiology and Biophysics. Each program is under the direction of its own program chairman and executive committee. Students wishing to pursue a combined M.D.-Ph.D. program should apply for admission to both Schools (BHS and Medicine), since admission to one program does not guarantee admission to the other. The programs are briefly described in the following sections.

Anatomical Sciences

The program in Anatomical Sciences offers graduate studies in four broad areas: Developmental Anatomy, Microscopic Anatomy, Macroscopic Anatomy, and Neuroscience. The Program in *Developmental Anatomy* includes genetics, embryology, developmental mechanisms, and fetal biometrics. The *Microscopic Anatomy* Program emphasizes the structure and function of biological membranes, cell organelles, motile and excitable tissues. The program in *Macroscopic Anatomy* consists of biomechanics and biometrics in human and vertebrate anatomy, and physical anthropology, including primatology. The *Neuroscience* Program emphasizes invertebrate and vertebrate neuroanatomy and neurophysiology, and it includes neurocytology, neurohistology, electrophysiology, and animal behavior. Further details of the program in Anatomical Sciences may be obtained from the program chairman, Dr. Jack T. Stern.

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 *prokarytotic systems,* including bacteria and bacteriophages; *animal viruses* and the virus-host relationship; *eukaryotic cells,* including the biochemistry of cell surfaces; and *subcellular systems,* including nucleic acids and biological control mechanisms. The required course work will be designed to cover cell biology, biochemistry, genetics, molecular biology and developmental biology. Students are given the opportunity initially to conduct short-term research projects in two or three different laboratories, followed by concentration on a major, dissertation research project. Further details may be obtained from the Graduate Advisor, Dr. William Bauer.

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. Aaron Janoff.

Pharmacological Sciences

The program in Pharmacological Sciences is interdisciplinary and includes the opportunity for graduate studies in *Endocrinology, Neurobiology, Biochemical Pharmacology* and *Medicinal Chemistry.* Alternatively, graduate students and their preceptors may choose to

participate in interdepartmental programs of *Molecular Biology* and *Chemical Biology*. The curriculum is directed towards developing a broad understanding of chemical and biological principles that underlie the action of drugs, chemicals, and hormones on living cells. Further details may be obtained from the program director, Dr. Moises Eisenberg.

Physiology and Biophysics

Two curricular tracks are available, the first for students with broad interests in Physiology and Biophysics, and the second for students who are interested in those aspects of physiology more closely related to clinical medicine. As many of the departmental members are actively engaged in research in neurobiology and the molecular biology of cell membranes, the first track should be particularly attractive to students with interests in these areas. Students with a solid background in some branch of the natural sciences but with little formal training in biology are especially invited to inquire further about the program. For the second track, the first year curriculum is similar to that for beginning medical students, save for appropriate modification of clinical training. Further details concerning the programs in Physiology and Biophysics may be obtained from the program chairman, Dr. Stuart McLaughlin.

Interdisciplinary Programs

Biochemistry

An interdisciplinary graduate program in Molecular Biology is offered by the Department of Biochemistry along with faculty drawn from other departments in the School of Basic Health Sciences and from other departments in the Division of Biological Sciences, and from the Department of Chemistry. The program accommodates a broad spectrum of interests, from traditionally biochemical areas such as the chemical basis of enzyme action, the physical biochemistry of macromolecules, the structure and function of proteins through the biosynthesis of proteins and nucleic acids, the molecular and cellular basis of gene expression and regulation, membrane structure and function, contractile systems, and ultrastructure. See the Division of Biological Sciences for course listings. Further details may be obtained from the program chairman, Dr. Carl Moos.

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 celluar differentiation. Further details may be obtained from the program chairman, Dr. Israel Kleinberg.

Admission Requirements

A. A baccalaureate degree with the following minimal preparation is required: 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 Graduate Record Examination.

D. Acceptance by the School of Basic Health Sciences and the Graduate School.

In special cases, students not meeting requirements A through C may be admitted on a provisional basis. These students must act to remedy deficiencies within the first year, according to individual departmental requirements.

Requirements for the Ph.D. Degree

A. Minimum residence: Two years of full-time graduate study.

B. Language proficiency: Whether or not foreign language proficiency or a substitute (such as computer programming) is required, is left to the discretion of individual departmental programs.

C. Formal course requirements: Successful completion of an approved course of study (approval is the responsibility of the respective program committee).

D. Candidacy (Preliminary) Examination: At the discretion of the department, the Preliminary Examination may be oral, or written, or both and may consist of a series of examinations. Students will normally apply for the examination after completing the major portion of course work, but no later than the end of the fifth semester of course work. In those departments which require foreign language proficiency tests, the latter must be passed before permission can be granted to take the Candidacy Examination.

E. Advancement to candidacy: The School's recommendation with respect to candidacy for the Ph.D. degree will be based upon satisfactory completion of the above requirements. Advancement to candidacy is granted by the Dean of the Graduate School.

F. Research and dissertation: The general requirements of the Graduate School regarding the Dissertation Examination will be followed.

The M.S. Degree

Where the circumstances surrounding a student's failure to complete the Ph.D. program are sufficiently extenuating, the M.S. degree may be awarded, provided that the following requirements are met:

A. One year residence.

B. Successful completion of an approved course of study (at least 30 graduate semester credits).

C. A comprehensive examination based on course work, and/or departmental approval of a written masters thesis and its successful defense in an oral examination.

Preparation for Teaching

As part of their graduate training, all students are required to participate in teaching activities and to demonstrate mastery of teaching skills.

Graduate Courses

The following is a comprehensive listing of courses in the various programs. For the availability and calendar schedule of individual courses, students should consult the respective program chairman.

Courses

HBA 500 Structure of the Human Body
Prerequisite: Introductroy biology and permission of instructor.
Q1, Q2 and Q3, variable up to 12 credits

HBA 533 Basic Medical Genetics
Q3 and Q4, 2 credits

HBA 561 Techniques in Neurohistology
Prerequisites: CHE 105, 106, 203 or permission of instructor.
Spring, 2 credits

HBA 562 Techniques in Electron Microscopy
Prerequisite: Permission of instructor.
Fall and spring, 2 credits each semester, repetitive

HBA 563 Aspects of Animal Mechanics
Prerequisites: Introductory physics and biology or permission of instructor.
Spring, even years, 2 credits

HBA 590 Projects in Anatomical Sciences
Prerequisite: Permission of instructor.
Fall and spring, 2 credits each semester

HBA 651 Comparative Structure of Muscle
Prerequisite: Permission of instructor.
Spring, even years, 3 credits

HBA 653 Mammalian Genetics
Prerequisites: Basic Genetics and permission of instructor.
Spring, even years, 2 credits

HBA 654 Comparative Neuroanatomy
Prerequisites: Neurosciences or Advanced Neurosciences, Comparative Anatomy or permission of instructor.
Spring, odd years, 3 credits

HBA 655 Neurosciences
Prerequisite: Permission of instructor.
Spring, even years, 3 credits

HBA 656 Comparative Cell and Tissue Biology
Prerequisite: Baccalaureate degree in science or permission of instructor.
Spring, 3 credits

HBA 661 Methods in Research
Prerequisite: Permission of instructor.
Fall and spring, variable credit each semester

HBA 662 Methodology of Macroscopic Anatomy
Prerequisite: Permission of instructor.
Fall and spring, 2 credits each semester

HBA 690 Graduate Seminar
Prerequisite: Permission of instructor.
Fall and spring, 2 credits each semester

HBA 691 Advanced Seminars
Prerequisite: Permission of instructor.
Fall and spring, 2 credits each semester

HBA 692 Advanced Topics in Anatomical Sciences Literature
Prerequisite: Permission of instructor.
Fall and spring, variable credit

HBA 694 Thesis Research
Prerequisite: Permission of thesis advisor.
Fall and spring, variable and repetitive credit

HBA 695 Practicum in Teaching
Prerequisite: Permission of instructor.
Fall and spring, variable and repetitive credit

HBA 760 Postgraduate Clinical Anatomy of the Head and Neck
Prerequisite: Permission of instructor.
Alternate years, zero credit

HBH 531 Pharmacological Basis of Therapeutics
Prerequisite: Permission of staff.
Q4, 3 credits

HBH 541 Medicinal Chemistry
Prerequisite: Permission of instructor.
Fall, odd years, 3 credits

HBH 550 Biophysics
Prerequisite: Physical Chemistry or permission of instructor.
Fall, odd years, 3 credits

HBH 572 Pharmacology: Selectivity of Drugs
Prerequisite: Permission of instructor. Enrollment in this course is limited.
Spring, 3 credits

HBH 680 Selected Topics in Pharmacology
Prerequisite: Permission of instructor.
Fall and spring, variable and repetitive credit

HBH 690 Pharmacology Seminars
Prerequisite: Permission of instructor.
Fall and spring, 1 credit, repetitive

HBH 694 Thesis Research in Pharmacology
Prerequisite: Permission of thesis advisor.
Fall and spring, variable and repetitive credit

HBI 501 Radiation in Biology and Medicine
Prerequisites: Physics, chemistry, biology and permission of instructor.
Fall and spring, 1 credit

HBI 531 Cellular and Molecular Biology
Prerequisite: Permission of instructor.
Q1, Q2 and Q3, 8 credits

HBI 540-549 Organ Systems Analysis
HBI 540—Cardiovascular; HBI 541—Central Nervous; HBI 542—Endocrine; HBI 543—Gastrointestinal; HBI 544—Musculoskeletal; HBI 545—Reproduction, Growth and Development; HBI 546—Respiratory; HBI 547—Reticuloendothelial; and HBI 548—Urinary.
Prerequisite: Permission of graduate advisors.
Q1, Q2, Q3, Q4, variable credit

HBI 561 Research Methods in Basic Health Sciences
Prerequisite: Permission of instructor.
Spring, variable credit

HBM 509-510 Experimental Microbiology
Prerequisite: Permission of instructor.
Fall and spring, variable credit

HBM 590 Literature Reports in Microbiology
Prerequisite: Permission of instructor.
Fall and spring, variable and repetitive credit

HBM 599 Graduate Research
Prerequisite: Permission of instructor.
Fall and spring, variable credit

HBM 614 Cell Surfaces and Recognition Processes
Prerequisite: Permission of instructor.
Spring, even years, lecture and discussion, 3 credits

HBM 690 Microbiology Seminar
Prerequisite: Permission of instructor.
Fall and spring, 1 credit each semester, repetitive

HBM 694 Thesis Research in Microbiology
Prerequisite: Permission of thesis advisor.
Fall and spring, variable credit

HBO 500 Biology of the Oral Mineralized Tissues
Prerequisite: Permission of instructor.
Every second or third year as required, 3 credits

HBO 510 Salivary Metabolism and Secretion
Prerequisite: Permission of instructor.
Every second or third year as required, 3 credits

HBO 520 Oral Microbial Systems
Prerequisite: Permission of instructor.
Every second or third year as required, 3 credits

HBO 530 Molecular Biology and Pathology of the Periodontium
Prerequisite: Permission of instructor.
Every second or third year as required, 3 credits

HBO 550 Molecular Basis of the Morphogenesis and Pathogenesis of the Oral and Related Tissues
Prerequisite: Permission of instructor.
Every second or third year as required, 3 credits

HBO 599 Graduate Research
Prerequisite: Permission of instructor.
Fall and spring, variable credit

HBO 694 Thesis Research in Oral Biology and Pathology
Prerequisite: Permission of instructor.
Fall and spring, variable and repetitive credit

HBO 695 Oral Biology and Pathology Teaching Practicum
Prerequisite: Established candidacy for Ph.D. (qualifying examinations passed).
Fall and spring, variable and repetitive credit

HBP 531 General Pathology
Prerequisites: HBA 531 and BIO 501 and permission of instructor.
Q3 and Q4, 5 credits

HBP 532 Immunology
Prerequisites: Advanced course in biology and permission of instructor. Biochemistry, genetics, and histology will be helpful.
Q3 and Q4, 3-5 credits

HBP 551 Lysosomes, Mitochondria, Golgi
Prerequisite: HBA 531 or BIO 512.
Fall, 2 credits

HBP 552 Radiopathology
Prerequisite: HBP 531.
Spring, 1 credit

HBP 553 Biology of Cancer
Prerequisite: BHA 531, HBP 531, and BIO 501.
Spring, 2 credits

HBP 554 Immunopathology
Prerequisite: HBP 531 or BIO 508.
Spring, 2 credits

HBP 561 Electron Microscopy for Experimental Pathologists
Prerequisites: HBA 531 and permission of instructor.
Fall and spring, variable credit

HBP 562 Practicum in the Use of Experimental Animals
Prerequisite: Permission of instructor.
Spring, 2 credits

HBP 563 Histochemistry
Prerequisites: HBA 531, HBP 531, BIO 361 and permission of instructor.
Fall, 3 credits

HBP 690 Seminar in Pathology
Prerequisite: Permission of instructor.
Fall and spring, variable and repetitive credit

HBP 694 Directed Research in Pathology
Prerequisite: Established candidacy for Ph.D. (qualifying examinations passed).
Fall and spring, variable and repetitive credit

HBP 695 Teaching Practicum in Pathology
Prerequisite: Established candidacy for Ph.D. (qualifying examinations passed).
Fall and spring, variable and repetitive credit

