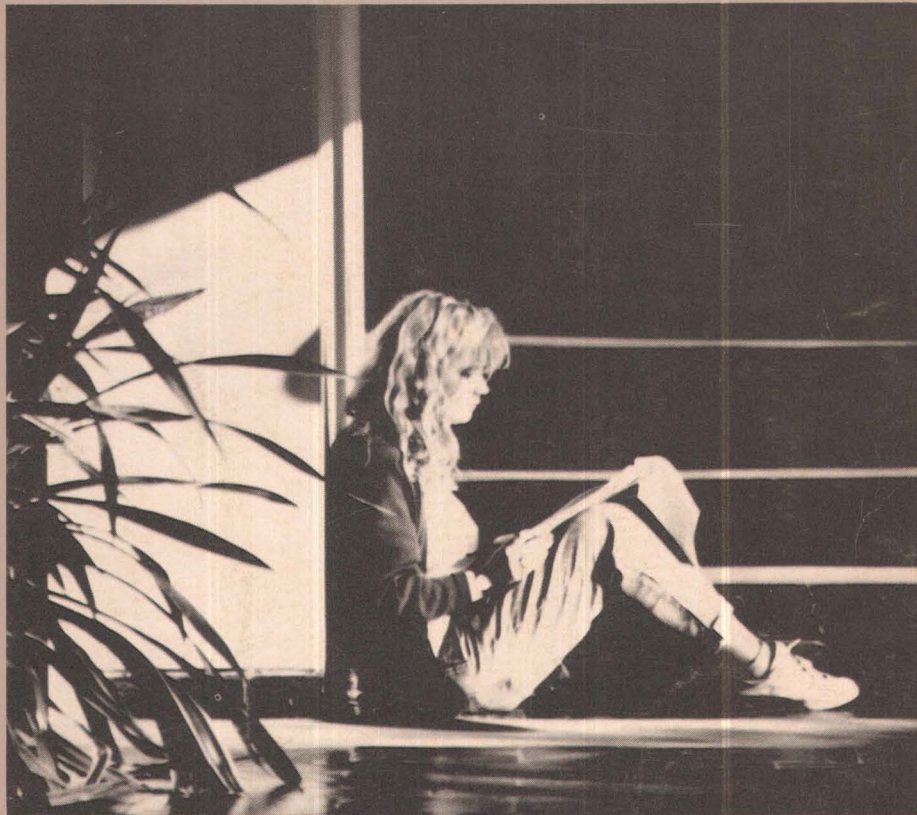


1989

1991

UNDERGRADUATE BULLETIN



STONY BROOK
STATE UNIVERSITY OF NEW YORK

Undergraduate Courses of Study

Undergraduates at the State University of New York at Stony Brook may take courses in any of the following subject areas. Subjects students can major in are listed with the national Higher Education General Information Survey (HEGIS) code number and the degree. Information on each subject is available on the page indicated. (Note: Students who enroll in programs not registered or otherwise approved may jeopardize their eligibility for certain student aid awards. All programs described in this *Bulletin* are approved unless otherwise indicated.)

The *estimated number of teaching assistants*, given at the end of the faculty list of each undergraduate course of study, reflects those graduate students who teach undergraduates in classroom, laboratory, or studio settings. It is not the total number of supported graduate students. The *estimated number of adjuncts* refers to temporary instructors whose names do not appear in the preceding faculty list.

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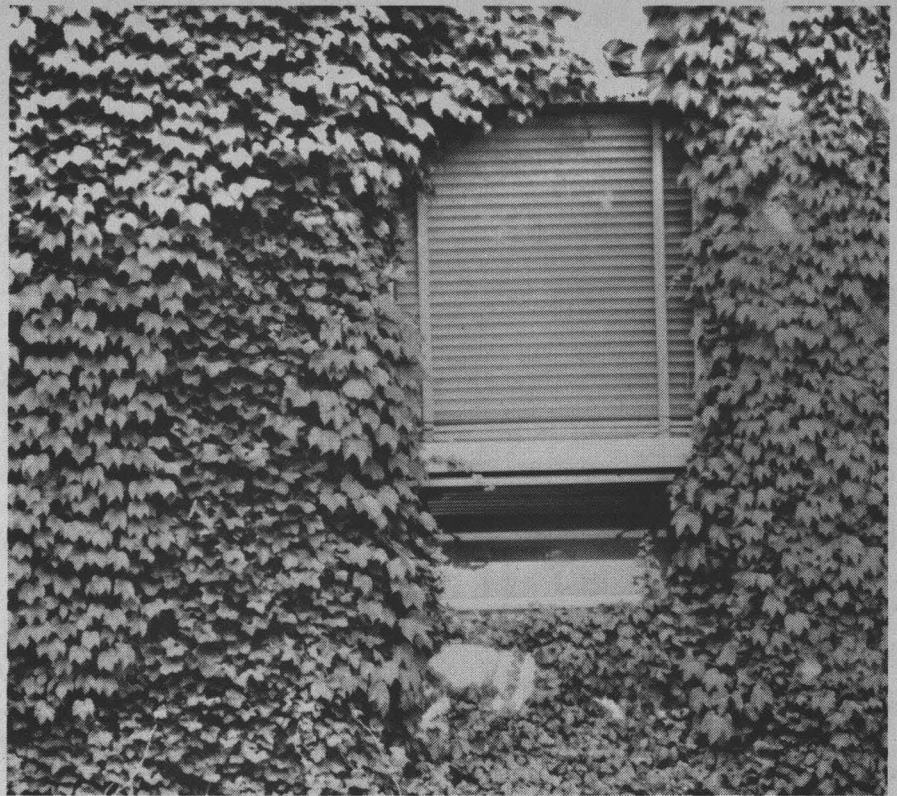


STONY BROOK
STATE UNIVERSITY OF NEW YORK

Undergraduate Bulletin
Volume XXI

Press Date: February 1, 1989

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 Circumstances may require that a given course be withdrawn or that alternate offerings be made.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



**Equal Opportunity and
Affirmative Action**

The State University of New York at Stony Brook does not discriminate on the basis of race, religion, sex, color, national origin, age, disability, marital status, or status as a disabled or Vietnam-era veteran in its education programs or employment. Also, the State of New York prohibits discrimination on the basis of sexual orientation.

Discrimination is unlawful. If you are a student or an employee of SUNY at Stony Brook and you consider yourself to be the victim of illegal discrimination, you may file a grievance in writing with the Affirmative Action Office within 45 calendar days of the alleged discriminatory act. If you choose to file a complaint within the university, you do not lose your right to file with an outside enforcement agency such as the State Division of Human Rights or Equal Employment Opportunity Commission.

Any questions concerning this policy or allegations of non-compliance should be directed to:

Marion Metivier-Redd
Special Assistant to the President
for Equal Opportunity and
Affirmative Action
Administration Building 474
SUNY at Stony Brook
Stony Brook, NY 11794-0251
Telephone: (516) 632-6280

Additional Information

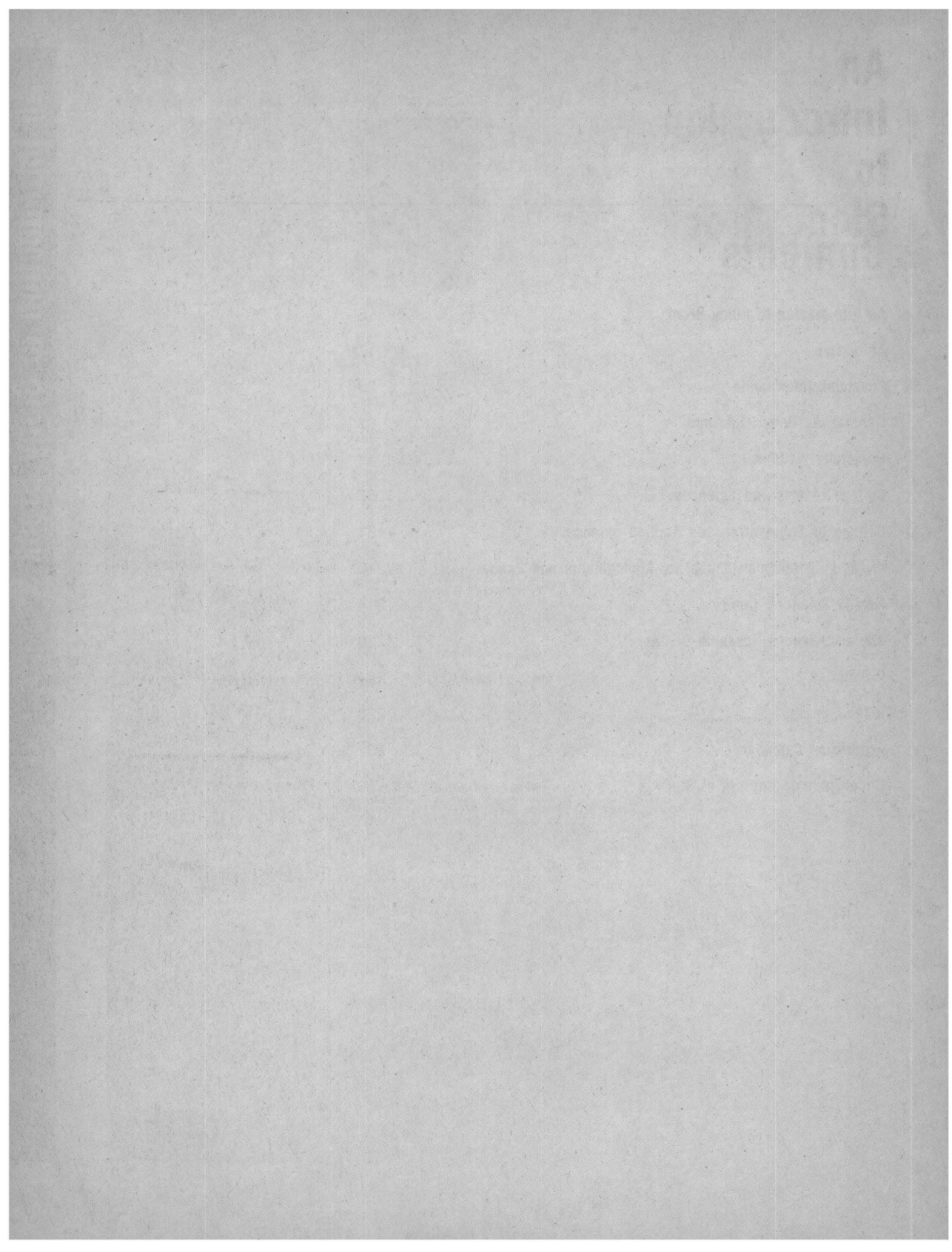
For general information about undergraduate programs and/or application, please write or phone:

State University of New York
at Stony Brook
Stony Brook, New York 11794
(516) 632-7080

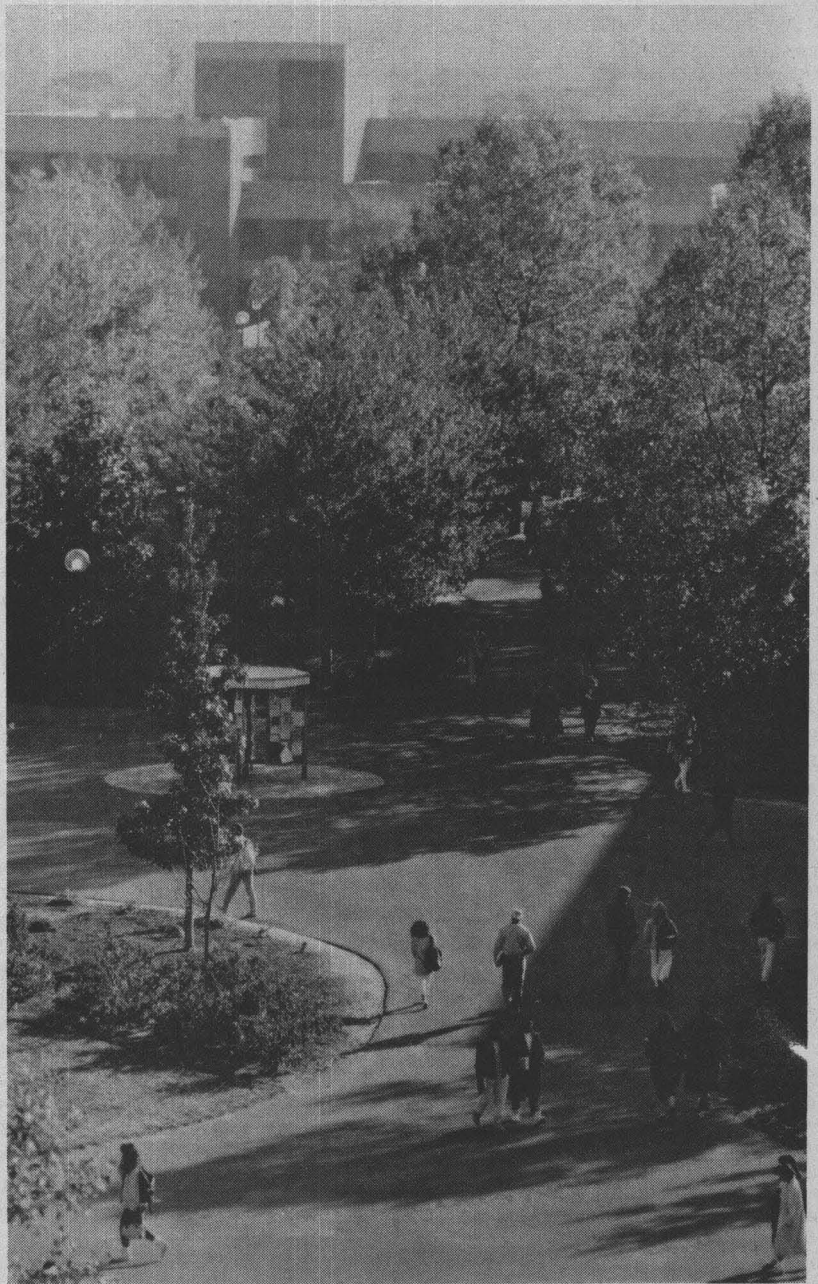
The general university telephone number is (516) 689-6000

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An Introduction to Stony Brook



An Introduction to Stony Brook

Background

Established in 1957 as New York's comprehensive State University Center for the downstate-metropolitan area, the State University of New York at Stony Brook is recognized as one of the nation's finest universities. Stony Brook offers excellent programs in a broad spectrum of academic subjects and conducts major research and public service projects. Over the past decade, externally funded support for Stony Brook's research programs has grown faster than at almost any other university, making it the major research campus in the nation's largest public university system. Internationally renowned faculty members offer courses from the undergraduate to the doctoral level for about 16,200 students through more than 100 undergraduate and graduate degree programs. Extensive resources and support services help foster intellectual and personal growth.

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

Founded at Oyster Bay, Long Island as a State University College to prepare secondary school teachers of mathematics and science, the young school moved in 1962 to its present location on Suffolk County's north shore. Since then, Stony Brook has expanded to encompass 103 buildings on 1,100 acres. The faculty has grown from about 175 to 1,465, the student body from 1,000 to 16,200, and the annual budget from about \$3 million to more than \$450 million.

One of Long Island's largest employers, the university serves this complex, growing region through research into area problems; through cooperative programs with governmental agencies at the federal, state, and local levels; and by responding to the region's extraordinary demand for higher education opportunity. Stony Brook strives to develop programs of the highest quality in areas of great public need, including health sciences, engineering and applied sciences, public policy, marine and environmental sciences, and the arts.

Location

Stony Brook is located about 60 miles east of Manhattan on the wooded north shore

of Long Island, convenient to New York City's cultural life and Suffolk County's tranquil, recreational countryside and seashores. The internationally recognized research facilities of Brookhaven National Laboratory and the Cold Spring Harbor Laboratory are not far away. Located near the restored historic village of Stony Brook at the geographical center of Long Island, the campus is some 60 miles west of Montauk Point. It is within minutes of New York State's richest farmland and clam beds, its spectacular Atlantic beaches, the craggy coastline and cliffs of Long Island Sound, and its picturesque village greens and gracious country homes. Long Island's hundreds of miles of magnificent coastline attract many swimming, boating, and fishing enthusiasts from around the world.

Campus

Stony Brook's bustling academic community is situated amid fields and woodland. Bicycle paths, an apple orchard, park benches, a duck pond, and spacious plazas complement modern laboratories, classroom buildings, and a performing arts center.

Surrounding the Frank Melville, Jr. Memorial Library at the center of the campus (see map at the back of this book) are the major academic buildings for the Colleges of Arts and Sciences and Engineering and Applied Sciences, the Administration Building, Jacob K. Javits Lecture Center, Computer Science Building, Educational Communications Center, Computing Center, Stony Brook Union, Gymnasium, and other service and activities buildings. Stony Brook's Staller Center for the Arts provides superb performing arts facilities and houses the departments of Theatre Arts, Music, and Art. A spacious outdoor plaza in which concerts may be held connects the Library, Stony Brook Union, and Staller Center in the middle of the campus. A new fieldhouse is under construction and is scheduled for completion in the fall of 1990, and a new conference center with a 200-room hotel is being planned. In addition, a 350-bed Long Island Veterans Nursing Home is under construction.

Encircling the academic buildings are six residential quadrangles with living space for about 1,000 students each. The quads are the basic social units for on-campus students, providing residence halls, dining rooms, and a diversity of student-sponsored enterprises and social facilities. About half of the undergraduate student body lives on campus. A 240-unit complex of one-, two-, and three-bedroom apartments provides additional housing near the Health Sciences Center.

The Health Sciences Center comprises academic and support areas for five professional schools and University Hospital, which admitted its first patients in 1980.

South of the academic cluster is the 26-acre Ashley Schiff Nature Preserve. Beyond these woods and linked to the rest of campus by a shuttle bus service are 11 functionally adaptable single-story buildings housing the Marine Sciences Research Center and the School of Dental Medicine. Construction of expanded dental medicine facilities is presently under way.

Parking is available for 9,100 cars, including a 2,000-car surface parking lot for commuting students, two 970-car parking structures as well as surface parking for the Health Sciences complex, and a 950-car parking structure serving the academic buildings.

Students

Stony Brook's current enrollment is about 16,700 (11,300 undergraduates and 5,400 graduate students). Approximately 9,600 undergraduates and 2,900 graduate and professional students are full time. Many part-time undergraduate and graduate students are enrolled in late afternoon and evening courses offered by many departments and the School of Continuing Education.

Approximately 94 percent of Stony Brook's undergraduates come from New York State; 56 percent of those are from Nassau and Suffolk counties and 33 percent from New York City. At any one time more than 100 Stony Brook students are studying abroad in approved exchange programs in such diverse countries as France, Poland, People's Republic of China, Italy, Israel, and Peru, and foreign students representing some 75 countries are studying at Stony Brook.

Of first-time, full-time Stony Brook students who entered in fall 1986, 85 percent were still in attendance after the first year. Many students who do not return full time do return for continued study at a later date, while others choose another college. Approximately 35 percent of each incoming freshman class graduate from Stony Brook in four years. An additional 15 percent graduate after their fourth year. These figures conform to the national average for retention of students.

The university aims at high standards in all its programs. Its record of placing graduates in the nation's best graduate and professional programs indicates the university's successes in making high-quality programs available to a broad and diverse student body.

Faculty and Research

Ninety-five percent of Stony Brook's 1,465 faculty members hold doctoral degrees and 90 percent or more are engaged in active research leading to publication, much of it supported by external grants and contracts. The Middle States Association had

high praise for Stony Brook's faculty in its latest campus reaccreditation report, noting that "several departments rank among the top in the country and most are of a very high level of quality as measured in terms of professional reputation and scholarly activities." The faculty-student ratio is about one faculty member for every 15 students.

Among the faculty with whom undergraduates study are Distinguished Teaching Professors John Truxal in engineering, Norm Goodman in sociology, Elof Carlson in biological sciences, and Homer Goldberg in English, and numerous recipients of the State University Chancellor's Award for Excellence in Teaching. Stony Brook is proud to number in its faculty such prestigious members as Einstein Professor C.N. Yang, Nobel Laureate in physics; University Professor Lewis Thomas in the health sciences, former Chancellor of Memorial Sloan-Kettering Cancer Center; Distinguished Professors K. Daniel O'Leary in psychology and Charles Rosen in music; Distinguished Professors Emeritus Seymour Cohen in pharmacological sciences and Lewis Coser in sociology; Pulitzer Prize-winning poet Louis Simpson in English; poet-playwright Amiri Baraka; poet-essayist June Jordan; and best-selling author Thomas Flanagan, winner of a National Book Critics Circle Award.

The Stony Brook faculty includes ten members of the American Academy of Arts and Sciences, 12 members of the National Academy of Sciences, and one member of the National Academy of Engineering. More than 300 scholars from 40 countries teach and conduct research at Stony Brook for various periods of time throughout the year.

Autistic children, cancer, lasers, moon rocks, recombinant DNA, the psychology of political attitudes and behavior, the social history of American slavery, and urban problems are but a few of hundreds of research subjects currently under examination by faculty and students at Stony Brook. This past year Stony Brook faculty members attracted more than \$60 million from the federal government and private foundations and individuals to support research, the largest dollar amount in the SUNY system. Over 1,000 sponsored projects are actively being pursued, including scientific studies, training programs, public-service projects, educational activities, and library support.

Academic Programs

The broad range and high quality of programs at Stony Brook give undergraduates opportunities to pursue both traditional and innovative curricula. Students are encouraged by the general education program to sample courses in a wide variety of disciplines and through their major to delve deeply into one field, guided by nationally distinguished scholars. Major programs

build on the University Core Curriculum, which stresses writing, quantitative literacy, and the serious examination of intellectual and societal issues. The undergraduate curriculum benefits from the special resources that a comprehensive university center can provide. The caliber of faculty, strong in pure and applied research and in the creative arts, results in excellent teaching and in program offerings at the forefront of rapidly changing areas of knowledge. The faculty provides a broad spectrum of opportunities for undergraduates to collaborate with them in research and creative activities.

Undergraduates at Stony Brook may take courses in any of the subject areas in the Courses of Study list (inside front cover).

The *College of Arts and Sciences* offers departmental, interdisciplinary, and interdepartmental majors, programs leading to provisional certification in secondary education, and a variety of minor programs. Minors are not required and do not in themselves lead to a degree. An interdisciplinary or interdepartmental major allows a student to explore a broad study area from the perspective of several disciplines. In some cases the program's own courses examine an intellectual discipline from several points of view. In other cases the major allows students to choose courses from several departments. Within any major in the College, a student may undertake independent study projects. This option allows the student, in consultation with appropriate faculty members, to develop an individual course of academic investigation and study. Through this same option, qualified upper-division students may participate in the research projects of faculty members. Several departments offer internships in which knowledge gained in the classroom is applied to the world of work.

The *College of Engineering and Applied Sciences* offers a wide spectrum of programs that provide students with opportunities to enter employment in industry or proceed to graduate study in a variety of fields. Three accredited major programs in engineering give the student enough latitude to plan programs within traditional engineering disciplines or in new interdisciplinary fields. The engineering degree programs place a strong emphasis on individual design and research projects in the junior and senior years, when students are encouraged to work closely with members of the faculty on projects of interest to them. Programs in the applied science area emphasize applications of analytical and computing techniques to a wide variety of technical and societal problems as well as the design and operation of computer systems and environments.

The *W. Averell Harriman School for Management and Policy* provides comprehensive education and research for the public, nonprofit, and private sectors. Named for one of New York's most distinguished public servants, the School trains students for careers primarily as analysts, planners, and managers. The curriculum and degree requirements are described in the *Graduate Bulletin*. Although the School's main program is at the graduate level, it also offers a major in business management and a minor for undergraduates. In the accelerated curriculum a student who has completed the junior year and has demonstrated aptitude for quantitative analysis and an interest in becoming a manager can earn the bachelor's and master's degrees in two years (a total of five undergraduate/graduate years).

The *Health Sciences Center* with its five professional schools and its teaching and research hospital is the fastest-growing unit of the university. Undergraduate degree programs are offered in the Schools of Allied Health Professions, Nursing, and Social Welfare. Many health sciences courses are open to upper-division students from the other academic areas. Continuing education for many health professions is also offered by the schools.

The *School of Continuing Education* offers the opportunity to pursue graduate study on a part-time basis. Its courses are designed to make it easier for people who work during the day to continue their education, and for this reason most of the classes in this program are offered in the late afternoon and evening. The School offers an interdisciplinary Master of Arts in Liberal Studies degree. Students seeking this degree are required to complete a program of study that includes 30 graduate credits and a master's essay. The School also serves non-matriculating graduate special students, classified as Graduate Special Students (GSP), who are exploring opportunities for graduate study at Stony Brook before committing themselves to a particular program, or who are studying solely for personal interest.

The *Graduate School* offers advanced degree programs in many fields leading to the master's and doctoral degrees. Stony Brook's advanced graduate programs have consistently received exceptionally high ratings from external evaluation agencies, and many are internationally recognized.

The following degrees are offered at Stony Brook: Bachelor of Arts, B.A.; Bachelor of Engineering, B.E.; Bachelor of Science, B.S.; Master of Arts, M.A.; Master of Arts in Liberal Studies, M.A./L.S.; Master of Fine Arts in Dramaturgy or Studio Art, M.F.A.; Master of Music, M.M.; Master of Science, M.S.; Master of Social Welfare, M.S.W.; Doctor of Dental Surgery, D.D.S.; Doctor of Medicine, M.D.; Doctor of Medi-

cine and Doctor of Philosophy, M.D./Ph.D.; Doctor of Philosophy, Ph.D.; Doctor of Musical Arts, D.M.A.; and Doctor of Arts in Foreign Languages, D.A.

As part of the State University of New York, the University at Stony Brook is accredited by the Middle States Association of Colleges and Secondary Schools. The College of Engineering is accredited by the Accreditation Board for Engineering and Technology, Inc. The Department of Chemistry is accredited by the American Chemical Society.

Academic publications edited or published at the university include *Advances in Learning and Behavioral Disabilities*; *Anthropology*; *Art Criticism*; *Ascent*; *Biological Psychiatry*; *Bulletin of Research in the Humanities*; *Circuits, Systems, and Signal Processing*; *Developmental Review*; *Gastrointestinal Radiology*; *Gradiva*; *Heat Transfer-Japanese Research*; *Journal of College Science Teaching*; *Journal of Educational Technology Systems*; *Journal of Histotechnology*; *Journal of Neurophysiology*; *Journal of Urban Analysis*; *Materials Letters*; *Materials Science and Engineering*; *Medieval Prosopography*; *Mental Retardation and Developmental Disabilities*; *Minnesota Review*; *Physics and Chemistry of Minerals*; *The Physics Teacher*; *Previews of Heat and Mass Transfer*; *Quarterly Review of Biology*; *Quintessence of Dental Technology*; *Slavic and East European Arts*; *Socio-Economic Planning Sciences*; *Surface Technology*; and *Transplantation Proceedings*.

Graduate Study at Stony Brook

Stony Brook is proud of the quality and diversity of its graduate programs. Although our campus is young, many of our departments rank among the best in the nation. In 1987 the Carnegie Foundation classified Stony Brook as a "Type I Research Institution." Stony Brook was the only public university in New York and one of only 70 institutions in the country to be so designated. The classification reflects the volume of federally sponsored research, the high percentage of doctoral students, and the emphasis on scholarship at Stony Brook.

Faculty of international stature, in close collaboration with graduate students, conduct their scholarly inquiry using state-of-the-art laboratories, extensive library facilities, and advanced computing equipment. Unique opportunities are available for students to participate in frontier research sponsored by federal agencies, private foundations, and industry. Indeed, such opportunities are expanding at a prodigious rate since, according to a recent National Science Foundation study, our campus has one of the most rapidly growing research funding volumes of all universities in the country. Moreover, students in the humanities, arts, and social sciences, where sponsored support is not as neces-

sary for the conduct of frontier inquiry, will find other unusual opportunities to work with scholars and artists who are world leaders in their respective areas.

Graduate study is offered in 43 different graduate studies areas as well as in the five schools of the Health Sciences Center and the School of Continuing Education. For a full listing of graduate programs of study consult the publication *1988-1990 Graduate Studies Opportunities*.

Admission to Graduate Programs

Applicants to the Graduate School must have a baccalaureate degree with a minimum overall grade point average of 2.75 and a grade point average of 3.0 in the major and related courses. Some departments establish additional requirements and deadlines for graduate admissions. Address any inquiries concerning graduate admission requirements to the department or program.



Financial Assistance

Financial assistance through the university is available to graduate students as assistantships, fellowships, scholarships, loans, tuition assistance, and work study programs. Most of these awards are available only to full-time, matriculated students.

Graduate Opportunity Tuition Waiver Program

A full waiver of tuition is available to former EOP, SEEK, or HEOP students who enroll in a registered State University of New York graduate or first professional degree program.

Graduate and Professional Tuition Waiver Program for Economically Disadvantaged Students

This program provides up to a full waiver of tuition for students who qualify according to an analysis of household size, income, and family financial circumstances.

Assistantships

Graduate assistantships provide the principal form of support for graduate students. As assistants, graduate students perform duties in three areas: teaching (Teaching Assistants), research (Research Assistants), and administration/research (Graduate Assistants).

Assistantships are awarded by the Graduate School, on the recommendation of the department, for one year. Both state-funded TAs and GAs and externally funded assistantships are renewable at the discretion of the department, most for up to four years. For the 1988-89 academic year the full assistantship carries a ten-month stipend of \$8,000, which may be supplemented by other funds to a maximum of \$13,000.

Fellowships

Among the several fellowships Stony Brook awards for graduate study, the Graduate Council Fellowships are the most prestigious. The current level of support for these Fellows is \$9,000 per year, with no service requirement. Awards result from Graduate School-wide competition and, funds permitting, may be renewed for two additional academic years by students in superior academic standing. Graduate Council Fellows usually qualify for full tuition waivers.

University Libraries

The Stony Brook campus has a number of libraries established to meet the information needs of students and faculty. The Frank Melville, Jr. Memorial Library, the main library building, provides both an intellectual and physical focal point for the campus and is among the largest academic libraries in the nation. Within the architecturally distinctive Melville building are collections serving the social sciences, humanities, fine arts, and music. These collections are particularly strong in English,

Western European, and Latin American literature, as well as in modern Western history and Latin American history. Special departments in the library provide ready access to current periodicals, government documents, maps, microforms, and legal materials. Other facilities of note are a music listening center, a student lounge, and a variety of individualized study carrels. The full range of library services, including open stack privileges and database searches, are available to all students.

There are five branch science libraries. Four of these—chemistry, engineering, earth and space sciences, and mathematics/physics—are located in departmental buildings. The fifth, biology, is located in its own building. There is also a Health Sciences Library in the Health Sciences Center. Collectively, the University Libraries contain more than 1.6 million bound volumes and 2.5 million publications in microformat.

Other library facilities of note are the Senator Jacob K. Javits Collection of private papers and memorabilia, 2 million items establishing one of the nation's leading archives of 20th-century congressional papers; the William Butler Yeats Microfilmed Manuscripts Collection; the University Archives within the Department of Special Collections; and the Institute for Advanced Studies of World Religions, a privately endowed foundation that assists the study and teaching of world religions, particularly Asian systems.

Library Hours

During the academic year, the library is generally open Monday through Thursday, 8:30 a.m. to midnight; Friday, 8:30 a.m. to 8 p.m.; Saturday, 10 a.m. to 6 p.m.; and Sunday, noon to midnight. During intersession and other vacation periods, hours are generally 8:30 a.m. to 5 p.m., Monday through Friday, and closed weekends. The library is usually closed on major holidays when classes are not held.

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

Computing Center

The Computing Center, located at the west side of the Engineering Quadrangle, is the university's central facility for instructional, research, and administrative computing. It provides general services involving mainframe and networked micro-computing to faculty, staff, and students.

The main computer is an IBM 3083 JX running VM/SP HPO (Virtual Machine/Sys-

tem Product) and MVS/SP (Multiple Virtual System). There is also a VAX cluster composed of a VAX 8600 and a VAX 8350. The VAX 8350 has two CPUs and 16 megabytes of memory. The main access to the 8350 is through the DEC PRO 350 workstations at the main campus SINC sites (Frank Melville, Jr. Memorial Library, Ward Melville Social and Behavioral Sciences, Light Engineering, and Chemistry). The operating system on both of the VAXs is VAX/VMS. BITNET is available from both the IBM 3083 and the VAX 8600, and each of the Computing Center's mainframe computers is a host on the Internet network. Asynchronous communication is handled through six IBM 7171 ASCII terminal protocol converters, each of which has 64 communications ports.

Languages available on the mainframes include FORTRAN, PASCAL, COBOL, LISP, APL, BASIC, C language, Assembler, and PL/I. Statistical software includes SAS, SPSS-X, BMDP, PSTAT, MINITAB, SCSS. Graphics languages include DISSPLA, TELLAGRAF, EPIC, SAS GRAPH, and VAX GKs. The numerical libraries include IMSL, CERNLIB, LINPACK, MINIPACK, and EISPACK. Available text formatting and languages are SCRIPT, T_EX, and L_AT_EX.

Microcomputing services are available to students on both IBM and DEC equipment as part of Instructional Computing. There are four sites on campus with DEC PRO 350 workstations and several dot matrix and laser printers, and five sites with IBM personal computers. High-speed, large-scale laser printing is provided by a Xerox 8700 system that services all of the mainframes. Slower-speed printing is provided by an L_N0 3+ and a ScriptPrint that runs POSTSCRIPT.

The Computing Center Micro Lab is a facility open to students, faculty, and staff for the purpose of demonstrating and testing microcomputer hardware and software. Through the microcomputer resale operation at the Computing Center, significant discounts on IBM Personal System/2, Zenith, and Apple Macintosh products are available to all faculty, staff, and students.

The Computing Center is currently open more than 80 hours per week. The equipment itself operates around the clock. There is a public terminal area within the Computing Center and two others on campus. To assist users, consulting services are available at the Center and at the terminal sites.

Gymnasium

The Gymnasium building, which includes a swimming pool, large and small gyms, four squash courts, four racquetball courts, a dance studio, and exercise and Universal gym rooms, is open seven days a week from 8:00 a.m. to 11 p.m. The gym is closed on all major holidays.

Other physical education facilities include 18 tennis courts, a 400-meter running track, four single-wall handball courts, two sand volleyball courts, two outdoor basketball courts, and separate fields for baseball, soccer, football/lacrosse, and intramural football.

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

Stony Brook Union

The Stony Brook Union is the campus center for hundreds of activities planned for and by students. It is the home of student organizations, student government, and clubs, and is essential and significant to students' lives and experiences. The Union is an integral part of the educational life of the campus, sharing with the classroom the common goal of intellectual and personal growth of the individual. The continuing aim of the Union is to create an environment that permits self-exploration and encourages members of the campus community and their guests to meet and share interests and ideas.

The Union has space for many kinds of events. There are nine meeting and conference rooms, an auditorium that seats 365 people, and a ballroom that can accommodate 600. The Art Gallery displays the works of campus and community artists and is open weekdays for browsing.

The Union is also a gathering place for students between classes. Some students gravitate to the bowling alley or the billiards room, while others prefer to relax, watch television, read, or mingle with friends and other members of the campus community in the lounges. Hungry students, whether looking for a quick snack or a complete meal, can satisfy their appetites in one of the Union's eateries—a cafeteria, a delicatessen, a coffeehouse, a cookie-candy counter, and a restaurant. For information call the University Information Center at 632-6830.