HBY 532 Introduction to Physiology
Prerequisite: Permission of instructor.
Q1 and Q2, 2 credits

HBY 533 Cell Physiology
Fall, 3 credits

HBY 541 Physiology Laboratory
Prerequisite: Permission of instructor.
Spring, 3 credits

HBY 551 Membrane Physiology and Biophysics
Prerequisite: Permission of instructor.
Spring, 3 credits

HBY 552 Cellular Neurophysiology
Prerequisite: Permission of instructor.
Fall, 3 credits

HBY 590 Special Topics in Physiology and Biophysics
Prerequisite: Permission of instructor.
Fall and spring, 3 credits each semester, repetitive

HBY 591 Physiology and Biophysics Research
Prerequisite: Permission of instructor.
Fall and spring, variable and repetitive credit

HBY 690 Seminar in Physiology and Biophysics
Prerequisite: Permission of instructor.
Fall and spring, variable and repetitive credit

HBY 694 Directed Research in Physiology and Biophysics
Prerequisite: Established candidacy for Ph.D. (qualifying examinations passed).
Fall and spring, variable and repetitive credit

HBY 695 Practicum in Teaching in Physiology and Biophysics
Prerequisite: Permission of instructor.
Fall and spring, variable and repetitive credit

Applied Mathematics and Statistics
Computer Science
Mathematics

The Mathematical Sciences

DEPARTMENT OF APPLIED MATHEMATICS AND STATISTICS

Professors: Beltrami (*Chairman*), Y. Chen, Dicker, Dolezal, Gerst, Kalman (*Adjunct*), Rohlf (*Adjunct*), Selvin (*Adjunct*), Srivastav, Tewarson, Zemanian

Associate Professors: W. Kim, Leibowitz, Tucker

Assistant Professors: Finch, Yuan

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 Modelling" and is often the key element in understanding the complex interrelations which underlie many problem areas. Students with a training in the use of modelling 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 modelling, numerical analysis (sparse matrices and partial differential equations), nuclear reactor theory, crack theory and elasticity, solid and fluid mechanics, modelling of urban service systems, realizability theory, robust tests of hypothesis, applied graph theory, and stochastic modelling.

The Applied Mathematics Program now includes a professionally oriented track in Statistics as well as a Postgraduate Extension Program administered in several off-campus locations.

Statistics Track

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

MSA 570, 571	Mathematical Statistics I, II
MSA 572, 573	Data Analysis I, II
MSA 575	Data Analysis Laboratory
MSA 578	Regression
MSA 581	Analysis of Variance or MSA 582 Design of Experiment
MSM 528	Measure Theory and Integration in Probability

Electives in Statistics: A minimum of two are required, one of which must be selected from a set of applied math courses and the other from a group of courses, in applied math, the social and life sciences, and computer science.

Postgraduate Extension Program

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

At the present time, courses in the Postgraduate Extension Program are offered at the State University College at Old Westbury, Grumman Aerospace Corporation and Brookhaven National Laboratory. It is anticipated that by Fall, 1975 courses will be offered at one other Nassau location. The purpose of this program is to provide an opportunity for men and women who are employed full time, to pursue serious graduate study leading to advanced degrees in applied mathematics. Applicants will be considered for admission to this program who hold a bachelors degree in applied mathematics, mathematics, engineering, physical science or life science and social science with a strong background in undergraduate mathematics. Qualified students may continue beyond the Masters degree for the Ph.D. degree in this program.

A matriculated part-time degree candidate may pursue courses at any one of the several off-campus locations as well as those offered on campus. Additional information may be obtained from the Administrator of the Postgraduate Extension Program, Esther Weitzman, at the Department of Applied Mathematics and Statistics, State University of New York at Stony Brook, Stony Brook, N. Y. 11794.

Requirements for Degrees in Applied Mathematics and Statistics

Requirements for the M.S. degree may be satisfied through the completion of 8 courses in applied mathematics or in approved related areas with an average of a B or better. Completion of a Masters thesis may be substituted for 2 of the courses.

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

Admission to Graduate Study

In addition to the requirements for admission given on page 17, the department requires study of advanced calculus or its equivalent.

Courses

MSA 501 Differential Equations and Boundary Value Problems I
Prerequisite: MSA 505.
Recommended prerequisite: MSA 504.
4 credits

MSA 502 Differential Equations and Boundary Value Problems II
Prerequisite: MSA 501.
4 credits

MSA 503 Applications of Complex Analysis
4 credits

MSA 504 Foundations of Applied Mathematics
Fall, 4 credits

MSA 505 Applied Algebra I
Fall, 4 credits

MSA 506 Finite Structures
4 credits

MSA 507 Introduction to Stochastic Processes
Prerequisite: MSA 551 or MSA 569.
4 credits

MSA 511 Methods in Applied Mathematics for Engineers and Scientists
4 credits

MSA 514 Applied Algebra II
Prerequisite: MSA 505.
4 credits

MSA 516 Special Functions of Applied Mathematics
4 credits

MSA 517 Ordinary Differential Equations
4 credits

MSA 520 Mathematical Modeling in the Analysis of Public Systems
4 credits

MSA 521 Mathematicals Models in Physiological Systems
4 credits

MSA 524 Theory of Approximation
4 credits

MSA 526 Numerical Analysis I
4 credits

MSA 527 Numerical Analysis II
4 credits

MSA 531 Generalized Inverses and Sparse Matrices
4 credits

MSA 537 Methods of Operation Research I
Prerequisite: MAS 551 or equivalent.
4 credits

MSA 538 Methods of Operations Research II
4 credits

MSA 542 Mathematical Theory of Nuclear Reactors
Prerequisites: MSA 251 or MSA 551 or equivalent and MSA 217 or MSA 517 or equivalent.
4 credits

MSA 543 Actuarial Science I: The Theory of Interest
4 credits

MSA 544 Actuarial Science II: Life Contingencies
Prerequisite: Actuarial Science I or equivalent.
4 credits

MSA 546 Graph Theory and Applications
4 credits

MSA 550 Algebraic Coding Theory
Prerequisite: Permission of instructor.
4 credits

MSA 553 Control Theory
Prerequisite: MSA 501.
4 credits

MSA 557, 558 Elasticity I and II
This course is identical with ESC 541, 542.
4 credits

MSA 563 Computational Fluid Dynamics
Prerequisite: Permission of instructor.
4 credits

MSA 565 Wave Propagation I
4 credits

MSA 569 Introduction to Applied Probability
4 credits

MSA 570 Mathematical Statistics I: Estimation
Prerequisite: MSA 569 or equivalent.
4 credits

MSA 571 Mathematical Statistics II: Hypothesis Testing
Prerequisite: MSA 569 or equivalent.
4 credits

MSA 572, 573 Exploratory Data Analysis I, II
4 credits each

MSA 575 Data Analysis Laboratory
Prerequisite: Permission of instructor.
4 credits

MSA 578 Regression Theory
4 credits

MSA 581 Analysis of Variance
Prerequisite: MSA 569, MSA 570 or 572 or permission of instructor.
4 credits

MSA 582 Design of Experiments
Prerequisite: MSA 569 or equivalent.
4 credits

MSA 585 Sampling Techniques
Prerequisite: MSA 570.
4 credits

MSA 586 Time Series
Prerequisite: MSA 569 and MSA 570.
4 credits

MSA 599 Research
Variable and repetitive credit

MSA 604, 605 Probability Theory I, II
Prerequisite: MSA 504 or MSM 512.
4 credits

MSA 611 Theory of Partial Differential Equations and Their Applications
Prerequisite: MSA 502.
4 credits

MSA 615 Nonlinear Differential Equations
Prerequisite: MSA 501.
4 credits

MSA 620 Theory and Applications of Large Scale Networks
Prerequisite: MSA 537 or equivalent.
4 credits

MSA 621 Numerical Solutions of Partial Differential Equations
Prerequisite: MSA 502 or equivalent.
4 credits

MSA 627 Theory of Integral Equations and Their Applications
Prerequisite: MSA 504 and MSA 505.
4 credits

MSA 628 Applications of Functional Analysis
4 credits

MSA 635, 636 Realizability Theory I and II
Corequisite: MSA 628 or MSM 554, MSM 555.
4 credits

MSA 651 Nonlinear Analysis and Optimization
4 credits

MSA 691 Topics in Applied Mathematics
Stochastic Modelling
Control Theory and Optimization
Mixed Boundary Value Problems in Elasticity
Advanced Operational Methods in Applied Mathematics
Approximate Methods in the Boundary Value Problems in Applied Mathematics
Foundations of Passive Systems Theory
Partial Differential Equations
4 credits

MSA 698 Practicum in Teaching
4 credits, repetitive

MSA 699 Research
Variable and repetitive credit

DEPARTMENT OF COMPUTER SCIENCE

Professors: Finerman, Gelernter, Heller, Kieburtz (*Chairman*), D. Smith, Tycko

Associate Professor: Bernstein

Assistant Professors: Akkoyunlu, Cherniavsky, Fiduccia, Henderson,* Zalcstein

Admission to Graduate Study

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

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

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

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

D. At least two college-level courses in computer science covering programming in both a language such as FORTRAN and assembly language.

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

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

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* Visiting

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

Whatever the area of undergraduate specialization, students offering additional preparation in computer science (computer organization, systems programming, digital logic, and systems), or 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.

Degree Programs

The Department of Computer Science offers distinct programs for students with professional goals and for those whose interests are academically oriented. Generally speaking, the professional M.S. program serves those students planning a career in business, industrial, or governmental occupations requiring advanced knowledge of computer theory and technology, while the Ph.D. program serves those whose interests are directed towards academic, scholarly, and research oriented ends. A student who is progressing satisfactorily towards the Ph.D. will earn the M.S. as a matter of course. However, the professional M.S. student will, for the most part, be emphasizing more practical and applied subject matter, excluding himself from automatic entry into the Ph.D. program.

Students 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.

Requirements for the M.S. Degree

Students in the professional M.S. degree program choose between two options, the M.S. with thesis and the M.S. without thesis. Students choosing the no-thesis option are required to take the course MSC 524 Laboratory in Computer Science which extends over a full academic year and provides experience in dealing with large-scale computer-oriented problems.

A. *Course requirements:* (30 graduate credits)

1. M.S. without thesis:

a. Core courses (MSC 502, 521, 522, and 525). (16 credits)

b. MSA 506 Finite Structures *or* MSC 541 Theoretical Foundations of Computing I. (3 credits)

c. MSC 524 Laboratory in Computer Science, extending over two semesters. (5 credits)

d. Six credits of elective graduate courses, chosen with advisor's approval.

2. M.S. with thesis:

a. Core courses (MSC 502, 521, 522, and 525). (16 credits)

b. Six credits of elective graduate 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.

B. *Supplementary requirements:* Demonstration of knowledge of numerical analysis and digital systems at the level of MSA 226 and ESE 318, respectively. The following are considered evidence of such knowledge:

1. A grade of at least B in equivalent courses on the student's undergraduate record.

2. Taking and passing the above courses with grade B or higher.

3. Taking the final examination in the above courses, obtaining grade B or higher.

C. *Thesis requirements:*

1. M.S. without thesis: None.

2. M.S. with thesis: A student choosing the thesis option must select a research advisor who agrees to serve in that capacity. The advisor will supervise research studies and advise on choice of courses. The thesis must be approved by a department faculty committee of no less than three members, appointed by the chairman of the department. At the discretion of the committee, the student may be required to present a seminar on the thesis topic.

D. *M.S. degree requirements 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.

E. *Deficiencies in Preparation:* A student who does not meet *all* of the listed entrance requirements, *including* proficiency in numerical analysis and digital systems design, cannot in general expect to earn the M.S. degree in less than three semesters. Undergraduate courses that 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.

Students with insufficient preparation to enroll in MSC 521 and MSC 522 during their first fall semester of residence will generally suffer a full year of delay in satisfying the requirements for the M.S. degree, for these core courses, offered only in the fall, are prerequisites for core course MSC 525, offered only in the spring, as well as 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 should consider applying for special spring admission to the graduate school in order to avoid prolonging the duration of matriculation needlessly.

F. *Thesis:* A student who elects the thesis option generally must have substantial undergraduate background in computer science and well defined subject preferences 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:* The student must satisfactorily pass a comprehensive, written examination to demonstrate ability to undertake the course of study leading to the Ph.D. degree. The examination is given during the fall semester each year. The student must take the examination within three semesters of admission to the graduate school.

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.

C. *Course requirements:* The student seeking the Ph.D. degree shall initially follow a relatively highly structured program of courses in order to acquire basic knowledge in computer science. The following 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 second year, the program is more variable than the first year of the program in order to allow each student to pursue in greater depth the topics of greatest interest to him.

First Year

Fall Semester

1. MSA 514 Applied Algebra II or
   ESE 318 Digital Systems Design
2. MSC 541 Theoretical Foundations of Computing I
3. MSC 521 Data Structures
4. MSC 522 Compiler Design

Spring Semester

1. MSA 506 Finite Structures
2. MSC 542 Theoretical Foundations of Computing II
3. MSC 502 Computer Architecture
4. MSC 525 Operating Systems

Second Year

Fall Semester

1. MSC 543 Automata Theory I
2. MSC 641 Mathematical Theory of Computation
3. MSC 530 Simulation and Modelling
4. MSC 620 Analysis of Computer Systems

Spring Semester

1. MSC 544 Automata Theory II or
   MSC 642 Analysis of Algorithms
2. MSC 526 Programming Language Design
3. MSC 532 Information Organization and Retrieval
4. Seminar in appropriate subject.

D. *Preliminary Examination:* The Preliminary Examination must be scheduled within two years from the time the student has passed the Qualifying Examination. This is an oral examination to ascertain the student's depth of knowledge in the field chosen for thesis research and the breadth of knowledge in other areas of computer science.

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

E. *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.

F. *Approval and defense of dissertation:* The dissertation must be orally defended before the Dissertation Examination Committee, and the candidate must obtain approval of the dissertation from this committee.

Courses

MSC 502 Computer Architecture
Prerequisites: MSC 102 and ESE 318.
Spring, 4 credits

MSC 521 Data Structures
Fall, 4 credits

MSC 522 Compiler Design
Fall, 4 credits

MSC 524 Laboratory in Computer Science
Fall semester, 2 credits; Spring semester, 3 credits

MSC 525 Operating Systems
Prerequisites: MSC 521 and MSC 522.
Spring, 4 credits

MSC 526 Programming Language Design
Prerequisite: MSC 522.
Spring, 3 credits

MSC 530 Simulation and Modeling
Corequisite: MSC 521.
Fall, 3 credits

MSC 532 Information Organization and Retrieval
Prerequisite: MSC 521.
Spring, 3 credits

MSC 541 Theoretical Foundations of Computing I
Fall, 3 credits

MSC 542 Theoretical Foundations of Computing II
Spring, 3 credits

MSC 543 Automata Theory I
Prerequisite: MSA 514.
Fall, 3 credits

MSC 544 Automata Theory II
Prerequisite: MSA 514.
Spring, 3 credits

MSC 599 Research
Variable and repetitive credit

MSC 620 Analysis of Computer Systems
Prerequisite: MSC 525.
Fall, 3 credits

MSC 621 Seminar in Programming Languages
3 credits, repetitive

MSC 622 Seminar in Operating Systems
3 credits, repetitive

MSC 630 Seminar in Artificial Intelligence
3 credits, repetitive

MSC 631 Seminar in Information Organization and Retrieval
3 credits, repetitive

MSC 641 Mathematical Theory of Computation
Prerequisite: MSC 542.
Fall, 3 credits

MSC 642 Analysis of Algorithms
Prerequisite: MSA 514.
Spring, 3 credits

MSC 645 Seminar in Theory of Computation
3 credits, repetitive

MSC 681 Special Topics in Programming Languages
3 credits, repetitive

MSC 682 Special Topics in Computer System Design
3 credits, repetitive

MSC 683 Special Topics in Computer Applications
3 credits; repetitive

MSC 684 Special Topics in Computer Architecture
3 credits, repetitive

MSC 685 Special Topics in Artificial Intelligence
3 credits, repetitive

MSC 686 Special Topics in Theory of Computation
3 credits, repetitive

MSC 698 Practicum in Teaching
3 credits, repetitive

MSC 699 Research
Variable and repetitive credit

DEPARTMENT OF MATHEMATICS

Professors: Adler, [a]Ax, Barcus, [a]Charlap, Cheeger, Doss, Douglas, [a]Farkas, [a]Gromoll, [a]Kra, Kuga, [a]Lister, Maskit, [a]Meyer, Phillips, Pincus, Sah, Simons, Strasser, Szüsz

Associate Professors: Ebin, W. Fox, Hill, Kumpel, Laufer, Osher, Thorpe, Zaustinsky

Assistant Professors: Cowen, L. Jones, Morava, Straus

Instructors: Maiorana, M. Singer

Masters Program

This program consists of three options: the Secondary Teacher Option (two years, part time) for secondary school mathematics teachers seeking permanent certification; the College Teacher Option (one-two years, full time) designed for students who plan teaching careers in two-year colleges; and the Professional Option (one year, full time) designed for students who plan careers as professional mathematicians in industry, government or the academic world.

Doctoral Program

This program (three to four years, full time), an extension of, and the main reason for, the Professional Option in the Masters program, is designed for students who plan careers as research mathematicians.

Admission to the Masters 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 and letters of recommendation from three mathematicians under whom the student has taken courses. Applicants to the Secondary Teacher Option are expected to have at least the equivalent of a provisional certificate in mathematics. Applicants to the College Teacher Option must present at least a complete calculus sequence and at least one upper division course in mathematics plus strong evidence of both potential and motivation.

An able student who has completed work in linear and modern algebra, real and complex analysis, and metric topology is well prepared for admission to the Professional Option. If he has also competed successfully in graduate courses he may be admitted directly to the Doctoral Program.

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.

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[a] On leave

Requirements for the M.A. Degree

A. 30 Graduate credits of courses approved by the department.
B. Passing the Comprehensive Examination.

The program of courses approved by the department depends on the option. The program for the Secondary Teacher Option normally includes the following: MSM 512 Algebra for Teachers; MSM 513, 514 Analysis for Teachers I, II; MSM 515 Geometry for Teachers; MSM 519 Seminar in Mathematics Teaching; MSA 569 Introduction to Applied Probability; CED 560 Introduction of Computing, for a total of 27 graduate credits. In the other two options, the program is worked out individually with each student.

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, Comprehensive Examinations are offered twice a year, at the start and finish of the spring semester. These examinations are designed to test mastery of the fundamentals in algebra, algebraic topology, complex analysis, real analysis, and differential equations. Each student chooses in which four of these five areas he or she is to be examined.

Comprehensive Examinations for the College Teacher Option are a combination of the ones listed above designed for each student individually.

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 Comprehensive Examination (Professional Option) or on comparable examinations at other universities. However, students who have not as yet entered full-time graduate work in mathematics are also considered for admission to the doctoral program. Each applicant to this program must present records of prior training in mathematics and letters of recommendation from three members of the mathematics faculty under whom the applicant has taken courses, preferably from teachers of graduate courses taken by the applicant.

Requirements for the Ph.D.

A. Passing the Comprehensive Examination (Professional Option).
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. Approval by the Dissertation Examining Committee.

The Comprehensive Examination

This examination was described above in connection with the Professional Option of the Masters Program. 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 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, as well as paper grading at all levels.

Handbook

The Mathematics Department publishes a handbook for graduate students. This handbook contains a detailed statement of the duties and responsibilities of trainees and of the policies and regulations which bear on admission, awarding and renewing support, and procedures for meeting the various degree requirements. A copy is sent to every applicant who submits a completed application form.

Courses

This Course Is Primarily Not For Graduate Students in Mathematics

MSM 500,501 Mathematics for the Social and Behavioral Sciences
Fall and Spring, 4 credits

Core Courses for Teacher Option

MSM 512 Algebra for Teachers
Fall, 4 credits

MSM 513, 514 Analysis for Teachers I, II
Fall and Spring, 4 credits

MSM 515 Geometry for Teachers
Spring, 4 credits

MSM 519 Seminar in Mathematics Teaching
Fall, 4 credits

Core Courses for Professional Option

MSM 530 Geometric Analysis
Fall, 4 credits

MSM 534 Algebra I
Fall and Spring, 4 credits

MSM 535 Algebra II
Spring, 4 credits

MSM 538 Algebraic Topology I
Spring, 4 credits

MSM 539 Algebraic Topology II
Fall, 4 credits

MSM 542 Complex Analysis I
Fall and Spring, 4 credits

MSM 543 Complex Analysis II
Spring, 4 credits

MSM 546 Differential Equations I
Fall, 4 credits

MSM 547 Differential Equations II
Spring, 4 credits

MSM 550 Real Analysis I
Fall and Spring, 4 credits

MSM 551 Real Analysis II
Spring, 4 credits

MSM 566 Differential Topology
Fall, 4 credits

MSM 568, 569 Differential Geometry
Fall and Spring, 4 credits

Intermediate Courses

MSM 602, 603 Topics in Algebra
Fall and Spring, 4 credits

MSM 608, 609 Topics in Number Theory
Fall and Spring, 4 credits

MSM 614, 615 Topics in Algebraic Geometry
Fall and Spring, 4 credits

MSM 620, 621 Topics in Algebraic Topology
Fall and Spring, 4 credits

MSM 626, 627 Topics in Complex Analysis
Fall and Spring, 4 credits

MSM 632, 633 Topics in Differential Equations
Fall and Spring, 4 credits

MSM 638, 639 Topics in Real Analysis
Fall and Spring, 4 credits

MSM 644, 645 Topics in Differential Geometry
Fall and Spring, 4 credits

Advanced Courses

MSM 662, 663 Advanced Topics in Algebra
Each semester, 4 credits, repetitive

MSM 666, 667 Advanced Topics in Algebraic Topology
Each semester, 4 credits, repetitive

MSM 670, 671 Advanced Topics in Complex Analysis
Each semester, 4 credits, repetitive

MSM 674, 675 Advanced Topics in Differential Equations
Each semester, 4 credits, repetitive

MSM 678, 679 Advanced Topics in Real Analysis
Each semester, 4 credits, repetitive

MSM 682, 683 Advanced Topics in Differential Geometry
Each semester, 4 credits, repetitive

Other Courses

MSM 597 Seminar
Variable and repetitive credit

MSM 690 Practicum in Teaching
Variable and repetitive credit

MSM 698 Independent Study
Variable and repetitive credit

MSM 699 Directed Research
Variable and repetitive credit

The Physical Sciences

DEPARTMENT OF CHEMISTRY

Professors: Alexander, Bonner, Chu, Friedman (*Chairman*), Haim, Hirota, Jeffrey (*Adjunct*), F. Johnson*, Kosower (*Adjunct*), Lauterbur, le Noble, Okaya, Porter, Ramirez, Sujishi, Whitten

Associate Professors: L. Altman, F. Fowler, Goldfarb, D. Hanson, P. Johnson, Kerber, Krantz, Schneider, Springer, Weiser, Wishnia

Assistant Professors: J. Doll, Helquist, Lauher, Levy, McDaniel, S. Schwartz, S. Tu

Lecturers: Hagen, Kandel

Director of Chemical Laboratories: Funkhouser

Degree Programs

The Department of Chemistry offers programs leading to the degrees of Master of Science for students seeking an education at an advanced level in chemistry and the experience of solving a problem in chemical research, and Doctor of Philosophy for those preparing for careers in which chemical research is a central activity. A student in the Ph.D. program may choose the dissertation research in any one of the diverse areas of chemistry represented by the interests of the departmental faculty, or he or she may choose an interdisciplinary study under the guidance of a faculty member in another department. Coordinated activities with the Departments of Biochemistry, Earth and Space Sciences, Electrical Sciences, Mechanics, and Physics include formal degree options in chemical physics and chemical biology.

Admission to Graduate Study

The following are required for admission to graduate study in chemistry:

A. A baccalaureate degree in chemistry earned in a curriculum approved by the American Chemical Society, or an equivalent course of study.

B. A minimum grade point average of 2.75 (B–) in all undergraduate work, and 3.00 (B) in all courses in the sciences and mathematics.

* Joint appointment with Pharmacology

C. Acceptance by the Department of Chemistry and by the Graduate School.

In exceptional cases, a student not meeting requirements A and B may be admitted on a provisional basis.

Qualification to Candidacy

At the end of the second semester of graduate study, each student is qualified to candidacy for the graduate degree chosen provided that progress is satisfactory. Course work and research are considered in proportion appropriate to the student's program. Deficiencies in undergraduate preparation revealed by placement and proficiency examinations may be remedied by independent study or by formal course work.

Requirements for the M.S. Degree

A. Successful completion of an approved course of study comprising at least thirty credits of graduate course work.

B. Successful completion of the CHE 532 seminar and six courses selected from CHE 501 thru 530, 557 thru 589, 601 thru 604, 623 thru 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 thru 530, in addition to CHE 531, 532, and two semesters of CHE 610 or the equivalent. Qualification to candidacy is based, in part, on achievement in four 500-level chemistry courses to be taken during the student's first year. In consultation with faculty advisors each student selects a course work program to acquire a good background for research in the area of chemistry chosen.

C. Language: Reading proficiency in German, French, or Russian.

D. Advancement to Candidacy Examination: A student is advanced to candidacy for the Ph.D. degree when he has completed all degree requirements except the dissertation. A special committee is designated for each student to aid in progress toward this step. The committee is charged with advising the student and administering the advancement to candidacy examination. This examination, normally completed within one year following qualification to the Ph.D. degree, consists of a written proposition and oral defense, a discussion of the student's research, and a comprehensive examination.

E. Presentation of a departmental seminar.

F. Research, dissertation, dissertation defense, and departmental colloquium.

Research

Each student selects a research advisor from among the faculty at some time between the middle of the first and second 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 343 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, 502, Classical Physics I, II
One course in chemistry from among CHE 501, 502, 503, 511, and 512

D. Advancement to Candidacy Examination: In some cases a hybrid of the chemistry and physics programs may be used.

Doctoral Program in Chemical Biology

The doctoral program in chemical biology is provided for students whose interests lie in both chemistry and biology. A graduate student who is admitted to the Chemistry Department, the Department of Pharmacological Sciences, or the molecular biology program may elect, with the consent of the chairmen, the chemical biology program. A chemistry student elects the program if he or she desires more extensive training in biology than is normally accommodated in a chemistry graduate program. A pharmacology or molecular biology program student elects the program if he or she wishes to obtain more extensive exposure to fundamental chemical studies. Thus, the program is a course option for graduate students in chemistry, the pharmacological sciences, or molecular biology; furthermore, a student may select his or her research advisor in the Chemis-

try Department, the Department of Pharmacological Sciences, or the Molecular Biology program, subject to the approval of the chairmen.