The building houses many vital campus services—the post office, check cashing, locker rentals, and the University Information Center, which is a campus-wide resource center. Campus directory information, campus maps, bus and train schedules, and concert, film, and other events information are available. The Information Center's phone number is 632-6830.

The Union Crafts Center offers workshops in ceramics, photography, silk-screening, leatherwork, bartending, cooking, and many other crafts and skills. These

noncredit classes are taught by professional instructors and are open to all. Fees are nominal. For information call 632-6822.

The Union serves as headquarters for many student groups such as Student Polity (the undergraduate student government), Womyn's Center, and the Commuter College. In addition, *Statesman*, the student newspaper; WUSB-FM (90.1), the university radio station; and SCOOP, an audio-visual service, operate from the Union.

The Faculty Student Association (FSA) is the campus auxiliary service organization. Located in Room 282, FSA operates many services including check cashing, vending, food services, the meal plan office, and several eating places including the main cafeteria, the Union Station Deli, and the End of the Bridge Restaurant and Pub.

Weekends at Stony Brook are filled with concerts, plays, movies, speakers, sporting events, and parties. Past concerts included the Hooters, Eddie Murphy, and George Benson, to name only a few. Craft fairs, club fairs, and special cross-cultural exhibits are popular weekend activities on campus.

The Student Union and Activities staff works with individuals and campus groups in planning programs. The staff also offers workshops in leadership development and in personal skills training that include assertiveness, time management, and an accredited course in theory and practice in leadership.

The Department of Student Union and Activities is located in Room 266 of the Union; call 632-6820 for further information.

Hours of Operation

During the fall and spring semesters the Stony Brook Union is open Monday through Wednesday, 8 a.m. to 1 a.m.; Thursday and Friday, 8 a.m. to 2 a.m.; Saturday, 10 a.m. to 2 a.m.; and Sunday, 10 a.m. to 1 a.m. During recesses or intersession it is open Monday through Friday, 8:30 a.m. to 5 p.m. and is closed New Year's Day, Easter Sunday, Memorial Day, Independence Day, Labor Day, Thanksgiving, and Christmas Day.

Note: Union hours are subject to change from year to year and even within the year. For more specific building hours information call 632-6830.

Special Centers and Institutes

The University houses many centers, laboratories, and institutes, many of them externally funded, which reflect the broad diversity of academic and research-oriented pursuits on campus. Many of these organizations are directed by Stony Brook faculty and staff. Students may benefit from these facilities by tapping them as resources for academic work. Among these organizations are the Arms Control and

Peace Studies Center, Bach Aria Festival and Institute, Center for Biotechnology, Center for Industrial Cooperation, Center for Italian Studies, Center for Religious Studies, Center for Science, Mathematics, and Technology Education, Economic Research Bureau, Educational Communications Center, and Empire State College.

Other campus-based institutes and laboratories include the Institute for Mental Health Research, Institute for Technology Policy in Development, Institute for Theoretical Physics, Institute for Urban Sciences Research, Institute of American Studies, International Art of Jazz, Laboratory for Arthritis and Related Diseases, Laboratory for Behavioral Research, Laboratory for Experimental Mechanics Research, Laboratory for Personal Computers in Education, Laboratory for Planetary Atmospheres Research, and the Long Island Regional Advisory Council on Higher Education.

Stony Brook also houses the Museum Computer Network, National Coordinating Center for Curriculum Development, Research Center for Health Promotion/Disease Prevention, Research Group for Human Development and Educational Policy, Stony Brook Radiation Laboratory, Sudden Infant Death Syndrome Information and Counseling Center, and Taproot Workshops, Inc.

Campus Activities

A wide variety of lectures, seminars, concerts, exhibits, theatrical performances, movies, and sporting events are scheduled regularly during the academic year. Some recent well-known speakers at Stony Brook have included authors James Baldwin, Carlos Fuentes, Czeslaw Milosz, and Umberto Eco; scientist-writer Paul R. Ehrlich; human rights leaders Elie Wiesel and Julian Bond; editor I.F. Stone; former U.S. Attorney General Ramsey Clark; and actor Ossie Davis.

Art galleries in the Staller Center for the Arts, in the library, and in the Stony Brook Union offer regularly changing exhibitions of works by on- and off-campus artists. The Museum of Long Island Natural Sciences, located in the Earth and Space Sciences Building, houses a continuous showing of dioramas depicting natural Long Island scenes as well as special temporary exhibits.

An average of five films are shown weekly on campus, including vintage and current productions; usually admission is free for students. The campus enjoys an average of one classical music concert per day, including student recitals and performances by faculty and visiting artists.

Stony Brook's Staller Center for the Arts, which opened in 1978, is a fully equipped facility for education in music, theatre, and

fine arts, and is already recognized as the most important performing arts center in Suffolk County. It includes one 1,100-seat Main Theatre, a 400-seat Recital Hall, three experimental theatres, and a 4,700-square-foot Art Gallery. These facilities are used jointly by the professional artists, musicians, dancers, and theatre groups who are part of the subscription series offered each year at the Staller Center, and by the art, music, and theatre students at Stony Brook.

The Staller Center for the Arts schedules more than 50 major events during the year. In addition, more than 200 recitals and concerts are given which are open to the public with no admission charge. Highlights of past seasons include performances by the Dance Theatre of Harlem, Vienna Choir Boys, the Feld Ballet, and the Peking Acrobats, as well as performances by the Stony Brook Concert Band, Chamber Symphony and Symphony Orchestras, Chamber Singers, Gospel Choir, and University Chorus, and productions by the Department of Theatre Arts' University Theatre.

Besides the free concerts, special student discounts are available and an arrangement has been made for students to purchase tickets for Main Theatre events that are not sold out. "Student rush" tickets are \$3, and go on sale a half-hour before curtain time. The Staller Center for the Arts provides the social atmosphere for a large university where the campus community—undergraduates, graduate students, faculty, and staff—can mingle with the hundreds of residents who come from a broad area around the university to enjoy and applaud a growing list of exciting events.

In recent years, popular student-sponsored concerts have featured the Ramones, Cyndi Lauper, Elvis Costello, Frank Zappa, Santana, Siouxsie and the Banshees, Jimmy Cliff, and Eddie Murphy.

Student Polity, the undergraduate student government organization, and its related groups, particularly the Student Activities Board, sponsor many campus activities. Student Polity presently funds more than 100 student interest clubs and organizations that in many cases complement students' academic work. Varied student interests are represented by groups as diverse as the Pre-Med Society, Stony Brook Karate Club, Cycling Club, Committee on Cinematographic Arts (COCA), Drama Club, Psychiatric Hospital Volunteers, Irish Club, and Science Fiction Forum.

Stony Brook fields 11 men's and 9 women's intercollegiate athletic teams competing through the National Collegiate Athletic Association (NCAA), the Eastern Collegiate Athletic Conference (ECAC), the New York State Women's Collegiate Athletic Association (NYSWCAA), and the National Intercollegiate Squash Racquets Association (ISRA), along with various con-

ferences for certain sports. In 1987-88 Stony Brook produced its first ever first-team All-American in football, along with All-Americans in squash and indoor track. In addition, Stony Brook had a first-team Academic All-American in women's volleyball and a Scholar-Athlete All-American in women's soccer. Stony Brook's women's soccer team won the 1987 State Championship, while the 1987-88 men's swimming team posted a perfect 10-0 record. The men's and women's basketball teams, the women's volleyball team, the men's lacrosse team, and the women's softball team all qualified for post-season playoffs.

The campus student newspaper, *Statesman*, is published weekly during the academic year with a circulation of 10,000 on campus and in the local community. Other student publications include the *Stony Brook Press*, a student weekly; *Black World*, a newspaper focusing primarily on news of interest to the black community on campus; *Soundings*, a literary magazine; and *Specula*, the campus yearbook.

Campus ministries serve student religious concerns through the Interfaith Center, offering regularly scheduled Jewish, Catholic, and Protestant services and activities that are open to all. Religious and personal counseling services for students of these and other denominations are also provided through the Interfaith Center. The Catholic ministry offers religious and social services and activities in a Catholic "parish" atmosphere for the campus community. United Protestant Campus Ministry at Stony Brook is the ministry of five Protestant denominations in the Stony Brook area (Episcopal, Methodist, Reformed, Presbyterian, and United Church of Christ) and is the regional ministry of L.I. United Campus Ministries, Inc. The Protestant Chaplain offers a ministry of worship services, counseling, programs, campaigns for social justice, and retreats. The B'nai B'rith Hillel Jewish Association for College Youth offers religious, social, and cultural services as well as personal counseling for students and faculty. It is the umbrella organization for all the Jewish activities at Stony Brook.

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

Campus and Community Ties

As the public university center for the bicounty-metropolitan New York region, Stony Brook plays a major role in the Long Island community. With more than 8,000

people (full time and part time) on a campus payroll of \$175,000,000 annually, Stony Brook is Long Island's third largest employer. It is estimated that the university generates close to a billion dollars annually in direct and indirect economic impact on the region. In addition to its function as Long Island's major research facility and source of advanced and specialized instruction, the university provides a social and cultural center, a specialized referral center for health care, recreational opportunities, and a broad range of other services for individuals and groups in the public and private sectors.

Designated by the governor as a Center for Advanced Technology in medical biotechnology, the university offers State matching funds to companies supporting research in relevant fields. Through the College of Engineering and Applied Science's Center for Industrial Cooperation, the university makes technical and academic resources available to serve the high technology and other industries that form Long Island's economic base; the W. Averell Harriman School for Management and Policy plays a similar role in providing services for the public sector. The university's mission to serve the community is further demonstrated by the program in Labor/Management Studies, which illuminates the labor/management issues of greatest importance to Long Island, and by the Marine Sciences Research Center, which responds to the environmental, fisheries, and other needs of a coastal region that includes one of the world's greatest harbors. The Suffolk Partnership Program, in a cooperative effort to reduce the rate of school drop-out in Suffolk County, sponsors Stony Brook graduate and upper-division undergraduate students who work in the junior and senior high schools in four local school districts, in partnership with school personnel, as tutors and counselors. Special emphasis is placed on math, science, and writing.

University Hospital, Suffolk County's only tertiary care facility, offers a developing range of sophisticated regional specialty services, logging more than 122,000 patients a year through its ambulatory care programs in addition to inpatient services. In its role as a referral center for the regional medical community, University Hospital uses more than half of its 480 beds for specialized cases and several kinds of intensive care. These services include cardiology, high-risk obstetrics, oncology, kidney dialysis, neonatology, neurology, nuclear medicine, rheumatology, and the burn center. In addition to general surgery, surgical specialties at University Hospital include neurosurgery, gastrointestinal, surgical oncology, orthopaedics, pediatrics, kidney transplant, thoracic and cardiac, and urological and vascular procedures. Clinical

services are also provided by the specialized centers operated by the School of Dental Medicine and the departments of Psychology and Psychiatry and Behavioral Science. In 1987 more than 400 community volunteers logged 43,000 hours of assistance. Additionally, 1,000 or more Stony Brook students annually participate in tutoring, recreation, health care, and other areas.

Regional business and civic leaders help guide the Stony Brook Foundation, the university's independently incorporated development arm, and community members with special interests in campus programs participate in the Association for Community-University Cooperation, the Friends of the Staller Center for the Arts, and the University Hospital Auxiliary. In addition to the university's many degree programs, there are broad opportunities for credit-bearing and non-credit instruction for individuals pursuing specific, limited objectives or seeking personal enrichment.

Several hundred concerts, lectures, films, theatre productions, art exhibits, and sports events on the campus are open to the public each semester, many at no charge, and it is estimated that hundreds of thousands of persons annually attend these events or visit the campus to take advantage of other facilities and services.

Student Service Information

The Center for Academic Advising

The Center for Academic Advising is located on the third floor of the Frank Melville, Jr. Memorial Library. It is responsible for advising all entering freshmen (except for those assigned to a faculty advisor in the Faculty Advising System), transfer students, and all continuing students on a walk-in basis prior to a formal declaration of major. Advisors, available from 10 a.m. until 4 p.m. Monday through Friday, explain academic regulations and help students to select courses and plan their academic programs. The Center also advises junior and senior students concerning university and college graduation requirements. All students in the College of Arts and Sciences who wish to petition the Committee on Academic Standing and Appeals for exceptions to academic regulations are advised by the Center staff. As part of its function, the Center coordinates the academic portion of new student orientation and promotes special advising activities scheduled during preregistration periods. Pre-professional advising for lower-division students also takes place in the Center.

Engineering Undergraduate Student Office

The Engineering Undergraduate Student Office administers the College of Engineering and Applied Sciences undergraduate

academic programs and coordinates undergraduate academic advising. It publishes advisory materials including the major requirements for all academic programs, the College distribution requirements, and requirements for admission to its majors. It receives student petitions and grievances and advises students of administrative procedures.

The Writing Center

The English Department's Writing Center offers individual tutoring to all members of the Stony Brook community including undergraduate and graduate students, faculty, and staff. Tutors provide guidance in all stages of writing from getting started to revising, and for all types of projects from research papers to resumes. In addition, tutors provide general writing instruction for those interested in improving their skills apart from work on assigned writing tasks. Throughout the semester, tutors conduct workshops on various aspects of writing. The schedule of workshops is available in the Writing Center, Humanities Room 198.

The Writing Center is open from 9 a.m. to 5 p.m., Monday through Friday and selected evenings that change from semester to semester. Appointments are recommended (632-7405), since last-minute requests cannot always be accommodated.

The Mathematics Learning Center

The Mathematics Learning Center offers help to students who are having trouble in basic math or applied math courses and non-math courses that require math skills. Assistance is provided individually and in small groups on a first-come, first-served basis or by appointment. The Center is located in S235 Math Building (632-8245), and is open during the day and some evenings. Please call for new hours.

The University Health Service

The University Health Service, located in the Infirmary Building, provides health care to all registered students free of charge, and to faculty and staff on an emergency basis only. The Health Service is open Monday through Friday, 8 a.m. to 6 p.m. At other times, for emergencies, students are requested to use the Emergency Department of University Hospital on a fee-for-service basis. The walk-in clinic at the Health Service is staffed by physicians, physician's assistants, and nurses. Students need only "walk in" to the Infirmary Building, register, and they will be seen by the medical staff. Prescriptions can be filled and laboratory work can be completed for a small fee. There is a gynecology clinic (Women's Center), dermatology clinic, psychiatrist, and social worker.

The university strongly recommends a voluntary health insurance plan because extensive medical assistance not available at the Health Service may cause financial difficulty. Information about insurance is available in the Infirmary Building. For further information call 632-6740.

Student Affairs Vice Presidential Executive Area

The Student Affairs Vice Presidential Executive Area comprises the Department of Undergraduate Admissions and three major divisions: Campus Life, Student Administrative Services, and Campus Residences. Undergraduate Admissions is directed by the Dean for Enrollment Planning, who is also responsible for admissions marketing and recruitment efforts of all undergraduate colleges/programs. Campus Life includes Career and Developmental Services (Career Development, Veterans Affairs, Disabled Student Services), the University Health Service, Stony Brook Union and Activities, and the University Counseling Center. Student Administrative Services comprises Financial Aid and Student Employment, Registrar/Records, Health Sciences Center Student Services, and New Student Programs. Campus Residences includes a housing administrative central office, six residential quadrangles (26 residence halls) and the Chapin Apartments. These major components are situated in various buildings across campus, but all report to the Office of the Vice President for Student Affairs (348 Administration).

Another student service function located at this site is the Student Judiciary. The Student Affairs Vice President's Office also serves as a student referral and information center for campus resources.

Campus Residences

The Division of Campus Residences is committed to providing quality housing and educational service to its resident students. The residence halls on campus house 60 percent of all undergraduate students. Forty professional Campus Residence staff members, assisted by approximately 250 student staff members, help students structure their experience within the framework of the overall Campus Residences program. The emphasis on developing student responsibility is intended to promote standards that encourage personal growth and a rewarding living experience.

The residence halls are organized as small residential colleges in order to foster social, intellectual, and cultural interaction. Each residence hall is supervised by a residence hall director. The RHD tries to establish an environment that fosters the academic and personal growth of the resident students. He or she serves as an advisor to the college legislature (student council), provides personal counseling,

supervises the student staff, and promotes educational programs (i.e., study skills workshops, guest lecturers, resume writing workshops, etc.). The student staff members of each residence hall serve as peer advisors, stimulate social and educational programs, report maintenance concerns, and provide important information regarding campus programs and policies to the resident students.

The residential colleges, each housing approximately 220 students, are arranged in quadrangles. Each quadrangle has a unique atmosphere and personality. An example are the two living/learning centers located in Langmuir College (H Quad)—Human Development, and in Keller College (Roosevelt Quad)—International Studies. These centers allow resident students to earn academic minors in the areas of human development and international studies. Classes are held within the residential buildings and building activities are centered around the living/learning center topic. An additional example of diversity is Roosevelt Quad, where some of the students from other countries and widely differing American subcultures learn firsthand how to integrate their diverse backgrounds into a true community.

Several quadrangles have dining halls. Freshman and transfer students living on campus must participate in one of the meal plan options during their first year. Several residence halls have been designated as cooking-free buildings and students living in those buildings are required to enroll in the meal plan for at least ten meals a week. Each residential college has public lounges, laundry rooms, kitchen facilities, and recreational facilities. A variety of student-operated businesses like Harpo's Ice Cream Parlor and the Hard Rock Cafe are located within the residential colleges.

A large percentage of the on-campus activities take place within the residence halls. College legislatures are student councils within each building empowered to spend the monies allotted by Student Polity, the undergraduate student government. College legislatures and the Campus Residences staff plan numerous social and educational activities including hall dinners, movies, costume parties, guest speakers, dance workshops, academic and career information sessions, and study skills workshops.

Quad councils are student programming boards that plan activities open to all residents of a particular quadrangle. These groups sponsor large quad parties, barbecues, film series, olympic competitions, community development projects, and many other programs. Another student group, the Residence Hall Association, addresses important issues that are of concern to quad residents. Students are encouraged to become active members of these organizations.

The Harry Chapin Apartment Complex is designed to house graduate, married, and health sciences students. Single parents with children are also eligible to apply for accommodations. The apartments have one, two, or three bedrooms, a kitchen, living room, and bathroom. All apartments are furnished. Agreements are made on a 12-month basis. The cost varies depending on the size of the apartment and the number of occupants.

Information regarding Campus Residences programs and procedures for applying for housing can be obtained by writing to the Division of Campus Residences, G Quad, Irving/O'Neill Colleges, or by calling 632-6750.

Off-Campus Housing Service

An off-campus housing service, located in Room 104 Administration Building, is available to assist students in finding off-campus living arrangements. This service includes computer-generated and bulletin-board listings of available facilities, tenant information, and local transportation guidance. Call 632-6770 for further information.

The Commuter College

The Commuter College, located in Room 080 of the Stony Brook Union, is the central activities facility for commuting students. Commuters as well as other members of the university community can find there a comfortable environment in which to relax, study, or to meet old and new friends. In addition, a variety of services are available to everyone including a typing room, indoor recreational facilities, and a video entertainment lounge. The Commuter College sponsors campus events such as films, holiday parties, and theatre and ski trips. Often, special events are offered at reduced rates for commuters. Commuters can find the Commuter College to be a productive center for information exchange, campus-based social life, the development of study groups, access to student government and organizations, and the enrichment of the experience of being an active Stony Brook commuting student.

University Counseling Center

The University Counseling Center provides crisis intervention and individual and group counseling for full-time students. Counseling services are available year-round including school vacations. A student does not have to be confronting desperate or overwhelming difficulties in order to benefit from a counseling relationship. Understanding a situation before it reaches the crisis state often allows for greater freedom when making choices. The Center staff encourages students to come in and talk,

even if they are not sure that counseling is what they need. With a counselor's help, they can discuss alternatives and decide the best way to proceed.

Students can be seen for an initial visit between 10 a.m. and 3 p.m. This is a walk-in service and no appointment is needed. During the first visit, the student and counselor together make an assessment of the situation and decide how best to deal with it. Sometimes the best course of action includes a referral to another service, either on or off campus. Occasionally the single session proves sufficient. Most often the student decides to see a University Counseling Center counselor on an ongoing basis, usually once a week for two or three months. If that is the case, arrangements are made for sessions to begin as soon as possible.

All counseling services are confidential. Counseling Center policy prohibits the release of information concerning a student to anyone without the student's explicit written authorization.

In addition to offering assessment, counseling, and psychotherapy, the Center also provides programs for personal growth and enrichment. Each semester, through the Group Shop Program, a series of stimulating and diverse workshops and groups are offered to the university community free of charge. Some of the most popular workshops are stress management, weight reduction, interviewing for success, assertion training, and study skills. The Counseling Center also works with ongoing programs for minority students, and with peer services such as the Peer-to-Peer Support Center.

The Counseling Center is located on the second floor of the Infirmary Building. For further information please call 632-6720.

The Returning Student Services Network

The Returning Student Services Network is a support system for undergraduate students 25 years of age or older. Many key offices on campus have designated special advisors to offer information and assistance to returning students. The Network also sponsors programs for older students such as a special orientation session, workshops, a periodic newsletter, and a student government-sponsored club.

Career Development Office

The Career Development Office of the Student Affairs Department of Career and Developmental Services assists students and alumni with all types of career planning concerns while acting as a resource for information on full-time permanent employment. Individual and group consultation with students is emphasized while periodic critical self-examination assists students in relating academic expertise to aspirations



for future professional involvement and advancement. A computerized guidance service, DISCOVER, is also available for students to utilize as part of their career decision-making process.

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

Students are encouraged to participate in the Student Volunteer Service Program (VITAL), in which students gain experience in specific career areas by working with agencies and institutions seeking student volunteers. A three-credit course on Career and Life Planning, INT 200, is taught by the office and is open to undecided sophomores, with permission of the instructor.

Group workshops are held to assist students and alumni in writing resumes and developing job search strategies. As part of the Career Development Office's Out-Reach Program, visits are made by the career counselors to residence halls and campus departments in order to provide a broad exposure to career-related information on a special request basis.

The Career Development Resource Library has information pertaining to employment opportunities in areas such as business, government, social service, and education. Relevant materials are available on career planning, teaching certification, health careers, graduate and professional

school admissions testing, graduate school and financial aid information, and recruitment options.

Other services offered include information and applications for examinations required by various graduate and professional programs (i.e., the GRE, LSAT, GMAT, DAT, NTE, Actuarial Exam, MCAT, TOEFL, OAT, AHPAT, and Pharmacy Test), and a library of taped descriptions of various careers by people actually engaged in the careers being discussed.

It is suggested that students visit the Career Development Office and become familiar with the services it provides. The office, located in the Library Building, Room W-0550, is open weekdays from 8:30 a.m. to 3 p.m. Its telephone number is 632-6810.

Veterans Affairs

The Office of Veterans Affairs, operating within the Student Affairs Department of Career and Developmental Services, provides counseling and advice to veterans and eligible dependents of veterans. Students seeking information regarding educational assistance or other programs, issues, and/or legislation affecting veterans are urged to contact that office as soon as possible.

The Office, located in Room 155 Central Hall, is open Monday, Tuesday, and Friday from 1 p.m. to 5 p.m. and Wednesday and Thursday from 8:30 a.m. to 12:00 p.m. The telephone number is 632-6815.

International Programs

The Office of International Programs—through its Study Abroad programs, exchange agreements, foreign student services, and Intensive English Language and American Living Institutes—brings an international dimension to the campus. Study abroad opportunities are available to all Stony Brook students at low cost. Students may study at excellent universities on every continent. We have special arrangements with universities in Paris and Avignon (France), Tübingen (West Germany), Lima (Peru), Warsaw and Wroclaw (Poland), Chonnam (South Korea), and in other countries. In each case, students receive assistance with transportation, housing, and curriculum selection. Moreover, most programs have resident coordinators in the host country to provide guidance and counsel to participating students. (The programs in Poland have special funding, and students who are admitted to these programs normally have all basic expenses, including housing and transportation, paid for them.) Students interested in programs such as these should visit Room 105 Central Hall, where materials and assistance are available, or call 632-7030.

The Office of International Programs also administers faculty exchanges with foreign universities. These scholarly agreements facilitate collaboration and communication with many universities and often provide the basis for international study and research by graduate students and faculty in a variety of disciplines. The presence on the Stony Brook campus of faculty and

Any questions concerning this policy, or allegations of non-compliance, should be directed to:

Ms. Marion Metivier
Special Assistant to the President
for Equal Opportunity and
Affirmative Action
474 Administration Building
SUNY at Stony Brook
Stony Brook, NY 11794-0251
Phone: (516) 632-6280

Maintenance of Public Order

The university wishes to maintain public order appropriate to a university campus without unduly limiting or restricting the freedom of speech or peaceful assembly of the students, faculty, or administration. First Amendment rights shall be supported, subject only to reasonable time, place, and manner restrictions. The State University Board of Trustees' Rules for the Maintenance of Public Order (Part 535 of Title VIII—Compliance of Codes, Rules and Regulations of the State of New York) is printed in the Student Handbook and Student Conduct Code brochure, both of which are available in the Office of the Vice President for Student Affairs, 348 Administration Building.

Student Conduct Code

As a document, the University Student Conduct Code defines acceptable community behavior. For a resident student, it translates into respect for your neighbors and their property. It prohibits tampering with fire safety equipment, i.e., fire alarms, fire extinguishers, fire bells, etc. It includes respecting state property as well as maintaining an acceptable noise level in the residence halls conducive to study and sleep.

For all students, the Student Conduct Code supports compliance with state and federal laws pertaining to drugs, alcohol, weapons, discrimination, physical abuse, and racial, sexual, or sexual preference harassment.

It is impossible to separate the concept of student freedom or rights from student responsibility. The Student Conduct Code guarantees the right of students to pursue their legitimate interests on the campus. To this end, it is imperative that students desiring respect for their rights must also accord other segments of the community the same respect.

All students are expected to know and understand the provisions contained in the Student Conduct Code to help ensure a successful academic and residential experience on the Stony Brook campus.

To obtain a copy of the Code or information regarding campus regulations and disciplinary proceedings as well as procedures for filing a complaint, contact the University Hearing Officer in the Office of the Student Judiciary, 347 Administration Building, or call 632-6705.

Parking and Traffic

Regulations have been established to govern vehicular and pedestrian traffic and parking on highways, streets, roads, and sidewalks owned, controlled, or maintained by the university. These regulations apply to students, faculty, employees, visitors, and all other persons upon such premises. The detailed regulations and appeal procedures are available in the Traffic Office, 192 Administration Building.

Note: At the present time, resident students, except freshmen and sophomores, are permitted to register their motor vehicles for parking in the resident student lots. Freshmen and sophomores *must* petition and be approved to have vehicles on campus. Applications may be obtained at the Traffic Office.

students from many countries is often due to exchange agreements with universities in Botswana, Poland, West Germany, Great Britain, China, Israel, Spain, South Korea, Argentina, Chile, Colombia, France, Italy, Mexico, Peru, Puerto Rico, and Japan. The Office of International Programs is working to expand these contacts.

Foreign Student Affairs

The Office of Foreign Student Affairs is that part of International Programs which counsels students from other countries concerning finances, housing, government regulations (including immigration and tax concerns), cross-cultural differences, and other general matters. The foreign student advisor is the officer on campus responsible for F-1 visas. Questions relating to academics are usually handled by academic advisors within the individual's school or department.

The OFSA supervises the SUNY Health Insurance Plan for Foreign Students and Scholars as well as the International Outreach Program, a community service group. The Japanese language program developed by International Outreach has received national attention. In addition, the OFSA works with community groups and student organizations to provide access to a varied program of activities, including tours and trips, discussion groups, home hospitality, speaking engagements, and other events. The office publishes a handbook and four newsletters each year and supervises the International Reading Room, a lounge that contains books, magazines, and newspapers from all over the world.

An F-1 or J-1 foreign student must take a full course of study of 12 credits, and must consult a foreign student advisor (1) before accepting employment, (2) before leaving the United States either permanently or temporarily, (3) when transferring to another institution, (4) when withdrawing from the university, (5) when extending his/her entry permit, (6) before leaving the university, (7) before changing his/her address for any reason, (8) when anticipating a status change (for example, from "F" to "permanent resident"), or (9) to change major or level of study.

The OFSA is located in 113 Central Hall and is open from 10 a.m. to 4 p.m. The telephone number is 632-7025.

English as a Second Language

This program includes diagnosis and testing as well as classes aimed at raising students' ability to understand, speak, read, and write standard English to the level of United States college students. For additional information come to 108 Central Hall or call 632-7031.

Intensive English Center

The Intensive English Center (IEC) offers an intensive English language program for potential Stony Brook students who need full-time instruction prior to matriculation. An applicant who meets the academic criteria for admission can be given conditional admission into the university with the provision that he or she attend the IEC for one semester or longer. The program consists of 18 hours per week of English language courses, optional electives, and the possibility of auditing or registering for one university course with the permission of the IEC director. The IEC program is also open to people who do not plan to enroll at Stony Brook after completing the language training, and participants are eligible to receive a student visa (F-1). IEC students may live on campus and use all university facilities.

The IEC is located in 108 Central Hall and is open from 10 a.m. to 4 p.m. The telephone number is 632-7031.

Summer Institute in American Living

The Intensive English Center offers special four-week sessions: the Summer Institute in American Living, a program of courses and activities in English language and American culture designed to meet the special needs of short-term visitors to the campus and students who wish an intensive pre-university course in English study before beginning their regular academic program in the fall. Participants in the Institute attend English classes, visit American homes, and join excursions to places of cultural and historic interest. A three-day trip to Washington, D.C. affords students the opportunity to visit our nation's capital. Admission is open to all foreign students who have completed the equivalent of a secondary school education. For additional information prospective students are invited to call or visit the Intensive English Center, 108 Central Hall, telephone 632-7031.

Office of the Student Judiciary

The Office of the Student Judiciary is responsible for investigating and adjudicating cases of alleged student misconduct (in non-academic matters) in violation of the University Student Conduct Code. In addition, the Judiciary educates the campus community about the code and provides a learning experience for students who volunteer to become student hearing board members.

Any questions regarding the Conduct Code, the judiciary process, or procedures for filing a complaint should be directed to the University Hearing Officer, 347 Administration Building, 632-6705.

Disabled Student Services

The Office of Disabled Student Services of the Student Affairs Department of Career and Developmental Services coordinates

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

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

It is strongly recommended that after admission, students who are disabled or who feel that they might need some information, special consideration, or assistance due to a temporary or permanent disability, contact us prior to the start of classes. These students should call 632-6748/9. An early start will permit the evaluation of possible problems and will provide time to work out solutions.

Child Care Services

The university has day care services for children ranging in age from two months to five years. There are three on-campus facilities staffed with professionals who are assisted by students enrolled in coursework practice. Each of the three centers specializes in a particular age group and curricular approach. The centers are open from 7:30 a.m. to 5:30 p.m., and fees are charged on a sliding scale. Because there are waiting lists for these centers, it is wise to contact them well in advance of the semester in which they will be needed.

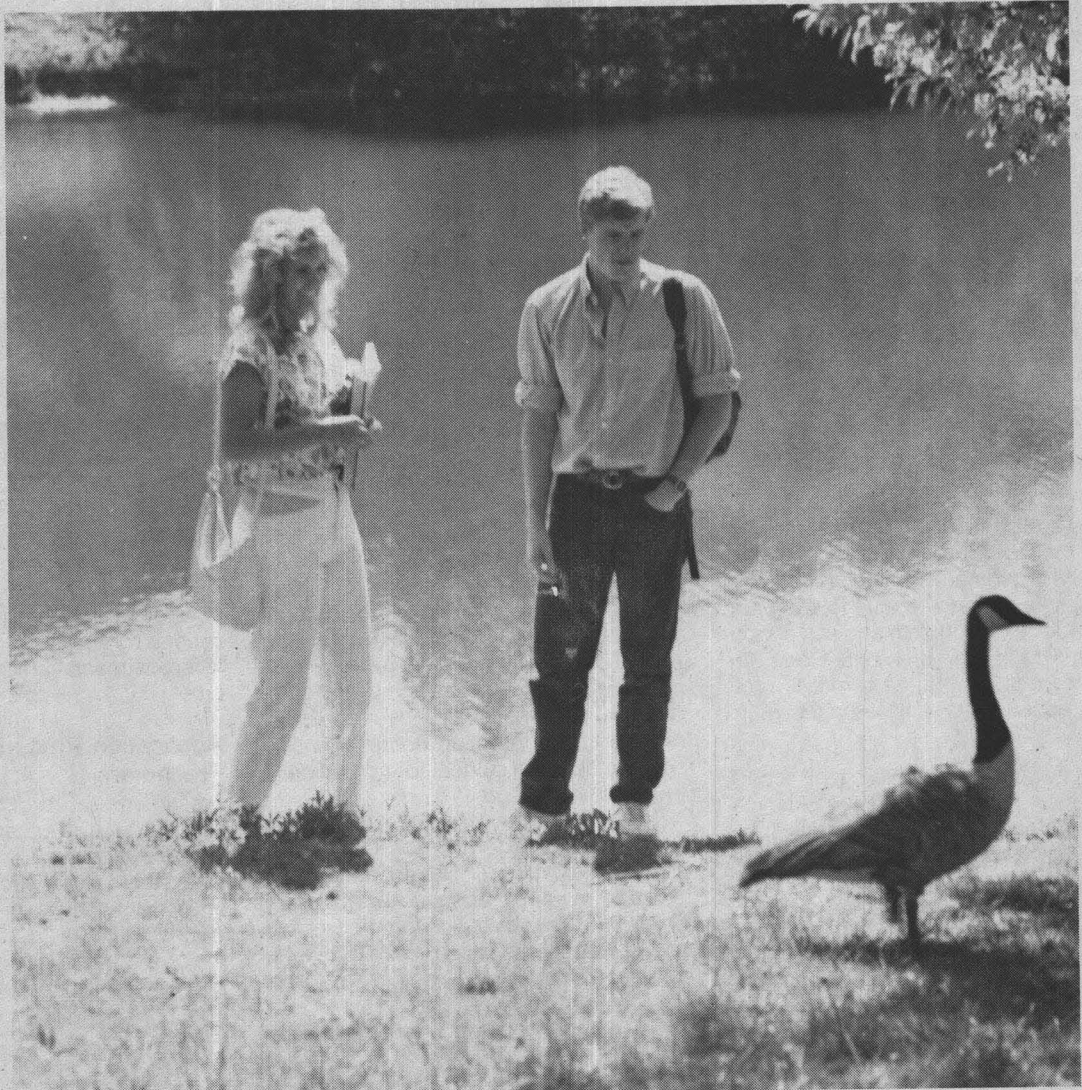
Equal Opportunity and Affirmative Action

The State University of New York at Stony Brook does not discriminate on the basis of race, religion, sex, color, national origin, age, disability, marital status, or status as a disabled or Vietnam-era veteran in its education programs or employment. Also, the State of New York prohibits discrimination on the basis of sexual orientation.

Discrimination is unlawful. If you are a student or an employee of SUNY at Stony Brook and you consider yourself to be the victim of illegal discrimination, you may file a grievance in writing with the Affirmative Action Office within 45 calendar days of the alleged discriminatory act. If you choose to file a complaint within the university, you do not lose your right to file with an outside enforcement agency such as the State Division of Human Rights or Equal Employment Opportunity Commission.

Admission

Admission



The information in this chapter refers only to undergraduate admission to the Colleges of Arts and Sciences and of Engineering and Applied Sciences and to the W. Averell Harriman School for Management and Policy. (A section of particular importance to students interested in the latter School appears on p. 210.) Transfer students and current Stony Brook students who seek admission directly to any of the undergraduate programs in the Health Sciences Center should consult the Health Sciences Center section in this Bulletin and the separate Health Sciences Center Bulletin. All undergraduate Health Sciences Center programs begin in the junior year. Freshman applicants interested in conditional acceptance to programs in the School of Allied Health Professions or Nursing should see below.

Freshman Admission

Entrance Requirements

For students applying from high school, the university entrance requirements include:

- a high school diploma, preferably with Regents designation;
- a high school academic average of 85, which should include:
 - 3 to 4 units of mathematics (4 units required for engineering)
 - 4 units of English
 - 3 units of social studies
 - 3 units of science
 - 2 or 3 units of a foreign language;
- a combined SAT score of approximately 1050 or an ACT composite score of approximately 25;
- letters of recommendation from counselors and teachers; and
- an interview with a Stony Brook admissions counselor (optional but strongly encouraged).

Entry-Level Mathematics Proficiency

Students admitted to the university should have reached a minimum level of mathematics achievement (mathematics proficiency) so that they are able to use basic mathematics to formulate and solve problems arising in their university work. Students may satisfy the mathematics proficiency requirement in any one of the following ways:

- A. By having passed, while in high school, the New York State Regents Examination in Sequential Mathematics III or Mathematics Eleven with a score of at least 75.
- B. By having achieved a score of 525 or higher on the College Entrance Examination Board Achievement Test in Mathematics, Level I or II; or a score of 550 or higher on the mathematics por-

tion of the Scholastic Aptitude Test (SAT); or a score of 55 or higher on the mathematics portion of the Preliminary Scholastic Aptitude Test (PSAT); or a score of 23 or higher on the American College Testing (ACT) Test in Mathematics. In some cases students who are otherwise qualified will be admitted to the university with the understanding that they will satisfy the entry-level mathematics proficiency requirement as soon as possible on campus. See University Studies chapter, p. 47, for ways of satisfying the requirement after admission.

Foreign Language Proficiency

The College of Arts and Sciences graduation requirement for proficiency in a foreign language, while *not* an entrance requirement, may be satisfied by a third-year high school Regents examination score of 75 or higher or a score of 525 or higher on the College Entrance Examination Board Achievement Test in a foreign language. In the absence of a Regents score, a score of 75 or higher on the third-level high school language New York City Competency Test will satisfy the requirement. Stony Brook strongly recommends that students satisfy the requirement in high school.

Special Admissions Programs

Stony Brook offers several special admissions programs for freshmen and transfer students; these are described on p. 20 and following. They include *Advancement on Individual Merit* (AIM, an Educational Opportunity Program) and *Returning Students* (for applicants who are 25 years of age or older).

University Scholarships

The university offers several scholarships to incoming freshmen:

Admission to the Honors College (see p. 52) carries with it a \$1,000 first-year, merit-based scholarship with opportunities for grant support of projects undertaken in subsequent years. Admission criteria include a high school average of 90 or higher, a combined SAT score of 1200 or higher, a record of advanced or college-level coursework, and evidence of writing ability. Demonstrated talent in the visual, performing, or literary arts and overall competence as demonstrated by recommendations and application documents also serve to qualify a student for admission to the Honors College.

The Presidential Honors Scholarship Program offers one-year \$1,000 scholarships to freshmen, engineering students, disabled students, and students who are children of employees or former employees of Republic Aviation. Several two- to four-year scholarships, which are for at

least \$1,000 per year, are available through the Empire State Minority Honors Scholarship Program and through matching funds from university sources. Incoming freshmen may compete for these scholarships.

To be considered for these scholarships applicants must have a high school average of at least 92 and combined SAT scores of 1100 or ACT scores of 29. Students must submit an official scholarship application, available on request from the Office of Undergraduate Admissions, and a two-page, double-spaced, typed essay on the following subject: "Describe your aspirations for the future, how higher education will help you achieve them, and how it will enhance your life generally." An interview will be required of all finalists.

Freshman Conditional Acceptance to the Health Sciences Center

The Schools of Allied Health Professions and Nursing offer a limited number of students the opportunity to enroll in one of their professional program majors in the freshman year.

Following admission to the university, those who meet the established eligibility criteria will be sent information about the application process for conditional acceptance to the schools.

Students not conditionally accepted to one of the professional majors as freshmen may take preparatory courses at Stony Brook and apply for admission as juniors through the normal process described on p. 215.

For further information concerning Health Sciences Center undergraduate programs, consult the chapter describing the Health Sciences Center, beginning on p. 214.

Early Admission from High School

While the university does not actively seek students who do not expect to complete all requirements for either a Regents or high school diploma before matriculation at college, such applicants are routinely reviewed and offered admission when other admission requirements are met. Applicants for early admission must submit a letter of support from their high school principal with their applications.

Application Procedures for New Freshmen

Freshmen are admitted to the university rather than to a particular program. Students considering engineering or computer science programs should indicate their interest on the admission application. For additional information about acceptance to major programs within the College of Engineering and Applied Sciences, see p. 185.

All applicants must submit a completed application for undergraduate admission available either through the Office of Undergraduate Admissions or in their high school guidance office. All applications are to be sent to the Application Processing Center (APC) in Albany. APC will then forward all applications to Stony Brook.

Notification of Freshman Admission

Because of our policy of rolling admissions, there are no application deadlines. There are, however, deadlines for housing and financial aid. Admission to the university is determined six to eight weeks after all credentials are received and evaluated.

Deferred Enrollment

Stony Brook permits admitted freshmen to defer enrollment for a maximum of two semesters. Requests for deferred enrollment must be put in writing and sent to the Director of Admissions by May 15 for students accepted for the fall semester and November 15 for those accepted for the spring semester. The request for deferred enrollment must include a justification for the deferment and the length of time for which the deferment is being requested.

Transfer Student Admission

Entrance Requirements

The entrance requirements for transfer students are:

- a minimum cumulative grade point average of 2.5
- official transcripts from every postsecondary institution attended
- high school transcripts, in order to determine if mathematics and foreign language proficiency requirements have been met.

Application Procedures for Transfer Students

All applicants must submit a completed application for undergraduate admission, available through the Office of Undergraduate Admissions. All applications are to be sent to the application Processing Center (APC) in Albany, which then forwards them to Stony Brook.

All offers of admission are conditional, pending receipt of official records showing successful completion of academic work in progress.

It is the student's responsibility to see that a final college transcript is sent to the Undergraduate Admissions Office prior to final registration. Community college applicants who expect to be degree recipients (A.A. or A.S.) must present evidence of receipt of the degree prior to enrollment.

Dual Degree/Joint Admissions

Stony Brook participates in a Joint Admissions Program with the College of Technology at Farmingdale, Nassau Community College, and Suffolk County Community College. Through this program, students are jointly admitted to one of the participating colleges and to Stony Brook. As part of this agreement, students must remain in good academic standing prior to commencing their studies at Stony Brook.

Further information and details on this program are available from an admissions counselor at Stony Brook or from the admissions office at one of the participating two-year colleges.

Two-Year College Graduates

The university is committed to offering admission to qualified graduates of university-parallel programs, i.e., A.A. and A.S. degree recipients from community and agricultural and technical colleges within the State University of New York. Such students will be given preference, although not necessarily in the program of their choice, if the number of applicants necessitates establishing priorities.

In order to prepare for a smooth transition to Stony Brook after completing the associate's degree, two-year college students should choose their courses with some knowledge of the requirements of the bachelor's-level program they plan to complete after transfer. Associate degree candidates who wish to plan their studies as the first half of a continuous four-year program should discuss this with their academic advisors. To assist in this planning Stony Brook routinely prepares tables of course equivalents for SUNY's two-year colleges on Long Island. Jointly prepared advisory materials are also available for many Stony Brook majors. Information that assists students at other State University two-year colleges in advance planning is available upon request. Graduates of career-oriented programs (A.A.S.) will be considered for admission on an individual basis and in competition with other transfer applicants.

To facilitate students' transfers from community colleges to Stony Brook and to maximize the university's service to these applicants, Stony Brook strongly encourages two-year college matriculants to file applications in the fall of their sophomore year for the following fall semester. Such early application will make possible an early decision, enabling transfer students to participate in orientation and advance registration. It will also increase the likelihood of their receiving the financial aid for which they are eligible. The university is prepared, therefore, to render decisions to two-year college matriculants on the basis of two semesters of full-time work at the two-year college, since its offer of admission is conditional on the student's final transcript

showing a grade point average of 2.5 (A=4.0) or higher or award of the Associate in Art or Associate in Science degree. (Applicants for admission to the spring semester are encouraged to file soon after new applications become available in September.)

Transfer Credit Policies

1. All credits earned at previously attended accredited institutions are accepted for transfer and will be applied toward the total required for graduation.
2. Students will be classified according to the following schedule of semester hours accepted for credit: freshman, 0-23; sophomore, 24-56; junior, 57-84; senior, 85 or more.
3. Courses satisfactorily completed in the intended major or needed to fulfill the 39 upper-division credits requirement are evaluated by the appropriate academic department for specific applicability. Courses offered for satisfaction of the Study of Another Culture requirement are evaluated separately. No transfer course with a grade lower than C may be counted among the 39 upper-division credits. Forms for requesting the evaluation of specific courses for major or upper-division credit are available in the Undergraduate Admissions Office and in the Engineering Undergraduate Student Office. Any applicant who has completed college-level study at an institution outside of the United States must request an evaluation of each course. Students may begin the evaluation process as soon as they accept the offer of admission.
4. Credits earned at community and agricultural and technical colleges will usually be considered lower-division credit, with the exception of two-semester courses in organic chemistry with laboratories, a few other courses recommended by an academic department and approved by the College of Arts and Sciences, and certain engineering courses determined by the College of Engineering and Applied Sciences.
5. Transfer courses are reviewed by the Undergraduate Admissions Office individually for their applicability toward fulfillment of Core Distribution Requirements. Since Core Distribution Requirements differ from college to college, having satisfied them at a previous college does not guarantee that all of Stony Brook's Core Distribution Requirements will have been met with transfer courses. (See p. 48 for University Core Curriculum Requirements. Arts and Sciences students also see p. 58 for additional Arts and Sciences requirements.)

6. Transfer credit will be entered on the official university transcript with the understanding that neither previous grades nor cumulative averages will be shown. Students wishing additional information should consult an admissions counselor.
7. Credit may be given for courses taken in foreign secondary schools having a thirteenth year equivalent to the first year of college. Students who have studied in such schools should consult the Undergraduate Admissions Office before seeking a departmental course evaluation.

Special Admissions Programs

Advancement on Individual Merit (A.I.M.): An Educational Opportunity Program

The A.I.M. Program is responsible for providing access to the university for New York State residents who are economically and educationally disadvantaged, and who have a potential to succeed academically at Stony Brook. Program services are designed to promote each student's individual academic development.

On acceptance into the A.I.M. Program, each student is assigned to a professional counselor who provides academic advising and encourages academic achievement. Most A.I.M. Program students are encouraged during their first year to enroll in either *AIM 102 Expository Writing* or *AIM 103 Analysis and Critical Reasoning*, which are offered through the program. Tutorial assistance in academic subjects is provided for A.I.M. students, who are encouraged to use all academic support services available through the program or other university offices.

Entering freshmen admitted through the A.I.M. Program are invited to attend an intensive six-week summer session designed to enhance academic skills and better prepare them for the rigorous academic atmosphere that they will be entering. Students who attend the summer sessions tend to do better academically during their freshman year than students who are not able to attend.

To be considered for admission to the university through the A.I.M. Program in 1988-89, applicants had to be within the following economic eligibility parameters:

Number of Dependents in Household (including head of household)	Gross Family Income
1	\$ 7,880
2	12,800
3	14,865
4	18,180
5	21,535
6	25,300
7	28,135

*Add \$2,825 for each family member in excess of seven.

All applicants for admission through the A.I.M. Program must also be academically eligible for acceptance at the time of application. To be academically eligible, applicants must normally meet one of the following criteria:

1. High school average below minimum for regular admission to the university;
2. SAT verbal and mathematics scores below 450 and 400 respectively;
3. Attendance at a vocational high school or enrollment in a vocational or general program in a comprehensive high school; or
4. Substantial documented evidence of a need for academic support services.

Transfer students applying for admission must have been enrolled in EOP, HEOP, SEEK, or a similar support program at their previous college, unless none existed at the time the student entered.

Students wishing to apply to the university through the A.I.M. Program should contact their school guidance office or the Undergraduate Admissions Office at (516) 632-6868. Applications should be on file by January 5 for admission in the fall semester. Students interested in admission for the spring semester should contact the Undergraduate Admissions Office.

Returning Students

The university welcomes applications from students who attended college without graduating or who deferred enrollment but now find they can enroll and are motivated to do so. An interview before or shortly after filing an application has proved helpful, and returning students are encouraged to contact the Undergraduate Admissions Office for an appointment.

Recognizing some of the special concerns of the older returning undergraduate, the Returning Student Services Network offers special orientation sessions, workshops, and other services to help students 25 years of age and older cope with the responsibilities of work, family, and school. Many key offices on campus have designated a special advisor for returning students to offer information and assistance to older students.

Acceptance to the College of Engineering and Applied Sciences Program

Freshman and transfer applicants to the university may be accepted directly into the electrical engineering, mechanical engineering, engineering science, or applied mathematics and statistics major, and freshman applicants directly to the com-

puter science major; however, they must specify their interest at the time they apply. Admission to the university *does not* guarantee acceptance into these five programs.

Pre-Enrollment Deposit and Refund Policy

Each new student is required to pay an advance tuition deposit of \$50 and an additional \$125 deposit when housing is requested. Fall deposits, which are applied against charges incurred by the student in the first semester, are due either May 1 or 30 days after admission is offered, whichever is later. Housing deposits are refundable until July 1; tuition deposits paid before April 1 are refundable until May 1. Spring deposits are due 30 days after admission is offered. Requests for refunds should be sent to Student Accounts, State University of New York at Stony Brook, Stony Brook, NY 11794-1901, and must be received by the university not later than the due date. To ensure timeliness and receipt of the deposit refund request, the university suggests letters be sent by certified mail, return receipt requested.

Part-Time Matriculation

Students who are unable to attend Stony Brook full time may wish to apply for study as part-time matriculated students. Part-time students may enroll for up to 11 credits per semester and are subject to all academic rules and regulations appropriate to that status. First-time matriculants at Stony Brook should follow the application procedures described elsewhere in this chapter. (Freshmen see p. 18, transfer students see p. 19.)

Undergraduate Evening Program

An evening program offering classes after 6 p.m. is available to part-time students. Individuals with appropriate prerequisites may work toward a baccalaureate degree in applied mathematics and statistics, art history and criticism, business management, earth and space sciences, engineering science, English, history, liberal studies, philosophy, political science, psychology, social sciences, or sociology.

Disabled Students

The academic admission procedures for disabled students are the same as for all other applicants. Disabled students, including learning-disabled students, are evaluated on the basis of high school transcript and grade point average, standard or untimed SAT scores, and letters of recommendation. An interview is strongly recommended.

Foreign Students

The university admits a limited number of undergraduate students from foreign countries each year. Applicants should contact the Undergraduate Admissions Office directly for appropriate application materials and information, as these differ from forms filed by United States citizens and permanent residents. Completed applications must be returned to the Stony Brook campus rather than mailed to the Processing Center in Albany.

Original certified transcripts, records, certificates, etc. of secondary school and college courses and grades (in English translation and with an explanation of rank in class and the marking system) must accompany the application. Secondary school records must reflect academic achievement equivalent to the minimum for admission when converted to the American system's grading scale. A 2.5 index is required of foreign students who wish to transfer from other colleges in the United States. A minimum of one full year of study in a parallel program reflecting an index of 2.5 or higher is required of transfer applicants whose secondary school achievement fell below the standard required for freshman admission. (For transfer credit policies, see p. 19.)

All persons whose native language is not English are required to take the Test of English as a Foreign Language (TOEFL) and achieve a minimum score of 550, or to demonstrate English proficiency by one of the following methods: SAT verbal score of 350 or higher; graduation from an American high school after two years of study in the United States; proof of attendance at an Intensive English Language Institute at an advanced level in the *United States* with completion of a program at the high-intermediate or advanced level.

It is also necessary to complete a University Financial Affidavit, which indicates that the applicant has sufficient funding to pay for all educational and personal expenses while in the United States. The amount considered as sufficient funding may vary from year to year. Contact the Undergraduate Admissions Office for full details.

Since qualified students are admitted to the limited spaces on a first-come, first-served basis, early application completion is critical. Applicants should keep in mind the following deadlines for completed applications: for the fall semester the deadline is May 1; for the spring semester it is October 1. *These deadlines are relevant only if spaces remain until deadline dates. All spaces may be filled prior to deadlines.*

It is assumed that all foreign students require on-campus housing unless documented evidence of alternate living arrangements is filed with the application.

Advanced Standingby Examination

Stony Brook will accept up to 30 credits by examination in partial fulfillment of the bachelor's degree. Included in this total may be credit based on standardized external examinations such as AP, CLEP, CPE, and Stony Brook's own Challenge Program. (See below for details about these programs.) Credit by examination may not be used to satisfy University Core Distribution Requirements; however, the College of Arts and Sciences area elective requirements may be satisfied in this way. Credit by examination does not count as part of the semester credit required for good academic standing, nor may it be used to fulfill the Stony Brook residence requirement. (See p. 51.)

Credit requested for examinations or programs (e.g., military) not specifically mentioned below must be substantiated by the appropriate documentation. Requests for reviews of students' qualifications must be submitted in writing to the Undergraduate Admissions Office.

Advanced Placement Credit

Advanced placement credit may be extended to freshmen who have completed advanced placement courses in secondary school and who have taken the appropriate CEEB advanced placement examination. Students must request that their test scores be forwarded to Stony Brook. While each academic department determines the minimum test score required for academic credit in a particular subject, three general elective credits are guaranteed with a score of 3.

College Level Examination Programs

The university will award credit for the CLEP (College Level Examination Program) subject examinations and the CPEs (College Proficiency Examinations). The scores received must be equivalent to a grade of C. Credit will not be given for the CLEP General Examinations.

Challenge Program for Advanced Credit

The university's Challenge Program permits undergraduates to earn advanced placement and academic credit by taking examinations in place of regular courses. (For further information about the Challenge Program see p. 39.)

Non-Degree Study

General Information

Non-matriculated study is available at Stony Brook for individuals who are not ready to study for a degree, who are not interested in studying for a degree, or who do not meet general academic criteria for matriculated admission. Non-matriculated

students cannot be graduated from the university in this status; however, courses and grades earned may be applied toward a degree program at Stony Brook and used to fulfill the university's residence requirements should a student subsequently matriculate. As with matriculated students, a permanent record is kept by the University's Office of Records.

Non-matriculated students pay the same tuition and other fees as matriculated students. (High school students admitted through the Young Scholars Program described below, however, pay only tuition.) In addition, non-matriculated students are not eligible to receive most kinds of financial aid. Students from other institutions who plan to study at Stony Brook under the Visiting Student Program described on p. 40 should see a financial aid counselor on their home campus about continuing to receive financial aid.

Applications for non-matriculated study are available only in the Undergraduate Admissions Office. They should be completed and returned together with transcripts from all previous institutions. Applicants for full-time non-matriculated study (FTNM) must have achieved a minimum grade point average of 2.3 for a minimum of 15 credit hours at their previous institutions. Applicants for part-time non-matriculated study (PTNM) must have achieved a minimum grade point average of 2.0 for a minimum of 15 credit hours.

Non-matriculated students' academic performance will be reviewed at the conclusion of each semester. Students earning less than a 2.0 grade point average will not be permitted to continue. Generally, students who did not initially qualify for matriculation and who wish to do so must successfully complete either 15 credits at Stony Brook with a cumulative grade point average of at least 2.5, or 12 credits with a cumulative grade point average of 3.0 or higher.

Note: Students enrolled in summer session classes who wish to continue study at Stony Brook must formally apply through regular admissions procedures, since enrollment in summer session does not constitute regular admission.

High School Students: Young Scholars Program

The Young Scholars Program offers academically talented high school students who live within commuting distance of Stony Brook the opportunity to complement their high school study with part-time coursework at Stony Brook. The courses are scheduled in the late afternoon, early evening, and on Saturday. In past semesters, course offerings have included

Introduction to Economic Analysis; People, Technology, and Society; Structure and Methods in Sociology; A Survey of Psychology; and Logical and Critical Reasoning, to name only a few.

For each course the title, credits, and grade will be recorded on an official Stony Brook transcript. The student may later use these courses toward a degree at Stony Brook or offer them as transfer credit at another college or university.

Applicants should have junior or senior standing with a strong B average or higher and approval from their parents and guidance counselor or principal before acceptance into the program.

To request an application and description of course offerings, write or phone:

Office of Undergraduate Admissions
118 Administration Building
State University of New York
at Stony Brook
Stony Brook, NY 11794-1901
(516) 632-6868

Visiting the Campus

Although an interview is not required, a visit to the campus is strongly recommended. Knowledgeable student guides conduct tours of the campus leaving from the Undergraduate Admissions Office each weekday at 2 p.m. and every Saturday at 10 a.m., 11 a.m., and noon during the academic year (except Thanksgiving and winter and spring recesses). Prospective students are invited to discuss their educational plans with an admissions counselor and to tour the campus with tour guides who are informative about Stony Brook and responsive to questions. It is advisable to call for an appointment when planning a visit to the campus.

Orientation/Academic Advising Program

Each semester prior to the start of classes, all new freshmen and transfer students are required to attend a one-, two-, or three-day orientation session during which they have the opportunity to meet faculty members who advise them about academic programs and potential careers, learn about campus life from student leaders, and register for classes.

Separate freshman and transfer student orientation programs are conducted during the summer for fall entrants, and in January for spring entrants. The English Placement Examination and a placement examination in mathematics are offered, and results, available during the summer orientation program, are used for careful preparation of individual academic programs.

Detailed information concerning the content, costs, and dates of orientation is usually sent at the time of, or subsequent to, the offer of admission. Students unable to attend the summer orientation program are required to attend the one-day alternative program offered prior to the beginning of classes each semester. At the one-day session students register for the courses they will take that semester. All new freshmen and transfer students without equivalent credit for EGC 101 (see Lower-Division Writing Requirement, p. 50) who did not take the English Placement Examination during summer orientation must take the examination during the first two weeks of classes. (The exact time, date, and place will be announced in advance.)

Withdrawal, Readmission, and Leave of Absence

Information concerning withdrawal, readmission, and leave of absence from the university appears on p. 44.

Financial Information



Registration is not complete until all tuition, fees, and charges, which are due and payable prior to the first day of classes, have been paid or properly deferred. Failure to satisfy this financial obligation will prevent students from receiving academic credit, transcripts, diplomas, and certifications, as well as from being permitted to register for future semesters. Nonpayment does not constitute official withdrawal, which must be done through the Office of Records/Registrar. Failure to attend classes will not relieve students of their financial obligation or entitle students to a refund. The date of official withdrawal determines eligibility for any refunds in accordance with the schedule found on p. 25 under "Refund of Tuition." All fees and charges are subject to change without prior notice.

Tuition and Fees

Tuition

Undergraduates (12 or more credits)

	<i>First Semester</i>
N.Y. State resident	\$ 675.00
Non-resident	1975.00
	<i>Second Semester</i>
N.Y. State resident	\$ 675.00
Non-resident	1975.00
	<i>Year</i>
N.Y. State resident	\$1350.00
Non-resident	3950.00

Graduates (12 or more credits)

	<i>First Semester</i>
N.Y. State resident	\$1075.00
Non-resident	2300.00
	<i>Second Semester</i>
N.Y. State resident	\$1075.00
Non-resident	2300.00
	<i>Year</i>
N.Y. State resident	\$2150.00
Non-resident	4600.00

Professionals (Medicine and Dental Medicine)

	<i>First Semester</i>
N.Y. State resident	\$2775.00
Non-resident	5450.00
	<i>Second Semester</i>
N.Y. State resident	\$2775.00
Non-resident	5450.00

Part-Time Undergraduates (Less than 12 credits)

	<i>First Semester</i>
(Charge per semester credit hour)	
N.Y. State resident	\$ 45.00
Non-resident	132.00
	<i>Second Semester</i>
N.Y. State resident	\$ 45.00
Non-resident	132.00

Part-Time Graduates (Less than 12 credits)

	<i>First Semester</i>
(Charge per semester credit hour)	
N.Y. State resident	\$ 90.00
Non-resident	192.00
	<i>Second Semester</i>
N.Y. State resident	\$ 90.00
Non-resident	192.00

College Fee

	<i>First Semester</i>
Full-time student (12 credits or more)	\$12.50
Part-time student (per credit hour up to 11 credits)	.85
	<i>Second Semester</i>
Full-time student (12 credits or more)	\$12.50
Part-time student (per credit hour up to 11 credits)	.85
	<i>Year</i>
Full-time student (12 credits or more)	\$25.00

Housing*

	<i>First Semester</i>
Single Occupancy	\$1110.00
Double Occupancy	1035.00
Meal Plan	To be announced
Cooking Fee (on-campus resident not on meal plan)	
Hall	187.00
Suite	121.00
	<i>Second Semester</i>
Single Occupancy	\$1110.00
Double Occupancy	1035.00
Meal Plan	To be announced
Cooking Fee (on-campus resident not on meal plan)	
Hall	187.00
Suite	121.00

*Add \$65.00 to room rates for an optional phone

	<i>Year</i>
Single Occupancy	\$2220.00
Double Occupancy	2070.00
Meal Plan	To be announced
Cooking Fee (on-campus resident not on meal plan)	
Hall	374.00
Suite	242.00

Student Activity Fee¹

	<i>First Semester</i>
Undergraduate, full time	\$65.00
	<i>Second Semester</i>
Undergraduate, full time	\$55.00
	<i>Year</i>
Undergraduate, full time	\$120.00

Lost Identification Card \$3.00

Student Health Insurance

To be announced

Orientation²

Freshmen	3 days	\$120.00
Transfer Students	1 day	30.00

Returned Check Fee \$5.00

Late Registration Fee \$20.00

Late Payment Fee \$20.00

Advance Tuition Deposit³

(Freshmen and transfers only) \$50.00

Advance Housing Deposit \$125.00

Transcript Fee \$3.00 each

¹This fee set by Student Polity (Undergraduate Student Government).

²Includes orientation fees and charges for room and board. Prices are approximate and subject to change.

³Applies toward first-semester charges.

Summer Session

Tuition

Undergraduate Students

(Charge per credit hour)

N.Y. State resident	\$ 45.00
Non-resident	132.00

Graduate and CED Students

(Charge per credit hour)

N.Y. State resident	\$ 90.00
Non-resident	192.00

Physical Education Courses

Charged at the appropriate rate for one credit hour.

Fees

Room, single occupancy	\$77.00/week
Room, double occupancy	70.00/week
Cooking Fee	14.00/week
College Fee	.85/cr. hr.
Student Activity Fee	Determined by status
Late Registration Fee	20.00

Payment of Fees and Charges

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." Postdated checks are not accepted.

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

Deferment

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 amount of the award must be presented at time of payment to apply the deferment to the account (only current awards are deferrable). Students should refer to pp. 27-32 for suggested filing dates to ensure receipt of appropriate documentation in time to submit for deferment of payment.

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

1. *Regents College Scholarships and Tuition Assistance Program*: All New York State residents are encouraged to file for Tuition Assistance Program (TAP) awards. Incoming students and students who have not received their application form by June 11 should immediately obtain the application form from the Office of Financial Aid and Student Employment. (Students should apply for all TAP awards at the earliest possible date, preferably no later than June 10, if they expect to receive award certification from TAP prior to the beginning of classes in the fall. Students are

reminded that failure to file an application in a timely manner can preclude their receiving award credit or deferment.)

2. *Perkins Loan, Supplemental Educational Opportunity Grant (SEOG)*: Students who have filed applications prior to the specified deadlines and who qualify for these awards will receive award letters from the Office of Financial Aid and Student Employment prior to registration. Acceptance of these awards must be returned to the Office of Financial Aid and Student Employment promptly.
3. *Pell Grant*: Students will receive an award notice (Student Aid Report) from the federal government. This notice must be submitted to the Office of Financial Aid and Student Employment for approval and processing.
4. *Veterans Educational Benefits*: The Office of Veterans Affairs offers deferments to eligible students based on their anticipated receipt of V.A. educational assistance. The deferments allow students to postpone payment of all or part of their tuition charges and fees until the end of the semester for which the charges are incurred.
Students wishing to obtain a deferment should obtain a bill covering all current charges from the Office of Student Accounts before coming by the Office of Veterans Affairs to request a deferment.
5. *Office of Vocational Rehabilitation*: Deferment based on Office of Vocational Rehabilitation benefits may be obtained by presentation of an award letter or a voucher indicating the amount of the award and period covered from the Office of Vocational Rehabilitation. All such letters and vouchers must be accompanied by a Tuition Assistance Program Award Certificate, if applicable.
6. *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 a deferment equal to the amount of the award. In cases where the award is payable to the university and the student, the student will be required to submit a copy of the award letter to the Office of Student Accounts in order to receive deferment.
7. *New York Higher Education Services Corporation Loans (NYHESC)*: After filing the required loan forms, the student will receive the Notice of Loan Guarantee (HE 1300) from Albany. Deferment will be automatically applied to each student's account.

8. *Hardship Deferments*: Students experiencing severe financial hardship based on extraordinary personal circumstances may request deferment of financial charges for tuition, room, and board only. Such requests should be made in the Student Accounts Office (second floor, Administration Building) before registration. Full documentation will be required. Failure to submit an application for awards or financial assistance for which a student is eligible will not be accepted as a basis for a hardship deferment.

Refund Policy

All requests for refunds must be submitted in writing to the Office of Student Accounts, State University of New York at Stony Brook, Stony Brook, NY 11794-1301.

Refund of Preenrollment Tuition Deposits

Each new student is required to pay an advance tuition deposit of \$50. Deposits for the fall semester are due by the date indicated on the deposit card's preprinted label. Deposits are applied to charges incurred by the student in the first semester. Requests for refunds will be granted under the following conditions:

1. A request for a refund of the tuition deposit must be made in writing to the Office of Student Accounts and received by the date printed on the deposit card.
2. If enrolled in another SUNY school, a student must provide satisfactory proof of such enrollment to the Office of Student Accounts.

Refund of Housing Deposits

Each student is required to pay a \$125 advance room deposit when requesting a future room assignment; this deposit will be applied to the housing charges for the first semester. A request for refund of room deposit must be made in writing to the Division of Campus Residences by June 30 (for fall semester) or within 30 days of the date of deposit. Students not receiving an assignment within 30 days of deposit will have until notification of assignment to request a refund.

Refund of Tuition

Students who withdraw from the university and part-time students who decrease their academic load shall be liable for payment of tuition in accordance with the following schedule:

Liability during	Semester
First week	0%
Second week	30%
Third week	50%
Fourth week	70%
Fifth week	100%

<i>Liability during</i>	<i>Summer Session</i>
First week	0%
Second week	70%
Third week	100%

The first day of classes as published by the university in the academic calendar shall be considered the first day of the semester, quarter, or other term; and Saturday of the week in which the 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 made during the Monday through Friday office working hours.)

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

No money shall be refunded for tuition 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 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. Acceptable proof must be submitted.

Refund of Room Fee

Students who cancel their housing request after the start of a semester will be charged a \$125 breakage fee plus the applicable weekly room rental fee through the date of cancellation. Bills will be prorated on a weekly basis only. The total fee assessed may not exceed the full cost of room rent for the semester.

More importantly, should the total occupancy in the residence halls fall below 100 percent of utilization, students who cancel their housing assignment after the start of the semester will be responsible for the full cost of room rent for the semester. No prorations of the room rent will be offered.

Refund of Meal Plan Fee

Students wishing to cancel their meal plan contract must do so through the Faculty Student Association, located in the Stony Brook Union. On notification from FSA, the Office of Student Accounts will automatically credit the account and prepare any refund due, if appropriate.

Refund of Student Activity Fee

As determined by Student Polity and GSO, full refunds of the student activity fee will be granted if the student withdraws within the

first week of classes. No refunds will be granted for withdrawals after the first week of classes.

Refund of Cooking Fee

The cooking fee may be refundable if the student has enrolled in the meal plan. The amount of such refund is to be determined by university policy in effect at the time.

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

These fees are not refundable.

Refunds Caused by Overpayment or Processing Errors

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

Other Expenses

Food

The university, through a food service contractor, provides several meal plan options. Meals are served at three dining halls located in the residential areas. The options currently include a five-meal, a ten-meal, a 15-meal, and a 19-meal plan, each offered for 15 weeks. For the spring 1989 semester cost ranged from \$639 for the minimal plan to \$698 for the maximal plan. Similar plans will be offered in coming years but prices cannot now be predicted. It is expected, however, that future price ranges will not vary greatly from those now in effect, barring unforeseeable inflationary effects.

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

In addition to the dining halls, the food service contractor operates a restaurant and several cafeterias. The End of the Bridge restaurant in the Stony Brook Union is open for lunch 11:30 a.m. to 2:30 p.m., Monday to Friday; prices range from \$2.95 to \$5.95 per meal. The Union Cafeteria is open Monday to Friday, from 8 a.m. to 8:00 p.m. Prices range from \$2.00 to \$4.50 per meal.

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

Resident students who do not sign up for a meal plan are required to pay a cooking fee of \$187 per semester if they reside in a hall and \$121 per semester if they reside in a suite. Students who elect to do this may expect to spend between \$45 and \$60 a week for food.

New undergraduates residing on campus are required to participate in a mandatory meal plan for two semesters (one year). This policy applies to transfer students as well as freshmen.

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

Books and Supplies

The average estimated expense is \$500 for nine months (September-May). This figure is included in the basic student aid budget.

Miscellaneous Expenses

The average estimated personal expense is \$845 for nine months. This figure is used for the basic student aid budget.

Travel Expenses

The average estimated expense is \$500 for nine months on campus for a student residing in a dorm. The average estimated expense is \$1365 for nine months for a student residing with parents and commuting to the campus. These amounts are also used for the basic student aid budget.

Study Abroad Expenses

Students who participate in Study Abroad programs (in such countries as France, Germany, Italy, Peru, Poland, etc.) pay the normal SUNY tuition. They must also pay round trip transportation and housing costs. Programs in some countries also carry a program fee to cover exceptional administrative expenses. As a rule the costs of studying abroad do not substantially exceed those of studying as a resident student at Stony Brook.

Off-Campus Housing

The Off-Campus Housing Office provides information concerning rentals of rooms, apartments, and housing within a 15-mile radius of the university. All landlords listing property with the university must sign a statement assuring non-discriminatory practices; listings do not become available until such assurance is received. The Off-Campus Housing Office and the university may not become parties to landlord-tenant disputes.

The common price per month for a furnished room is \$240. Kitchen privileges are most often included in this price. Rooms available in houses rented by other students are also listed as houses to share. That is, arrangements can sometimes be made to share a complete house for \$200-

\$400 per month plus a percentage of the utilities cost.

Apartment listings cover those available in standard apartment building complexes and those available in private homes. The usual rental rate of a studio apartment (one large room, bathroom, closets, kitchenette) in a house is approximately \$375-\$500 per month. A studio apartment in one of the apartment facilities is usually \$400-\$600. Apartments in housing complexes usually provide more space and privacy. A conventional one-bedroom apartment, including living room, dining room, kitchenette, bathroom, and closet space, usually ranges in price from \$500-\$600 per month. Utility costs, except electricity, are often included in the price.