Each student in the program will have an advisory committee consisting of at least one member each from molecular biology, pharmacology and chemistry. When research is initiated, the research advisor will join this advisory committee. The committee advises the graduate student to prepare for a research career in some area of chemical biology.

Qualification for candidacy in this program requires, in addition to the general requirements in chemistry, a satisfactory background in undergraduate biology as judged by the student's advisory committee or as demonstrated by satisfactory performance in course work.

The requirements for this program are the same as for the Ph.D. program in chemistry described above, with the following exception:

A. 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. A typical program might include CHE 523 Chemical Thermodynamics, CHE 521 Quantum Chemistry, CHE 502 Mechanistic Organic Chemistry, CHE 530 Physical Chemistry of Macromolecules or BMO 502 Physical Biochemistry, BIO 363 Protein and Nucleic Acid Biosynthesis, and BIO 313 Molecular Genetics.

Courses

CHE 501 Structural Organic Chemistry
Fall or spring, 3 credits

CHE 502 Mechanistic Organic Chemistry
Fall or spring, 3 credits

CHE 503 Synthetic Organic Chemistry
Fall or spring, 3 credits

CHE 511 Structural Inorganic Chemistry
Fall, 3 credits

CHE 512 Physical Methods in Inorganic Chemistry
Spring, 3 credits

CHE 513 Reaction Mechanisms in Inorganic Chemistry
Spring, 3 credits

CHE 521 Quantum Chemistry I
Fall, 3 credits

CHE 522 Quantum Chemistry II
Spring, 3 credits

CHE 523 Chemical Thermodynamics
Fall, 3 credits

CHE 526 Chemical Kinetics
Spring, 3 credits

CHE 528 Statistical Mechanics
Spring, 3 credits

CHE 529 Nuclear Chemistry
Fall or spring, 3 credits

CHE 530 Physical Chemistry of Macromolecules
Spring, 3 credits

CHE 557, 558 Methods and Techniques of Experimental Chemistry
Fall (557) and Spring (558), 3 credits each semester

CHE 589 Directed Study
Variable and repetitive credit

CHE 590 M.S. Term Paper
Summer, fall, or spring, 3 credits

CHE 601 Special Topics in Synthetic Organic Chemistry
Variable and repetitive credit

CHE 602 Special Topics in Physical Organic Chemistry
Variable and repetitive credit

CHE 604 Molecular Biochemistry
Spring, 2 credits

CHE 610 Practicum in Teaching
Variable and repetitive credit

CHE 623 Molecular Spectroscopy
Fall, 2 credits

CHE 624 Magnetic Resonance
Spring, 2 credits

CHE 625 Molecular Structure and Crystallography
Fall, 2 credits

CHE 626 Computer-Controlled Experimentation in Chemistry
Fall or spring, 3 credits

CHE 682 Special Topics in Inorganic Chemistry
Variable and repetitive credit

CHE 683 Special Topics in Physical Chemistry
Variable and repetitive credit

CHE 699 Research
Variable and repetitive credit

Seminars

CHE 531 Departmental Research Seminar
Fall, 1 credit

CHE 532 Literature Seminar
Spring, 1 credit

CHE 694 Chemical Biology Seminar
1 credit, repetitive

CHE 695 Inorganic Chemistry Seminar
1 credit, repetitive

CHE 696 Organic Chemistry Seminar
1 credit, repetitive

CHE 697 Physical Chemistry Seminar
1 credit, repetitive

CHE 698 Colloquium
1 credit, repetitive

DEPARTMENT OF EARTH AND SPACE SCIENCES

Professors: Bence, Carter, Dodd, Lindsley, Owen, A. Palmer (*Chairman*), [a]Papike, [a] Prewitt, Schaeffer, [a]M. Simon, Solomon

Associate Professors: P. Bretsky, G. Hanson, [a]Hardorp, Knacke, Levinton, Peterson

Assistant Professors: Flessa, Kwan, Meyers, Muller, Theys, Weidner

Curator: Englebright

Adjunct Faculty: S. Bretsky, Castleman, Forman, Hartung, Hogan, Kesson, Lutz, Penzias

The Earth and Space Science Department offers degree programs in astronomy (astrophysics, geochemistry, paleobiology) sedimentology, planetary sciences and tectonophysics.

Admission to Graduate Study

For admission to graduate study in the earth and space sciences, the following are required:

[a] On leave

A. A baccalaureate degree in one of the earth or space sciences, or in biology, chemistry, or physics.

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

C. Acceptance by the Department of Earth and Space Sciences and by the Graduate School.

In special cases, a student not meeting requirements A and B may be admitted on a provisional basis. Upon admission, the student will be informed of the requirements that must be satisfied for termination of the provisional status.

Requirements for the M.S. Degree

A. *Residence:* None.

B. *Language:* None.

C. *Formal course work:* Completion, with a B average, of an approved course of graduate study not to exceed the equivalent of two full academic years. This course of study will be prepared by the student and his or her advisor(s) to suit his or her particular needs, and must be approved by the departmental Graduate Committee. It must consist of at least 30 credits of graduate work, which may include 6 credits of research toward an M.S. thesis or equivalent research papers.

D. *Evaluation:*

a. M.S. with thesis: approval of the thesis by an examining committee.

b. M.S. without thesis: Oral examination on the material covered in the approved course of study.

E. *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.

F. *Time limit:* All requirements for the M.S. degree must normally be completed within three years of the time of the student's first registration as a graduate student.

Requirements for the Ph.D. Degree

A. *Residence:* One year of full-time graduate study.

B. *Language:* None.

C. *Formal course work:* Successful completion with grades of B or better of an approved course of study leading to the Preliminary Examination.

D. *Preliminary Examination:* This examination will consist of the presentation, acceptance, and oral defense of three research proposals.

E. *Advancement to candidacy:* The student may be advanced to candidacy for the Ph.D. when he or she has completed all Graduate School and departmental requirements for the degree other than the dissertation. Advancement to candidacy is recommended by the

department Graduate Committee, to the Dean of the Graduate School through the department chairman.

F. *Research and dissertation:* The dissertation must be approved by a Dissertation Examining Committee or at least five members of the faculty, including at least one from outside the department, appointed by the Dean of the Graduate School. A formal oral defense of the thesis will be conducted by the Dissertation Committee. This will be open to all members of the faculty.

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

Laboratory for Planetary Atmospheres Research

The Laboratory for Planetary Atmospheres Research (LPAR) comprises an interdepartmental teaching and research program for students interested in the physics and chemistry of the atmospheres of the Earth and other planets. This program is available to students in the College of Engineering and Applied Sciences and the Division of Physical Sciences. A graduate student in any of the departments of these divisions may, with the consent of his or her chairman, elect to participate in the program. The basic degree requirements are set by the department in which the student is enrolled; they are the same as those for any other student in that department. The student will normally be advised to take two or more courses from the list drawn up by the LPAR faculty in order to obtain a basic background in the atmospheric sciences. He or she must then satisfy departmental requirements regarding a preliminary examination. However, a major portion of this examination will be devoted to problems in atmospheric physics and chemistry; at least one members of the examining committee will be from the LPAR faculty. A research advisor for the dissertation will normally be selected from the LPAR faculty, subject to the approval of the department chairmen.

Courses

ESS 501 Geology of Long Island
Summer, 3 credits

ESS 506 Theoretical Petrology
Prerequisites: Metamorphic and Igneous Petrography, Physical Chemistry or Thermodynamics, or permission of instructor.
Fall, 3 credits

ESS 507 Petrogenesis
Spring, 3 credits

ESS 508 The Rock Forming Minerals
Spring, 3 credits

ESS 509 Electron Probe X-ray Microanalysis
Prerequisites: Petrology, Petrography and permission of instructor.
Spring, 3 credits

ESS 510 Global Geology
Fall, 3 credits

ESS 511 Advanced Paleontology
Fall, 3 credits

ESS 514 Advanced Stratigraphy
Fall, 3 credits

ESS 515 Seminar in Detrital Sedimentation
Spring, 3 credits, alternate years

ESS 516 Paleocology
Fall, 3 credits

ESS 517 Evolution and Geography
Spring, 3 credits, alternate years

ESS 518 Carbonate Sediments
Spring, 4 credits, alternate years.

ESS 519 Major Features of Evolution
Spring, 3 credits, alternate years

ESS 520 Chemistry of the Earth
Prerequisite: Graduate Standing.
Spring, 3 credits

ESS 521 Isotope Geology
Fall, 3 credits

ESS 522 Meteoritics
Fall, 3 credits

ESS 525 Marine Geochemistry
Prerequisite: Physical Chemistry.
Spring, 3 credits

ESS 531 Crystalline Solids
Prerequisite: ESS 201, Mineralogy, or equivalent; students with deficient Mineralogy backgrounds may audit ESS 201 lectures.
Fall, 3 credits

ESS 532 Solid-state Geochemistry
Prerequisite: ESS 531, Crystalline Solids.
Given only in alternate years—not offered 1975/76.

ESS 543, 544 Laboratory Course in Astronomical Techniques I, II
Fall and spring, 3 credits each semester

ESS 546 Chemistry and Physics of the Atmosphere
Prerequisite: Physical Chemistry.
Spring, 3 credits

ESS 548 Cosmochemistry
Spring, 3 credits

ESS 550 Global Tectonics
Spring, 3 credits, alternate years

ESS 552 Physics of the Earth
Fall, 3 credits

ESS 553, 554 Stellar Physics I, II
Fall and spring, 3 credits each semester

ESS 581, 582 Astrophysical Processes I, II
Fall and spring, 3 credits each semester

ESS 583, 584 Galactic Astrophysics I, II
Fall and spring, 3 credits each semester

ESS 590 Experimental Rock Deformation
Fall, 3 credits

ESS 591 Experimental Structural Geology
Prerequisite: ESS 590.
Spring, 3 credits

ESS 599 Research
Fall and spring, variable and repetitive credit

ESS 600 Practicum in Teaching
1 to 3 credits, repetitive

ESS 601-605 Special Topics Courses

ESS 601 Advanced Topics in Astronomy-Astrophysics
Fall and spring, 3 credits per semester, repetitive

ESS 603 Topics in Petrology
Variable, 1 to 3 credits, repetitive

ESS 604 Topics in Geo-Cosmochemistry
Fall and spring; 1 to 3 credits, repetitive

ESS 605 Topics in Sedimentary Geology-Paleontology
Fall and spring, 1 to 3 credits per semester, repetitive

ESS 607 Topics in Geophysics
Variable, 1 to 3 credits

ESS 612 Seminar in Astronomy—Astrophysics
Fall and spring, 1 to 3 credits per semester, repetitive

ESS 699 Thesis Research
Each semester, variable and repetitive credit

DEPARTMENT OF PHYSICS

Professors: Arima, Balazs, Blume (*Part-time*), G. Brown, Courant (*Part-time*), Dresden, Eisenbud, Feingold, Finocchiaro, Fossan, D. Fox, Freedman, M. Goldhaber (*Adjunct*), M. Good, Kahn, Kao, Kirz, Kuo, Lambe, [a]B. Lee, L. Lee Jr., Lee-Franzini, Muether, Nathans, Paul, Pond, Silsbee, Strassenburg (*Part-time*), Swartz, Toll, [a]Weisberger, Wilcox, C. N. Yang (*Einstein Professor*)

Associate Professors: deZafra, A. Goldhaber, Graf, Grannis, Jackson, McCoy, McGrath, Metcalf, Mould, Nieh, J. Smith, Sprouse

Assistant Professors: Allen, Engelmann, Jöstlein, Lukens, R. McCarthy, Paldy, Shevchik

Admission to Graduate Study

For admission to graduate study in physics, the following are required:

A. Baccalaureate degree in physics, from an accredited institution, with departmental course requirements in physics equivalent to those at this institution (including courses at the junior and senior level in electromagnetic theory, mechanics, methods of theoretical physics, quantum mechanics and modern physics, advanced laboratory).

B. A minimum grade average of B in all undergraduate course work, and of B in physics, mathematics, and chemistry.

C. 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 must satisfy for the termination of the provisional status.

For admission to the M.A.(T.) 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).

First-Year Program

The student's program for the first year of graduate study will be determined on the basis of past records and an interview given at the beginning of the first semester.

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 pro-

[a] On leave

gram would include PHY 599 (Graduate Seminars), Classical Mechanics and Electrodynamics, and Quantum Mechanics I, II.

B. Passing of the Master's Examination.

Requirements for the M.A. (Teaching) Degree

The Master of Arts (Teaching) degree is designed for those students who plan to teach or who are teaching physics at the secondary school level. The degree program will ordinarily involve two semesters of course work and one semester of a supervised intern experience teaching physics in a secondary school.