There are also listings for house rentals in the area. These rentals range from \$600-\$1,200 per month, not including utilities. The price depends on the number of rooms in the house, the condition of the house, and its distance from the campus.

Financial Aid

The Office of Financial Aid and Student Employment administers several federal and state programs that provide funds to assist eligible students in pursuing their academic goals. These programs are the Perkins Loan, formerly known as the National Direct Student Loan (NDSL); Supplemental Educational Opportunity Grant (SEOG); College Work Study program (CWS); Educational Opportunity Program (EOP); and some private scholarships. The office also manages the Pell Grant, Stafford Loan, and New York Higher Education Services Corporation programs (TAP, Regents Scholarship). These programs are described below together with other state and federal assistance for which prospective students might qualify while attending Stony Brook.

The basic applications for programs administered by the Office of Financial Aid and Student Employment are the Financial Aid Form (FAF) and the Stony Brook Institutional Application. Application forms and information about application guidelines and deadlines are available at the Office of Financial Aid and Student Employment, 231 Administration Building, 632-6840.

"Emancipated" or "Independent" Student Status

The university adheres to current federal guidelines for validating the status of a student as independent or emancipated for financial aid purposes. These guidelines define an independent student as being in one of the following categories:

1. The student is 24 years old or older by December 31 of the award year.
2. The student is an orphan, ward of the court, a veteran of the armed forces, or has legal dependents other than a spouse.

3. The student is a graduate, professional, or married student who will not be claimed as a dependent for income tax purposes by a parent or guardian for the first calendar year of the award year and who, if treated as an independent student in the preceding award year, was not claimed for income tax purposes by anyone other than a spouse for the first calendar year of that award year.
4. The student is a single undergraduate student with no dependents, who was not claimed as a dependent by a parent or guardian for income tax purposes for the two calendar years preceding the award year, and who demonstrates total self-sufficiency during the two calendar years preceding the award year in which the initial award will be granted by demonstrating an annual total income of \$4,000.
5. The student is one for whom a financial aid administrator makes a documented determination of independence by reason of other unusual circumstances. Examples of these unusual circumstances include students in foster care and students with refugee status. Students in this category should see a financial aid administrator before they complete the Financial Aid Form.

Students are cautioned that these guidelines are subject to change and that the university will adopt any new standards as soon as they are promulgated.

FEDERAL PROGRAMS

Pell Grant

Application Procedures

Applications and other materials are available through financial aid offices at approved postsecondary institutions. Students may also apply for Pell by filing a Financial Aid Form (FAF).

The completed application should be submitted for processing according to the directions included on it. A calculated Student Aid Index will be sent to the applicant based on the information in the application. The amount of the applicant's award is determined by the financial aid officer at the postsecondary institution attended and is based on the Student Eligibility Index, enrollment status, and costs. Upon enrollment, funds are paid directly to the applicant or credited to his or her institutional account.

Selection of Recipients and Allocation of Awards

The Pell Grant Program is an entitlement program. Eligibility and award amount are

based on need. The applicant must be enrolled as a matriculated undergraduate student, at least on a half-time basis, in an approved postsecondary institution.

Financial need is determined by a formula applied to all applicants. It was developed by the U.S. Department of Education and is reviewed annually by Congress. The Student Aid Index is calculated by this formula.

An eligible student may receive grants for a period of five years as an undergraduate. Awards may be used for tuition, fees, books, and living expenses.

Award Schedule

Currently awards range from \$200 to \$2,200, but may not be more than 60 percent of the total cost of attendance. The amount of the award will be affected by costs of attendance and full- or part-time enrollment status. The Pell award is not duplicative of State awards.

Responsibilities of Recipients

The student must continue to make satisfactory academic progress in the program in which he or she is enrolled. The student must not owe any refunds on Pell or other awards paid, or be in default on repayment of any student loan.

Before receiving payment, the student must sign a statement of educational purpose confirming that all money received will be used for the costs of postsecondary education only.

Note: Also see Responsibilities of Recipients under Parent Loans for Undergraduate Students, p. 29, for further information.

Supplemental Educational Opportunity Grants (SEOG)

Application Procedures

Application is through the institutional financial aid office, which is responsible for determining who receives a Supplemental Grant, and the amount.

Selection of Recipients and Allocation of Awards

The applicant (1) must be in exceptional financial need, to the extent that without a Supplemental Grant award his or her education could not be continued; and (2) SEOG recipients must be undergraduate degree candidates enrolled full time.

Award Schedule

The award ranges from \$100 to \$2,000. A student may be eligible to receive grants for the period required to complete a first baccalaureate degree.

Responsibilities of Recipients

The student must continue to make satisfactory academic progress.

Note: Also see Responsibilities of Recipients under Parent Loans for Undergraduate Students, pp. 29, for further information.

Perkins Loans (Formerly National Direct Student Loan Programs [NDSL])

Application Procedures

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

Selection of Recipients and Allocation of Awards

At Stony Brook, Perkins Loans are available to students enrolled at least half time as graduate or undergraduate degree candidates. However, awards are made on a funds-available basis.

Award Schedule

Maximum amounts that may be borrowed are \$4,500 for the first two years of study; \$9,000 total as an undergraduate; and \$18,000 for graduate study, to include any amount borrowed through a Perkins Loan for undergraduate study.

Actual Perkins Loans are limited based on annual allocations and collections, and presently average \$750 per year at Stony Brook.

Responsibilities of Recipients

Continued eligibility is dependent on maintenance of satisfactory academic progress. The current interest rate, payable during the repayment period, is five percent on the unpaid principal. Repayment begins nine months after graduation or leaving school, and may extend over a period of ten years. Payment may be extended over an additional ten-year period for certain low-income students, and may be deferred for up to three years for certain categories of borrowers including Public Health Service officers, the temporarily disabled, those on internships required before entering a profession, and full-time Peace Corps, VISTA, or similar national program volunteers.

Note: Also see Responsibilities of Recipients under Parent Loans for Undergraduate Students, pp. 29, for further information.

College Work-Study Program (CWS)

Application Procedures

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

Selection of Recipients and Allocation of Awards

The applicant must be enrolled at least half time as a graduate or undergraduate degree candidate.

An institution must make employment reasonably available to all eligible students in the institution who are in need of financial aid. In the event that more students are eligible for CWS than there are funds available, preference is given to students who have the greatest financial need.

Award Schedule

The Office of Financial Aid and Student Employment arranges jobs on campus. Students may arrange up to 20 hours of work each week. Hourly wage rates are variable and currently range from \$3.75 to \$4.25 per hour for undergraduate students.

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

Responsibilities of Recipients

See Responsibilities of Recipients under Parent Loans for Undergraduate Students, p. 29.

Note: Eligibility for SEOG, Perkins Loans, and CWS is determined on the basis of congressional methodology, and by means of the Financial Aid Form (FAF) and the Stony Brook Institutional Application (SBIA). All awards under these programs are contingent upon the individual institution's allocation and on the availability of funds.

Stafford Loans

Application Procedures

The student should obtain a loan application from a participating New York State lending institution (bank, credit union, etc.) in his or her area of permanent residence. The completed application is presented to the financial aid officer at the postsecondary institution being attended, along with an institutional application. To finish the application process, the applicant must complete a Financial Aid Form (FAF) and submit it to Princeton, NJ.

Selection of Recipients and Allocation of Awards

To be eligible for a Stafford Loan, a student must be a U.S. citizen or permanent resident alien, or other eligible resident, and be enrolled at least half time at an approved college, university, or other postsecondary institution in any of the United States or its territories, or in an approved foreign country.

Loan Schedule

An undergraduate may borrow up to \$2,625 for the first two years of undergraduate study and \$4,000 for subsequent undergraduate study, up to a total of \$17,250.

A graduate student may borrow up to \$7,500 per class year, up to a combined total of \$54,750 including any loans for undergraduate study.

Responsibilities of Recipients

A student may borrow at a relatively low interest rate (currently eight percent for the first four years of repayment, at which time the rate rises to ten percent) with no repayment as long as he or she remains enrolled at least half time, and for six months after he or she ceases to be at least a half-time student. Payment of principal may be deferred for up to three years for certain categories of borrowers including Public Health Service officers, the temporarily disabled, those on internships required before entering a profession, and full-time Peace Corps, VISTA, or similar national program volunteers.

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

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

1. Depending on the amount of the loan, the minimum monthly payment will be \$50 plus interest. Under unusual and extenuating circumstances the lender may, on request, permit reduced payments.
2. The maximum repayment period is ten years.
3. The maximum period of a loan from date of the original note may not exceed 15 years, excluding authorized deferments of payments.
4. Repayment in whole or part may be made at any time without penalty.

Note: Also see Responsibilities of Recipients under Parent Loans for Undergraduate Students, pp. 29, for further information.

Supplemental Loans for Students (Formerly Auxiliary Loans to Assist Students [ALAS])

These loans are available, through the Stafford Loan Application, to graduate students and to undergraduate students who are financially independent of their parents. Undergraduates can borrow up to \$4,000 per year. The interest rate varies according to the interest rate of the quarterly treasury bill. The aggregate loan limit is \$20,000.

Parent Loans for Undergraduate Students (PLUS)

These loans are available for parents of financially dependent, undergraduate students. Parents can apply for \$4,000 per year, per child for an aggregate total of \$20,000 for each child.

The interest rate varies according to the treasury bill rates, and repayment begins within two months of receipt of the loan.

Responsibilities of Recipients

Satisfactory academic progress must be maintained. Federal regulations specify that academic progress be measured each year (following the spring semester). Eligibility for assistance from the federal CWS, Stafford Loans, Perkins Loans, SEOG, and Pell Grant programs is contingent on the candidate's meeting Stony Brook's "quality" and "quantity" criteria (see p. 42). In addition, recipients of federal student financial aid are required to complete their degree requirements within a stated time frame. Specifics on academic progress as a condition of federal student aid eligibility are available from the Office of Financial Aid and Student Employment.

STATE PROGRAMS

Note: Where any question of eligibility exists, the student or prospective student should consult the Office of Financial Aid and Student Employment.

Tuition Assistance Program (TAP)

Application Procedures

Applicants must apply annually to the New York State Higher Education Services Corporation (HESC), 99 Washington Avenue, Albany, NY 12255. TAP application forms are mailed, beginning in April, to all (1) students who currently receive a TAP grant or Regents Scholarship award; (2) high school seniors who apply for a Regents Scholarship; (3) approved postsecondary institutions and high schools in New York State; and (4) central admissions applicants of the State University of New York. Any student or prospective student can obtain a TAP application from any high school guidance office or from a financial aid office.

Before submitting the application, the applicant should review it with the high school

counselor or college financial aid officer, especially if there are questions relating to completion of the application.

The Higher Education Services Corporation determines the applicant's eligibility and mails an award certificate directly to the applicant indicating the amount of the grant. The applicant presents the Institutional Copy of the certificate at the time of payment of tuition. (See "Deferment," p. 25.)

Selection of Recipients and Allocation of Awards

Tuition Assistance Program is an entitlement program. There is neither a qualifying examination nor a limited number of awards. The applicant must (1) be a New York State resident and a U.S. citizen, or a permanent resident alien, paroled refugee, or conditional admittant to the United States; (2) be enrolled full time and matriculated at an approved New York State postsecondary institution and program; (3) have, if dependent, a family net taxable income below \$34,250, or if independent and single with no tax dependents, a net taxable income below \$10,000; and (4) be charged a tuition of at least \$200 per year. All income data are subject to verification by the New York State Department of Taxation and Finance.

The current definition of independent status is as follows:

1. 35 years of age or older on June 30, *or*
2. 22 years of age but under 35 on June 30, and not:
 - a. a resident in any house, apartment, or building owned or leased by parents for more than six consecutive weeks;
 - b. claimed as a dependent by parents on their federal or state income tax returns;
 - c. a recipient of gifts, loans, or other financial assistance in excess of \$750 from parents; *or*
3. under 22 years of age on June 30, and meeting all other requirements of 2, above, and in addition able to meet at least *one* of the following requirements:
 - a. both parents deceased, disabled, or incompetent, *or*
 - b. receiving public assistance other than Aid to Families with Dependent Children (AFDC), or food stamps, *or*
 - c. ward of a court, *or*
 - d. financially independent due to the involuntary dissolution of your family, resulting in relinquishment of your parents' responsibility and control, *or*
 - e. married on or before December 31 of the year preceding the academic year for which application is made, *or*
 - f. enrolled as a graduate student, *or*

- g. received a TAP award as a financially independent student in the academic year preceding that for which application is made.

Note: Independent status under the state definition does not necessarily ensure independent status for federal aid programs. See "'Emancipated' or 'Independent' Student Status," above.

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

Award Schedule

The amount of the TAP award is scaled according to level of study, tuition charge, and net taxable income. (See note below.) Awards at Stony Brook range from a minimum of \$350 to a maximum of \$1,375. Detailed information regarding the determination of actual award amounts is available in the TAP Student Payment Application, a copy of which can be obtained from high school guidance offices or from a financial aid office.

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

Regents College Scholarships

Application Procedures

Information and application forms are available in the fall from any New York State high school. Prospective applicants in their final year of high school should file their applications with the high school principal by November 1.

Selection of Recipients and Allocation of Awards

Scholarships are awarded competitively for full-time postsecondary study in New York State in (1) approved degree, certificate, or diploma programs offered by colleges or other degree-granting institutions; (2) hospital school programs leading to licensure or certification; and (3) two-year programs in registered business schools not authorized to grant degrees.

The competitive basis of the award is the score on the Scholastic Aptitude Test (SAT) of the College Board or the American College Testing (ACT) Program Assessment.

The examinations may be taken as many times as desired by the applicant prior to November 1 of the final year of high school study.

The applicant must (1) have been a legal resident of New York State for at least one year immediately preceding the first term for which the application for an award is made; (2) either graduate from high school by the end of the school year in which the examination was taken or be accepted as a full-time matriculated student at a college or other approved school located in New York State by September of that year; and (3) not have competed previously for a Regents Scholarship. Requirements 2 and 3 may be waived for reasons satisfactory to the Commissioner of Education.

Award Schedule

The award is \$250 per year, for up to five years, depending on the normal length of the program in which the recipient is enrolled. To receive payment, the scholarship holder must annually file a Student Payment Application with the New York State Higher Education Services Corporation.

TAP and Regents Scholarship Award Regulations (Undergraduate Students)

On October 30, 1981 the New York State Education Department issued new regulations governing eligibility for Tuition Assistance Program and Regents Scholarship awards. Under these regulations students must meet minimum academic achievement requirements in order to receive payment of awards.

The regulations of the New York State Commissioner of Education provide that good academic standing consists of two elements:

1. Satisfactory academic progress - A requirement that a student accumulate a specified number of credits and achieve a specified grade point average each term of an award.
2. Pursuit of program - A requirement that a student complete (pass or fail) a certain percentage of credits each term of an award.

The chart below provides a detailed analysis of the State Education Department's requirements.

It should be noted that the minimum achievement standards for payment of awards are less demanding than those established by the university for good academic standing. Copies of the university's academic standing regulations are available at the Office of Records/Registrar.

A student who fails to meet these minimum standards for any one semester will be ineligible to receive an award payment for the following semester. Please note that each applicant, if eligible, can be approved for no more than one waiver of the minimum achievement requirements during his/her career as an undergraduate student. Students who fail to meet these requirements will receive notification in the mail as to their next appropriate course of action.

Standard of Satisfactory Academic Progress Only for the Purpose of Determination of Eligibility for State Student Aid

Semester Calendar
Baccalaureate Degree Program

Before Being Certified for This Award	1st	2nd	3rd	4th	5th	6th	7th	8th	9th**	10th**
A Student Must Have Accrued At Least This Many Credits	0	3	9	18	30	45	60	75	90	105
With at Least This Grade Point Average	0	.5	.75	1.20	1.40	1.50	1.60	1.70	1.80	1.90

**Only students enrolled in the A.I.M./E.O.P. Program are eligible for ten semesters of undergraduate awards.

Regents Awards for Children of Deceased or Disabled Veterans

Application Procedures

A special application, obtainable from the high school principal or counselor, must be filed with the New York State Higher Education Services Corporation (HESC), Albany, NY 12255. Documentary evidence to establish eligibility is required with the application. Any high school counselor can provide assistance with this.

Selection of Recipients and Allocation of Awards

The applicant must be (1) the child of a veteran who died, or who has a current disability of 50 percent or more, or who had such disability at the time of death, resulting from U.S. military service during one of the following periods:

- April 16, 1917– November 11, 1918
- December 7, 1941–December 31, 1946
- June 25, 1950–July 27, 1953
- October 1, 1961–March 29, 1973;

and (2) a legal resident of New York State. Legal residence in New York State on the part of the parent is also required, either at the time of entry into military service, or, if the parent died as the result of military service, at the time of death.

Regents Awards to children of deceased or disabled veterans are independent of family income or tuition charge, and are in addition to such other grants or awards to which the applicant may be entitled.

Award Schedule

The amount of the award is \$450 per year, for up to five years, depending on the normal length of the program of study, of full-time study in a college or in a hospital nursing school in New York State.

Aid for Part-Time Study (APTS)

Application Procedures

Applicants must complete an APTS application, available from the Office of Financial Aid and Student Employment. The application deadline is the last day of final registration for that semester. In addition, APTS candidates must apply for a Pell Grant (application materials are available from the Office of Financial Aid and Student Employment). The SAR (Student Aid Report) must be submitted to the Office of Financial Aid and Student Employment prior to the application deadline. State regulations require that recipients be identified no later than 21 days into the semester.

Selection of Recipients and Allocation of Awards

APTS is available to assist part-time matriculated students in meeting tuition costs. Consideration can be given to part-time degree candidates who are enrolled for at

least six credits and not more than 11 credits. Candidates must also have successfully completed at least six credits prior to the semester in which APTS assistance is requested. To be eligible for APTS, students must be in good academic standing and are expected to demonstrate financial need as documented by means of the Pell Grant application. Certain income restrictions also apply (details outlined on the APTS application). If eligible, recipients may receive full tuition awards for six to 11 credits.

Educational Opportunity Program (EOP)

Educational Opportunity Program (EOP) stipends are allocated, on the basis of need, to undergraduate students enrolled in the AIM Program.

The Advancement on Individual Merit (AIM) Program—Stony Brook's Educational Opportunity Program (EOP)—provides an opportunity to attend college for capable students who have not had the same opportunity as others to realize their academic potential because of limited financial resources and inadequate academic preparation. To be admitted to the university through the AIM program, the applicant's high school academic performance must have been below the level normally used to determine admission to the university. In addition, the applicant must meet financial eligibility guidelines established by New York State.

A student who is admitted to the university through the AIM program is offered financial and personal counseling and is eligible to receive a range of academic support services. These services include tutoring, special academic advising, skills improvement activities, and special development classes and programs. At the same time, these students participate fully in all campus academic and social activities. Many students who enter complete a baccalaureate degree program, and many continue their education in graduate and professional schools throughout the country.

For further information on AIM, contact:
The AIM/EOP Program
Library W3520
SUNY at Stony Brook
Stony Brook, NY 11794-3375
Telephone: (516) 632-7090

VETERANS ADMINISTRATION (VA) EDUCATIONAL BENEFITS

Application Procedures

Students interested in applying for benefits under any of the VA educational assistance programs should contact the Office of Veterans Affairs for applications, information, and assistance in applying for such benefits. The office is located in Room 155, Central Hall, telephone 632-6815.

G.I. Bill Educational Assistance

Selection of Recipients and Allocation of Awards

Generally, eligibility for benefits under this program requires the veteran to have at least 181 days of continuous active duty service, any part of which occurred after January 31, 1955 and before January 1, 1977. An exception is provided for veterans who contracted with the armed forces prior to January 1, 1977, under a delayed-entry program, were assigned to a reserve component at that time, and who subsequently entered active duty service before January 2, 1978. Discharge must have been under conditions other than dishonorable.

A veteran with less than 181 days of service may be eligible if he or she was released because of a service-connected disability.

Entitlement is earned at the rate of 1½ months of training for each month or fraction of a month of service. If the veteran served for at least 18 continuous months, entitlement is automatically increased to the maximum, which is 45 months. Each veteran has ten years following the date of his or her discharge in which to use these benefits. However, under the provisions of Public Law 94-502, this program will terminate on December 31, 1989, regardless of the veteran's date of discharge.

Active servicepersons who meet all the service requirements applicable to veterans under this program, with the exception of a final release from active duty, may be eligible to receive educational assistance. Typically, this assistance covers only tuition and fees.

Award Schedule

Current monthly benefit rates (as of December 1988) are shown below:

Status	Dependents			
	None	1	2	Each Additional
Full-time	\$376	\$488	\$510	\$32
Three-quarter	283	336	383	24
Half-time	188	224	255	17
Less than half	tuition and fees			

The "New" G.I. Bill

Selection of Recipients and Allocation of Awards

This program became effective July 1, 1985 for persons contracting for a minimum of two years active duty with the armed services. Those incurring such an obligation between July 1, 1985 and June 30, 1988 will be eligible to receive a maximum of 36 months of educational assistance upon completing their obligated period of service. Eligible individuals must voluntarily contribute to an educational assistance fund. At

the time the participant enters training, the appropriate branch of the military will match the individual's contribution on an eight-for-one basis (except for two-year active duty enlistees, whose funds are matched on a 6.5-for-one basis). Eligible students are entitled to 36 months of full-time educational assistance.

Award Schedule

Status	Rate
Full-time	\$300
Three-quarter	225
Half-time	150
Less than half	Tuition and fees

Survivors' and Dependents' Educational Assistance

Selection of Recipients and Allocation of Awards

The sons, daughters, spouse or surviving spouse of a veteran may be eligible for educational assistance if the veteran died while on active duty, died of a service-connected disability after release or discharge from active duty, became permanently and totally disabled as a result of a service-connected disability, died while a service-connected disability was rated permanent and total, or has been listed as missing in action, captured, detained, or interned in the line of duty by a foreign government or power for more than 90 days.

Eligible persons are entitled to 45 months of educational assistance and are paid benefits on the same basis as under the G.I. Bill. The delimiting dates, by which the benefits must be used, vary and are subject to modification in some cases.

Post-Vietnam-Era Veterans Educational Assistance Program (VEAP)

Selection of Recipients and Allocation of Awards

VEAP is a voluntary contributory matching program available to persons who entered active duty service after December 31, 1976. Benefits are accumulated by including contributions from the participating serviceperson and a matching fund from the VA at the rate of \$2 for each \$1 contributed by the participant. Under current law total contributions by the serviceperson may not exceed \$2,700. The military services may contribute additional amounts to the educational fund as a recruiting or retention incentive. Maximum entitlement under VEAP is limited to 36 months.

Benefit payments are made to servicepersons on the same basis as they are made to veterans. Each veteran has ten years from the date of his or her release from active duty to use the entitlement.

Vocational Rehabilitation for Disabled Veterans

Selection of Recipients and Allocation of Awards

A veteran of World War II or thereafter who has a service-connected disability which entitles him or her to VA disability compensation and who is in need of vocational rehabilitation because his or her disability creates an employment handicap may be eligible for benefits under this program.

Vocational rehabilitation may be provided for up to 48 months, and an eligible veteran generally has 12 years from discharge or release from active duty in which to use these benefits. The VA may approve an extension of time and/or length of training in certain cases.

If a veteran is approved for benefits, the VA will pay the cost of tuition, fees, books, and supplies. The veteran also receives a monthly subsistence allowance.

Award Schedule (Subsistence Allowance)

Current monthly benefit rates (as of December 1988) are shown below:

Status	Dependents			Each Additional
	None	1	2	
Full-time	\$310	\$384	\$452	\$33
Three-quarter	233	288	339	25
Half-time	155	193	227	17

Vietnam Veterans Tuition Awards (VVTA)

Application Procedures

Information and applications are available from the Office of Veterans Affairs, 155 Central Hall, or the Office of Financial Aid and Student Employment, 230 Administration Building.

Selection of Recipients and Allocation of Awards

The Vietnam Veterans Tuition Award Program provides financial assistance to veterans enrolled in undergraduate degree programs on either a full-time or part-time basis. To be eligible under this program, the veteran must:

1. have served in the armed forces of the United States in Indochina between January 1, 1963 and May 7, 1975;
2. have been discharged from the service under other than dishonorable conditions;
3. have been a resident of New York State on April 20, 1984, or have been a resident at the time of entry into the service and resume residence by September 1, 1987;

4. apply for a Tuition Assistance Program (TAP) award and a Pell Grant if applying as a full-time student or for the Pell Grant only if applying as a part-time student.

Full-time students are eligible to receive VTA benefits for up to eight semesters for a four-year program, or ten semesters if a degree program is specifically approved as requiring five years. (Programs of remedial study are considered to be programs normally requiring five years.)

Students taking courses on a part-time basis (six to 11 credits) may receive up to 16 semesters of benefits (eight years), or 20 semesters (ten years) in an approved program which would normally require five years if the study were full time.

Full-time awards are \$500 per semester or tuition, whichever is less. If the veteran also receives a Tuition Assistance Program (TAP) award, the combination of the two awards cannot exceed tuition.

Part-time awards are \$250 per semester or tuition, whichever is less.

The total of all awards received for full- and/or part-time study cannot exceed \$5,000.

Selected Reserve Educational Assistance Program

Selection of Recipients and Allocation of Awards

This program provides benefits to individuals enlisting, re-enlisting, or extending their enlistment with the Selected Reserve or National Guard. The obligation must be incurred between July 1, 1985 and June 30, 1988 and be for a period of at least six years. Students meeting the eligibility requirements for this program are entitled to a maximum of 36 months of educational benefits. However, unlike the other educational assistance programs, these benefits may only be used for undergraduate education. A student's entitlement under this chapter will normally expire at the end of a ten-year period of satisfactory participation in the Selected Reserve, or on the date the individual is separated from the reserve, whichever occurs first.

Award Schedule

Status	Rate
Full-time	\$140
Three-quarter	105
Half-time	70
Less than half	Tuition and fees

General Academic Information

General Academic Information



Semester Registration

Completion of registration each semester in accordance with instructions issued by the Registrar (Office of Records) is a prerequisite to class attendance. Although the Registrar will attempt to send individual instructions to every eligible student in advance of each registration period, changes in status and address (see p. 46) make it impossible to guarantee that every student will automatically receive these instructions. Eligible students who do not receive final registration information two weeks before the first day of classes each semester should contact the Office of Records without delay. Registration after the close of the final registration period announced in the academic calendar requires the payment of a late registration fee of \$20. Registration is not permitted after the end of the second week of classes.

With the assistance of an academic advisor, each student selects a program of courses; it is the student's responsibility to see that the program conforms with academic regulations and meets degree requirements.

Registration is not complete until all tuition, fees, and charges, which are due and payable prior to the first day of classes, have been paid or properly deferred. *Non-payment by preregistered students, however, does not constitute official withdrawal, which must be done through the Office of Records/Registrar.* (See "Withdrawal," p. 44, and "Refund of Tuition," p. 25.)

Change in Course Registration

During the first ten class days a student may, within the regulations, add or drop courses by submitting the appropriate form to the Office of Records/Registrar. No record is made of courses dropped before the end of the tenth class day. After that date, a course may be added only with the approval of the appropriate Committee on Academic Standing and Appeals (CASA; see "Committees on Academic Standing and Appeals" p. 35).

From the eleventh class day through the ninth week of classes a student may, within the regulations, withdraw from a course (see "Course Load," below, and "Grading System" p. 36). After the ninth week, a student may withdraw from a course only by withdrawing from the university by the last day of classes, or, in exceptional circumstances, by the approval of the appropriate Committee on Academic Standing and Appeals. (See academic calendar for specific deadline dates.) Students who obtain permission from the appropriate academic standing committee or dean to add or drop courses after the normal deadlines for doing so will be charged a fee of \$10 for each program change processed by the Registrar.

First-Week Attendance

A student registered in an undergraduate course who does not attend any classes in that course during the first full week of classes may be deregistered from that course if there are unregistered students who wish to register, unless prior arrangements to preserve the registration have been made by the student with the instructor. This deregistration authority is limited to the add period at the beginning of each semester. Students are not automatically deregistered in every case, however, and must act themselves to drop a course if they wish to avoid an NR (see "Grading System," p. 36) in that course.

Course Load

A normal course load for full-time matriculated students is a program totaling 12 to 19 credit hours. Requests for permission to register for more than 19 credits should be submitted directly to the appropriate Committee on Academic Standing and Appeals for approval. Students may change to part-time status without special permission by registering for fewer than 12 credits (see "Full-Time/Part-Time Status," below). After the second week of classes requests to carry fewer than 12 credits should be submitted directly to the appropriate Committee on Academic Standing and Appeals.

Although the university regards full-time matriculated students who, in the third week of classes or later, have received official permission during a particular semester to carry an underload (fewer than 12 credit hours) as full-time students during said semester, some outside agencies do not. Therefore, before requesting an underload a student should determine the consequences in terms of scholarships and loans. Approval for an underload for a single semester is granted only for emergency situations that could not have been anticipated.

Students with approved underloads will be charged at the full-time tuition rate. Students who have chronic problems that make full-time study inappropriate should consider changing to part-time status. See "Full-Time/Part-Time Status," below.

After the second week of the semester, students wishing to carry fewer than 12 credits must obtain underload permission as described above. Underload petitions may not be submitted before the beginning of the third week.

In addition to the above regulations governing course load, a foreign student on an F-1 or J-1 visa must register for at least 12 credits each semester unless the

Office of Foreign Student Affairs approves a lighter program and certifies him or her as a full-time student.

Retaking Courses

A student may register again in a course for which a C-, D+, D, F, NC, U, or W has been received. (See also "Pass/No Credit Academic Record Option," item H, p. 36.) When such a course has been retaken, each grade will appear on the student's academic record (transcript) and will be included in the computation of the grade point average. Although the credit hours will be counted only once toward satisfaction of degree requirements, they will be considered part of the semester credit load. The same guideline applies to courses that have been renumbered and are listed under the new number, followed by the former number in parentheses, in the next *Bulletin* published and, until then, in the *Undergraduate Bulletin Supplement*. (See also p. 61 and p. 187.)

This policy also applies to mutually exclusive courses (those for which credit will not be granted in addition to credit for one or more other courses as listed in the *Undergraduate Bulletin* course descriptions). When mutually exclusive courses with different credit values are taken, the higher number of credit hours will be counted toward graduation regardless of which course was taken first. Credits for a course in which a student previously earned a grade of C or higher, either at Stony Brook or at another institution, will not be counted as part of the semester credit load. Neither will they be included in the computation of the student's grade point average.

Final Examinations

The academic calendar always provides five days each semester for a final examination period and a short reading period. No final examinations may be given in the last week of classes without permission of the Vice Provost for Undergraduate Studies. Such permission may be granted only for compelling academic reasons.

Auditing

Auditing refers to the practice of attending a course for informational instruction only. No credit is granted for such work nor does the university keep any record of the student's participation in the course. The privilege of auditing courses is reserved for regularly enrolled students and senior citizens only. A student who wishes to audit a course should first obtain the permission of the instructor.

Full-Time/Part-Time Status

Full-time or part-time status will be determined on the basis of the number of credits for which a student is enrolled on the tenth

day of classes each semester. Students registered for 1 to 11 credits are considered part time; those registered for 12 or more credits are considered full time. *It should be noted that full-time status is an eligibility requirement for on-campus housing and most forms of financial aid.* Students are responsible for determining in advance the implications of changing their enrollment status. Requirements for satisfactory progress and good academic standing in either status are described on p. 40.

Committees on Academic Standing and Appeals

Undergraduate students whose declared major is applied mathematics and statistics, computer science, electrical engineering, engineering science, or mechanical engineering should make requests in matters outlined below to the Committee on Academic Standing and Appeals of the College of Engineering and Applied Sciences.

All other Main Campus undergraduate students should make their requests to the Committee on Academic Standing and Appeals of the College of Arts and Sciences.

For College of Arts and Sciences Students

Exceptions to regulations regarding such matters as registration changes, course loads, and academic standing may be made by the Committee on Academic Standing and Appeals of the College of Arts and Sciences, which operates under faculty legislation. Information about academic regulations or CASA policies and advice about individual requests to the Committee may be obtained from the Center for Academic Advising.

For College of Engineering and Applied Sciences Students

Petitions for exceptions to regulations regarding such matters as registration changes, course loads, and academic standing are considered by the Committee on Academic Standing and Appeals of the College of Engineering and Applied Sciences, which also deals with academic dishonesty and academic grievances (see p. 41). Information about academic regulations and advice about individual requests to the Committee may be obtained from the Engineering Undergraduate Student Office.

Academic Advising

Academic advising encompasses the exploration of life goals and vocational aims to determine the program choice of each student. Advisors begin with these broader issues to help entering and continuing students select courses and plan appropriate schedules. Speaking with an academic advisor can help to clarify values and to relate interests and abilities to

educational and career plans. Academic advisors specifically assist in the selection and fulfillment of a major or minor and with those courses required to complete the Core Curriculum. More important, discussion with an advisor can help the student to adjust to new learning styles required at a large university with lecture classes, team teaching, and laboratory instruction. In addition, advisors can help students to understand the university's academic structure and their responsibilities to understand and fulfill successfully degree requirements. While an advisor can assist in exploring these important issues, the academic judgments and decisions concerning the student's college career rest with the student.

The Center for Academic Advising has overall responsibility for the academic advising of all new students (except for those assigned to a faculty advisor in the Faculty Advising System) until they officially select a major. The Engineering Undergraduate Student Office provides specialized advising for students interested in College of Engineering and Applied Sciences professional programs. A designated faculty member, who directs the undergraduate program from each academic department and program in both the College of Arts and Sciences and the College of Engineering and Applied Sciences, coordinates the advising of students regarding individual disciplines or programs. All students are expected to consult an appropriate advisor before each registration (see "Prime Time for Students," below).

Students participating in the Faculty Advising System work with their assigned faculty advisors to select courses and plan their college curriculum. Faculty advisors serve as mentors who guide new students during their first year through the transition from high school to university, helping them to take advantage of the broad variety of student services and extracurricular activities offered.

Before their first registration at the university, all new students are required to participate in an orientation and academic advising program. During orientation, students receive academic information and advice from faculty members, professional advisors, and student orientation leaders, and take the English Placement Examination and a placement examination in mathematics. Those planning to take a physics course also take a short placement examination.

Stony Brook students interested in preparing for health professions programs should consult advisors in the Center for Academic Advising regarding course preparation, establishing a reference file, and participating in extracurricular and volunteer activities prior to application to

specific undergraduate and graduate health programs. Those interested in the health professions may obtain from the Office of Undergraduate Studies a copy of the appropriate "Guide for the Pre-Professional Health Student" pamphlet prepared by the Faculty Committee on Health Professions. One guide details academic and other information helpful for preparation for and application to graduate health professions schools; the other focuses on undergraduate health professions programs. Upper-division students ready to apply to graduate health professions schools must see the pre-health professions advisor in the Office of Undergraduate Studies.

Lower-division students interested in preparing for careers in law should seek academic advice in the Center for Academic Advising. Upper-division students ready to apply to law schools should consult the pre-law advisor in the Office of Undergraduate Studies.

Students who have selected a major department are expected to seek assistance in academic planning from representatives of that department. Those who are considering graduate study should seek advice from faculty members in the same discipline.