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. Three credit hours of CEN 552 Contemporary Methods and Curriculum Innovations in the Teaching of Physics (*see CED Bulletin* for details).
3. Six credit hours in appropriate courses in education or educational psychology 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 a seminar in connection with the intern teaching experience.
6. 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 their proficiency in laboratory techniques associated with the teaching of secondary school physics.
7. Successful performance on an oral examination in which the candidate demonstrates his proficiency in explaining physics at a level appropriate for secondary school students.
8. All candidates will be required to pass 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 will 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. During the first year of graduate study each student will select a program which can be a combination of courses, PHY 599 Graduate

Seminars, PHY 515 Methods of Experimental Research, PHY 585 Special Study, and PHY 580 Special Research Projects. The first-year program will be determined on the basis of past records and consultation with an advisor. Readmission to the second year and the granting of financial support will depend on performance in this first-year program.

C. Passing the Preliminary Examination, which shall consist of two parts:

Part A: A three-section written examination of a comprehensive nature designed to test a student's background in the fundamentals of physics and his ability to think physically. Each section of this examination shall be of three hours length. The topics to be covered are:

I. Mechanics, electricity and magnetism, optics

II. Thermodynamics, kinetic theory, statistical mechanics, solid state, low temperature physics

III. Quantum mechanics, atomic, nuclear, elementary particle physics

This examination will be given in September and January. It shall be taken no later than January of the second year. This examination will serve also as a Master's degree examination.

Part B: An oral examination on a broad range of topics relevant to the student's intended area of thesis research. This examination will be given before the end of the second year of graduate study. It will be administered by a committee of three faculty members appointed by the Graduate Committee before the end of the first year of graduate study. This panel will determine the specific nature of the oral examination and will also advise the student during his or her second year. In the event that the student changes his or her intended area of thesis research, a new committee may be appointed.

D. Advancement to candidacy: The department's recommendation to the Graduate School for advancement to candidacy to the Ph.D. is based primarily on the satisfactory completion of requirement C.

E. Successful completion of two advanced courses in areas outside the candidate's thesis research.

F. Teaching experience at least equivalent to that obtained in a one-year appointment as a teaching assistant.

G. Research, dissertation, and the passing of the dissertation examination.

Doctoral Program in Chemical Physics

The program in chemical physics is intended to meet the needs of students whose interests lie in areas common to chemistry and physics. A graduate student in either the Chemistry or the Physics Department may, with the consent of his or her chairman, elect to participate in the program. Degree requirements for a chemistry student in this program may be found in the Department of Chemistry's

section of this *Bulletin.* The basic degree requirements for a physics student are the same as those for other students in this department, as described above. The student will normally be advised to take one or more appropriate courses in chemistry, such as CHE 511, 523, 528, 529, 623, 624, 625. He or she will take the physics examination, as required of all physics students. The oral part of the preliminary examination will be in chemical physics; one member of the committee will be from the Department of Chemistry. A research advisor may be selected from the Department of Chemistry, subject to the approval of the department chairmen.

Doctoral Program in Astrophysics

The doctoral program in astrophysics is provided for students whose interests lie in both physics and astronomy. A graduate student who is admitted to the Department of Physics may elect this program, with the consent of the chairman of the Physics and of the Earth and Space Sciences Departments. The program is designed for those students who wish to gain a greater exposure to current astrophysical problems, observational or theoretical, than would be the case in the usual doctoral program in physics.

For a physics student, the basic degree requirements are the same as for other students in this Department, as described above. The student should have a background in astronomy appropriate to his areas of interest. The student who does not have a background may be advised to take certain undergraduate courses (such as ESS 343, 344) before embarking on the program. A Physics student enrolled in the astrophysics program will take the physics Comprehensive Examination, as required of all physics students. The oral part of the exam will be in astrophysics, and one member of the committee will be from Astronomy. The advisor may be from either department, subject to the approval of the chairmen of the Department of Physics and of Earth and Space Sciences.

Courses

PHY 501 Classical Mechanics
3 credits

PHY 503, 504 Methods of Mathematical Physics, I, II
3 credits each semester

PHY 505, 506 Classical Electrodynamics
3 credits each semester

PHY 509 The Nature and Significance of Physical Science
3 credits

PHY 511, 512 Quantum Mechanics I, II
Prerequisite: Undergraduate course in quantum mechanics.
3 credits each semester

PHY 515 Methods of Experimental Research
3 credits

PHY 540 Statistical Mechanics
3 credits

PHY 541 Advanced Statistical Mechanics
3 credits

PHY 551 Nuclear Physics I
3 credits

PHY 552 Nuclear Physics II
3 credits

PHY 555 Introduction to Solid State Physics
Prerequisites: One semester of quantum mechanics and one semester of statistical mechanics, either graduate or advanced undergraduate.
3 credits

PHY 556 Experimental Solid State Physics
Prerequisite: PHY 555.
3 credits

PHY 557, 558 Elementary Particle Physics I, II
3 credits each semester

PHY 561, 562 Theory of Solids I, II
Prerequisites: Introductory solid state physics, one semester of graduate level quantum mechanics, and one semester of statistical mechanics.
3 credits each semester

PHY 580 Special Research Projects
Each semester, variable and repetitive credits

PHY 585 Special Study
Each semester, variable and repetitive credits

PHY 599 Graduate Seminars
Required for all first year graduate students.
1 credit per semester

PHY 600 Practicum in Teaching
2 credits

PHY 610, 611 Quantum Field Theory I, II
3 credits each semester

PHY 620 Relativity
3 credits

PHY 630 Low Temperature Physics
3 credits

Seminars

Each semester, several seminars for advanced graduate students will be offered. These courses are intended primarily for students doing research in the area, although other students may enroll with permission of the faculty seminar leaders. Seminars for the coming academic year are listed below; additional ones may be offered if there is sufficient faculty and student interest. Each seminar carries one credit, with repetitive credit permitted.

PHY 670 Seminar in Theoretical Physics

PHY 671 Seminar in Statistical Mechanics

PHY 672 Seminar in Elementary Particle Physics

PHY 674 Seminar in Nuclear Physics

PHY 676 Seminar in Solid State Physics

Special Topics Courses

The subject matter of each special topics course varies from semester to semester, depending on the interests of students and staff. Advanced topics will be discussed, particularly those that are of current interest. Each special topics course carries three credits, with repetitive credit permitted.

PHY 680 Special Topics in Theoretical Physics

PHY 681 Special Topics in Statistical Mechanics

PHY 682 Special Topics in Solid State Physics

PHY 684 Special Topics in Nuclear Physics

PHY 685 Special Topics in Mathematical Physics

PHY 686 Special Topics in Elementary Particles

PHY 688 Special Topics in Astrophysics

PHY 690 Special Topics in Quantum Electronics

PHY 698 Colloquium
1 credit

PHY 699 Thesis Research
Each semester, variable and repetitive credit

Anthropology
Economics
History

The Social Sciences

DEPARTMENT OF ANTHROPOLOGY

Professors: Carrasco, Faron, Glick, Lanning

Associate Professors: Hicks, Stevenson, Weigand (*Chairman*), Wheeler

Assistant Professors: Arens, Gardner, Jones, Kennedy, Newton, Regelson, Starr

Admission to Graduate Study

In addition to the admission requirements of the Graduate School, the Anthropology Department requires:

1. A baccalaureate degree from an accredited college.
2. 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.
3. Acceptance by the Department of Anthropology and the Graduate School.

Applicants need not have majored in anthropology as undergraduates but will be expected to make up deficiencies in their backgrounds by taking additional courses.

Graduate Program

The Department of Anthropology offers graduate work leading to the Master of Arts and Doctor of Philosophy degrees. The program for the first year is designed to give the students a general knowledge of social and cultural anthropology, including culture history, ethnography and linguistics. A Progress Examination must be taken after completion of the first year's work. This examination is given two or three times each year, usually in September, January and April. Students entering with advanced standing may take the Progress Examination during their first semester. Graduate students should gain some practical experience and training in teaching and research. All graduate Trainees are assigned as Teaching Assistants in at least one undergraduate course and they assist in all aspects of teaching. Research training is gained through independent study, field-work,

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. Requirements for the M.A. are:

1. One year minimum residence, and completion of a minimum of 30 graduate credits.
2. The Progress Examination passed at an appropriate level.
3. A course study planned and carried out with the approval of the student's M.A. Guidance Committee. This may require library research, laboratory study, and/or fieldwork as the basis of the M.A. thesis, which must be accepted by a committee appointed by the department. No final defense is required.

The Ph.D. in Anthropology

This program is designed to provide specialized training in social, cultural, linguistic and ecological anthropology. Minimum residence is four semesters beyond the baccalaureate, including at least two consecutive semesters of full time study. A minimum of 48 credits must be completed.

After satisfactory performance in the first year's course work and the Progress Examination, the student selects a guidance committee to supervise his studies. The student will then:

1. Choose 3 fields of specialization. One or two of these will be topical or theoretical fields and the rest ethnographic areas. One or more fields may be interdisciplinary, and involve study with faculty in other departments. For each field of specialization the student will write an essay outlining his or her views on the subject's theoretical and research problems and including a bibliography.
2. Demonstrate an understanding of the use of quantitative methods in social sciences, by successfully completing ANT 505 or equivalent work.
3. Demonstrate reading proficiency in the language or languages necessary for the fields of specialization as determined by the department. The language or languages should be used in preparing the preliminary essays and tested by a procedure approved by the student's guidance committee.
4. Prepare a dissertation research project within his fields of specialization. This will demonstrate the student's ability to formulate independent research.

After completion of the above requirements, a written and oral pre-

liminary examination will be administered by the guidance committee with additional faculty consultants within and outside the Anthropology Department. After satisfactory performance in the Preliminary Examination the student will be advanced to candidacy. If field research is not a part of the thesis project, a period of field work, and report on this, will be required before the student may be advanced to candidacy. A doctoral dissertation will then be submitted. Research, including field work gathering material for the dissertation, is frequently carried out away from the Stony Brook campus. Dissertation procedures and award of the Ph.D. follow Graduate School requirements. A final defense and/or presentation to a colloquium is required.

Courses

ANT 500 Social and Cultural Anthropology
3 credits

ANT 501, 502 Theory in Cultural and Social Anthropology
3 credits each semester

ANT 503 Evolution of the State
3 credits

ANT 504 Problems in Political and Economic Development
3 credits

ANT 505 Quantitative Methods of Anthropology
3 credits

ANT 506 Readings and Research in African Ethnology
3 credits

ANT 508 Seminar in Latin American Cultures
3 credits

ANT 512 Patterns of Empire
3 credits

ANT 520 Readings in Topibal Problems
3 credits

ANT 525 Method in Ethnography and Social Anthropology
3 credits

ANT 526 Anthropological Geography: Theory and Applications
3 credits

ANT 528 Kinship and Social Organization
3 credits

ANT 529 Ecology and Social Organization
3 credits

ANT 540 Readings in Ethnography and Ethnology
3 credits

ANT 550 Readings in Cultural History
3 credits

ANT 551 Economic Anthropology
3 credits

ANT 553 Political and Legal Anthropology
3 credits

ANT 557 Seminar in Comparative Religion
3 credits

ANT 560 Readings in Descriptive Linguistics
3 credits

ANT 561 Peasant Societies and Cultures
3 credits

ANT 562 Prescriptive Alliance Systems
3 credits

ANT 568 Symbolism
3 credits

ANT 600 Practicum in Teaching
Variable and repetitive credit

ANT 601, 602 Research Seminar in Anthropological Theory
Variable and repetitive credit

ANT 604 Tutorial in Anthropological Theory
Variable and repetitive credit

ANT 610 Individual Research
Variable and repetitive credit

ANT 620 Research Seminar in Topical Problems
Variable and repetitive credit

ANT 640 Research Seminar in Ethnography and Ethnology
Variable and repetitive credit

ANT 650 Research Seminar in Cultural History
Variable and repetitive credit

ANT 660 Language as an Analytical Tool
Variable and repetitive credit

ANT 680 Special Seminar
3 credits, repetitive credit

ANT 699 Research Seminar in Fieldwork Problems
Variable and repetitive credit

DEPARTMENT OF ECONOMICS

Professors: E. Ames (*Chairman*), Dusansky, Hoffmann, James, Kalman, Neuberger, Stekler

Associate Professors: Entine (*Adjunct*), Kanovsky, Kristein, Staley, Van Roy, Zschock, Zweig

Assistant Professors: Denci (*Adjunct*), Sattinger, Schoepfle, Wile

The Department of Economics has both a Ph.D. and a terminal M.A. program.

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 or by special examination. Students not meeting this requirement may be accepted provisionally upon their taking a year course in calculus and earning a grade of at least B prior to enrollment.

C. Results from the Graduate Record Examination (the 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 adequate training in mathematics prior to entry into the graduate economics

program, 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 examination must normally be passed 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; at least one of these must be a field other than advanced theory or econometrics.

All students will be required to demonstrate proficiency in the three core fields and two optional fields by achieving a grade of at least B in special written examinations in each field, normally at the end of the second year. These examinations may be supplemented by an oral examination at the discretion of the examiners. The examination in one optional field may be waived if the student has achieved a satisfactory grade in all his course or other work in the field. The department will allow one repetition of a field examination in either the core or optional fields. 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 a qualified faculty member, and carried out under that person's general supervision.

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. Part-time students must achieve an equivalent amount of course and other work in the department. In all but exceptional cases, the student must be advanced to candidacy within five years after first enrolling in the graduate program.

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. *Doctoral dissertation:* Each candidate for the Ph.D. must complete a dissertation. The prospectus must receive approval of the thesis advisor and will ordinarily be presented before a research seminar. In general the dissertation should be short (50-75 pages) and of a quality suitable for publication in scholarly journals. Final approval will be by a departmental committee including the candidate's principal advisor and two other faculty members. The results of the dissertation will be presented at a colloquium convened for that purpose. Research work as an intern in an off-campus project or as an associate in an intra-university program, such as the Economic Research Bureau, Health Sciences Center, or Marine Sciences Research Center, or in extra-university bodies, such as the Bi-County Planning Board, may meet the dissertation requirement provided that it had had the continuing supervision of the principal advisor, that the student submits the results of independent research, and that it otherwise meets departmental standards.

Miscellaneous Information

1. 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.
2. 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.
3. 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

This option is designed for part-time (evening) students, seeking 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. Deviations from this rate of work may be permitted in special cases.

The basic core (which also provides the prerequisites for courses indicated as requiring prerequisites) consists of ECO. 573 Prices and Markets, ECO. 580 National Income, Employment and Money, and ECO. 574 Statistics and Data Analysis for Public Policy. Students are also urged to follow these courses with ECO. 581, 582 Economic Aspects of Public Policy and ECO. 576 Economic Accounting. 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 credit earned in CED economics courses toward their M.A. degree. Courses in related social sciences, in mathematics, or other disciplines may be given credit toward the degree where such courses serve a useful part of the student's career objectives.

*Courses in M.A. Program**

Number	*Title*
**ECO 552	Economics of Money and Banking
ECO 553	Financial Markets and Institutions (prereq. ECO 552 or equivalent)
ECO 555	Consumer Economics
**ECO 556	Managerial Economics (prereq. ECO 573 or equivalent)

*All M.A. Program in Economics Courses are cross-listed in CED with CED Numbers.

**Possible new courses.

ECO 557 Comparative Studies in Economic Systems
ECO 558 Comparative Economic Systems: China
ECO 559 International Trade and Finance (prereq. some economics)
ECO 573 Prices and Markets
ECO 574 Statistics and Data Analysis for Public Policy I
ECO 575 Statistics and Data Analysis for Public Policy II
ECO 576 Economic Accounting
ECO 577 Economic History of the U.S. I
ECO 578 Economic History of the U.S. II
ECO 579 Labor Economics (prereq. ECO 573 or equivalent)
ECO 580 National Income, Employment & Money
ECO 581 Economic Aspects of Public Policy I
ECO 582 Economic Aspects of Public Policy II
ECO 583 Economics of the Middle East
ECO 584 History of Economic Thought (prereq. some economics)
ECO 585 Urban Economics (prereq. ECO 573 or equivalent)
ECO 586 Economics of Human Resources
ECO 587 Major Issues in International Economics (ECO 559 or equivalent)
ECO 588 The Economics of Developing Countries (prereq. ECO 580 recommended)
ECO 589 Major Issues in Economic Development (prereq. ECO 588 recommended)
ECO 599 Research in Special Topics

Courses

The department is prepared to offer the following courses, although not all of them in each academic year.

ECO 500 Microeconomics I
3 credits

ECO 501 Microeconomics II
3 credits

ECO 505 Microeconomic Cybernetics
3 credits

ECO 508 Development of Economic Analysis
3 credits

ECO 509 Studies in Economic Theory
Variable and repetitive credit

ECO 510 Macroeconomics I
3 credits

ECO 511 Macroeconomics II
3 credits

ECO 513 Business Cycles, Stabilization Policies, and Forecasting
3 credits

ECO 514 Dynamic Economic Models
3 credits

ECO 519 Studies in Macroecnomics
Variable and repetitive credit

ECO 520 Mathematical Statistics
3 credits

ECO 521 Econometrics
3 credits

ECO 522 Seminar in Applied Econometrics
3 credits

ECO 525 Economic Applications of Probability Theory
3 credits

ECO 527 Operations Research I
3 credits

ECO 528 Operations Research II
3 credits

ECO 529 Studies in Quantitative Methods
Variable and repetitive credit

ECO 530 Welfare Foundations of Public Sector Economics
3 credits

ECO 531 Seminar in Public Sector Economics
3 credits

ECO 533 Applied Welfare Analysis
3 credits

ECO 540 Human Capital
3 credits

ECO 541 Seminar in Human Capital
3 credits

ECO 542 Foundations of Urban Economics
3 credits

ECO 543 Problems in Urban Economics
3 credits

ECO 549 Studies in Public Sector Economics
Variable and repetitive credit

ECO 550 International Economic Theory
3 credits

ECO 551 International Economic Policy
3 credits

ECO 552 Economics of Money and Banking
3 credits

ECO 553 Financial Markets and Institutions
3 credits

ECO 555 Consumer Economics
3 credits

ECO 556 Managerial Economics
3 credits

ECO 557 Comparative Studies in Economic Systems
3 credits

ECO 558 Comparative Economic Systems: China
3 credits

ECO 559 International Trade and Finance
3 credits

ECO 560 Comparative Economic Systems
3 credits

ECO 561 Theory of Economic Systems
3 credits

ECO 562 Economic Development I
3 credits

ECO 563 Economic Development II
3 credits

ECO 564 Economic Antropology
3 credits

ECO 566 Political Economy I
3 credits

ECO 567 Political Economy II
3 credits

ECO 569 Studies in Economic Systems
Variable and repetitive credit

ECO 570 Price and Welfare Theory
3 credits

ECO 572 Macroeconomics and Public Sector Finance
3 credits

ECO 573 Prices and Markets
3 credits

ECO 574 Statistics and Data Analysis for Public Policy I
3 credits

ECO 575 Statistics and Data Analysis for Public Policy II
3 credits

ECO 576 Economic Accounting
3 credits

ECO 577 Economic History of the United States I
3 credits

ECO 578 Economic History of the United States II
3 credits

ECO 579 Labor Economics
3 credits

ECO 580 National Income, Employment and Money
3 credits

ECO 581 Economic Aspects of Public Policy I
3 credits

ECO 582 Economic Aspects of Public Policy II
3 credits

ECO 583 Economics of the Middle East
3 credits

ECO 584 History of Economic Thought
3 credits

ECO 585 Urban Economics
3 credits

ECO 586 Economics of Human Resources
3 credits

ECO 587 Major Issues in International Economics
3 credits

ECO 588 Economics of Developing Countries
3 credits

ECO 589 Major Issues in Economic Development
3 credits

ECO 590 Mathematical Foundations of Contemporary Economic Theory I
3 credits

ECO 591 Mathematical Foundations of Contemporary Economic Theory II
3 credits

ECO 598 Economic Fundamentals
Variable and repetitive credit

ECO 599 Research in Special Topics
Variable and repetitive credit

ECO 600 Advanced Microeconomic Theory I
3 credits

ECO 601 Advanced Microeconomic Theory II
3 credits

ECO 620 Advanced Econometrics I
3 credits

ECO 621 Advanced Econometrics II
3 credits

ECO 668 Research Workshop in Systems and Development
3 credits

ECO 698 Practicum in Teaching
Variable and repetitive credit

ECO 699 Thesis Research
Variable and repetitive credit

DEPARTMENT OF HISTORY

Professors: Angress, Chinchilla-Aguilar, Lampard, Main, Rosenthal (*Chairman*), Semmel, Taylor, Trask, Weinstein

Associate Professors: Alin, Bottigheimer, Burner, Cleland, Cowan, D. M. Fox (*Adjunct*), Kuisel, R. Lebovics, R.H.G. Lee, R.M. Levine, Lida, Marcus, Pratt, Weltsch, Wildman, J. A. Williams

Assistant Professors: Garber, Lemay, McCarthy, Rapp, Stein

Admission to Graduate Study

For admission to graduate study in history, the following are required:

A. An official transcript of undergraduate record.
B. Letters of recommendation from *three* previous instructors.
C. Results of the Graduate Record Examination Aptitude Test.
D. A baccalaureate degree in history or its equivalent.
E. A minimum grade point average of 2.75 (B–) in all undergraduate course work, and 3.00 (B) in history courses.

F. Acceptance by the Department of History and the Graduate School.

In special cases, students not meeting requirements D and E may be admitted on a provisional basis.

With the approval of the Dean of the Graduate School and the History Department, a student holding an M.A. degree from another accredited institution may be admitted directly to the Ph.D. program at Stony Brook.

Foreign Languages

Ph.D. candidates are expected to be able to use whatever languages are necessary for research in their major field. The student and his advisor will decide what those languages should be, with the approval of the Graduate Committee. In most cases proficiency in at least one foreign language must be demonstrated by examination before a student may be examined for the M.A. or Ph.D.

Supervised Teaching

Teaching assistants in history are expected to perform either research or teaching functions in the department, up to a possible 12 hours a week.

Those who are teaching will enroll in HIS 581 Supervised Teaching for three units per semester of degree credit. Their work will be supervised by the member of the faculty to whom they are assigned.

All doctoral students beyond the M.A. level, whether teaching assistants or not, are expected to perform some kind of supervised teaching within their graduate career.

Master of Arts Degree

The department offers two options at this level: *Option 1* for those primarily interested in graduate study leading to university teaching or research positions and *Option 2* for those primarily interested in teaching history in the schools and community colleges. Those in the *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 *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 I

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 to 1824.
United States since 1824, with emphasis upon political/constitutional (or intellectual or diplomatic or social) history.
Europe since 1815, with emphasis upon Britain, France, and Germany.
Modern Europe, with emphasis upon intellectual history, 1715–1890.
Modern Europe, with emphasis upon Russia since 1600.
Latin America before Independence.
Latin America since Independence, with emphasis on Brazil, Argentina, and Mexico.
Expansion of Europe, 1500–1750 or 1750-recent times.

Courses

Each M.A. candidate must complete satisfactorily at least 30 units of appropriate graduate course work before taking the M.A. oral examination. These courses shall normally include:

1. Two reading and/or research seminars in the exam field (6 units).
2. At least one additional reading colloquium with a different instructor (3 units).
3. Electives chosen among further reading colloquia and individual directed readings.

Examination

An examining committee of three faculty members, chosen by the chairman of the History Department, shall assess the candidate's competence in his or her chosen field in oral examination.

Normally the M.A. examination shall be taken at the end of two semesters of study. It must be taken by the end of the third semester, except in exceptional circumstances by permission of the Graduate Committee.

Option II

Master of Arts Degree (History Education)

The History Education option is designed to provide new modes of graduate study in history for those who are primarily interested in

teaching in the schools and community colleges. A student's program combines traditional graduate courses with a special seminar on teaching. In place of the oral examination in the Option I program, a student prepares an M.A. Project. The project may be an original instructional unit, or a research paper and smaller teaching unit based on the paper. Other options are possible, but the objective in all cases is to integrate in meaningful ways a student's reading and research with teaching in the classroom.

The admission requirements to this program are the same as those indicated above under "Admission to Graduate Study." Ordinarily no special language proficiency will be required.

Courses

Each candidate in the History Education option must complete satisfactorily 30 hours of appropriate graduate course work. He must also submit an M.A. Project, described above, which must be approved upon completion by two members of the department. A student's program will normally include:

1. HIS 597, 598: The Teaching of History, I, II (6 units).
2. HIS 599: Research for M.A. Project (6 units).
3. Reading and/or research seminars, individual directed readings (18 units).

A "B" average will be a formal prerequisite for the degree. The History Education Committee, charged with the administration of this M.A. option, will recommend conferral of the degree when all requirements, including the M.A. Project, have been satisfied.

Doctor of Philosophy Degree

The Ph.D. is the highest professional degree granted by the history department. Candidates for the degree must hold an M.A. awarded either by the State University of New York at Stony Brook, or by another institution which it recognizes. Candidates must have been formally admitted to the Ph.D. program in history and have an advisor/thesis director who has agreed in writing, even if conditionally, that he or she will guide the student through the Ph.D. qualifying examinations and direct the dissertation. A Ph.D. preparation committee, made up of members of the graduate faculty in fields in which the student has an interest will prescribe the nature of a student's work. A foreign language requirement will be set by this committee, and will in no case be less than a reading knowledge of one foreign language. The Ph.D. preparation committee will, most critically, assist the student to define and master three fields of knowledge:

Field 1: Dissertation Field: An area of historical knowledge which encloses the student's expected research interest, and which comprises a field sufficiently broad for the purpose of undergraduate teaching. Example: Modern European History, with emphasis upon 19th century Germany.

Field 2: Additional Teaching Field: A broadly defined area of historical study which comprises a second, distinct teaching field (although it may be chosen for the comparisons it evokes with the dissertation field). Examples: Latin American History After Independence; History of Science.

Field 3: Cognate Field: A specialty in another discipline, or in history but with a specific methodological emphasis. Examples: Econometrics; Political Theory; Art History. This field will not be formally examined. The student can satisfy the requirement by successful completion of at least six credits of formal course work on the graduate level, and the completion of a paper or project which attests to the student's ability to adapt this specialty to historical research. A student's Ph.D. preparation commitee will certify satisfactory completion of this requirement.

A student may not take the examinations in fields 1 and 2 before both satisfying the language requirement and passing the cognate field.