Prime Time for Students

Each semester, for a period beginning the Wednesday before Advance Registration and lasting through Thursday of the first week of Advance Registration, academic departments provide extra advising hours and schedule special events pertaining to their programs. These Prime Time for Students activities allow students to talk with faculty members about individual courses, major and minor requirements, and the appropriateness of the academic field for certain career choices.

Class Status

As used in academic regulations, degree requirements, and some course prerequisites, class designations are defined by credits earned, according to the following schedule: freshman, 0-23; sophomore, 24-56; junior, 57-84; senior, 85 or more.

University Graduation Requirements

All candidates for any of the bachelor's degrees conferred must satisfy all university graduation requirements, as well as the college and departmental requirements for the specific degree. University Core Curriculum Requirements and requirements for overall credit hours, grade point average, residence, and upper-division credits are listed in the University Studies chapter, p. 47. Requirements especially for College of Arts and Sciences students are listed on p. 58 and for College of Engineering and Applied Sciences students on p. 186. Students in the Accelerated Program of the

W. Averell Harriman School for Management and Policy, who choose their majors in one of the other Main Campus colleges, graduate under the requirements of the college in which the major is located; those in the business management major follow Arts and Sciences requirements.

Grading System

Final Grades and Reports of R and W

Except for yearlong courses (indicated by hyphenated, consecutive numbers), a final grade is assigned each semester for every course or independent study project for which a student is registered after the second week of classes.

A student who withdraws from a course after the tenth day of the semester is assigned a report of W, indicating withdrawal.

Unless a student receives a Withdrawal report, a temporary report of Registered (described below), or a report of Incomplete or No Record in a course, one of the following final grades is assigned to the student:

- A (indicates superior work)
- A-
- B+
- B (indicates good work)
- B-
- C+
- C (indicates satisfactory work)
- C-
- D+
- D (indicates minimum passing work)
- F (indicates failing work)
- S (indicates satisfactory work)
- U (indicates unsatisfactory work)

The term "letter grade" refers to A—F grades and in certain circumstances to S grades (see next page); it never refers to U, P, or NC, which are explained below.

Instructors of yearlong courses for which the final grade and credits are assigned only after completion of two semesters submit a report of R (Registered) at the end of the first semester. A final grade and credits for the combined semesters' work are recorded at the end of the second term. An R will also be given in certain courses where the final grade will be delayed because the coursework was done at a location remote from the campus. For the purposes of academic standing an R is treated as if it were a P.

A student who withdraws from a course after the tenth day of the semester is assigned a permanent report of W. The W carries no academic implications beyond the fact that a student has withdrawn from a course.

In the event that an instructor discovers that he or she has made a grading error, the instructor may request a correction of the final grade. Such requests are subject to approval by the appropriate dean.

Final grades appearing on a student's academic record cannot be changed after one calendar year from the start of the term

in which the grade was incurred. Exceptions may be made if the instructor is on leave in the term following the one in which the grade is assigned or if the student is on leave because of illness in that term. A final grade cannot be changed on the basis of work completed after a term has ended. Final grades appearing on a student's academic record at the time of his or her graduation cannot be changed to any other grade subsequent to the graduation date.

Temporary Reports of I and NR

If, because of circumstances beyond his or her control, a student is unable to complete the work for a course on time, the student is responsible for promptly informing the instructor before the end of the course, or if this is not possible, at the earliest opportunity thereafter. When informed of these circumstances the instructor, at his or her discretion, may assign a temporary report of I (Incomplete), which signifies that the student has been granted additional time in which to complete the requirements for the course. An Incomplete report is treated as a failure for the purposes of determining academic standing. After granting an I the instructor will set a date for completion no later than November 1 for courses in the preceding spring semester or summer session and no later than March 15 for courses in the preceding fall semester. (These deadlines do not apply to students who have been dismissed because of Incompletes and wish to have the dismissal rescinded. See "Academic Standing," p. 40.) An Incomplete may not be made up by auditing a subsequent offering of the course. If circumstances beyond his or her control prevent the student from completing the work by the deadline set by the instructor, the student must notify the instructor promptly and request an extension of the Incomplete. The instructor, at his or her discretion, may request an extension of the original Incomplete by written notification to the Registrar. *Any extension will normally be limited to the last day of classes of the semester following that in which the course was taken. Longer extensions for extraordinary reasons must be approved by the appropriate dean.* If the instructor does not report the final grade by the applicable or extended deadline, the final grade of I/F, U, or NC, as appropriate, will be assigned. The grade of I/F will be averaged as F when computing the grade point average (G.P.A.) or determining other aspects of the academic standing of the student.

A student is responsible either for completing the required work in or withdrawing from every course for which he or she has been registered. If an instructor finds that a student appears on the final grade roster for a course but has no record of that

student's ever having participated in the course, the instructor assigns a temporary report of NR (No Record) for that student. An NR may not be assigned for any other reason. An NR is a temporary indication of a state of affairs requiring prompt resolution by the student; it is treated as a failure for purposes of determining academic standing. If the NR has not been replaced by either a W or a final grade by November 1 for courses in the preceding spring semester or summer session or by March 15 for courses in the preceding fall semester, the NR will be changed to an N/F, U, or NC, as appropriate. The grade of N/F will be averaged as F when computing the G.P.A. or determining other aspects of the academic standing of the student. If the student was actually in the class, he or she must ask the instructor to correct the record by submitting a final grade to replace the NR. If the student never attended the class, he or she must petition through the appropriate dean to have the NR replaced by a W. In this matter a student whose declared major is applied mathematics and statistics, computer science, electrical engineering, engineering science, or mechanical engineering petitions through the Engineering Undergraduate Student Office; all other Main Campus students petition through the Center for Academic Advising.

Pass/No Credit Academic Record Option

Within the limit noted below, with the exception of AIM 102 and 103, EGC 101, and MAP 102 and 103, and the likely exception of courses in the major and (optional) minor programs, a student may elect to have the final grade in any course recorded on the official academic record either as P (Pass) if the reported grade is A, A-, B+, B, B-, C+, C, C-, D+, or D, or as NC (No Credit) if the reported grade is F. The following provisions reflect the intent of this option, which is to permit exploration of less familiar areas of study without weakening standards of evaluation or masking a record of poor performance.

- A. No more than 20 percent of all credits taken at Stony Brook, including courses in which an F, U, or NC is received (but excluding courses in which a W is received) may be taken for P/NC.
- B. Election of the P/NC option is limited to the first nine weeks of each semester. After the date specified in the academic calendar, no changes either to or from the P/NC option may be made.
- C. The Office of Records/Registrar does not communicate to the instructor in a course the names of students who elect the P/NC option.
- D. Courses in which the grade of P is received may not be used to satisfy Core Distribution requirements.

- E. The requirements for a major program may make the P/NC option unavailable in a course used to meet requirements for that major. Major departments and programs may not require a student to repeat a course in which a P was obtained when that course was taken before the major was declared. They may, however, require a more advanced course to be taken in lieu of a required course in which a grade of P was recorded. Specific information may be obtained from the department or other agency that supervises the program.
- F. Courses in which the grade of P is received are not considered among the minimum of 12 credits required for a student to be included in the Dean's List. (See p. 44.)
- G. Academic departments may (but are not required to) prevent students who have declared a major from electing the P/NC option for courses that their major requires to be taken for a letter grade.
- H. A student may not repeat a course with a grade recorded as P unless the assigned grade was C- or below.

A student who intends to enter a professional or graduate school program may be advised not to elect the P/NC option in certain courses or fields of study. The appropriate advisor should be consulted.

Satisfactory/Unsatisfactory Grading

The curriculum committees of the College of Arts and Sciences and of the College of Engineering and Applied Sciences have the authority to approve the offering of certain courses on a Satisfactory/Unsatisfactory grading basis, where finer grading distinctions are impractical. The only grades given in such courses will be S and U. If a course is approved for S/U grading, notification of this appears in the description of the course in the *Undergraduate Bulletin* or the *Undergraduate Bulletin Supplement*. For the purposes of determining academic standing, the S/U grade shall be equivalent to P/NC. Students may not elect to take such a course for P/NC. Courses with S/U grading are counted among the 80 percent of all Stony Brook credits that must be taken for a letter grade. They also apply to the criteria for Dean's List and *Sigma Beta* membership (see p. 44).

Grade Point Average (G.P.A.)

For the purpose of determining the grade point average specified in degree requirements, grades are assigned point values as follows:

A	=	4.00
A-	=	3.67
B+	=	3.33
B	=	3.00

B-	=	2.67
C+	=	2.33
C	=	2.00
C-	=	1.67
D+	=	1.33
D	=	1.00
F	=	0.00

Other grades do not enter into the grade point average, nor do grades from course credits transferred from other institutions. For a collection of courses with quantitative grade values as shown above, the grade point average is found by multiplying the number of credit hours for each course by the point value of the grade assigned, adding the results, and then dividing by the sum of the credit hours for all of the courses.

Semester Grade Reports

Grade reports, which are advisory, are prepared shortly after the conclusion of each semester and mailed to students. (See "Change of Address," p. 46.) Credit for repeated courses is included in the cumulative credits shown, even though not all such credits may ultimately count toward the degree.

Transcripts

Students who desire transcripts of their academic record at Stony Brook, either for their own use or for forwarding to some other institution or agency, must submit a written request to the Office of Records/Registrar at least 72 hours before the transcript is needed. A form for this purpose is available from the Registrar, but requests may also be made by letter. The charge for transcripts is \$3 per copy. Payment should be made directly to the Bursar's Office. If applying by mail, the request and check payable to *SUNY at Stony Brook* should be sent to the Bursar's Office, P.O. Box 619, Stony Brook, NY 11790-1351. Partial transcripts of a student's record are not issued. Transcripts will be released only if the student's financial record shows no outstanding obligations.

Selection and Change of Major, Selection of Area of Interest, Addition of a Second Major Limitation of Acceptance into Majors

It is the university's policy to make available to all students the widest possible variety of major programs. It is also the university's policy to maintain the academic quality of its programs at a high level. In times of fiscal stringency, if student demand for certain major programs increases

rapidly, these two policies may conflict. In such cases, acceptance into these majors may be limited. This will be done, however, only after the faculty and administration have determined, by means of an established procedure, that available resources, though well utilized, are insufficient to protect program quality without limiting acceptance.

Once students have been accepted into a limited-acceptance major program, they will continue in that program (if they so choose) as long as they meet college and university requirements for matriculation or graduation.

Procedures

The declaration-of-major procedures outlined below will provide information to improve academic advising throughout the campus, to plan properly for allocating and shifting resources, and to guide students toward serious consideration of their educational goals from their freshman year on, without prematurely pressuring them to declare a major when they are genuinely undecided.

A. Declaration of Area of Interest

All newly admitted freshmen, except those accepted into majors with approved limited access, are placed in the GEN (general student) category. At orientation they are encouraged (but are not required) to declare one of the following areas of interest:

GAH	-	pre-Allied Health Professions
GAM	-	pre-Applied Mathematics and Statistics
GBI	-	pre-Biological Sciences
GBM	-	pre-Business Management
GCS	-	pre-Computer Science
GEE	-	pre-Electrical Engineering
GES	-	pre-Engineering Science
GFH	-	pre-Fine Arts and Humanities
GME	-	pre-Mechanical Engineering
GNS	-	pre-Nursing
GPS	-	pre-Physical Sciences and Mathematics
GSB	-	pre-Social and Behavioral Sciences
GSW	-	pre-Social Welfare

New freshmen who do not wish to declare an area of interest will remain in the GEN (general student) category.

Each student must declare an area of interest at the point of registering for the first semester of the sophomore year (i.e., at Advance Registration in the second freshman semester) if he or she has not already declared either a specific major or an area of interest. Failure to declare either an area of interest or a major at this time will result in losing priority in registration. New transfer students who matriculate as sophomores must declare either a major or an area of interest on registering for their first semester at Stony Brook. Students who

have declared an area of interest may change to another area of interest if their intentions change. Continuing students who have earned 85 credits or more may not retain an area of interest.

Declaration of an area of interest indicates a student's expectation; it does not guarantee a place in any limited-acceptance major.

The Change-of-Major/Minor/Area of Interest Declaration form, available from the Office of Records/Registrar, is used to designate an area of interest officially; an advisor's signature is not required.

B. College of Arts and Sciences Majors

Freshmen in the College of Arts and Sciences usually wait to select a major officially until after they have had an opportunity to test various academic interests by taking college-level courses in those fields. They may, however, declare a major as early as the Advance Registration period for their second semester.

All students must declare a major no later than the end of the second semester of their sophomore year or before attaining upper-division status. Failure to do so will result in losing priority in registration each semester until a major is declared. *It should also be noted that declaration of a major at this time is an eligibility requirement for most forms of financial aid.* The Change-of-Major/Minor/Area of Interest form available from the Office of Records/Registrar is used to designate a major officially; the signature of a departmental advisor is required. Students should not attempt to record both a specific major and a GBI, GFH, GPS, or GSB area of interest.

Students whose first choice of major is one of the limited-acceptance major programs and who have not been accepted into the major of their choice by the end of the sophomore year must choose a major in the College of Arts and Sciences. Should the student subsequently be accepted into the College of Engineering and Applied Sciences, the Harriman School's business management major, or the Health Sciences Center, the originally declared major may be changed or completed under the double major or double degree regulations (see below). Continuing students who expect to apply to an Engineering and Applied Sciences, Harriman School, or Health Sciences undergraduate program after declaring an Arts and Sciences major may retain the appropriate area of interest along with the major until they have earned 85 credits. At that time, if they have not been accepted into the major related to their area of interest, they must drop the area of interest.

Students who have declared a specific major may change majors at any time up to graduation. In order to do this they should discuss the change with an advisor

in the desired program and secure his or her signature on a Change-of-Major/Minor/Area of Interest form and return it to the Office of Records/Registrar.

C. College of Engineering and Applied Sciences Majors

Engineering: Some freshmen and transfer students who indicated an interest in a Bachelor of Engineering program on their application to the university are accepted directly into the electrical engineering, mechanical engineering, or engineering science major when they are admitted to the university. Continuing students may apply for acceptance into the engineering science or the mechanical engineering major after their first semester at Stony Brook; electrical engineering applicants will be considered after two semesters. (For further details about acceptance into the electrical engineering major, see p. 195.) Application for these programs is made through the Engineering Undergraduate Student Office during Prime Time each semester.

Applied Mathematics and Statistics: Freshman and transfer applicants to the university may be accepted directly into the major in applied mathematics and statistics upon admission to the university. Those who did not apply for the major and those who were not accepted into the major when they entered the university may apply only after completion of a prescribed set of courses (see p. 185).

Computer Science: A limited number of high-achieving freshman applicants, who must specify their interest on their application, will be accepted into the computer science major upon admission to the university. Other students must complete a prescribed set of courses before acceptance into the major (see p. 185). Transfer students may apply for acceptance into the major only after completing at least one semester at Stony Brook.

The College of Engineering and Applied Sciences officially designates the major for all students accepted into the five majors noted above. The Change-of-Major/Minor/Area of Interest form is *not* used.

Declaration of an area of interest related to one of the Engineering and Applied Sciences majors does not guarantee later acceptance into the major.

D. Health Sciences Center Majors

Some freshmen who indicated an interest in a Health Sciences Center program on their application to the university are conditionally accepted directly into the appropriate major shortly after they are admitted to the university. Continuing and transfer students who wish to enter one of the upper-division programs in the Health Sciences Center must apply for admission

to that program during the fall semester of the year preceding the year of anticipated admission and be formally accepted. Admission to any of the Health Sciences Center programs is not accomplished through the declaration form mechanism.

Declaration of an area of interest related to one of the Health Sciences majors does not guarantee later acceptance into the major.

E. Advising for Declaration

The Center for Academic Advising is primarily responsible for advising students in the GEN and all area-of-interest categories, although academic departments also advise students seeking information about their majors and courses.

Academic departments, in addition to advising interested students about their courses and majors, are responsible for signing students into majors and advising students about their entire academic program once the major has been declared.

Double Majors

Students who wish to complete two majors within one baccalaureate degree must obtain the approval of the two departments involved. The Change-of-Major/Minor/Area of Interest form is used for adding a second major in all cases where that second major is in the College of Arts and Sciences. This form is not used if the second major is in the College of Engineering and Applied Sciences; instead, the College administration will officially designate the second major.

Double majors may be composed of any two majors in the College of Arts and Sciences or any Arts and Sciences major with business management, computer science, or applied mathematics and statistics. Within the College of Engineering and Applied Sciences double majors may be formed of computer science and applied mathematics and statistics or by adding either to any one of the engineering majors. It is not possible to have two engineering majors. Students accepted into the School of Allied Health Professions may pursue either a double major or a double degree with an Arts and Sciences major. Any other combination of majors involving a Health Sciences Center program must be pursued as a double degree (see "Two Baccalaureate Degrees," below).

When a double major includes one Bachelor of Science program in the College of Arts and Sciences and one in the College of Engineering and Applied Sciences, the student may fulfill either college's set of graduation requirements. If, however, the Arts and Sciences major is one that leads to a Bachelor of Arts, students must decide which degree they wish to be awarded. In this case, the graduation requirements of the College of Arts and Sciences would have to be satisfied if the

Bachelor of Arts is chosen; the graduation requirements of the College of Engineering and Applied Sciences would have to be satisfied for the Bachelor of Science.

Whatever the pair of majors, the number of credits taken to fulfill the requirements of both must total at least 60. The university does not officially recognize triple majors. Students wishing to pursue a concentration in a third area that will be recorded on the transcript should consider selecting a minor.

Declaration of Minor

Although students are not required to pursue a minor in order to graduate, a number of minors are available for those wishing to select them. The Change-of-Major/Minor/Area of Interest form is used to designate a minor officially; the signature of the minor coordinator is required. Students may declare up to three minors for recording on the transcript.

Two Baccalaureate Degrees

Under certain circumstances major programs pursued in two of the three largest academic units offering baccalaureate degrees can result in the awarding of two bachelor's degrees to the same student.

Bachelor of Engineering and Bachelor of Arts or of Science

Qualified students whose special interests and career plans make such study appropriate may be granted permission to earn two degrees at the undergraduate level by planning a program that leads to a Bachelor of Engineering degree and a Bachelor of Arts or a Bachelor of Science degree offered by the College of Arts and Sciences. Written approval to undertake this curriculum must be obtained from the Engineering Undergraduate Student Office and the Center for Academic Advising subject to review and final authorization by the Vice Provost for Undergraduate Studies. In addition to meeting all University Core Curriculum and other graduation requirements and the additional distribution and proficiency requirements of the College of Arts and Sciences, the candidate for two degrees must earn a total of 144 credits and must fulfill the requirements of the Bachelor of Engineering degree and the requirements of either a Bachelor of Arts or a Bachelor of Science degree.

Health Sciences and Arts and Sciences

Students at Stony Brook may simultaneously earn baccalaureate degrees from both the College of Arts and Sciences and the Health Sciences Center if they have been admitted formally to each unit and

fulfill the criteria and requirements outlined below. Written approval to undertake this curriculum must be obtained from the dean of the Health Sciences school in which the student is enrolled and from the Center for Academic Advising subject to review and final authorization by the Vice Provost for Undergraduate Studies. The double degree may include either a Bachelor of Arts or a Bachelor of Science degree from the College of Arts and Sciences and a Bachelor of Science degree from the Health Sciences Center.

The second baccalaureate degree will be given only when: (1) a concentration in the second field has been completed in a time span greater than that required for one degree, i.e., normally five years of full-time study; and (2) a candidate has competency in two essentially different areas of specialization, i.e., in a Health Sciences Center program and a College of Arts and Sciences major.

To earn credit toward a second degree a student must fulfill the following requirements: (1) minimum total credits, 144; (2) minimum liberal arts credits, 90; (3) the University Core Curriculum and additional distribution and proficiency requirements of the College of Arts and Sciences (the completion of which also satisfies the general university requirements of the Health Sciences Center); (4) minimum Stony Brook liberal arts credits, 36, of which at least 15 must be in upper-division courses; (5) minimum Health Sciences Center credits as determined by the department and school of the selected major; and (6) minimum quality point average and minimum unduplicated coursework as required for each degree.

Only double degrees, not double majors, may be earned by students studying jointly in the Schools of Nursing or Social Welfare and the College of Arts and Sciences. Students in the School of Allied Health Professions may earn either a double degree or a double major. For a double major, all current guidelines and regulations apply except that the distribution requirements are those currently in effect for Health Sciences Center programs.

Baccalaureate Credit Options

Challenge Program for Credit by Examination*

The University's Challenge Program permits matriculated undergraduates to earn advanced placement and credit by taking examinations in place of regular courses.

*See also p. 21, "Advanced Standing by Examination."

Each department determines the courses for which it will offer Challenge examinations. No student may take a Challenge examination in a course that is a prerequisite for a course already passed. Although a student may earn up to a total of 30 credits by examination, including both Challenge and approved external examinations, credit may be accumulated through the Challenge Program alone in no more than five courses. Although Challenge credit may be used to satisfy distribution area elective requirements of the College of Arts and Sciences, it does not satisfy University Core Distribution requirements. It may not be used to fulfill the residence requirement of 36 credits earned at Stony Brook after the 57th credit has been completed, nor does it count as part of the semester credit required for good academic standing. In addition, Challenge credit may not be used to satisfy the 55 credits in residence required of candidates for degrees with distinction. Written guidelines describing in detail the procedures and regulations governing Challenge credit are available in the Center for Academic Advising.

Study at Other Institutions**

Subject to certain limitations and conditions, course credit earned at other institutions either before or after matriculation at Stony Brook may be applied to meet Stony Brook degree requirements. Courses taken at colleges offering only two-year (lower-division) programs are presumed to be lower-division courses, except for a few that have previously been designated as upper-division courses by a Stony Brook department with the approval of the appropriate college's curriculum committee. Upper-division credit for courses transferred from four-year colleges will be granted only on a course evaluation basis and only on the written approval of the undergraduate director of a department that might offer such a course. Only courses for which a grade of C or higher is recorded will be granted upper-division credit.

The application of credits earned at other institutions to University Core Curriculum requirements is discussed in the next chapter (pp. 48-51) as part of the description of each requirement, and to additional Arts and Sciences distribution and proficiency requirements in the College of Arts and Sciences chapter (p. 57).

**See also p. 19, "Transfer Credit Policies"

Once a student has matriculated, prior approval normally will be required before he or she may take an upper-division course for credit at another institution. For Arts and Sciences students this is handled by the Undergraduate Admissions Office, which should be consulted by currently enrolled Stony Brook students before work is undertaken at any other institution. Engineering and Applied Sciences students must receive a departmental advisor's approval before taking a course elsewhere.

Cross Registration

As part of the Academic Enrichment Program of the Long Island Regional Advisory Council on Higher Education (LIRACHE), the university participates in a cross-registration agreement with 14 other university and college campuses in Nassau and Suffolk counties. The program affords full-time Stony Brook undergraduates an opportunity to register elsewhere during the same semester (summer session is excluded) for courses that are not offered at Stony Brook. Similarly, students enrolled at other campuses may register at Stony Brook for courses not available at their home institutions. Tuition, exclusive of special fees, is paid by students to the home institution, even though they are taking one or more courses at a host campus. Information is available from the Office of Records/Registrar.

Summer Study Elsewhere

To ensure that projected courses will be fully acceptable for transfer credit, students planning to take summer courses elsewhere should discuss plans in advance with both the academic advisor and the Stony Brook Undergraduate Admissions Office, where they can obtain assistance in filling out a form listing the intended courses and their Stony Brook equivalents. After the Undergraduate Admissions Office receives an official transcript indicating that the student has completed the courses with a passing grade, appropriate transfer credit will be granted.

Visiting Student Program

A statewide program enables interested Stony Brook students to study for a semester or a year at one of more than 50 participating colleges and universities in New York State. The Visiting Student Program is approved by the State Education Department and full transferability of Regents Scholarships is assured. The unique purpose of the program is to allow students to explore possibilities of academic life in a variety of settings ranging from small and possibly specialized institutions to large academic communities such as Stony Brook.

To qualify for the program students must have the advance approval of an academic advisor or department chairperson and an official statement from the Office of Records/Registrar that they are in good academic standing. Students must accept full responsibility for tuition, fees, and any similar charges in effect at the host school. A "Withdrawal/Leave of Absence" form must be completed prior to leaving Stony Brook.

Application forms and additional information about the Visiting Student Program may be obtained at the Undergraduate Admissions Office; however, some campuses require the completion of supplementary forms that must be secured directly from their admissions offices. Admission on each campus is usually on a competitive, space-available basis.

Stony Brook students may also explore the possibility of attending colleges outside New York State as visiting students. Advance approval of courses and a leave of absence are required to ensure readmission to Stony Brook at the end of one or two semesters.

Study Abroad

Qualified students may spend a summer, a semester, or a full academic year as participants in a Study Abroad program sponsored by the State University of New York. Study abroad offers alternative social and cultural perspectives on studies in the humanities and social sciences and supplements offerings of the university in area studies; many programs provide an opportunity to gain proficiency in the use of a foreign language. Students may select from among a variety of programs available in most countries in Western and Eastern Europe, the Middle and Far East, Canada, the Caribbean, and Latin America.

Participating in a semester- or year-long Study Abroad program requires advance planning. Quite often there are academic prerequisites to these programs. Because the courses available through the programs are more limited than the selections offered on campus at Stony Brook, students who hope to study abroad should project a plan of study that will allow them to complete university, college, and major requirements within an acceptable number of semesters. For detailed information, see University Studies chapter, "Study Abroad," p. 54.

Academic Standing

This information applies to all Main Campus undergraduate students.

Minimal acceptable academic progress is measured in terms of the rate at which course credit is earned, the semester grade point average, and the cumulative grade point average at the end of each semester. The number of credit hours earned in a semester is the total number of credit hours assigned to courses with recorded grades

of A, A-, B+, B, B-, C+, C, C-, D+, D, S, P, or R. Academic progress will be reviewed at the end of each semester and students will be placed on notice or dismissed as the record warrants. A student who has not been dismissed under criterion C or D below is considered to be in good academic standing. Any student dismissed for academic reasons may apply to the appropriate Committee on Academic Standing and Appeals for termination of that dismissal and, if approved, apply for readmission after a minimum of one semester's absence from the university. The appropriate committee is the one serving the college to which the student wishes to apply. The student may not apply to more than one academic standing committee for a given semester.

Academic standing is determined first by credits earned—the quantity standard. Incomplete (I) or No Record (NR) reports or Failure (F), Unsatisfactory (U), or No Credit (NC) grades do not count as earned credits. Second, the quality of work is considered. The quality standard entails the achievement of at least the semester grade point average or the cumulative grade point average appropriate to the student's class status as shown on the following chart.

Quantity Standard

<i>Class Standing (determined by credit accumulated prior to beginning of semester)</i>	<i>Minimum credits in any one semester*</i>
Freshmen (0-23 credits)	9
Sophomores (24-56 credits)	12
Juniors (57-84 credits)	12
Seniors (85 or more credits)	12

Quality Standard

<i>Minimum semester G.P.A.</i>	<i>or</i>	<i>Minimum cumulative G.P.A. at end of semester*</i>
Freshmen 1.20		**
Sophomores 2.00		1.60
Juniors 2.50		1.80
Seniors 2.50		2.00

A. Any student who in a semester fails to meet the *Quantity* standard for his or her class status will be placed *On Notice*.

*Credits shown are for full-time students. *Part-time matriculated students* must complete two thirds of the total number of credits attempted in any one semester; they must meet the same quality standard as full-time students.

**Freshmen must meet the minimum semester G.P.A.

- B. Any student who meets the *Quantity* standard but who fails to meet at least one of the *Quality* standards for his or her class status will be placed *On Notice*.
- C. Any student eligible for a *Second Consecutive Notice* will be *Dismissed*.
- D. Any student eligible for a *Third Notice* will be *Dismissed*.
- E. Any student who is *On Notice* solely because Incomplete (I) reports have resulted in too few earned credits or an insufficient grade point average will have the *Notice* rescinded if he or she meets the minimum requirements by completing the courses before the published deadline for doing so. A student who has been *Dismissed* because of Incompletes must complete sufficient credits (and achieve the minimum G.P.A. or cumulative G.P.A.) by the date specified in the dismissal letter in order to have the dismissal rescinded. The effective date of the dismissal is stated in the dismissal letter. A student who has been dismissed because of an "On Notice" semester due solely to one or more incompletes, and who has received a waiver of the period of such dismissal, and who completes the uncompleted courses by the published deadline, will have the notation of dismissal and the waiver notation removed from his or her academic record.

Academic Dishonesty

Intellectual honesty is the cornerstone of all academic and scholarly work. Therefore the university views any form of academic dishonesty as a serious matter. The Academic Judiciary Committee for the College of Arts and Sciences and the Committee on Academic Standing and Appeals of the College of Engineering and Applied Sciences are responsible for enforcing the guidelines for dealing with academic dishonesty in each college and for the consideration of individual cases, either initially or on appeal. The judiciary committee of the college in which the course concerned is given has jurisdiction in every case. Either committee may inform preprofessional committees about any findings of academic dishonesty which, in the judgment of the Academic Judiciary Committee (or Committee on Academic Standing and Appeals), are of sufficient seriousness to justify their release to these preprofessional committees. Information about the procedures for hearings and other functions of these committees dealing with academic dishonesty is available in the Office of Undergraduate Studies and in the Engineering Undergraduate Student Office.

Academic Grievances

The Academic Judiciary Committee for the College of Arts and Sciences and the Committee on Academic Standing and Appeals

in the College of Engineering and Applied Sciences consider students' complaints of arbitrary, capricious, malicious, or otherwise improper actions related to grading and other evaluations; assignments, examinations, and other requirements for credit; and any other academic matters. While such grievances are most often brought by students against instructors, the committees will consider grievances involving any member of the academic community on the Main Campus. The committees, however, cannot intervene in matters covered by the procedures set forth in the Policies of the Board of Trustees, the Rules for the Maintenance of Public Order, or the collective bargaining agreement between the State and United University Professions (the faculty-staff union).

The committees consider only charges of clearly improper academic practices; they will not intervene in disagreements about an instructor's intellectual judgment. Grievances should be brought to a committee only after other avenues of redress (e.g., discussion with the instructor and department chairperson) have been pursued without success. Grievances should be put in writing, including names, dates, and other pertinent details, and should be submitted to the appropriate committee within one month of the alleged impropriety. Further information about academic grievance procedures may be obtained from the Office of Undergraduate Studies or the Engineering Undergraduate Student Office.

Prizes, Scholarships, and Honors

The university pays tribute to its outstanding students through the conferring of prizes and scholarships, election to honor societies, granting of degrees with distinction and departmental honors, and selection to the Dean's List. The following university honors are presented each year.

Presidential Honors Scholarship Program for Entering Students

Prospective students making early application to the university will be considered for these scholarships.

Cecil L. and Claire D. Hall Scholarships

These scholarships are awarded annually by the Stony Brook Foundation on behalf of Cecil L. and Claire D. Hall to entering students who have demonstrated exceptional academic promise.

Othmar H. Ammann Scholarships

These scholarships are awarded annually by the Stony Brook Foundation on behalf of Mrs. Othmar H. Ammann, in memory of her husband, to entering students who have demonstrated exceptional academic promise, especially those who are disabled.

Esther and Jack Spivak Memorial Scholarships

These scholarships are awarded annually by the Stony Brook Foundation on behalf of Leonard Spivak, Class of '64, in memory of his parents, Esther and Jack Spivak, to entering students who possess evidence of outstanding creative talent, the ability to succeed academically at Stony Brook, and some financial need.

William and Maude Pritchard Scholarships

These scholarships are awarded annually in memory of William and Maude Pritchard to entering students who have demonstrated exceptional academic promise.

Simons Scholarships

These four-year scholarships will be awarded in the fall of 1989 and fall of 1990 and again in fall of 1992 and fall of 1993 to entering freshmen who show exceptional academic promise. Recipients must achieve an annual grade point average of 3.5 or higher to continue to receive the scholarship.

Carol Marburger Scholarship

This scholarship is awarded annually by the Stony Brook Foundation, in recognition of Carol Marburger's contributions to the university and its students, to an incoming student who shows exceptional academic promise.

Republic Aviation Scholarships

These scholarships are awarded annually by the Stony Brook Foundation on behalf of the Republic Aviation Corporation to entering students who have demonstrated exceptional academic promise, leadership potential, and some financial need. Recipients must be residents of Long Island or New York City. Priority in awarding these scholarships is given to children of former Republic Aviation employees.

Stony Brook Foundation Scholarships

These scholarships are awarded annually by the Stony Brook Foundation to entering students who have demonstrated exceptional academic promise.

Stony Brook Foundation Minority Scholarships

These scholarships are awarded annually by the Stony Brook Foundation to entering minority students who have demonstrated exceptional academic promise.

Ward Melville Valedictorian Prize

In honor of its first chairperson, the Council of the State University of New York at Stony Brook annually presents through the Stony Brook Foundation the university's most distinguished undergraduate honor, the Ward Melville Valedictorian Prize, to the graduating senior who has attained the highest academic average during four years at Stony Brook.

H. Lee Dennison Valedictorian Prize

The H. Lee Dennison Valedictorian Prize, named in honor of Suffolk County's first chief executive, is presented by the Council of the State University of New York at Stony Brook through the Stony Brook Foundation to the graduating senior who entered Stony Brook as a transfer student, completed at least 60 credits of letter grade work at Stony Brook, and attained the most outstanding academic record at Stony Brook in that work.

William J. Sullivan Prize

The William J. Sullivan Prize is presented annually by the Council of the State University of New York at Stony Brook through the Stony Brook Foundation in honor of Justice William J. Sullivan, late chairperson of the Council. The Sullivan Prize is the most prestigious service prize the university presents to a graduating senior. It represents the university's recognition of particularly outstanding service contributions to the development of academic and student life on the campus.

Distinguished Community Service Prize

The Distinguished Community Service Prize is presented annually by the Stony Brook Foundation to a graduating senior in recognition of particularly outstanding contributions to public service in the Long Island region.

Junior Class Award

The Junior Class Award is presented annually by the University Association of the State University of New York at Stony Brook to two outstanding juniors in recognition of academic excellence and personal contributions to the university community.

Health Sciences Undergraduate Award

The Health Sciences Undergraduate Award is presented annually by the University Association of the State University of New York at Stony Brook to a junior in the Health Sciences Center for academic excellence and outstanding nonacademic service activities on campus and in the community.

Richard B. Moore Scholarship

The Richard B. Moore Scholarship, established by the Stony Brook Foundation to honor the memory of the distinguished civil rights activist and historian, provides annual recognition for a Stony Brook student of African heritage with outstanding academic potential.

Mortimer Kreuter Award

The Mortimer Kreuter Award is presented annually to selected teacher certification candidates in recognition of excellent per-

formance in student teaching and outstanding service to the school community where they were placed for this experience. The award was established by the friends and family of Dr. Kreuter in memory of his years at the university as professor of education, director of Teacher Certification, and acting dean of Continuing Education.

Edward County Award

The Edward County Award is awarded each year by a Fund committee to a graduating senior excelling in the field of biological or medical illustration.

Elisabeth Luce Moore Fellowship

The Elisabeth Luce Moore Fellowship in International and Religious Studies is presented annually by the Stony Brook Foundation to a deserving Stony Brook student who demonstrates outstanding academic potential and gives promise of contributions of unusual stature to the fostering of international understanding and/or to the appreciation of religious values.