Course Work

A student's program should be planned in consultation with this Ph.D. preparation committee. In every case, however, it must include two graduate seminars beyond the M.A., one of which must be a research seminar in the dissertation field. This requirement must be met before qualifying examinations are taken. All students holding full or partial traineeships must register for three credits of HIS 581, supervised teaching in each semester in which they hold such an appointment. Students who have not held a traineeship in the course of their graduate careers must take HIS 581 for at least one semester during their Ph.D. program. Full-time students are expected to take their qualifying examinations at the end of their third and not later than the end of their fourth semester of post-M.A. work.

Qualifying Examinations

There are three examination options open to the student in consultation with his Ph.D. preparation committee:

Option 1: A single oral examination of not less than two hours duration in which both the dissertation field and teaching field are examined, the two fields being assigned equal importance. An examiner from another department, ordinarily representing the cognate field, will be present and welcome to examine where he sees appropriate. The examining committee will consider a student's overall graduate record before recommending advancement, or non-advancement to candidacy.

Option 2: A written examination of the teaching field followed, no more than one month later, by a written examination of the dissertation field. As soon as the second exam has been passed, a brief review oral examination will be held, the examiners to include at least two

readers of each of the two written exams and an examiner from another department, ordinarily representing the cognate field. This committee may examine the student on any aspect of his three fields, but will consider his over-all graduate record before recommending advancement, or non-advancement, to candidacy.

Option 3: A written examination of the teaching field followed, no more than one month later, by an oral examination, principally of the dissertation field. At least one reader of the written exam in the teaching field must be present and free to ask additional questions concerning that field. An examiner from another department, ordinarily representing the cognate field, will be present and welcome to examine where he sees appropriate. The examining committee will be expected to take into consideration a student's overall graduate record before recommending advancement, or non-advancement, to candidacy.

A student who fails the oral or written examinations in all options may repeat each one, except that in option 2, failure of both written examinations prohibits a repetition of the oral.

Advancement to Candidacy

After the student has passed the Qualifying examination, the department shall propose to the Dean of the Graduate School that the student be advanced to Ph.D. candidacy.

Dissertation

A dissertation is required for the Ph.D. degree. After advancement to candidacy, a student will register for dissertation credits in consultation with his or her advisor. The student will select a dissertation topic within the major field. At present, the department offers dissertation fields in United States, Modern European, Latin American history and Expansion of Europe.

The dissertation must upon completion be approved by a dissertation examining committee of at least four members of the faculty, appointed by the Dean of the Graduate School. This committee may include the dissertation supervisor and must include at least one person from outside the department.

Before final approval can be granted, the student must present the results of the dissertation research at an informal dissertation colloquium convened for that purpose by the department and open to interested faculty members and graduate students.

Time Limit

All requirements for the Ph.D. degree must be completed within four years after advancement to candidacy. In rare instances, the Dean of the Graduate School will entertain a petition to extend this time limit, provided it bears the endorsement of the chairman of the department.

For further details, see Item #8 of the Graduate School regulations.

Courses

To prepare students for examinations, research work, and teaching, the Department of History offers the following kinds of graduate courses. Students wishing to know the exact course offerings for 1975-76 should request this information from the Department of History.

HIS 501, 502 Reading Colloquia in Ancient and Medieval History

HIS 503-510, 515-517 Reading Colloquia in European History since 1500

HIS 521-534 Reading Colloquia in United States History

HIS 541-545 Reading Colloquia in Latin American History

HIS 552-555 Reading Colloquia in English History

HIS 561 Reading Colloquium in East Asian History

HIS 581 Supervised Teaching

HIS 582-586 Directed Readings for M.A. Candidates
Variable and repetitive credit

HIS 590 Reading Colloquium in Quantitative Methods

HIS 593 Reading Colloquium in Psychoanalysis and History

HIS 597, 598 Teaching History I, II
Permission of Instructor

HIS 599 Research, M.A. Project

HIS 601, 602 Research Seminars in Ancient and Medieval History

HIS 603-610, 615-617 Research Seminars in European History Since 1500

HIS 621-634 Research Seminars in United States History

HIS 641-645 Research Seminars in Latin American History

HIS 652-655 Research Seminars in English History

HIS 661 Research Seminar in East Asian History

HIS 682-686 Directed Readings for Ph.D. Candidates
Variable and repetitive credit

HIS 699 Research for Ph.D. Candidates
Variable and repetitive credit

The Urban and Policy Sciences

GRADUATE PROGRAM

Professors: Nathans, *(Chairman)*

Associate Professors: Altman, Bodin, Carroll, Weiner, Young

Assistant Professors: Rosenfield, Swinton

Faculty Associates: Kristein, Polite, Short, Wile

The College of Urban and Policy Sciences is an educational and research program whose principal objective is to develop competence in problem-solving skills and institutional knowledge for the systematic analysis and design of alternative solutions to public policy problems. Both the curriculum and an active research program emphasize the application of the mathematical and analytic tools of the natural and social sciences in transportation, health care, energy policy, housing, environmental quality management and other fields. The program is directed toward meeting the need for qualified professionals in the areas of analyzing, planning, and managing public systems in urban and nonurban settings. A Master of Science is awarded upon successful completion of the two year graduate program.

Most graduates of the program enter careers as analysts and planners in various types of line agencies at all levels of government, in university-based or private research organizations, or in private industry. Others may go on for further university study.

To prepare students for these roles, Urban and Policy Sciences emphasizes:

- An interdisciplinary/integrated approach.
- Understanding the processes of implementation.
- Interaction with the public sector.

Curriculum

The educational curriculum of the Graduate Program is divided into five components:

1. *Core courses:* This set of courses, taken during the first year, provides the basic framework of the Program. Progress through these

courses allows the student to develop a high level of competence in the tools and skills he will require to systematically analyze large-scale, complex public problems and to understand how decisions are made and policy formulated in social, political, and economic institutions. Topics covered in the core include statistics and data analysis, operations research techniques, decision-making, planning theory, urban economics and public finance.

2. *Case studies, workshops, and projects:* An underlying objective of the educational program, reflected in this component of the curriculum, is to develop within the student the ability to analyze unstructured, contextual problems and to recognize the social, political, economic and institutional constraints that affect the formulation and implementation of public policy. The student must be able to learn about public issues quickly, to cope with information overload, to communicate what he learns to others, and to work effectively in a group. The student is required to gather and use data and information from a variety of sources, to filter them in meaningful ways, and to learn to present material clearly and concisely. The case studies, workshops, and projects provide the opportunity to develop skills needed by effective analysts and planners.

3. *Electives:* These courses, taught both within the Program and available from other departments within the University, provide the student during his or her second year with the opportunity to develop detailed knowledge in a particular area in which he or she expects to concentrate, or to broaden his or her perspective and sensitivity to the social and behavioral elements of public policy.

A wide variety of courses and seminars related to the urban and policy sciences is offered through other departments at Stony Brook. Of particular interest to UPS students would be advanced courses in the Department of Economics and courses in advanced quantitative technique in the Department of Applied Mathematics, urban politics and administration in the Department of Political Science, organization theory and social change in the Department of Sociology, and social psychology in the Department of Psychology. All UPS students are encouraged to take a number of elective courses outside of the program.

4. *Internship:* No combination of courses, seminars, projects or workshops can completely bridge the gap between the academic environment and the professional world that the student enters upon graduation. Practical experience can be gained, however, through an arrangement where the student works as a paid staff member on a specific problem for a governmental or community organization. This experience is provided through the requirement that all UPS students satisfactorily complete an intern program during the summer months between the first and second year of study. Arrangements for the internship are made by the UPS faculty. An attempt is made to match as closely as possible student interests and abilities with the specific requirements of the governmental agency or community organization.

Documentation of the project is required for evaluation by both the program and the client. Some examples of recent intern projects include the following: an air polution model developed for the IBM scientific center, a study of alternative schools for the New Jersey Department of Education, a feasibility study of ocean disposal of solid wastes for the New York City Environmental Protection Administration, a survey and evaluation of day-care centers in New York for the Central Staff of the State Assembly, and an examination of milk pricing in New Jersey for the National Child Nutrition Project.

5. *Research:* In addition to working on organized research projects that are defined by the UPS faculty, the second year student may undertake an independent research project that reflects his or her knowledge of a selected area of policy concentration. This project may be of an applied or theoretical nature.

Requirements for the M.S. Degree

The program of study for each student must be approved on an individual basis by the educational director of the Program for Urban and Policy Sciences.

Students must satisfy the following requirements for graduation:

A. Four semesters (usually two years) of full-time study in the program;

B. Successful completion of a total of 48 credits of formal graduate course requirements—24 credits from the core curriculum workshop, case studies, and projects, 6 from advanced quantitative methods; 18 credits of electives and seminars on public policy issues; and

C. Successful completion of a summer internship, including the preparation and submission of an acceptable summary document.

Students must maintain satisfactory progress throughout their course of study. If a student receives an "incomplete" for work, he or she must complete the requirements before enrollment in the subsequent semester or be restricted to a reduced course load.

Admission

The program for Urban and Policy Sciences is designed for students who are highly motivated and capable of applying what they learn toward the solution of public sector problems. Each student will be 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. Successful completion of course work in mathematics and/or statistics;

C. Submission of GRE scores;

D. Three letters of recommendation: one of which, if possible, should be from a professional working in a public agency, community organization, 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; and

E. Finally, acceptance by both the program 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 for the M.S. program should be made by April 1, although earlier submissions are encouraged. Applications are reviewed between January and April for the following fall semester. Final decicions concerning financial aid will be made not later than the April 1 deadline for applications.

Application forms may be obtained by writing to:
Educational Director, College of Urban and Policy Sciences
State University of New York at Stony Brook,
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Courses

Courses marked with an asterisk* are usually taken in the first year.

Analytic and Quantitative Techniques

UPS 513* Quantitative Methods for Public Systems Analysis I
Fall, 3 credits

UPS 514* Quantitative Methods for Public Systems Analysis II
Spring, 3 credits

UPS 517/518 Quantitative Methods for Public Systems Analysis III & IV
Fall and Spring, 3 credits each semester

Economic Processes

ECO 542 Urban Economics
Fall, 3 credits

UPS 533/534* Economy Theory for Public Policy Analysis I & II
Fall and Spring, 3 credits each semester

UPS 532* Economic and Political Organization in the Public Sector
Fall, 3 credits

Policy Analysis and Decision Making

UPS 531* Political and Administrative Decision Making
Fall, 3 credits

UPS 584 Intergovernmental Relations and Federalism
Spring, 3 credits

Practica in Policy Analysis and Public Management

UPS 541/542* Workshop in Urban and Policy Sciences
Fall and Spring, 3 credits each semester

UPS 590 Professional Development for Public Policy Analysis
Spring, 1 credit

UPS 591 Special Topics in Urban and Policy Sciences
3 credits, repetitive

UPS 595 Individual Directed Research in Urban and Policy Sciences
Fall and Spring, 1 to 3 credits

UPS 596 Small Group Studies in Urban and Policy Sciences
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* An asterisk indicates faculty who are located primarily at affiliated hospitals and agencies off campus, including the following facilities designated as clinical campuses in partnership with the Health Sciences Center:

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State University of New York

GENERAL STATEMENT

State University of New York, which celebrated its 25th anniversary in 1973, is unique in its organization and the breadth of its educational mission. It is the largest coordinated, centrally managed multi-level system of public higher education in the nation.

In a recent report to the University's Trustees, Chancellor Ernest L. Boyer said, "The State University welcomes not only the future architects, business executives, engineers, surgeons, and literary critics, but also future dairy farmers and medical technicians, accountants and social workers, foresters and automobile mechanics. And, through work in film, electronics, pollution control, data processing, police science, urban studies and similar fields, the University seeks to educate persons for tomorrow's roles as well as those of today."

Since its founding in 1948, the State University has grown from 29 State-supported but unaffiliated campuses into an organized system of higher education comprising 72 institutions which enrolled 234,000 full-time and 127,000 part-time students in academic 1972-73.

Specifically, the University encompasses four university centers (two of which, Buffalo and Stony Brook, include health sciences centers); two medical centers; 13 colleges of arts and science; a non-residential college; three specialized colleges; six agricultural and technical colleges; five statutory colleges; and 38 locally-sponsored community colleges. Together, they offer students a choice of more than 3,100 academic specializations, representing more than 1,500 different degree programs. Twelve of the campuses offer graduate study at the doctoral level, 22 at the masters level.

Advanced degree study encompasses a wide spectrum, including agriculture, business administration, criminal justice, dentistry, education, engineering, forestry, life and physical sciences, medicine, nursing, optometry, pharmacy and veterinary medicine.

Four-year programs emphasize the liberal arts and science and include such specializations as teacher education, business, forestry, physical education, maritime service, ceramics and the fine and performing arts.

The two-year colleges offer associate degree opportunities in arts and science and in technical areas such as agriculture, business, civil technology, data processing, police science, nursery education, nursing, medical laboratory technology and recreation supervision. The two-year colleges also provide transfer programs within the University for students wishing to continue study toward a baccalaureate degree.

Two of the University's state-wide programs which have played important roles in upgrading educational opportunity for disadvantaged students have been merged into single operations called Educational Opportunity Centers.

The ten centers now combine the efforts of the former Urban Centers, which provided opportunities for educationally deprived students to upgrade occupational skills and find gainful employment, with those of the former cooperative college centers, which identified students with college potential and prepared them for matriculation into public and private colleges in New York State.

Educational innovation has from the first been a University watchword.

With funding support from a private educational foundation, several University campuses are experimenting with programs to shorten substantially the traditional four-year period of baccalaureate study.

Empire State College, the 72nd and newest institution, is a non-residential college whose students earn degrees without being attached to a specific campus or attending traditional classes. Its coordinating center at Saratoga Springs reaches out to students through regional learning centers.

State University is governed by a Board of Trustees, appointed by the Governor, which determines the policies to be followed by the 34 State-supported campuses.

The 38 community colleges operating under the program of State University have their own local boards of trustees. The State contributes one-third to 40 per cent of their operating costs and one-half of their capital costs.

The State University motto is "Let Each Become All He Is Capable of Being."

State University of New York

CAMPUSES

UNIVERSITY CENTERS

State University at Albany
State University at Binghamton
State University at Buffalo
State University at Stony Brook

MEDICAL CENTERS

Downstate Medical Center at Brooklyn
Upstate Center at Syracuse

COLLEGES OF ARTS AND SCIENCE

College at Brockport
College at Buffalo
College at Cortland
Empire State College
College at Fredonia
College at Geneseo
College at New Paltz
College at Old Westbury
College at Oneonta
College at Oswego
College at Plattsburgh
College at Potsdam
College at Purchase
College at Utica/Rome

SPECIALIZED COLLEGES

College of Environmental Sciences and Forestry at Syracuse
Maritime College at Fort Schuyler (Bronx)
College of Optometry at New York City

AGRICULTURAL AND TECHNICAL COLLEGES (Two-Year)

Alfred
Canton
Cobleskill
Delhi
Farmingdale
Morrisville

STATUTORY COLLEGES

College of Ceramics at Alfred University
College of Agriculture and Life Sciences at Cornell University
College of Human Ecology at Cornell University
College of Industrial and Labor Relations at Cornell University
Veterinary College at Cornell University

COMMUNITY COLLEGES

(Locally-sponsored, two-year colleges under the program of State University)

Adirondack Community College at Glens Falls
Auburn Community College at Auburn
Borough of Manhattan Community College
Bronx Community College
Broome Community College at Binghamton
Clinton Community College at Plattsburgh
Columbia-Green Community College at Athens
Community College of the Finger Lakes at Canandaigua
Corning Community College at Corning
Dutchess Community College at Poughkeepsie
Erie Community College at Buffalo
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
Hostos Community College at South Bronx
Hudson Valley Community College at Troy
Jamestown Community College at Jamestown

Jefferson Community College at Watertown

Kingsborough Community College

LaGuardia Community College at Long Island City

Mohawk Valley Community College at Utica

Monroe Community College at Rochester

Nassau Community College at Garden City

New York City Community College

Niagara County Community College at Sanborn

North Country Community College at Saranac Lake

Onondaga Community College at Syracuse

Orange County Community College at Middletown

Queensborough Community College

Rockland Community College at Suffern

Schenectady County Community College at Schenectady

Staten Island Community College

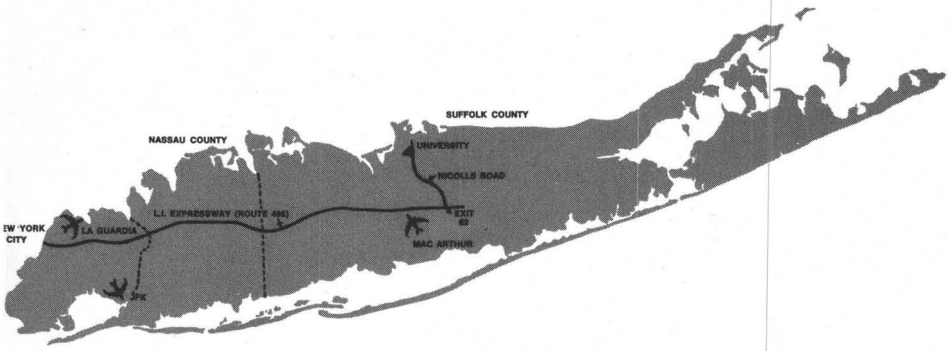
Suffolk County Community College at Selden

Sullivan County Community College at South Fallsburg

Tompkins-Cortland Community College at Groton

Ulster County Community College at Stone Ridge

Westchester Community College at Valhalla



transportation to stony brook

By Air

Stony Brook is located ten miles from Long Island-MacArthur Airport and 50 miles from Kennedy International and LaGuardia Airports.

By Car

Take the Long Island Expressway (Route 495) east from the Queens-Midtown Tunnel in Manhattan. Leave Expressway at Exit 62 and follow Nicolls Road north for nine miles. Turn left at the main entrance to the University and stop at the gatehouse for a parking permit.

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.

Official Bldg. No.	Building Index	Map Location
020	ADMINISTRATION BUILDING	G 6
032	AMMANN COLLEGE (G QUAD)	E 6
082	BARUCH COLLEGE (KELLY QUAD)	G 1
033	BENEDICT COLLEGE (H QUAD)	D 7
04G	BIOLOGICAL SCIENCES GRADUATE BLDG.	J 6
004	BIOLOGY BUILDING	G 5
062	CARDOZO COLLEGE (ROTH QUAD)	J 4
002	CHEMISTRY BUILDING	F 5
02G	CHEMISTRY GRADUATE BUILDING	F 5
041	COMMISSARY	F 3
014	COMPUTING CENTER	H 4
081	DEWEY COLLEGE (KELLY QUAD)	H 1
072	DOUGLASS COLLEGE (TABLER QUAD)	K 4
073	DREISER COLLEGE (TABLER QUAD)	K 3
019	EARTH AND SPACE SCIENCES BUILDING	G 4
083	EISENHOWER COLLEGE (KELLY QUAD)	G 1
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011	ENGINEERING BUILDING	H 4
013	ENGINEERING HEAVY LABORATORY	H 4
012	ENGINEERING LIGHT LABORATORY	G 4
021	FINE ARTS (STAGE I, STAGE II)	G 6
030	G-CAFETERIA	E 6
07B	GARAGE	G 2
	GATEHOUSE	F 7
065	GERSHWIN COLLEGE (ROTH QUAD)	J 5
031	GRAY COLLEGE (G QUAD)	E 6
093	GREELEY COLLEGE (STAGE XII QUAD)	J 2
006	GYMNASIUM	E 4
033	H-CAFETERIA	D 7
085	HAMILTON COLLEGE (KELLY QUAD)	G 2
071	HAND COLLEGE (TABLER QUAD)	K 4
400	HEALTH SCIENCES CENTER	J 8
008	HEATING PLANT	F 2
063	HENRY COLLEGE (ROTH QUAD)	J 5
001	HUMANITIES BUILDING	G 6
036	INFIRMARY	D 5
026	INSTRUCTIONAL RESOURCES CENTER	H 6
030	(SOUTH) IRVING COLLEGE (G QUAD)	E 6
034	JAMES COLLEGE (H QUAD)	D 6
092	KELLER COLLEGE (STAGE XII QUAD)	J 2
080	KELLY CAFETERIA	H 2
027	LABORATORY-OFFICE BUILDING	H 5
035	LANGMUIR COLLEGE (H QUAD)	D 6
025	LECTURE HALL CENTER	H 6
005	LIBRARY, FRANK MELVILLE JR. MEMORIAL	F 5
064	MOUNT COLLEGE (ROTH QUAD)	H 4
030	(NORTH) O'NEILL COLLEGE (G QUAD)	E 6
003	PHYSICS BUILDING	F 4
03G	PHYSICS/MATH GRADUATE BUILDING	F 4
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074	SANGER COLLEGE (TABLER QUAD)	K 3
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007	SERVICE BUILDING	F 3
028	SOCIAL AND BEHAVIORAL SCIENCES	H 6
24A	SOCIAL SCIENCES LABORATORY	G 5
24B	SOCIAL SCIENCES OFFICE	G 6
301	SOUTH CAMPUS A	L 6
302	SOUTH CAMPUS B	L 6
303	SOUTH CAMPUS C	L 6
304	SOUTH CAMPUS D	L 7
305	SOUTH CAMPUS E	L 6
306	SOUTH CAMPUS F	L 7
307	SOUTH CAMPUS G	M 7
308	SOUTH CAMPUS H	M 7
309	SOUTH CAMPUS J	M 6
310	SOUTH CAMPUS K	M 6
311	SOUTH CAMPUS L	M 6
090	STAGE XII CAFETERIA	H 2
091	STIMSON COLLEGE (STAGE XII QUAD)	H 2
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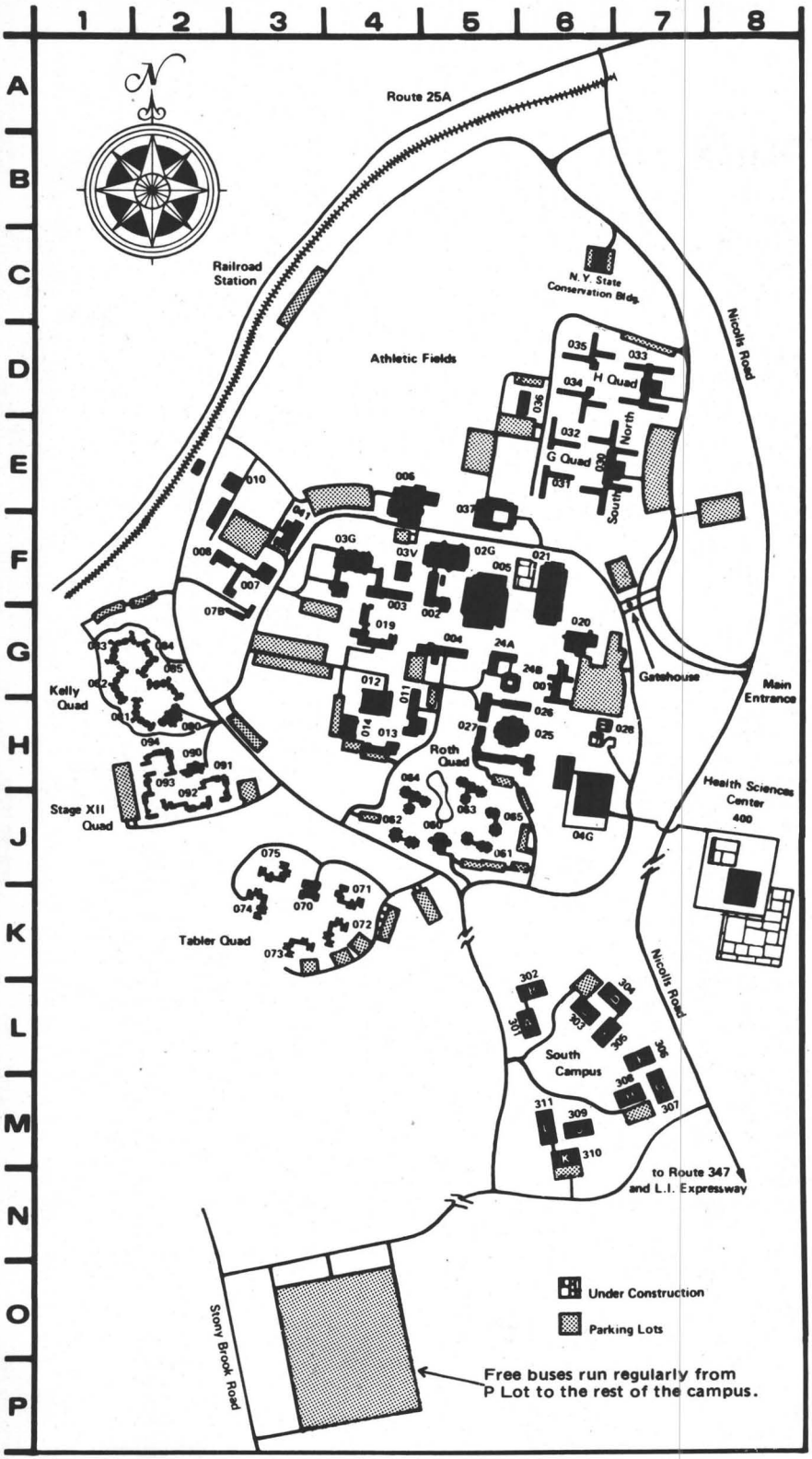
070	TABLER CAFETERIA	K 3
302	THEATRE (SOUTH CAMPUS B)	M 6
075	TOSCANINI COLLEGE (TABLER QUAD)	J 3
03V	VAN DE GRAAFF ACCELERATOR	F 4
094	WAGNER COLLEGE (STAGE XII QUAD)	H 2
007	WAREHOUSE	G 2
061	WHITMAN COLLEGE (ROTH QUAD)	J 5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Route 25A
Railroad Station
N.Y. State Conservation Bldg.
Nicolls Road
Athletic Fields
H Quad
G Quad
North
South
Kelly Quad
Stage XII Quad
Roth Quad
Gatehouse
Main Entrance
Health Sciences Center
400
Tabler Quad
South Campus
to Route 347 and L.I. Expressway
Stony Brook Road
Under Construction
Parking Lots
Free buses run regularly from P Lot to the rest of the campus.

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