George B. Costigan Scholarship

The George B. Costigan Scholarship is presented annually by the Council of the State University of New York at Stony Brook through the Stony Brook Foundation in honor of George B. Costigan, retired chairperson of the Council. This scholarship is presented to a junior or senior at the State University of New York at Stony Brook who is a graduate of one of the two-year colleges on Long Island and who has best used the enrollment at that college to mature in character, awareness, and learning—in fulfillment of the university's motto, "To Learn—To Search—To Serve."

S.A.I.N.T.S. Awards

Founders Award

The Founders Award is presented annually to the outstanding minority student in the natural sciences, mathematics, or engineering, in recognition of the founders of S.A.I.N.T.S.

Graduate Fellowship Awards

These awards are presented annually to exceptional minority students who are about to enter graduate study programs.

Outstanding Achievement Awards

The Outstanding Achievement Awards are presented annually to two freshmen, two sophomores, and two juniors to recognize outstanding black, Hispanic, and native American students.

Yacub E.L. Shabazz Award

This award is presented annually to the outstanding upper-division minority student who has demonstrated a high level of commitment to community service.

Society of American Military Engineers Award

The Society of American Military Engineers Award is presented annually by the New York City S.A.M.E. Post to an engineering student who has demonstrated by scholastic performance a potential for further engineering study and practice and who may be in financial need.

Faculty-Student Association Quality of Campus Life Award

The Faculty-Student Association awards a scholarship in recognition of outstanding contributions to the quality of campus life. Awards are given to students in good academic standing who have created or revitalized programs or projects that meet evident needs of the campus community, serve a large number of people, and have the potential to continue in future years.

Raymond F. Jones Award

This award is presented annually by the Stony Brook Foundation in memory of Raymond F. Jones, Professor of Biology and Director of International Programs. It is presented in alternating years to an exchange student who has made an outstanding contribution in scholarly achievement, creative endeavor, or teaching excellence, and to a student in the Division of Biological Sciences in recognition of outstanding academic accomplishments.

Grumman-Tau Beta Pi Award

The Grumman-Tau Beta Pi Award is presented annually by the Grumman Aerospace Corporation to the member of Tau Beta Pi who in the junior or senior year has performed outstanding service to the College of Engineering and Applied Sciences.

Minorities in Engineering and Applied Sciences Award

This award is presented to a pre-engineering, engineering, or applied sciences student who has demonstrated academic excellence in mathematics, physical science, and engineering or applied sciences coursework, and who has contributed significantly to efforts to increase the representation of minority students in the College of Engineering and Applied Sciences at Stony Brook.

Elizabeth Couey Scholarship

The Elizabeth Couey Scholarship is awarded by the Stony Brook Alumni Association to a junior in good standing who has been active in campus affairs and who has done the most to foster communication and bridge understanding among students, faculty, and administration.

Ashley Schiff Scholarship

The Ashley Schiff Scholarship is awarded annually by the Stony Brook Alumni Asso-

ciation to a sophomore in good standing who has made significant contributions to campus life and/or made contributions toward conserving and preserving the local environment.

Class of 1970 Scholarship

The Stony Brook Alumni Association presents the Class of 1970 Scholarship to a freshman in good standing who has made the most significant contribution to the university.

Elizabeth D. Couey Award

The State University of New York at Stony Brook presents the Stony Brook Union Elizabeth D. Couey Award annually in memory of the first coordinator of Student Activities. This award is presented to the graduating senior who exemplifies those qualities which made Elizabeth D. Couey unique and the most human of beings: to listen with understanding, to guide without boundaries, to give and take with love, and to grow with the passing of each day.

Senior Leadership Award

The Stony Brook Alumni Association presents the Senior Leadership Award annually on behalf of Babak Movahedi, Class of '82, to a graduating senior who has made a significant change in the environment by bringing together various constituencies through the development of community life.

Herdie McCou Community Service Award

This award is presented annually by the Minority Student Concerns Committee to a graduating minority student who has done excellent community service.

Emile Adams Scholarship Award for Community Service

This award is presented annually by the Latin-American Student Organization to a graduating Hispanic student who has done excellent community service.

Simon Boliver Award for Community Service

This award is presented annually to a sophomore or junior who has exhibited exemplary community service on behalf of the Latin-American Student Organization.

Zaheer Babar Memorial Award

This award is presented annually by SCOOP, Inc., the Student Cooperative, to a graduating senior who has made outstanding contributions to the quality and improvement of student services and student life through his or her involvement with the Student Cooperative.

SCOOP Alumni Award

This award is presented annually by SCOOP to a graduating senior who has made outstanding contributions to the quality and improvement of student services.

Larry Roher Prize

This prize is presented annually by the Stony Brook Alumni Association on behalf of Larry Roher, Class of '79, to a deserving undergraduate who has assisted in Stony Brook's quest for excellence and improved quality of life through innovative thought and actions.

Martin Buskin Memorial Award

The Martin Buskin Memorial Award is presented annually by the Stony Brook Foundation to the Stony Brook student who most exemplifies the qualities of journalistic integrity, scholarship, and deep concern for education.

President's and Provost's Art Acquisition Prizes

The Art Acquisition Prizes are awarded annually to one or more senior art majors whose works, in the judgment of the studio art faculty, demonstrate originality, imagination, and mastery of craft. The art works selected become part of the university's permanent collection and are displayed in university offices.

Excellence in Creative Writing Prize

This prize is presented annually by the Stony Brook Foundation to a student who demonstrates exceptional talent and promise as a creative writer in fiction, poetry, or drama.

Phi Beta Sigma Fraternity Merit of Excellence Award

This award is presented annually by the *Mu Delta* chapter of the *Phi Beta Sigma* fraternity to a minority student completing the sophomore year who has shown a high level of commitment to community service.

Delta Sigma Theta Sorority Merit of Excellence Award

This award is presented annually by the *Phi Delta* chapter of the *Delta Sigma Theta* sorority to a minority woman completing the freshman year who has shown a high level of commitment to community service and scholastic achievement.

Alpha Kappa Alpha Sorority Achievement Award

This award is presented annually by the *Alpha Kappa Alpha* sorority to a minority woman completing the freshman or sophomore year in recognition of academic accomplishments and service contributions to the community.

Sigma Beta Creative and Scholarly Achievement Prize

Presented annually by the *Sigma Beta* honor society, this prize serves to encourage creative and scholarly work among undergraduates.

Sigma Xi Excellence in Scientific Research Award

This award, presented annually by the Stony Brook chapter of *Sigma Xi*, honors the outstanding research accomplishments of undergraduate students in the sciences.

Undergraduate Excellence Recognition Certificates

Sponsored by the Student-Faculty-Staff Forum, these certificates recognize the special achievements of undergraduates who have demonstrated excellence in a wide range of categories including, but not limited to, the performing and creative arts, academic research, leadership, and service to the campus community.

Senior Leadership and Service Awards

These awards are presented annually by the university to graduating students who have exhibited outstanding leadership and service to the campus community.

Nominations for State, National, and International Awards

In addition to selection of recipients for the above named prizes, scholarships, and awards, the university nominates candidates for state, national, and international awards such as the *Rhodes Scholarships*, the *Mellon Fellowships in the Humanities*, the *Luce Scholars Program*, the *Herbert H. Lehman Graduate Fellowships*, *Fulbright Grants for Graduate Study Abroad*, the *Harry S. Truman Scholarship Program*, *Rotary Foundation Scholarships*, the *Benjamin and David Scharps Prize*, the *National Science Foundation Graduate Fellowships*, the *National Collegiate Athletic Association Postgraduate Scholarships*, and the *Empire State Mathematics and Science Teacher Scholarship Program*.

Departmental Awards

Academic department awards include: *Chemistry*—CRC Freshman Award, Emerson Award to Outstanding Junior, American Institute of Chemists' Senior Award. *Earth and Space Sciences*—Myron Fuller Award for the outstanding student majoring in geology, Sherman Raftenberg Award for the outstanding student majoring in astronomy. *English*—Marlene Ina Goldis Scholarship, Naomi Stampfer Prize. *French*—French Cultural Institute Awards to outstanding graduating majors. *Hispanic*

Languages and Literature—Award for Excellence in Undergraduate Research or Creative Endeavor. *History*—Staudenraus Award. *Italian*—Dante Medal to the best graduating major, Italian Cultural Institute prizes to the best student of Italian on each level. *Judaic Studies*—B'nai Zion Medal for Proficiency in Hebrew. *Physical Education*—Athletic awards presented to intercollegiate athletes for outstanding achievement in sports. *Physics*—the John S. Toll Prize to the outstanding graduating physics major. *Psychology*—Awards presented to graduating majors outstanding in research, community service, and academic performance. *Slavic Languages*—Zoltan and Cele Paldy Memorial Award for Excellence in Slavic Studies. *Sociology*—Outstanding Scholarship Award, Outstanding Service Award to graduating majors. *Theatre Arts*—John Gassner Memorial Award in Dramatic Criticism.

In addition, the Stony Brook Foundation presents awards at commencement to undergraduate students demonstrating high academic achievement as determined by their departments. The Advancement on Individual Merit (A.I.M.) Program presents the Chancellor's Award for Excellence to Educational Opportunity Program seniors eligible to graduate in May or August with a G.P.A. of 3.0 or higher.

Honor Societies

Besides the annual awards listed above, induction into an honor society acknowledges the student's outstanding academic performance.

Sigma Beta, Stony Brook's own honor society, is devoted to academic excellence and university service. Membership is open to students with no more than 80 credits who have, at the conclusion of the fall semester, a 3.5 grade point average as a full-time student, using the same criteria as for the Dean's List, below.

Phi Beta Kappa is a national honor society devoted to the promotion of scholarly attainment in the liberal arts and sciences. Election to *Phi Beta Kappa* is based not only on high grades but also on breadth, balance, and proportion in the candidates' programs. The Stony Brook chapter requires a minimum cumulative G.P.A. of 3.6 for election as a senior and at least 60 credits at Stony Brook.

Sigma Xi is a national honor society for achievement in pure or applied scientific research. Any student associated with the State University of New York at Stony Brook who has through initial research achievements shown a marked aptitude for research that is expected in due course to lead to the fulfillment of the requirements for full membership may be nominated and elected as an associate member of *Sigma Xi*.

Tau Beta Pi is the national engineering honor society devoted to honoring students for academic excellence and for service to the engineering profession. Engineering juniors and seniors who have demonstrated these qualities are invited to join Stony Brook's *Omicron* chapter of *Tau Beta Pi*.

Various disciplines have their own honor societies. Those with chapters at Stony Brook include *Alpha Eta* (Allied Health Professions), *Sigma Gamma Epsilon* (Earth Science), *Omicron Delta Epsilon* (Economics), *Eta Kappa Nu* (Electrical Engineering), *Delta Phi Alpha* (German), *Phi Alpha Theta* (History), *Phi Sigma Tau* (Philosophy), *Sigma Pi Sigma* (Physics), *Pi Sigma Alpha* (Political Science), *Alpha Epsilon Delta* (pre-medical curriculum), *Psi Chi* (Psychology), *Phi Sigma Iota* (Romance Languages), *Dobro Slovo* (Slavic Languages), and *Alpha Kappa Delta* (Sociology).

Dean's List

At the end of each semester the dean of each academic unit compiles a Dean's List of undergraduate students who constitute approximately the top 20 percent of their class, provided they meet certain criteria. Each full-time student must have completed in that semester at least 12 credits for letter grade (including S) and have no I's, U's, NR's, NC's, or F's. P grades are not considered to be letter grades. The grade point average cutoffs for the College of Arts and Sciences are: seniors, 3.40; juniors, 3.30; and sophomores and freshmen, 3.20. For the College of Engineering and Applied Sciences the cutoffs are: seniors, 3.40; juniors, sophomores, and freshmen, 3.30. The cutoffs are recalculated every two years to reflect changes in grading patterns. Each part-time student must have earned a grade point average of 3.50 or above for at least six credits in a semester of letter-graded work (not including S or P grades) with no I's, U's, NR's, NC's, or F's.

Degrees with Distinction

Degrees with distinction are conferred on candidates for the Bachelor of Arts, Bachelor of Science, or Bachelor of Engineering degree who have completed at least 55 credits at Stony Brook (excluding Challenge credit), have letter grades assigned to at least 80 percent of their coursework, and attain the requisite grade point average. The levels of distinction include *summa cum laude*, *magna cum laude*, and *cum laude*, and constitute approximately the 98th percentile, the 93rd percentile, and the 85th percentile, respectively. Attainment of a degree with distinction is indicated on the student's diploma and permanent academic record. The grade point average cutoffs for the three levels of distinction are: *summa cum laude*, 3.85; *magna cum laude*, 3.70; *cum laude*, 3.50.

Departmental Honors Programs

While selection of students for all the above awards and honors is based primarily on university records and recommendation and not on application, students must declare their intention to seek departmental honors and must carry out prescribed academic activities to earn this distinction. The honors programs of those departments offering them are described in the alphabetical listing in the College of Arts and Sciences chapter. For those students who qualify, this fact is indicated on their diploma and on their permanent academic record.

Application for Graduation

In order to become a candidate for graduation, a student must file an "Application for Graduation" form with the Office of Records/Registrar. The absolute deadline for such application is the end of the second week of the candidate's final semester. First-semester seniors wishing to receive notice of unfulfilled degree requirements before the beginning of their final semester must file the application form by the end of the second week of the semester previous to anticipated graduation. (See academic calendar for deadline date.) Prospective August graduates must apply by the end of the second week of the last summer term for which they are registered. (See academic calendar.) December and August candidates are urged to file the previous February; May candidates are urged to file the previous September. No changes of grades can be made on a student's academic record after the degree has been awarded.

Withdrawal from the University

Official withdrawal will be recorded when a "Withdrawal from the University" form, available from the Office of Records/Registrar, has been submitted to the Registrar. The date on which the form is filed, not the date of last class attendance, is considered the official date of withdrawal. Non-attendance or notification to the student's instructors does not constitute formal withdrawal.

Students who submit withdrawal forms after the first ten class days but not later than the final day of classes in a semester will be assigned a withdrawal (W) for each course. Withdrawal after the last day of classes will not preclude academic dismissal.

Foreign students on an F-1 or J-1 visa must consult with the Office of Foreign Student Affairs when withdrawing from the university.

Leave of Absence and Readmission

Students who indicate at the time of official withdrawal that they may wish to return to Stony Brook will be approved routinely for return to the university during the three semesters following withdrawal if: (1) withdrawal occurs prior to October 31 in the fall or March 15 in the spring semester; (2) the student has not withdrawn previously; (3) the student has never been dismissed; and (4) the student has no disciplinary action pending. In addition, Advancement on Individual Merit (Educational Opportunity Program) students must obtain clearance for readmission from the A.I.M. Office, and foreign students must obtain a visa clearance from the Office of Foreign Student Affairs. The leave of absence may be cancelled for a student who attends another college while on leave from Stony Brook and who fails to maintain a C average at that institution. A student in that situation should contact an admissions counselor at the earliest opportunity.

A student who withdraws from the university after October 31 in the fall or after March 15 in the spring semester and who otherwise meets the above conditions will be approved routinely to return after one full semester has elapsed. Students with documented extenuating circumstances, e.g., health problems, may petition the Undergraduate Admissions Office to return in the subsequent semester. Those who have been dismissed from the university must allow at least one semester to elapse before applying for readmission and must have had the period of dismissal terminated by the appropriate university official or committee before a decision can be reached on the application for readmission.

Students who withdraw under circumstances different from those described above will be advised of their status by the Undergraduate Admissions Office and provided with instructions for seeking readmission.

An applicant who is denied readmission may appeal to the Admissions Committee. An applicant whose account with the Office of Student Accounts is delinquent may be readmitted but will not be authorized to register until the account has been cleared.

Equivalent Opportunity/Religious Absences

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

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

2. Any student in an institution of higher education who is unable, because of his [or her] religious beliefs, to attend classes on a particular day or days shall, because of such absence on the particular day or days, be excused from performing on the particular day or days any examination or any study or work requirements.*
3. It shall be the responsibility of the faculty and of the administrative officials of each institution of higher education to make available to each student who is absent from school, because of religious beliefs, an equivalent opportunity to make up any examination, study, or work requirements which he [or she] may have missed because of such absence on any particular day or days. No fees of any kind shall be charged by the institution for making available to the said student such equivalent opportunity.
4. If classes, examinations, study, or work requirements are held on Friday after four o'clock post-meridian or on Saturday, similar or makeup classes, examinations, study, or work requirements shall be made available on other days, where it is possible and practicable to do so. No special fees shall be charged to the student for these classes, examinations, study, or work requirements held on other days.
5. In effectuating the provisions of this section, it shall be the duty of the faculty and of the administrative officials of each institution of higher education to exercise the fullest measure of good faith. No adverse or prejudicial effects shall result to any students because of their availing themselves of the provisions of this section.
6. Any student who is aggrieved by the alleged failure of any faculty or administrative officials to comply in good faith with the provisions of this section shall be entitled to maintain an action or proceeding in the supreme court of the county in which such institution of higher education is located for the enforcement of his [or her] rights under this section.
7. As used in this section, the term "institution of higher education" shall mean schools under the control of the Board of Trustees of the State University of New York or of the Board of Higher Education of the City of New York or any community college.

*Students shall be excused from the examination or study or work requirement only on the particular day or days they are unable to attend classes because of religious beliefs. See provision 3.

Research Involving Human Subjects

All experiments conducted by Stony Brook personnel, whether on or off campus, in which human subjects are involved, are required to be reviewed and approved by the campus Committee on Research Involving Human Subjects (CORIHS) before they can begin. This requirement extends to questionnaires, both written and oral, and other instruments of personal data collection. Application forms for approval of such experiments can be obtained in most departmental offices, or can be obtained from the staff officer for university assurances in the Office of Research Services. A faculty advisor is required for any student-conducted experiment involving human subjects.

Undergraduates are often asked to act as subjects in experiments. They should be aware that their rights as subjects include knowing that an experiment has received the approval of CORIHS. State University policy forbids campuses to require the participation of students as subjects in human research. In almost every instance of such participation, an informed consent form is required of the subject. This form serves to outline the risks, if any, to the subject, and describes the nature of the subject's participation. Inquiries about subject rights should be directed to the executive secretary of the Committee on Research Involving Human Subjects in the Office of Research Services.

Research Involving Safety Considerations

Campus committees also review and approve projects involving several safety concerns. These include the use of radioactive materials or devices that generate ionizing radiation and the use of recombinant DNA techniques or activities that may involve biologically hazardous materials or the use of chemically hazardous materials.

The appropriate forms to request approval for such projects are generally available in departmental offices. Questions may also be directed to the staff officer for university assurances in the Office of Research Administration.

Use of Laboratory Animals in Research or Instruction

Any research, teaching, or creative activity that involves the use of vertebrate animals must be approved by the Laboratory Animal Users Committee (LAUC) prior to ordering animals and prior to commencement of the activity. Applications for such approval may be obtained from the director of the Division of Laboratory Animal Resources or from the staff officer for university assurances. The chairs, deans, and division heads of departments in which laboratory animals are routinely used also have a supply of these applications.

The following is a brief summary of the federal, state, and campus regulations that govern the use of laboratory animals at Stony Brook:

1. All vertebrate animals must be ordered through the Division of Laboratory Animal Resources (DLAR). If a university purchase order is unacceptable to the supplier, the DLAR must be so informed in order to determine whether another supplier may be contacted.
2. Use of privately owned animals is prohibited.
3. Users of vertebrate animals must adhere to policies set forth in the *N.I.H. Guide for the Care and Use of Laboratory Animals* (available from all chairs, deans, and division heads).
4. Methods of euthanasia must conform to those reported in the 1986 report of the A.V.M.A. Panel on Euthanasia, or subsequent revisions (available from all chairs, deans, and division heads).
5. All individuals involved in research or teaching activities in which animals are used *must* attend the training session given by the director of the DLAR in order to satisfy requirements indicated in Stony Brook's assurance filed with the NIH.

Student Educational Records

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

Specific guidelines and procedures are available from the Office of the Vice President for Campus Finance and Management.

After administrative remedies available at the university have been exhausted, inquiries or complaints may be filed with the Family Policy and Regulations Office, U.S. Department of Education, 400 Maryland Avenue S.W., Room 3021—FOB #6, Washington, DC 20202-4605.

Change of Address

To ensure prompt receipt of registration materials, grade reports, and other important university communications, students should promptly report off-campus mailing address changes to the Office of Records/Registrar. A form is available from that office for this purpose. On-campus housing address changes should be reported to the appropriate Campus Residences quad office rather than to the Registrar. Foreign students must also report any change of address to the Office of Foreign Student Affairs.

Campus Telephone Directory

It is the policy of the State University of New York at Stony Brook to publish a Campus Telephone Directory including students' names, addresses, and telephone numbers. If a student does not wish to be listed in the directory, or in the case of a minor student, if a parent does not wish such listing, he or she will be required to so indicate at the time of registration for each fall semester by filing SUSB Form 503-B at the Office of Records/Registrar.

Changes in Regulations and Course Offerings

The courses of study, academic regulations, semester listings, and other information contained in this *Bulletin* are subject to the restrictions of the timetable and date of publication of the *Bulletin*. The university, therefore, reserves the right to change academic regulations or to cancel any course for whatever reason it may deem appropriate. New courses, revised courses and requirements, new and revised majors and minors, and changes in academic regulations are reported in the *Undergraduate Bulletin Supplement*, issued at Prime Time each semester.

University Studies

University
Studies



The University Core Curriculum

The University Core Curriculum is required of all undergraduate students in the College of Arts and Sciences, the College of Engineering and Applied Sciences, and the W. Averell Harriman School for Management and Policy. All other university graduation requirements pertaining to undergraduates are also listed in this section. In addition to describing the Core Curriculum Distribution and Skills Requirements and offering guidance in choosing appropriate courses, this section explains the place of general education in an undergraduate degree program and the reasons for each of the requirements.

The Purpose of General Education

General education requirements, the major, and electives are the three essential components of a university education. By completing a major, students learn to use the methods of a discipline to gain insight into its subject matter, about which they acquire some depth of knowledge. Electives give students freedom to choose whatever courses enhance their educational goals beyond the basic requirements set by the faculty. General education requirements provide breadth of knowledge within a carefully balanced framework.

General education requirements help students to place the more specialized parts of their undergraduate study—their major and pre-professional training—in a cultural and historical context. They also develop the intellectual skills necessary to enhance learning during the university years and later. In this complex world, distant places and past history have, and will continue to have, a major effect on each human life. Knowledge of the variety, richness, and interdependence of the human experience gained during the undergraduate years will enrich each student's future professional and personal life. It is the person with a broad educational foundation in the arts and sciences and with well-developed communication and computational skills who is most likely to flourish in changing times.

Stony Brook's General Education Program

Stony Brook's general education program consists of two sets of requirements. One set, the *Core Distribution Requirements*, provides a broad, coherent, and enlightening introduction to the liberal arts and sciences. The other set, the *Core Skills Requirements*, helps students develop abilities in communication and quantitative reasoning. Both sets of requirements must be satisfied by all students who are working toward baccalaureate degrees in a Main Campus college. An additional set of Dis-

tribution and Skills Requirements applies to all B.A. and B.S. candidates in the College of Arts and Sciences and the Harriman School for Management and Policy. (See p. 58).

A set of six Core Themes provides the threads of coherence within the many Core Courses that may be used to satisfy Distribution Requirements. The themes are:

- Global Thinking
- Cultural Perspectives
- Western History and Culture (in the Light of World History and Culture)
- Future Society
- Implications of Science in Society
- Implications of Technology in Society.

Each Core Course examines at least two of these themes as they pertain to the subject matter of the course. (Some of the methods courses may include only one theme.) A brief description of each theme and a guide to help students choose courses that allow broad coverage of the themes appear on pp. 51-52.

Another aim of the Core Curriculum is to balance the more traditional focus on the achievements and concerns of European-American men with recognition of the contributions of and issues regarding women and members of minority groups. Therefore, in addition to including the Core Themes, instructors of Core Courses incorporate material that recognizes scholarship produced by and, where relevant, issues pertaining to minorities and women.

The Core Curriculum acknowledges the need for all students to be familiar with the educational, research, and communications uses of computers. Rather than include a specific computer literacy requirement, however, the university has established powerful computer work stations for student use at several locations on campus, and many instructors incorporate computer applications into teaching and coursework throughout the curriculum.

The Basic Core Course

Although students are not required to take it, the Core Course described here was designed specifically for the Core Curriculum and is an excellent course with which to start satisfying the Distribution Requirements. By placing the student's examination of Western culture within the context of world history, the course not only exposes students to the culture and history of other civilizations, but also encourages them to reflect on Western culture and history itself from the point of view of other civilizations.

COR 101, 102 Art, Literature, and Philosophy in Historical Perspective

A historical introduction to the art, literature, and philosophy of the West: cultural achievements are studied in relation to the historical conditions

of their emergence, and emphasis is given to the ways in which Western culture is influenced by and influences other cultures. Students must pass both semesters of COR 101, 102 to satisfy Distribution Requirements.

Prerequisite to COR 102: COR 101
Fall (101) and spring (102), 3 credits each semester

Core Distribution Requirements

Although these requirements are basically the same for all Main Campus students, there are some differences between what College of Arts and Sciences students and College of Engineering and Applied Sciences students are required to do for each distribution area. These differences are noted in the appropriate places below. In addition, candidates for the Bachelor of Engineering degree in the College of Engineering and Applied Sciences (electrical engineering, engineering science, and mechanical engineering majors only) need satisfy either the Natural Sciences *Category B* requirement using a course with a social science designator (ANT, HIS, POL, or SOC) or the Social and Behavioral Sciences *Category B* requirement, but not both. Courses in which the grade of P is received may not be used to satisfy Core Distribution Requirements.

Courses completed through AP, CPE, CLEP, Challenge, or other approved credit by examination do not satisfy Core Distribution Requirements. They may, however, serve as prerequisites and major requirements.

Notes Pertaining to Transfer Credit:

1. Transfer students who have not, before matriculation at Stony Brook, completed the number of courses (bearing three credits or more) in each of the three distribution areas required by their Stony Brook college must take the remaining courses at Stony Brook.
2. Courses taken under the auspices of a college while the student was in high school and accepted as transfer credit may be substituted for Core Distribution Requirements only if such courses were taken on the campus of an accredited college and taught by members of the college faculty.
3. In completing Distribution Requirements at the university, only approved Core Courses will be acceptable. Transfer students may choose only as many courses from any single Category or Group as students completing the entire Core Curriculum at Stony Brook.
4. After matriculation at Stony Brook, whether as beginning freshmen or transfer students, all students will take Stony Brook Core Courses to satisfy the Core Distribution Requirements (except for the Study of Another Culture requirement).

Humanities and Fine Arts

The humanities are those fields concerned with interpreting human life; the fine arts convey thought and feeling about the human condition. Study of these fields challenges the individual to understand both the common historical and cultural background shared by all human beings and those differences in the heritage of particular groups that enrich all humanity. *Category A* courses emphasize an historical approach, so that students learn the importance of seeking out roots in the past to help explain the present. This approach also conveys a sense of what happened during the major historical epochs. The importance of *Category B* is to develop skills of interpretation and analysis specific to a discipline in the humanities and fine arts that help students to examine subject matter critically. In *Category C* courses students learn the importance of the many elements that contribute to understanding a focused topic.

Required: One course from each category below. Arts and Sciences students must choose at least two different designators.

Category A: Basic Concepts and History (one course)

Both COR 101, 102 (counting as one Humanities and Fine Arts course and one Social and Behavioral Sciences course)

OR

One of the following courses: ARH 101, 102; CLT 108; EGL 205, 206; GER 199; HUM 121, 122, 123; JDH 230; KRH 240, 246; MUS 101; PHI 100, 104, 105, 111, 200, 206, 340, 342, 360; RLS 101, 230, 240, 246, 270, 280; RUS 141, 142

Category B: Methods of Interpretation and Analysis (one course)

One of the following courses: ARS 395, 396; CLS 120; CLT 201, 301; EGL 191, 192, 193, 204, 376; HAS 290; HMC 200; HUM 201, 202; MUS 222, 307, 315; PHI 108, 223, 264, 332, 363, 372, 380, 381, 415; RLS 122, 150, 301, 345; THR 101, 104, 223, 256

Category C: Focused Studies (one course)

One of the following courses: ARH 300, 301, 303, 304, 313, 324, 342; CLT 331, 332, 333; EGL 274, 276; FRN 199; ITL 199; JDH 320, 465; MUS 109, 309, 310; PHI 247, 249, 300, 306, 308, 310, 375, 376, 384; RLS 260, 320, 321, 465; RUS 291, 292

Natural Sciences and Mathematics

The natural sciences are fields dedicated to expanding knowledge about objects and processes observable in nature. *Category A* courses introduce students to the important ideas of the biological and physical sciences, explicitly examining the methods and approaches to knowledge that are

characteristic of a scientific discipline. Building on what has been learned in a *Category A* course, *Category B* courses develop a further understanding of an area of science while examining some significant examples of the impact of science on culture and society. Particular attention is paid in these *Category B* courses to the value issues involved in the interactions between science and society.

Required: Three courses, two from Category A and one from Category B (One Category A course must be completed before taking a Category B course.)

Category A: Introduction to the Sciences (Two courses; College of Arts and Sciences degree candidates must complete one A-1 course and one A-2 course. College of Engineering and Applied Sciences degree candidates need not distinguish between A-1 and A-2 but must choose two courses with different designators.)

Category A-1: Biological Sciences

ANP 120; BIO 101, 113, 115, 151, 152

Category A-2: Physical Sciences

AST 101, 105; CHE 111, 112, 131, 132, 141, 142; GEO 102, 107, 109; MAR 101, 104; PHY 100, 101, 102, 103, 104, 105, 106, 117, 118, 137

Category B: Science and Society* (one course)

One of the following courses: ANT 290; AST 248; BIO 102, 204, 208, 306, 347; CHE 310; EST 290, 291, 320, 330, 360, 370; GEO 300, 304, 308; HIS 353; MAR 333, 340; PHI 323, 364, 368; PHY 138 (if taken for 3 credits); POL 361, 370; SOC 353

***Note:** Students enrolled in majors leading to the Bachelor of Engineering degree complete *either* the Natural Sciences *Category B* requirement with an ANT, HIS, POL, or SOC designator *or* the Social and Behavioral Sciences *Category B* requirement.

Social and Behavioral Sciences

The social and behavioral sciences are those fields that observe, analyze, and explain how human beings behave individually and in groups. The four groups of courses in *Category A* illustrate varying approaches to the study of human behavior. *Group 1* illustrates the unity of knowledge by emphasizing the human behavioral approach to the study of great works of art, literature, and philosophy. *Group 2* emphasizes interdependence among the social sciences. *Group 3* courses concentrate on a single discipline. *Group 4* courses broaden students' perspectives by focusing on a culture substantially different from their

own. *Category B* introduces the theoretical structure of a discipline as well as the methods of interpreting and analyzing data so that students develop an informed, critical attitude toward information presented to them.

Required: Two courses from Category A (see details below) and one course from Category B, at least one of which must be numbered 200 or higher. Arts and Sciences degree candidates must choose at least two different designators.

Category A: Introduction to the Social and Behavioral Sciences (two courses chosen from two of the four following groups)

Group 1: Both COR 101, 102 (counting as one Social and Behavioral Sciences course and one Humanities and Fine Arts course).

Group 2 (Interdisciplinary Course): AFS 325; ANT 160, 215, 352, 363; ECO 203, 243, 317; HIS 316, 317, 325, 360, 375, 376, 382, 387, 388; LIN 111, 363; POL 382; PSY 209, 211; SOC 247, 341, 352, 375, 380, 385; SSI 102, 369; WNS 102, 334, 369

Group 3 (Introduction to a Discipline): AFS 101, 102; ANT 102, 103; ECO 101, 104; HIS 100, 135, 136, 233, 234, 291, 292; POL 101, 103; PSY 103, 104; SOC 305

Group 4 (Courses Pertaining to a Culture Outside the Western Tradition): AFS 225, 239, 240; ANT 201, 203, 209, 219, 240, 310; ECO 335, 339; HIS 209, 210, 213, 214, 216, 219, 220, 225, 230, 295, 341, 344, 386; JDS 225; POL 210, 214, 216; SOC 264

Category B: Methods and Theory* (one course)

One of the following courses: ANT 104; ECO 251, 252; LIN 101, 201, 211; POL 106, 250; PSY 300; SOC 105, 106

***Note:** Students enrolled in majors leading to the Bachelor of Engineering degree complete *either* the Natural Sciences *Category B* requirement with an ANT, HIS, POL, or SOC designator *or* the Social and Behavioral Sciences *Category B* requirement.

Study of Another Culture

This requirement introduces students to the culture, social and political institutions, and value systems of a nation or region significantly different from their own—i.e., African, Asian, Latin American, or Native American. It may be satisfied either by passing a Stony Brook course from the list below or by transferring a course that is evaluated by the university as satisfying the requirement.

Required: One course (The same course may be used to satisfy this requirement as

to satisfy a Humanities and Fine Arts or Social and Behavioral Sciences requirement.)

One of the following courses: AFS 225, 239, 240; ANT 201, 203, 209, 219, 240; ARH 318; CLT 120; ECO 339; EEL 293; HIS 213, 214, 216, 219, 220, 225, 227, 230, 341, 344, 382, 383, 384, 386, 387, 388; JDS 225; KRH 240; PHI 340, 342, 415; POL 210, 214, 216, 382; RLS 240, 260, 280; SOC 264. Any semester- or year-long SUNY Study Abroad program (except in English-speaking Canada).

Students who have studied for at least two years in a high school or one year in a college in any foreign country except English-speaking Canada before coming to Stony Brook have satisfied the Study of Another Culture requirement by virtue of that experience. This provision, however, does not include study in an institution designed primarily for Americans, even though it is in a foreign country.

Core Skills Requirements

Writing Requirements

Instruction in writing is a central part of a university education. All students are expected to take at least one university course in writing—even if they already have strong high school skills and even if they write copiously in other university courses. Moreover, all students are required to demonstrate clear written communication of ideas in their majors.

Lower-Division Writing Requirement

All entering students who have not already passed, with a grade of C or higher, a composition course equivalent to Stony Brook's EGC 101 must take a diagnostic placement examination on entry and begin this writing requirement during their first two semesters at Stony Brook. Students who are assigned to preparatory courses (i.e., EGC 100 and ESL courses) must take those courses in sequence in successive semesters until they have passed EGC 101 with a grade of C or higher. Students who do not receive a grade of C or higher in EGC 101 will be assigned a U grade, which conveys no credit; they must repeat the course in the following semester or, if their EGC 101 instructor so recommends, elect instead to take EGC 102 for a letter grade and pass either course with a grade of C or higher.

All transfer and readmitted students who have already passed, with a grade of C or higher, a composition course judged equivalent to Stony Brook's EGC 101 will have satisfied this requirement. (A course taken at another college will not be considered equivalent to EGC 101 unless the student took it while matriculated at that college.)

Placement will be indicated on the student's record in the following way:

Placement 1 is given to students whose composition skills are weak and whose writing shows evidence of interference from a foreign language background. They are required to pass an assigned ESL course or sequence of courses, followed by EGC 100, and then to pass Stony Brook's EGC 101 with a grade of C or higher.

Placement 2 is given to students whose composition skills are weak and who are required to pass EGC 100 and then to pass Stony Brook's EGC 101 with a grade of C or higher.

Placement 3 is given to students whose composition skills reflect a satisfactory preparation for college study and who are required to pass Stony Brook's EGC 101 with a grade of C or higher.

Placement 4 is given to students whose composition skills are strong and who are required to pass any course designated as writing intensive. Such courses may be offered by any academic department. Designated writing intensive courses are ANT 103; EGL 191, 192, 193, 199, 202; HIS 213, 235; ISS 103; JDH 230; PHI 100, 103, 104, 105, 108; POL 105; RLS 150, 230. As courses are added to this list, they will be noted in the *Undergraduate Bulletin Supplement*.

Writing in the Core Curriculum

In order to provide continuing attention to written communication, most Core Curriculum courses include significant writing experiences.

Upper-Division Writing Requirement

All bachelor's degree candidates must satisfy a writing requirement established in their major discipline. Individual programs and departments will appraise the written English of students in their majors and set standards of acceptable communication of ideas in their disciplines. The specific form of the requirement for each major is listed with the other requirements for the major.

Quantitative Literacy

Entry-Level Mathematics Proficiency

Students admitted to the university should have reached a minimum level of mathematics achievement in order to be able to

use basic mathematics to formulate and solve problems arising in their university work. All entering students who have not achieved this entry-level mathematics proficiency by passing one of the standardized tests listed in the Admissions chapter with the required score (see p. 18) may satisfy the entry-level mathematics proficiency requirement in one of the following ways:

1. By attaining the proficiency-level grade on the Mathematics Placement Examination during their first year at Stony Brook. (This examination is offered during freshman orientation sessions, during the first week of each semester, and once a month during the academic year.) Students who do not attain the proficiency-level grade must enroll in an appropriate course (MAP 101 or a course that will satisfy proficiency) during their first year on this campus.
2. By earning a grade of C or higher in MAP 102, 103, or in a transferred course of at least three credits evaluated by the director of the Mathematics Learning Center as equivalent to MAP 102.
3. By obtaining at least three transfer credits or Challenge credit for any MAT course numbered 120 or higher or any AMS course.
Note: Students who received transfer credit for such a course taken under the auspices of a college while they were in high school must attain the proficiency-level grade on the Mathematics Placement Examination to satisfy this requirement, unless the course was taken on the campus of an accredited college and taught by a member of the college faculty.
4. By passing with a grade of C or higher, while enrolled in a degree program at any two- or four-year college, any other mathematics course (excluding basic arithmetic, elementary algebra, and business or finance mathematics courses) of at least three credits, counting toward graduation.

Students with problems meeting entry-level mathematics proficiency should consult the director of the Mathematics Learning Center.

Graduation Requirement

Because of the prevalence in modern society of information expressed in quantitative terms, students must learn to deal intelligently with quantitative material and to apply a broader range of quantitative skills than that required for entry-level proficiency. This requirement may be satisfied either by passing a Stony Brook course from the list below or by transferring a course evaluated by the university as appropriate. A course taken under the auspices of a college while the student was in

high school and accepted for transfer credit may be used to satisfy this requirement only if it was taken on the campus of an accredited college and taught by a member of the college faculty.

Required: One course

Any AMS course numbered 102 or higher (except 475); CSE 373; ECO 251; EST 194; MAT courses numbered 120 and higher; PHY 100; PSY 201; SOC 311, 312.

Other University Degree Requirements

Credit Hour Requirement

At least 120 credit hours of passing work must have been completed for the Bachelor of Arts and Bachelor of Science degrees and 128 credit hours for the Bachelor of Engineering degree.

Notes: Restrictions on the number of credits that may be earned in independent study, activity-related courses, courses for undergraduate teaching assistants, graduate courses, certain ESL courses, studio and performance courses, and repeated courses are stated in "Course Credit and Prerequisites," p. 60, and "Restrictions on Credits," p. 186 (for College of Engineering and Applied Sciences students only).

At least 80 percent of all credits taken at Stony Brook, including F, U, and NC courses (but excluding courses in which a W is received) must be taken for a letter grade. (See also "Satisfactory/Unsatisfactory Grading," p. 37.)

Grade Point Average (G.P.A.) Requirement

A cumulative grade point average of at least 2.00 is required for all academic work taken at Stony Brook.

Major Requirement

Each candidate for a degree must satisfy the requirements of a declared major.

Residence Requirement

Beginning with the 58th credit, at least 36 credits must be earned at Stony Brook.

Upper-Division Credit Requirement

Each candidate must earn at least 39 credits in upper-division courses (numbered 300 and higher).

Note: Some of these credits may be earned through courses transferred from other colleges and individually evaluated at Stony Brook as upper division. See p. 19, "Transfer Credit Policies."

The Core Themes

The Core Themes, mentioned earlier, are defined below. As explained on p. 48, all Core Courses that satisfy Core Distribution Requirements contain Core Themes. Most of them contain two or three themes; it is

a rare course that covers all six themes. Most likely, but not inevitably, in the process of completing the Core Distribution Requirements a student will be exposed to all the Core Themes. Although students are not required to cover all six Core Themes in order to graduate, they are advised to do so in order to get the most out of their general education requirements.

To help interested students ensure exposure to all six themes, a list of courses that include each Core Theme follows the definition of each theme.

Global Thinking

Global thinking is a perspective from which the world is viewed as a unit composed of interacting systems. Courses including this theme show explicitly how what happens (or is written or painted or constructed) in one part of the world affects other parts of the world.

AFS 101, 102, 239, 240; ANP 120; ANT 102, 103, 104, 160, 201, 215, 352, 363; ARH 101, 300, 301, 342; AST 101, 105, 248; BIO 204, 306, 347; CHE 111, 131, 132, 141, 142, 310; CLS 120; COR 101, 102; ECO 101, 104, 203, 251, 252, 317, 335, 339; EGL 276, 376; EST 291, 360, 370; GEO 308; GER 199; HAS 290; HIS 100, 209, 210, 213, 214, 216, 219, 220, 225, 230, 233, 295, 316, 317, 341, 344, 360, 375, 376, 382, 386, 387, 388; HMC 200; JDH 230, 320; JDS 225; KRH 240, 246; LIN 101, 111, 363; MAR 104, 333, 340; MUS 109; PHI 104, 108, 111, 200, 249, 342, 364, 415; POL 101, 103, 210, 214, 216, 250, 361, 370; RLS 101, 122, 230, 246, 260, 280, 301, 320; RUS 141, 142, 291, 292; SOC 105, 106, 264, 341, 353, 375, 380, 385

Cultural Perspectives

To open cultural perspectives for students is to move them from ethnocentrism toward cultural pluralism. Topics incorporating this theme not only help students view other cultures more objectively but also view their own culture and its biases from the perspectives of other cultures.

AFS 101, 102, 225, 239, 240, 325; ANP 120; ANT 102, 103, 104, 160, 201, 203, 209, 215, 219, 290, 240, 310, 352, 363; ARH 101, 300, 301, 303, 313, 318, 342; ARS 395, 396; AST 105, 248; BIO 113, 115, 204, 347; CHE 310; CLS 120; CLT 108, 120, 201, 301, 331, 332, 333; COR 101, 102; ECO 203, 243, 335, 339; EGL 191, 192, 193, 204, 205, 206, 274, 276, 376; EST 291, 360, 370; FRN 199; GEO 300; GER 199; HIS 100, 135, 136, 209, 210, 213, 214, 216, 219, 220, 225, 227, 230, 233, 234, 291, 292, 295, 316, 317, 325, 341, 344, 360, 382, 383, 384, 386, 387, 388; HUM 121, 122, 123, 201, 202; JDH 230, 320, 465; JDS

225; KRH 240, 246; LIN 101, 111, 201, 211, 363; MAR 340; MUS 101, 109, 222, 307, 310, 315; PHI 100, 104, 105, 108, 111, 200, 206, 223, 247, 249, 264, 300, 308, 310, 323, 332, 340, 342, 360, 364, 372, 375, 380, 384, 415; POL 101, 103, 106, 210, 214, 216, 250, 361, 370, 382; PSY 209, 211; RLS 101, 150, 230, 240, 246, 260, 270, 280, 301, 320, 321, 465; RUS 141, 142, 291, 292; SOC 105, 106, 247, 264, 305, 341, 352, 353, 380, 385; SSI 102; WNS 102, 334

Western History and Culture (in the Light of World History and Culture)

This theme carries the analysis of Western culture beyond the narrow confines of traditional presentations by placing developments in Europe in the context of developments in other parts of the world. It is related to the first two themes, but recognizes that students must acquire more knowledge of an important reality in American culture: the pervasive elements of European culture. These elements are interpreted in a new way, however, by consideration of similar elements in other cultures.

AFS 225; ANP 160, 203, 219, 240, 290, 310, 363; ARH 101, 102, 300, 301, 303, 304, 324, 342; AST 101, 105, 248; BIO 115, 347; CLT 201; COR 101, 102; ECO 317, 339; EGL 191, 205, 206, 274, 276, 376; FRN 199; HIS 100, 135, 136, 209, 210, 213, 214, 216, 225, 230, 233, 234, 291, 292, 295, 316, 317, 341, 344, 360, 375, 376; HUM 121, 122, 123; ITL 199; JDH 230, 320, 465; JDS 225; LIN 111, 363; MUS 109, 309; PHI 111, 308, 332, 340, 376, 380, 381, 415; POL 214, 216; RLS 101, 150, 230, 270, 301, 320, 321, 345, 465; RUS 291; SOC 247, 305, 341, 352, 385; THR 101, 104, 223, 256; WNS 334

Future Society

Problems of future change, habits of seeking new skills of imagination and analysis, and possible new ways of dealing politically with other people are explored through this theme. Students are guided to an appreciation of the importance of current social structures and institutions, historical trends, cultural developments, and scientific and technical advances in preparing to meet the future.

AFS 225, 240, 325; ANP 201, 203, 215, 240; ARH 102, 324; ARS 395, 396; AST 248; BIO 101, 102, 204, 208, 306, 347; CHE 111, 131, 132, 141, 142, 310; CLT 108, 301, 331, 332, 333; ECO 101, 104, 243, 251, 252, 317, 339; EGL 274; EST 291, 320, 360, 370; GEO 308; HAS 290; HIS 214, 216, 316, 325, 382, 386, 387; HMC 200; MAR 104, 340; MUS 101, 307, 309, 310; PHI 105, 108, 249, 264, 308, 360, 364, 368, 375, 376, 380, 381; POL 101, 214, 216, 361, 370, 382; RLS 122, 150, 240, 345; SOC 105, 106, 247; SSI 102; WNS 102.

Implications of Science in Society

Science and mathematics provide valuable intellectual tools that are used to understand and interpret the natural world. The great ideas, major themes, and methods of science and their impact on other areas of intellectual life and thought are discussed, to demonstrate how modern science has changed views of human origins and place in the universe.

ANT 290; ARH 324; AST 101, 105, 248; BIO 101, 102, 113, 115, 151, 152, 204, 208, 306, 347; CHE 111, 112, 131, 132, 141, 142, 310; EST 290, 291, 320, 360, 370; GEO 102, 107, 109, 300, 304, 308; HIS 135, 136, 291, 292, 316, 351, 353; MAR 101, 104, 333, 340; PHI 100, 104, 108, 206, 223, 300, 306, 310, 323, 332, 363, 368, 372, 384; PHY 100, 101, 102, 103, 104, 105, 106, 117, 118, 137, 138; POL 361, 370; PSY 103, 104, 209, 300; RLS 345; SOC 105, 106, 353, 375

Implications of Technology in Society

Technological literacy requires an understanding of engineering concepts as well as a familiarity with the physical tools used in the modern world. Courses with this theme develop the means of understanding the social, cultural, and ethical implications of various forms of technology.

AFS 325; ANT 201, 209, 290; ARH 101, 102, 304, 313, 324; AST 248; BIO 101, 102, 113, 204, 306, 347; CHE 310; EST 290, 291, 320, 360, 370; FRN 199; GEO 107, 304; HAS 290; HIS 135, 136, 291, 292, 316, 325, 351, 353; HMC 200; HUM 201, 202; ITL 199; MAR 101, 333; MUS 101, 109, 309, 310; PHI 104, 108, 247, 264, 306, 332, 364, 372, 376; PHY 137, 138; POL 361, 370; PSY 103, 104, 211, 300; RLS 122, 345; THR 101

The Honors College

*Master: Elof Axel Carlson,
Biochemistry*

The Honors College, the most selective academic program for undergraduates at the university, offers a limited number of exceptional students from each class the opportunity to become members of a special community of scholars. Through the College they pursue a challenging four-year curriculum designed to promote intellectual curiosity, independence, and critical thinking.

Acceptance

Students accepted by the Honors College must demonstrate high academic or creative achievement, extraordinary motivation, diversified interests, intellectual curiosity,

and sufficient maturity to carry out a challenging program of study. To enter the Honors College as freshmen, students must have shown overall academic excellence in high school by such accomplishments as achieving high grade averages in major subject areas, a cumulative average greater than 90, combined SAT scores over 1200, a record of advanced or college-level coursework, and evidence of writing ability. Demonstrated talents in the fine and performing arts can also serve to qualify a student for admission to the Honors College. Similar criteria will be applied to students wishing to enter as sophomores or juniors.

Curriculum

In the course of their undergraduate careers, students entering the Honors College as freshmen are required to complete a minimum of 36 credits (12 courses) of honors coursework designed to fulfill the objectives of the Core Curriculum and distributed as follows:

A. *Interdisciplinary Seminars 15 credits*

Each student will take a yearlong seminar in his or her first year and a one-semester seminar in each succeeding year. Conducted by outstanding scholar-teachers, these small, writing-intensive classes, designed specifically for the Honors College, integrate inquiry in a variety of disciplines with an effort to understand complex problems and processes. Descriptions of these seminars are made available to students in the College.

B. *Departmental Honors*

Courses 6 credits

During their undergraduate careers, Honors College students who enter as freshmen must take at least two honors courses from among those offered by various academic departments. Course selection is subject to approval by the college master and the student's mentor.

C. *Complementary Electives*

9 credits

Each Honors College student will select, with the approval of his or her faculty mentor, three additional courses that help to round out his or her program of honors study.

D. *Senior Thesis or Project*

6 credits

Each Honors College student will prepare a scholarly thesis based on library, laboratory, or field research under the supervision of a faculty sponsor. Some honors students may undertake joint projects such as the production of a play or musical performance or implementation of a community project.

The program requirements for students entering the College after the freshman year are modified according to their time in the program. Those entering as sophomores must complete 30 credits of honors coursework (three one-semester seminars, six credits of honors coursework, nine credits of complementary electives, and the senior project). Those entering as juniors must complete 24 credits (two one-semester seminars, six credits of honors coursework, six credits of complementary electives, and the senior project).

Faculty Advisement

Each Honors College student receives ongoing advisement in developing a personally-tailored program of study from a faculty mentor whose research and teaching interests are related to the student's educational background and goals. The mentor will provide intellectual stimulation and guidance through regular meetings, discussions, directed readings, and social interaction with the student throughout his or her undergraduate career. The college master, who serves as the intellectual leader of the College, also guides and supports Honors College students as a group and individually.

The Honors Center

The Honors Center includes meeting space for student honor societies and clubs, a computer facility, a library collection of cultural periodicals, the college master's office, a lounge, and study areas. Seminars, colloquia, and special events scheduled for honors students are held in the Honors Center throughout the year.

Federated Learning Communities

Program Director: James B. McKenna, Hispanic Languages and Literature.

Teaching Assistants

Estimated number: 3

The Federated Learning Communities (FLC) creates within the large university an academic community that provides many of the advantages of smaller institutions. Students and faculty work closely together in FLC programs, building genuine academic communities based on shared exploration of common intellectual and personal interests. FLC programs work as follows:

Program Theme

Each year FLC selects an issue of major importance and interest for special attention and study. Previous FLC programs have dealt with such themes as World Hunger; Technology, Values, and Society; International Understanding; and Issues in Management and Business. Information on current program themes is available in the FLC Office. FLC staff members will work with students to devise a long-range plan for fitting an FLC program into their schedules.

Program Courses

During each of two consecutive semesters, students who enroll in an FLC program take three regular university courses that have been selected on the basis of their relevance to the program theme. Program courses are drawn from the full spectrum of university offerings and are chosen to provide varied and comprehensive perspectives on the issues in question.

Program Seminar

The distinctive heart of each FLC program, the program seminar, provides a small, student-centered learning community that seeks to focus and integrate the material of the program courses. The program seminar offers unique opportunities for enhancement of essential skills and abilities, such as oral and written communication, critical thinking and analysis, group interaction, and personal initiative.

Master Learner

Each year, on the basis of demonstrated excellence and commitment to teaching, FLC invites a senior member of the Stony Brook faculty to serve as master learner. The master learner becomes a student for the year, enrolling in the program courses, attending all of the classes, writing term papers, and taking examinations. The master learner serves as model and resource for the FLC students; directs the program seminar; and with the help of FLC students, provides ongoing feedback to the faculty on the effectiveness of their courses.

The FLC Minor and Program Requirements

Students may choose to enroll in FLC for one or two semesters; however, in order to derive maximum benefit from the FLC experience, it is recommended that students take the full program. Successful completion of the two-semester sequence earns an FLC minor in the program theme. Since participation in an FLC program semester typically involves 12 credits, students are free to take additional courses related to their main undergraduate program. Many departments accept FLC work, including program seminars, toward satisfaction of major requirements, and

students are advised to consult with FLC concerning the relationship between FLC programs and individual academic plans and needs.

Physical Facilities

FLC is a social as well as an academic community. Its headquarters contain a reading room, a lounge, a small computer facility, and the Jeffrey Irwin Memorial Library.

Courses

See p. 60, Course Credit and Prerequisites, and p. 61, Undergraduate Numbering System.

Note: Courses for individual programs are described in detail in separate brochures available from the FLC office.

FLC 301, 302 Program Seminar I, II

This seminar will integrate the material of its corequisite courses. The agenda of the seminar will be determined by the problems, difficulties, and interests of the students. Discussions and frequent written and oral reports will focus on assisting the students in learning how to learn; deepening understanding of the concerns and ideas of the corequisite courses; comparing, contrasting, and synthesizing the material of these courses; and developing confidence to think and write independently.

Corequisites: Varying according to FLC theme *Fall (301) and spring (302), 3 or 4 credits each semester, at the discretion of the program*

FLC 475 Teaching Practicum

Supervised participation with master learners in the teaching of the program seminars of the Federated Learning Communities. The student and his or her supervising master learner will meet weekly with enrolled students for the preparation of seminar meetings. Responsibilities will include researching material appropriate for seminar discussions, helping students with interdisciplinary research papers, placing students with similar intellectual interests or projects in touch with each other, and responding to journals. Students will be invited to attend FLC's bi-monthly seminar.

Prerequisites: Completion of an FLC minor; permission of FLC director

Corequisites: At least two courses federated with the program seminar.

Fall and spring, 3 credits

Internship Program

Under the university's Internship Program a student may spend a semester or summer working for academic credit under the supervision of both university faculty and professional staff at a cooperating agency or organization. Internships may be full or part time. Full-time internships require 30 or more hours on the job each week. Three to 12 credits may be earned for semester internships during the academic year; three to six for each summer term.

This program allows students to apply theory in practice; to test career intentions; to improve intellectual skills in writing, quantitative analysis, research, and administration; to increase their understanding of social, political, and economic forces; and to acquire work experience that may be useful for seeking employment or for applying to professional school.

The university maintains a registry of available internships that includes placement with government agencies, hospitals and clinics, businesses and industries, and legal and social agencies in New York City, Albany, Washington, D.C., on Long Island, and elsewhere. The cooperating agencies have agreed to give interns responsibilities that involve them in activities central to the agency's purposes. Routine office chores and clerical work are kept to a minimum.

To qualify, a student must have (1) completed 69 or more credits, of which at least 12 credits must have been taken at Stony Brook; (2) a cumulative grade point average of 2.5 or higher, and (3) the skills and prerequisite coursework required for the particular internship. Two letters of recommendation are required.

Registration for internships is usually in a departmental course established for this activity. If a departmental internship is inappropriate, students may qualify for one of the courses listed below.

Interested students may obtain information and advice about the Internship Program in the Office of Undergraduate Studies.

Courses

See p. 60, Course Credit and Prerequisites, and p. 61, Undergraduate Numbering System.

EXT 488 Internship

Participation in public and private agencies and organizations under the supervision of a faculty sponsor. Students will be required to submit progress reports and a final written report on their experience to the faculty sponsor. Satisfactory/Unsatisfactory grading only. May be repeated up to a limit of 12 credits. Students taking nine or more credits must take a related campus-based seminar.

Prerequisites: Acceptance by faculty sponsor; approval of appropriate department and Office of Undergraduate Studies

Fall and spring, 3 to 12 credits

EXT 489 Washington Internship

Participation in the Washington Center as interns in private or public organizations and agencies. Students will be supervised by selected practitioners within the organization or agency. Students will be required to submit journals of experience and observation. Satisfactory/Unsatisfactory grading only.

Prerequisites: Admission to the Washington Center, sponsorship of a faculty member; approval of appropriate department and Office of Undergraduate Studies

Corequisite: EXT 490

Fall and spring, 12 credits

EXT 490 Washington Seminar

Seminar offered in Washington, D.C. as part of the internship program of the Washington Center. The seminars are taught by people in public and private organizations. Seminar topics include law and justice, policy studies, community-urban service, and studies in government.

Prerequisites: Admission to the Washington Center; sponsorship of a faculty member; approval of appropriate department and Office of Undergraduate Studies

Corequisite: EXT 489

Fall and spring, 3 credits

URECA Program

The Undergraduate Research and Creative Activities Program (URECA) provides opportunities for undergraduates, including talented lower-division students, to work closely with Stony Brook faculty members on research and creative projects. Through the URECA Program, Stony Brook students can collaborate with Stony Brook's outstanding scientists, humanists, and artists.

By maintaining a registry of information about the research and creative project opportunities that exist in more than 30 departments on campus, the URECA Program is able to match motivated students with prospective faculty sponsors in their area of interest. In addition to its directory of on-campus opportunities, URECA maintains a registry of off-campus research opportunities available in government, industry, and nonprofit organizations in the Long Island and New York metropolitan areas. Whether working on campus or off campus, URECA students can earn academic credit or payment; and they may qualify for some form of funding assistance from URECA for their projects.

All matriculated undergraduates, including incoming freshmen and transfer students, are eligible to participate in the URECA Program. Although there is no grade criterion for participation, it is inadvisable for students who are having difficulty maintaining good grades to pursue a URECA project. Students should register with the URECA Program prior to identifying appropriate projects and faculty sponsors.

Students may earn credit for approved URECA projects through established research or independent project courses available in their own departments or by registering for one of the university-wide courses listed below. URECA credit is included in the 30-credit limit on independent study that may be used toward degree requirements.

Faculty evaluations of student participants and the students' final reports are filed with the URECA Program. They are used to establish eligibility for award and

scholarship nominations, and serve as a source of recommendations for graduate and professional schools.

Courses

See p. 60, Course Credit and Prerequisites, and p. 61, Undergraduate Numbering System.

URE 287 Introductory Undergraduate Research and Creative Activity

A research or creative project for lower-division students under the sponsorship of an appropriate faculty member as part of URECA Program participation. The student must submit a letter of intent describing the planned project at the outset of the term and a written report summarizing the project at the end of the term to the URECA Program director in the Office of Undergraduate Studies. Satisfactory/Unsatisfactory grading only. May be repeated up to a limit of 12 credits.

Prerequisite: Permission of URECA Program director

Fall, spring, and summer, 1 to 6 credits

URE 487 Advanced Undergraduate Research and Creative Activity

A research or creative project under the sponsorship of an appropriate faculty member as part of URECA Program participation. The student must submit a letter of intent describing the planned project at the outset of the term and a written report summarizing the project at the end of the term to the URECA Program director in the Office of Undergraduate Studies. May be repeated up to a limit of 12 credits.

Prerequisites: Permission of URECA Program director; upper-division standing

Fall and spring, 1 to 12 credits; summer, 1 to 8 credits

URE 488 Undergraduate Research Internship

Research participation in an off-campus industry, laboratory, or public agency setting under the sponsorship of an appropriate faculty member as part of URECA Program participation. The student must submit a letter of intent describing both the planned project and the arrangements made for faculty sponsorship to the URECA Program director in the Office of Undergraduate Studies. A written research report from the student must be submitted to the faculty sponsor at the end of each term. Satisfactory/Unsatisfactory grading only. May be repeated up to a limit of 12 credits.

Prerequisites: Permission of faculty sponsor and URECA Program director

Fall and spring, 3 to 12 credits; summer, 3 to 8 credits

Study Abroad

The campuses of the State University of New York collectively sponsor more than 100 approved, credit-bearing overseas academic programs in more than 30 countries. These programs include a diverse array of disciplines, ranging from archaeology to theatre arts. Many students report that the overseas program has been one

of the most important experiences of their lives. For these students, experience abroad results in greater maturity, better academic performance in subsequent study, broadened intellectual interests, and heightened sensitivity, not only to other cultures but also to the United States, its role in the world, and its problems.

Application*

To gain admission to a SUNY Study Abroad program, the student must complete an application procedure that includes a personal statement of plan, an objective assessment of language ability, reference letters, and transcripts.

Full information, advice, and application forms are available at the Office of International Programs. For most summer, fall semester, and academic year programs the application deadline is April 1. For most spring semester programs, it is November 15.

Admission and Registration

Upon acceptance to a SUNY Study Abroad program, the participant is registered by the Office of International Programs for a fixed number of credits. This registration is temporary, and upon completion of the program abroad and issuance of the transcript supplement (see below), it is changed to reflect the credits and level of courses actually taken in the field.

Grading and Credits

The range of SUNY overseas academic programs includes some that run only in the summer, some in which students may register for either one or two semesters, and others for which only a full academic year registration is available. Summer programs generally carry six credits, while students registered in semester and academic year programs typically earn between 12 and 18 credits per semester. Upon completion of a course of study abroad and appropriate evaluation of the student's performance, letter grades are assigned. Titles, credits, and grades for all individual courses taken abroad are recorded on a transcript supplement issued by the Office of International Programs of the sponsoring SUNY campus. The transcript supplement becomes a permanent part of the student's record, maintained in the Registrar's Office.

The information contained in the transcript supplement is summarized on the student's official Stony Brook transcript by assignment of grades of Satisfactory or Unsatisfactory to blocks of credit appropriately corresponding to coursework completed each term. These grades have the same effect on the student's academic standing and eligibility for graduation with distinction

*See also p. 26, Study Abroad Expenses.

as S/U grades assigned in courses taken on campus. Like other S/U grades, they do not affect the grade point average. Credits are also designated by level, as either upper or lower division.

By SUNY policy, credits earned in overseas programs sponsored by any of its campuses are accepted by all campuses. However, acceptance of Study Abroad credits to meet the requirements of specific degree programs requires the approval of the responsible academic departments. Students seeking to meet major requirements in a Study Abroad program should consult their departmental academic advisors in advance of departure and as soon as possible upon return.

All semester- and year-long SUNY Study Abroad programs (except in English-speaking Canada) satisfy the university's Study of Another Culture requirement.

Stony Brook Programs

SUNY in England: Sussex

Through this exchange program with Sussex University in Brighton, SUNY students may pursue studies in any field offered there provided they meet the course prerequisites. Full academic year participation is required.

Prerequisite: Upper-division standing
Fall and spring, 12 to 18 credits each semester

SUNY in France: Avignon

Studies focused upon French language and culture are carried out at the University of Avignon. Students with advanced language skills may also register for regular university courses in a broad range of disciplines.

Prerequisite: Two semesters of French
Summer, 6 credits

SUNY in France: Paris

The program in philosophy and social science in Paris is conducted at the University of Paris IV (the Sorbonne). Course instruction is in French, and lectures are supplemented by tutorial assistance (in French and in English). The program also includes a year-long series of cultural events, excursions, and discussions with French scholars. Students' programs of study are arranged and supervised individually.

Prerequisite: Four semesters of French
Fall and spring, 12 to 18 credits each semester

SUNY in Germany: Tübingen

Through an exchange arrangement with the Eberhart-Karls University of Tübingen, one of Europe's oldest seats of higher learning, SUNY students are offered its full

range of course offerings. Students are accepted for full academic year participation only.

Prerequisite: Four semesters of German
Fall and spring, 12 to 18 credits each semester

SUNY in Italy: Rome

Intensive study of Italian language and courses in Italian culture, civilization, and art during a summer period of four weeks. Unlike other Study Abroad programs, courses appear on official Stony Brook transcripts with assigned letter grades.

Summer, 6 credits

SUNY in Italy: University of Rome

All coursework in this program is offered at the University of Rome, beginning with a four-week intensive Italian language and culture program during the month of October. During the normal Italian academic year, which begins in November, students attend regular courses at the university. Students are assisted in selection of their courses by an advisor, and tutorial assistance is made available. Evaluation is carried out by the Italian oral examination system at the end of the academic year (June). Full academic year participation is required.

Prerequisite: Four semesters of Italian
Fall and spring, 12 to 18 credits each semester

SUNY in Peru: Lima

The program is conducted in collaboration with and on the campuses of the University of Lima and the Catholic University of Peru. A concerted effort is made to adapt a challenging foreign study experience to the interests and goals of individual students. All participants engage in Spanish language study at a level appropriate to their achievement. Internships, consisting of volunteer part-time work in public and private agencies, are arranged individually.

Prerequisite: Four semesters of Spanish
Fall and spring, 12 to 18 credits each semester

SUNY in Poland: Warsaw and Wrocław

Programs in Poland include an intensive summer program in Polish language in Warsaw, a fall semester program of Polish language and area studies at Boloslaw Bierut University in Wrocław, and a spring semester program at Warsaw University that complements and continues the Wrocław program. Full academic year participation is encouraged but not required.

Lecture courses in Polish culture, history, and literature are offered in English, and students with advanced Polish language skills may take regular coursework at the Polish universities.

Prerequisite: Upper-division standing
Fall and spring, 12 to 18 credits each semester; summer, 6 credits

Other SUNY Programs

Besides the programs sponsored by Stony Brook, programs in 34 countries sponsored by other SUNY campuses are also available to Stony Brook students. Full information is available at the Office of International Programs.

Enrichment Courses

The courses listed in this section are offered for their general interest to students rather than as a part of any major or minor program. They introduce students to the Stony Brook academic environment, provide advanced training in using the library, or offer the opportunity to explore a focused issue of general interest. A student who wishes to use any of these courses to fulfill the requirements of a major or minor program should apply to the department or other agency that supervises the program.

Courses

See p. 60, Course Credits and Prerequisites, and p. 61, Undergraduate Numbering System.

AIM 102 Expository Writing

The fundamentals of grammar through investigating methods of interpreting various forms of literature with emphasis on the process of writing and rewriting. A through C/Unsatisfactory grading only. The Pass/No Credit option may not be used. Does not count toward graduation.

Prerequisites: Placement by English Placement Examination; open to AIM/EOP students only
Corequisite: EGC 100
Fall, 3 credits

AIM 103 Analysis and Critical Reasoning

Development of skills in reasoning and writing and improvement of vocabulary through reading, analyzing, and writing about a variety of personal experiences and literary texts. A through C/Unsatisfactory grading only. The Pass/No Credit option may not be used. Does not count toward graduation.

Prerequisites: Placement by English Placement Examination; open to AIM/EOP students only
Corequisite: EGC 101
Fall and spring, 3 credits

HUM, SBS, SCI 291 Seminar on Contemporary Issues

These variable-topics courses, designed primarily for lower-division students, will explore contemporary issues in the light of two or more disciplines. Topics explored primarily in the light of disciplines in the humanities will be assigned

the HUM designator; those in the natural and mathematical sciences, the SCI designator; and those in the social and behavioral sciences, the SBS designator. Topics will be generated by faculty members or developed in response to student suggestions. May be repeated as the topic varies.

Schedule to be announced, 1 credit each

HUM SBS, SCI 491 Seminar on Contemporary Issues

These variable-topics courses, designed for upper-division students, will explore contemporary issues in the light of two or more disciplines. Topics explored primarily in the light of disciplines in the humanities will be assigned the HUM designator; those in the natural and mathematical sciences, the SCI designator; and those in the social and behavioral sciences, the SBS designator. Topics will be generated by faculty members or developed in response to student suggestions. May be repeated as the topic varies.

Schedule to be announced, 1 credit each

ISN 123 Freshman Honors Seminar in Mathematics and Science

The seminar will address the question of how and why one studies and does research in mathematics and science. It will attempt to relate this to what the students will be studying as freshmen. While the seminar will likely involve some autobiographical readings by outstanding scientists and mathematicians of the past, the central part of the seminar will be discussions with active research scientists and mathematicians at Stony Brook. The direction taken will depend very much on student participation.

Fall, 1 credit

LBR 150 Introduction to the Stony Brook Library (Formerly INT 150)

An introduction to basic library skills and bibliographic resources, using a self-paced workbook approach. Topics covered include the use of the card catalogues, periodical indexes and abstracting sources, newspaper indexes, government documents, and current affairs sources. Special emphasis is placed on the Stony Brook library's organization and resources. No class sessions are held, but opportunity for adequate contact between student and librarian will be provided.

Prerequisite: Freshman or sophomore standing or upper-division transfer students with fewer than 30 Stony Brook credits

Fall and spring, 1 credit

LBR 250 Academic Research (Formerly INT 250)

Provides a basic understanding of the information process through the study of classification schemes, research strategies, abstracting, use of indexes and abstracts, reference materials, government documents, monographs, serial literature, and various automated retrieval systems. Should be taken in conjunction with a course requiring a research paper. Fifty-item bibliography required.

Fall and spring, 2 credits

SBS 236 The Vietnam Experience

An examination of the Vietnam War. The factors that motivated the crucial military, political, and personal decisions of the time will be examined.

Prerequisites: Two social and behavioral sciences courses

Alternate years, 3 credits (not offered in 1989-90)

SBU 101 Stony Brook 101

A course intended to integrate first-semester Stony Brook freshmen and transfer students into the college community by providing information about the university and a forum for discussion of values, intellectual and social development, and personal as well as institutional expectations. Satisfactory/Unsatisfactory grading only.

Prerequisite: First-semester freshman or transfer student, according to section

Fall and spring, 1 credit

SBU 110 Learning Strategies (Formerly INT 101)

A remedial course for students with learning problems. Students will be taught how to take notes; improve memory; develop listening, reading, and writing skills; prepare for and take examinations; use the library; and develop individual compensatory strategies. Satisfactory/Unsatisfactory grading only. May be repeated once. Does not count toward graduation.

Prerequisite: Permission of instructor and Resource Center staff

Alternate years, 1 credit (not offered in 1989-90)

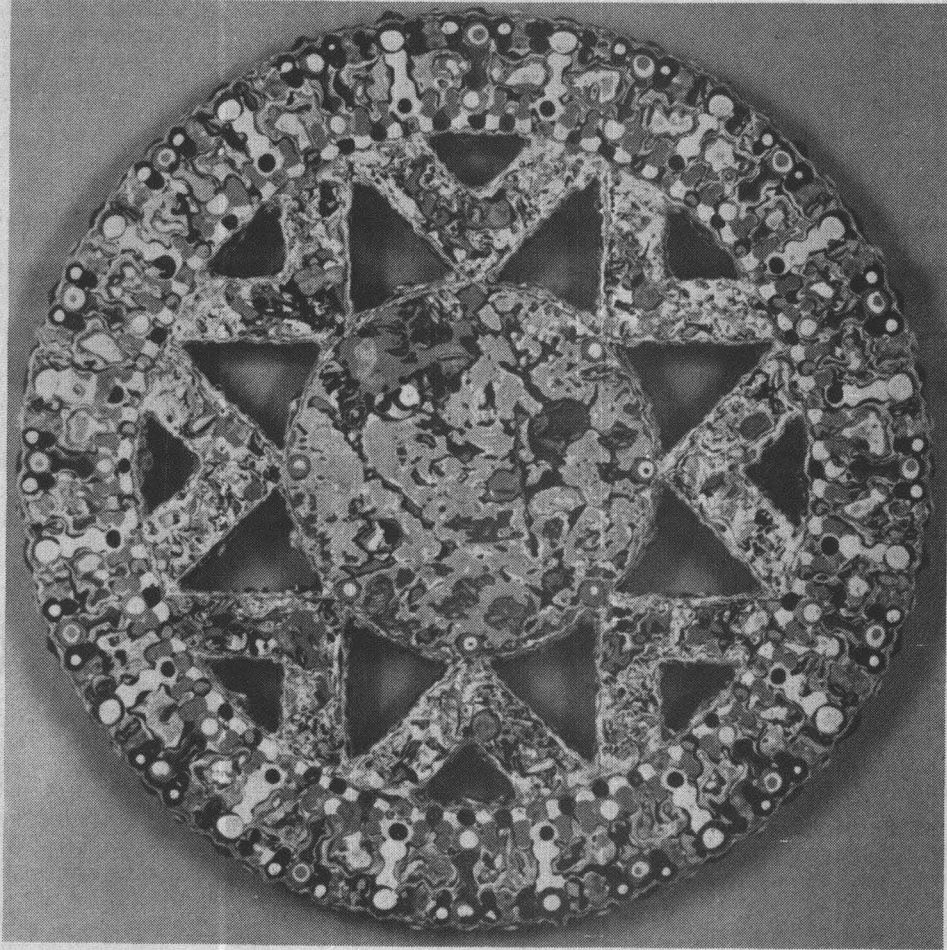
SBU 180 Women's World, Women's Place: An Introduction to the University for Re-Entry Students (Formerly INT 180)

Designed to help re-entry students adjust to school and, specifically, to Stony Brook. After meeting with counselors, librarians, instructors from the Mathematics Learning Center, and others for several weeks, students will turn to reading and writing in women's studies as a focus for reviving academic skills. Topics of concern to women will be studied from both an historical and a contemporary perspective. Discussion will be encouraged, as will the writing of several short papers, including a research paper. Written work will receive careful guidance and criticism.

Prerequisite: Open only to students returning to school after at least five years of absence

Fall, alternate years, 3 credits (not offered in 1989-90)

College of Arts and Sciences



College of Arts and Sciences

Degree Requirements

All candidates for the Bachelor of Arts or Bachelor of Science degree from the College of Arts and Sciences must satisfy all University Core Curriculum and other degree requirements and the College Distribution and Proficiency Requirements below.

College Distribution Requirements

The distribution area elective requirements (i.e., *Category D* of Humanities and Fine Arts, and *Category C* of Natural Sciences and Mathematics and of Social and Behavioral Sciences), but *not* the other University Core Distribution Requirements, may be filled by AP, CPE, CLEP, or Challenge credit or other approved credit by examination. Only the designators listed for each area may satisfy these requirements. *Courses in which the grade of P is received may not be used to satisfy College Distribution Requirements, nor may courses numbered 500 or higher.*

In each distribution area the first course transferred at matriculation satisfies the elective requirement. Each additional transferred course may substitute for one University Core Curriculum course in the same distribution area.

After matriculation at Stony Brook, only the elective requirement in each distribution area and the Study of Another Culture requirement may be satisfied with a course taken at another institution.

Courses taken under the auspices of a college while the student was in high school and accepted as transfer credits may substitute for Core Distribution Requirements only if such courses were taken on the campus of an accredited college and taught by members of the college faculty.

Humanities and Fine Arts

Four courses of at least three credits each, including the requirements of the University Core Curriculum. See University Core Distribution Requirements for courses that satisfy categories A, B, and C; in completing these three categories students must choose courses with at least two different designators.

Category A: Basic Concepts and History

Category B: Methods of Interpretation and Analysis

Category C: Focused Studies

Category D: Humanities and Fine Arts Elective

One additional course of three or more credits in the humanities or fine arts chosen from among the offerings in art (ARH, ARS), classics (CLS), comparative literature (CLT), dance (DAN), English (EGL—but not EGC), foreign languages (ARB, CHI, EEL, FLA, FRN, GER, GRK, HBW, IRH,

ITL, JPN, KOR, LAN, LAT, POR, PSH, RUS, SKT, SLN, SPN, SWE—but not courses numbered 101 or 111-116), humanities interdisciplinary (HUM), music (MUS), philosophy (PHI), religious studies (RLS), and theatre arts (THR). Also, Incoming Student Seminars designated ISH, Africana studies courses designated AFH, Judaic studies courses designated JDH, Korean studies courses designated KRH, women's studies courses designated WNH, and certain Health Sciences Center courses (HAS 290, HMC 200, 331, 361). Courses with these designators listed under Core Curriculum Humanities and Fine Arts categories A, B, and C and Natural Sciences category B, if not used for that requirement, may be used for category D.

Natural Sciences and Mathematics

Four courses of at least three credits each, including the requirements of the University Core Curriculum. See University Core Distribution Requirements for courses that satisfy categories A-1, A-2, and B.

Category A-1: Introduction to the Biological Sciences

Category A-2: Introduction to the Physical Sciences

Category B: Science and Society

Category C: Natural Sciences and Mathematics Elective

One additional course of three or more credits in natural science or mathematics chosen from among the offerings in astronomy (AST), atmospheric sciences (ATM), biological sciences (BIO), chemistry (CHE), earth and space sciences (ESS), geology (GEO), interdisciplinary natural sciences (SCI), marine sciences (MAR), mathematics (MAT or MAE), physical anthropology (ANP), physics (PHY), applied mathematics and statistics (AMS), computer science (CSE), and engineering (ESC, ESE, ESG, ESM, and EST 100, 194, 310, and 320). Also, Incoming Student Seminars designated ISN. Courses with these designators listed under Core Curriculum Natural Sciences categories A-1, A-2, and B—except EST courses not specifically listed in this paragraph—may be used for category C.

Social and Behavioral Sciences

Four courses of at least three credits each, including the requirements of the University Core Curriculum. See University Core Distribution Requirements for courses that satisfy categories A and B; in completing these two categories students must choose at least two different designators.

Category A: Introduction to the Social and Behavioral Sciences

Category B: Methods and Theory

Category C: Social and Behavioral Sciences Elective

One additional course of three or more credits to be chosen from among the offerings in anthropology (ANT—but not ANP), economics (ECO), history (HIS), interdisciplinary social sciences (SBS and SSI—but not 283), linguistics (LIN—but not LAN), political science (POL), psychology (PSY—but not 283), sociology (SOC). Also, Incoming Student Seminars designated ISS, Africana studies courses designated AFS (but not 283), Judaic studies courses designated JDS, Korean studies courses designated KRS, and women's studies courses designated WNS. Courses with these designators listed under Social and Behavioral Sciences categories A and B and Natural Sciences category B, if not used for that requirement, may be used for category C.

Study of Another Culture

See p. 49 for details.

Other Distribution Credits

Sometimes Study Abroad (FSY, FSI) courses may satisfy area elective requirements. These must be evaluated for each student individually.

College Skills Requirements

Writing Requirements

See p. 50 for details.

Quantitative Literacy

See p. 50 for details.

Proficiency in a Foreign Language

The language requirement is set at one year of elementary college work in a foreign language. It may be satisfied in any one of the following ways:

1. By having passed while in high school the New York State Regents examination in a foreign language with a grade of 75 or higher. In the absence of a Regents score, a score of 75 or higher on the third-level high school language New York City Competency Test will satisfy foreign language proficiency.
2. By having passed the College Entrance Examination Board Achievement Test in a foreign language with a grade of 525 or higher.
3. By passing a Stony Brook proficiency examination in a foreign language.

Note: Students who wish to fulfill the foreign language proficiency requirement by examination may do so by Challenge examination for a language course numbered 101, 112, 191, or higher. When the Challenge examination is used to fulfill the foreign language proficiency requirement, no credit will be awarded unless the student meets all rules and regulations outlined in

"Guidelines for the Stony Brook Challenge Program," which is available in academic departments and the Center for Academic Advising.

4. By enrolling in and passing with a grade of C or higher a foreign language course numbered 101, 112, 191, or higher. (Students who elect to use the P/NC grading option will not satisfy the requirement.)
5. By obtaining transfer credit in a foreign language course at the second semester introductory level with a grade of C or higher.

Note that literature and culture courses taught in English translation under the auspices of the foreign language departments do not satisfy the foreign language proficiency requirement.

Foreign students whose native language is not represented in the university's curriculum have fulfilled the foreign language proficiency requirement if their secondary school and previously attended university transcripts show a total of four years of formal study of their native language and literature.

Degree Programs

Two different degree programs leading to the Bachelor of Arts or Bachelor of Science degree are open to students in the College of Arts and Sciences. (For information about degree programs in the College of Engineering and Applied Sciences, see that section of this *Bulletin*.) Before selecting a degree program students may consult an advisor in the Center for Academic Advising. The two choices of degree programs are:

The Departmental Major

This program consists of study concentrated in one of the academic departments of the College of Arts and Sciences. It allows the student to explore in some depth the content, methods, and achievements of a given academic discipline. Departmental requirements and course offerings are listed in detail, and in alphabetical order by department, in this chapter of the *Bulletin*. They should be carefully considered and discussed with a member of the department.

The Interdisciplinary or Interdepartmental Major

This choice of degree program allows the student to investigate an area of concern that transcends the limits of individual academic departments by combining appropriate courses from three or more disciplines to create an integrated core of study directed toward a special goal. Interdisciplinary programs are described in detail in this chapter of the *Bulletin* under individual

headings alphabetically arranged. For further information consult the Center for Academic Advising or the director of the program.

Special Programs

The Academic Minor

An academic minor is a specified sequence of courses totaling between 18 and 24 credits, including at least nine credits of upper-division work, that students may choose to follow as a way of organizing electives. It does not lead to a degree. Participation in a minor is voluntary and includes not only completing the required sequence but also consulting the minor coordinator initially and as work in the minor proceeds. Although minors are administered by regular departments or interdisciplinary programs, some include subject matter that cuts across several departments, programs, and colleges. Minor requirements are described in detail in this chapter of the *Bulletin* in the alphabetical listing of departments and programs. In addition, the College of Engineering and Applied Sciences and the Health Sciences Center each offer a minor for Arts and Sciences students. See p. 207 and p. 216. For further information consult the minor coordinator or the Center for Academic Advising.

Independent Study

Within each of the two degree programs described above, a student may wish to undertake independent study. This may be done either through Directed Readings and Research under departmental auspices or through the URECA Program. (See p. 60 for restrictions on total credit for independent study.)

Through procedures established by departments, a student may enroll for up to six credits of directed readings or research in a single department in a single semester. More than six credits are permissible if they are in more than one department. Interdisciplinary projects and projects entailing more than six credits are carried out under the URECA Program (see p. 54).

If the student wishes to use a URECA project as part of a departmental or interdisciplinary major, written approval must be secured through departmental channels. Independent study projects may be distributed throughout the undergraduate years, although in most cases students should complete the College Skills Requirements and three-quarters of the Distribution Requirements before proposing independent study. For further information consult the appropriate department's director of undergraduate studies or the URECA Program director.

Teacher Preparation

The university offers programs to prepare students to become teachers in secondary schools. Students who complete Stony Brook's approved sequences are eligible for provisional teacher certification by New York State. They should plan to complete the requirements of either a departmental major or an interdisciplinary major and consult their major (or prospective major) department for assistance as early as the second semester of the freshman year. Teacher preparation programs are offered in the following secondary school subjects: biology, chemistry, earth science, English, foreign languages (French, German, Italian, Russian, and Spanish), mathematics, physics, and social studies. The university also offers a teacher preparation program in Teaching English to Speakers of Other Languages (TESOL).

Certification is not automatic. Upon successful completion of the program, the student must apply for state certification by completing the necessary application forms available from the teacher certification officer.

Freshman Seminars and Honors Courses

Several academic departments offer honors courses for freshmen who want a college experience that provides close intellectual interaction among the students and with the instructor. Descriptions of these courses appear among the sponsoring departments' 100-level courses in the alphabetical listing of departments and programs following this introduction to the College of Arts and Sciences. By choosing one of these courses students contribute to the quality of their own academic experience and set challenging educational expectations for themselves that will affect future college work. Freshmen admitted to Stony Brook as members of the Honors College receive preference in enrollment.

The Incoming Student Seminars are a special group of limited-enrollment courses offered from time to time to freshman students. They afford new students an opportunity to be introduced to intellectual inquiry in a small group, to meet at least one faculty member on a personal basis, and to improve basic reading, discussion, and writing skills at the outset of their college careers. Descriptions of these seminars, which in most cases do not appear in the *Bulletin*, (but see ISN 123, p. 56), are made available to freshmen for those semesters in which they will be offered.

Undergraduate Teaching Assistantships

In many departments upper-division students who have demonstrated mastery of the subject matter are selected to serve as undergraduate teaching assistants for

credit. The undergraduate teaching assistant normally must have completed and excelled in the course being taught and is expected to know more throughout the semester than the students—not simply to know the same material better. Undergraduate teaching assistants enroll in the department's teaching practicum, numbered 475 or 476, designed to broaden their knowledge of the subject matter of the course and to instruct them in techniques of teaching and evaluation. They may not be given credit for independent reading or research for teaching assistance nor may they register in the course in which they are assisting. (Upon discovery of the awarding of such credit—at any time—it will be removed from the student's record.) Limits on credit earned by serving as an undergraduate teaching assistant are described in "Course Credit and Prerequisites," below.

Undergraduate teaching assistants may neither proctor nor prepare mid-term or final examinations, nor may they see the final version of any examination before it is given. They may not grade any written work, although they may be assigned to read and criticize such work. Exceptions to this rule may be made only by special permission of the Vice Provost for Undergraduate Studies. The assignment of grades remains the responsibility of the faculty member and cannot be delegated to undergraduate teaching assistants. All teaching faculty with either graduate or undergraduate teaching assistants must inform the students in their classes of the status of each teaching assistant.

Course Credit and Prerequisites

1. *Repeatable Courses.* Only courses stating in the description (or in a note preceding a group of courses) that they may be repeated may be taken more than once for credit.
2. *Instructor's Prerogatives Regarding Prerequisites:* Certain courses may be taken only with the permission of the instructor or of the department; this is listed as a prerequisite for the course. For courses with specific course prerequisites, "or permission of instructor" is always understood. That is, students who think they have acquired the knowledge necessary for the course through means other than taking the listed prerequisites may ask the instructor's permission to take the course. Instructors have the option of deregistering students who have enrolled without proper prerequisites or permission.
3. *Undergraduate Teaching Practica.* Students may earn three credits in a department's course for undergraduate teaching assistants numbered 475. They may later enroll in a 476 course in the same department, if available, or in a second 475 course in a different

department. No more than six credits out of 120 may be earned through being an undergraduate teaching assistant. (See "Undergraduate Teaching Assistantships," above.)

4. *Limits on Independent Study.* A total of 30 credits of independent work, including all credits in departmental readings and research, Internship Program and URECA Program courses, may be offered toward the degree requirement of 120 credits. These include arts and sciences courses numbered 273, 444-449, and 481-489, similar courses in other units, and transferred independent study credit. In any given semester during the academic year a student may earn up to six credits for independent work in a single department (except for internships, which may be taken for up to 12 credits) or up to 12 credits in the URECA Program. During the summer a student may earn three credits in a single department in each term or eight credits in the URECA Program for the entire summer. (See "Independent Study," p. 59.)

In some cases students may receive upper-division transfer credit for independent study work completed for credit at another college. Such independent study work must be evaluated and formally approved by the chairperson or director of the appropriate Stony Brook department or program as meeting the particular criteria for comparable work under the equivalent independent study courses offered by that department or program.

5. *Permission to Take Graduate Courses.* Upper-division students with superior academic records may take graduate courses with the permission of the Vice Provost for Research and Graduate Studies, or continuing education courses with the permission of the dean of the School of Continuing Education (but not teaching practica, readings, research, or other independent study) for undergraduate credit. Permission to do so should be sought through the instructor, the chairperson of the department offering the course, and either the Graduate School or the School of Continuing Education as appropriate. It is also strongly recommended that students discuss their plans to take graduate or continuing education courses with their advisors in order to assess whether the credits will be applicable to their degree requirements.

A. Courses numbered 500 or higher cannot be used to fulfill distribution or proficiency requirements for undergraduates, although they may be used for certain major requirements.

In the course of his or her academic career at Stony Brook no student may count more than a total of six graduate (including continuing education) credits toward the bachelor's degree. (The B.A./M.A. Program in Public Affairs and the Baccalaureate/Master's Degree Program in Government, Nonprofit, and Enterprise Management are exceptions to the latter rule.)

B. Undergraduates may request permission to register for graduate or continuing education courses by completing form SUSB 3065, which is available from the Graduate School or the School of Continuing Education, and, after obtaining the necessary signatures, submitting that form together with a copy of their unofficial transcript to the same office for final approval. The approved form SUSB 3065 must then be presented to the Office of Records when registering for the appropriate graduate or continuing education course.

6. *Activity-Related Courses.* AFS, PSY, and SSI 283 and all 100-level physical education courses have been designated "activity-related" courses. Students are limited to a total of nine credits in activity-related courses out of the 120 credits required for graduation. Of these nine credits no more than four credits may be in 100-level physical education courses.
7. *Physical Education Courses.* In addition to the limit on 100-level PEC courses in item 6, no more than ten credits in all PEC courses may be offered toward the degree requirement of 120 credits.
8. *Remedial/Developmental Courses.* The following courses are designated as remedial/developmental: AIM 102, AIM 103, MAP 101, MAP 102, MAP 103, SBU 110. Credits from these courses will count toward the minimum credit workload for each semester, but they may not count toward the 120 credits needed for graduation.
9. *Limits on Studio and Performance Courses.* The New York State Board of Regents requires that out of the 120 credits required for the baccalaureate degree at least 90 credits must be in liberal arts and sciences courses. Certain studio and performance courses are excluded from those 90 credits; they are identified in the Art, Music, and Theatre Arts sections.

Fulfillment of Major Requirements

When major requirements are changed, continuing students in the College of Arts and Sciences have the option of fulfilling the new requirements or of fulfilling those specified in the *Undergraduate Bulletin* and

Undergraduate Bulletin Supplement current at the time they completed 45 credits. Students who have completed fewer than 45 credits when the revisions are first published must satisfy the new requirements, unless the major department specifies otherwise.

Transfer students who entered Stony Brook with 45 or more transfer credits have the option of fulfilling the new requirements or of fulfilling the requirements specified in the *Undergraduate Bulletin* and *Undergraduate Bulletin Supplement* in effect when they matriculated.

Where course offerings have changed so that the required courses that would apply to particular students are no longer in the curriculum, the department will designate comparable alternatives to enable such students to complete the major without delaying their graduation.

Undergraduate Numbering System

- 100-199 Introductory courses; appropriate for and generally taken by freshmen.
- 200-299 Intermediate courses; appropriate for and generally taken by sophomores.
- 300-399 Upper-division courses; appropriate for and generally taken by juniors and seniors.
- 400-499 Special upper-division courses such as seminars, directed readings and research, and teaching practica; appropriate for and generally taken by juniors and seniors. Certain 400-level courses for seniors only are so specified.

Courses with hyphenated numbers (e.g., HIS 495-496) are yearlong courses. Students are obliged to complete both semesters in order to receive credit for the first semester.

Renumbered Courses

The notation "(Formerly ABC 000)" after the course number and title indicates that the course designator or number *only* has been changed and that the former course is the same as the present one. Therefore, a student who took the course under its former number or designator may use it to meet any university, college, or major requirement for which the present course would apply. However, the course may not be repeated for credit.

Interdisciplinary Program in Africana Studies

Program Director: Amiri Baraka

Faculty

Amiri Baraka, Professor: Playwriting; pan-Africanism; contemporary affairs; literature.

Floris Barnett Cash, Assistant Professor, Ph.D., State University of New York at Stony Brook: U.S. social and political history; Afro-American history; Latin American history.

William McAdoo, Assistant Professor, Ph.D., University of Michigan: U.S. urban, social, and institutional history; Afro-American history.

Leslie H. Owens, Associate Professor, Ph.D., University of California, Riverside: Afro-American social history; black family; civil rights movement; slavery.

Adjunct Faculty

Estimated number: 1

Teaching Assistants

Estimated number: 2

The Africana studies program is interdisciplinary in scope and addresses itself to the experiences of persons of African descent throughout the world. It is designed to explore African civilizations and their influences on other parts of the "Black Diaspora." Issues within the black international communities in Africa, the United States, and elsewhere will be examined from both historical and contemporary perspectives. Particular attention will be focused on political concepts, cultural development, legal relations, and social theories.

Requirements for the Major in Africana Studies

The major in Africana studies leads to the Bachelor of Arts degree. All courses for the major must be taken for a letter grade.

	Credits
1. AFS 101, 102 Themes in the Black Experience	6
2. AFH 206 Great Books of the Black Experience or AFH 249 African-American Literature and Music in the 19th and 20th Centuries	3
3. AFS 283 Community Service	3
4. Two courses selected from AFS 200, 225, 239, 240, 251, and 275 in consultation with a program advisor	6
5. Four upper-division courses other than AFH or AFS 447 and 487	12

6. AFH or AFS 447 Directed Readings or AFH or AFS 487 Directed Research to be taken in the junior or senior year 3
7. Nine credits in a related discipline 9
8. Upper-Division Writing Requirement
A writing committee in the major will evaluate portfolios of writing samples submitted by students by the end of their junior year. The portfolios can be accumulated by students using materials (term papers) from previous coursework. The portfolio should consist of at least six papers, four of which should be from Africana studies courses. Rejected portfolios are to be reworked by students (perhaps with help from the Writing Center) until satisfactory.

Total 42

Requirements for the Minor in Africana Studies

The minor in Africana studies is intended to reach students interested in exploring aspects of the Black Experience in ways that relate to their own major field of study. It involves a regular sequence of lower- and upper-division courses to give the student a well-balanced analysis of the varied aspects of the black past. All courses for the minor must be taken for a letter grade.

	Credits
1. AFS 101, 102 Themes in the Black Experience	6
2. One course selected from AFS 225, 239, and 275	3
3. One course, numbered 200 or higher, selected in consultation with the minor coordinator	3
4. Three courses selected from upper-division courses other than AFH or AFS 447 and 487	9
5. Either AFH or AFS 447 Directed Readings or AFH or AFS 487 Directed Research to be taken in the junior or senior year	3
	Total 24

Notes Pertaining to the Major and to Africana Studies Courses:

No more than 12 of the 33 Africana studies credits may be taken at another institution (exceptions made in the case of planned foreign study). Appropriate choices to satisfy the College humanities and fine arts elective requirement are indicated by the designator AFH. Appropriate choices to satisfy the College social and behavioral

sciences elective requirement are indicated by the designator AFS (except AFS 283).

Courses

See p. 60, Course Credit and Prerequisites, and p. 61, Undergraduate Numbering System.

AFS 101, 102 Themes in the Black Experience I, II

An historical survey of the experience of people of African descent. This course will examine the similarities and differences among the lifestyles of black people in Africa, the Caribbean, and America, with particular emphasis on the United States. The first semester will treat themes to 1865. The second semester will treat themes from 1865 to the present. Core Courses satisfying Social and Behavioral Sciences Category A, Group 3.

Fall (101) and spring (102), 3 credits each semester

AFS 200 American Attitudes Toward Race

An historical examination of the growth and development of racism in America. The focus will be on black Americans and their relationships with the American system, its institutions, and culture. References will be made to other ethnic groups in order to give balance to social conditions and attitudes shaping American society.

Fall or spring, 3 credits

AFH 206 Great Books of the Black Experience

An exploration of some of the key writings—from autobiographies to novels, etc.—important to becoming familiar with central lines of thought and interpretation in the larger Black Experience. Focus and readings will vary depending on each semester's emphasis.

Prerequisite: Sophomore standing
Fall, alternate years, 3 credits (not offered in 1990-91)

AFS 225 The African Revolution

An exploration of those events that have been the basis of change in Africa, drawing from social, historical, and political perspectives; the role of Africa in world affairs; and the events that have shaped the internal African national movements and liberation struggles, both past and present. A Core Course satisfying Social and Behavioral Sciences Category A, Group 4, and Study of Another Culture.

Fall, 3 credits

AFS 239 Introduction to the Caribbean Experience

An introduction to the political economy of contemporary Caribbean societies with emphasis on the historical roots of their present underdevelopment. A Core Course satisfying Social and Behavioral Sciences Category A, Group 4, and Study of Another Culture.

Fall, 3 credits

AFS 240 Issues in Caribbean Society

An analysis of the process of social change in the English, Spanish, and French Caribbean with special emphasis on those societies undergoing rapid transformation. A Core Course satisfying Social and Behavioral Sciences Category A, Group 4, and Study of Another Culture.

Prerequisites: AFS 101, 102
Spring, 3 credits

AFH 249 African-American Literature and Music in the 19th and 20th Centuries

A general and detailed look at black literature and music and its importance for literature and music generally in the 19th and 20th centuries. Topics will include Country Blues, City Blues, New Orleans music, Rag and Boogie Woogie, Big Band, Be-Bop, and the new music of the 1960s and beyond; Frederick Douglass, folk literature, the slave narratives, Langston Hughes, and James Baldwin.

Spring, alternate years, 3 credits (not offered in 1990-91)

AFS 251 Education of the Afro-American in America

An analysis of significant research and publications on the education of the Afro-American in America. Emphasis will be placed on social, economic, political, and psychological factors that have conditioned educational opportunities for Afro-American citizens. Components of the present social crisis in America will be examined.

Prerequisite: Permission of instructor
Fall, 3 credits

AFS 275 Black Women and Social Change: A Cross-Cultural Perspective

A cross-cultural survey of the history of black women in the context of the struggles for social justice in the Caribbean (English- and Spanish-speaking), Africa, and the United States. Several major topics will be covered: the slave resistance and the anti-slavery movement; the anti-colonial struggle in Africa and the Caribbean; the trade union movement in the United States and Africa; the struggle against underdevelopment in Cuba, Puerto Rico, and Jamaica; and the anti-apartheid movement in South Africa.

Spring, 3 credits

AFS 283 Community Service

Through field experience, readings, research, and discussion, students will focus on a social and educational problem relating primarily to the Black Experience. Specific programs may include tutoring in a prison setting, working with children from low-income families, and other projects to be announced. Does not count toward the distribution requirement in social and behavioral sciences. Satisfactory/Unsatisfactory grading only.

Prerequisite: Permission of instructor
Fall or spring, 3 credits

AFS 300 Blacks in the City

An examination of the urban experience of black Americans, with attention paid to the development of inner cities and the social policy that has helped to shape the urban consciousness of blacks in the 20th century.

Fall, 3 credits

AFS 319 The Politics of Race

An analysis of political concepts often associated with racism and the tracing of the origins of the concept of race. Three forms in which racism manifests itself today will be identified and discussed: overt, covert, and reactive racism. Examples of these three forms and the groups involved with them will be identified and discussed, showing the similarities and differences where they exist.

Prerequisites: Three courses in the social sciences
Fall, 3 credits

AFS 325 The Civil Rights Movement

A detailed study of the movement for civil rights from its origins, examining the establishment of the NAACP, race relations between whites and blacks since 1900, the role of the Supreme Court and the federal government, and the turn to militancy in the 1950s and after. Crosslisted with HIS 325. A Core Course satisfying Social and Behavioral Sciences Category A, Group 2.

Fall, 3 credits

AFH 329, 330 Pan-African Literature I, II

An examination of the cultural themes of Pan-Africanism and negritude, drawing on a selection of writers from the United States, Africa, and the Caribbean. The course will treat the development, diffusion, and significance of these themes. It will involve intensive consideration of selected literary works of African and Afro-American expression.

Prerequisites: Two courses in literature
Fall (329) and spring (330), alternate years, 3 credits each semester (not offered in 1989-90)

AFS 335 Contemporary African Problems

An investigation into the nature of African societies by studying the variety of African political, social, and traditional forms necessary to understanding developments in the 19th and 20th centuries. Emphasis will be on some of the long-standing problems essential to understanding the diversity of ideas and people in the African scene. Crosslisted with POL 335.

Prerequisites: Two AFS or POL courses
Fall, 3 credits

AFS 337 The Politics of Africa

A study of nationalism, political thought, and political institutions in Africa. Consideration is given to the quest for unity, the problems of liberation, and the political implications of social change. Crosslisted with POL 337.

Prerequisites: Two AFS or POL courses
Spring, 3 credits

AFS 360 Black Social Commentary

A study of black responses to the social order in America. The course will concentrate on the various ways black people have conceptualized and described their condition. Particular attention will be paid to the solutions proposed by black spokespersons during various historical eras.

Prerequisites: Three courses in the social sciences
Fall, 3 credits

AFS 370 The Black Family

The black family in historical perspective. The nature and structure of that family, the obstacles that it has faced, and its interrelationships with the black community.

Spring, alternate years, 3 credits (not offered in 1990-91)

AFS 372 Contemporary Political Thought and the Black Community

A critical analysis of the major architects of black political consciousness and their movements in the context of their distinctive historical development. Emphasis will be on the intellectual and

ideological ferment of the 1920s (DuBois, Randolph, Garvey, *et al.*) and the 1960s (King, Muhammad, Malcolm, Karenga, Jones, Fanon, Black Panther Party, *etc.*).

Prerequisite: Permission of instructor
Spring, 3 credits

AFS 375 Slavery

The historical experience of blacks in slavery with emphasis on the American South and with comparative references to slave systems as they developed in the western hemisphere.

Spring, 3 credits

AFH, AFS 421, 422 Topics in Africana Studies

An examination of a selected topic in the Black Experience to be announced each term. The designator AFH will be assigned to topics in the humanities area; AFS will be assigned to topics in the social sciences area. May be repeated for different topics.

Schedule to be announced, 3 credits each semester

AFH, AFS 447 Readings in Africana Studies

Individually supervised reading in selected topics in the Black Experience. The designator AFH will be assigned to topics in the humanities area; AFS will be assigned to topics in the social sciences area. May be repeated once.

Prerequisite: Permission of program
Fall and spring, 1 to 3 credits

AFS 463, 464 The Media and Black America I, II

An historical examination in a seminar format of the major media characterizations of black Americans and the Black Experience, and the impact of these portrayals on American society at large. The roles of newspapers, books, magazines, plays, radio, movies, television, and advertisements will be studied. Students will have the opportunity to develop hands-on experience and technical skills in video filming and production. AFS 463 covers the period from the pre-Civil War era to 1920; AFS 464, from 1920 to the present.

Prerequisites to AFS 463: Two AFS courses; permission of instructor
Prerequisites to AFS 464: AFS 463; permission of instructor
Fall (463) and spring (464), 4 credits each semester

AFH, AFS 487 Research in Africana Studies

Individual research projects in the Black Experience carried out under the direct supervision of a faculty member. The designator AFH will be assigned to projects in the humanities area; AFS will be assigned to projects in the social sciences area. May be repeated once.

Prerequisite: Permission of program
Fall and spring, 1 to 3 credits

AFS 490 Legal Process and Social Structure

A critical evaluation of the administration of justice, legal institutions, and legal process in relation to prevailing social structure.

Prerequisite: Permission of instructor
Spring, 3 credits

Department of Anthropology

Chairperson: David Gilmore
Director of Undergraduate Studies: William Arens

Faculty

William Arens, Professor, Ph.D., University of Virginia: Africa; social anthropology.

Nancy Bonvillain, Associate Professor, Ph.D., Columbia University: Native Americans; linguistics; social anthropology.

Pedro Carrasco, Professor, Ph.D., Columbia University: Mesoamerica; social anthropology; culture history.

Randolph Donahue, Assistant Professor, Ph.D., Michigan State University: Palaeolithic archaeology; lithic analysis.

David Gilmore, Professor, Ph.D., University of Pennsylvania: Mediterranean area; social anthropology.

Paula Brown Gilck, Professor, Ph.D., University of London: Oceania; social anthropology.

Frederick Grine, Associate Professor and Director of Doctoral Program in Anthropological Sciences, Ph.D., University of Witwatersrand: Physical anthropology; human evolution.

David Hicks, Professor and Director of the M.A. Program, Ph.D., University of London; D. Phil., Oxford University: Indonesia; social anthropology.

Theodore R. Kennedy, Associate Professor, Ph.D., Princeton University: North America; Caribbean area; social anthropology.

Lawrence Martin, Assistant Professor, Ph.D., University of London: Ape and human evolution; dental anthropology.

Dolores Newton, Assistant Professor, Ph.D., Harvard University: South America; material culture.

June Starr, Associate Professor, Ph.D., University of California, Berkeley: Middle East; social anthropology.

Elizabeth C. Stone, Associate Professor, Ph.D., University of Chicago: Near East; Old World archaeology.

Phil C. Weigand, Professor, Ph.D., University of Southern Illinois: Mesoamerica; archaeology; culture history.

Adjunct Faculty

Estimated number: 4

Teaching Assistants

Estimated number: 4

The undergraduate program introduces the student to the general field of anthropology, its branches, its theories and methods, and its relation to the other social sciences, the humanities, and the natural sciences. The curriculum emphasizes the fields of cultural and social anthropology, archaeology, and physical anthropology, and includes offerings in legal and medical anthropology and linguistics.

Requirements for the Major in Anthropology

The major in anthropology leads to the Bachelor of Arts degree. Students must include at least 18 credits of upper-division courses in the major. All courses used to meet the major requirements must be taken for a letter grade and passed with a grade of C or higher. No transfer credits lower than C may be applied toward the major requirements. The program consists of:

	Credits
A. Study within the Area of the Major	
1. Two introductory courses selected from ANT 102, 103, 104, 110, ANP 120	6-7
2. One ethnographic area course	3
3. One topical course	3
4. ANT 300 Approaches to Anthropological Theory	3
5. Six additional anthropology courses	18
6. One 400-level seminar chosen from ANT 401, 402, 411, ANP 403 (Note: ANT 447, 487, 488, 495, 496, and ANP 447, 487, 495, 496 may not be used to satisfy this requirement.)	3
B. Upper-Division Writing Requirement	
Anthropology majors must achieve an evaluation of S (Satisfactory) for a paper written for a 300-level ANT or ANP course. This paper must be submitted to the director of undergraduate studies during the student's junior year and will be assessed by the department's Upper-Division Writing Requirement committee for advanced writing skills appropriate to anthropology majors. The writing assessment is in addition to the evaluation of the paper for the course.	
Total	36-37

Sub-Fields of Study

Social and Cultural Anthropology

Ethnographic area courses: ANT 201, 203, 209, 219, 230, 240, 310. Also ANT 391 and 401 when the topic is applicable.

Topical courses: ANT 102, 103, 110, 160, 215, 250, 255, 300, 333, 351, 352, 354, 356, 361, 363, 367, 411. Also ANT 391 and 401 when the topic is applicable.

Archaeology

ANT 104, 209, 217, 241, 257, 290, 321, 358, 393, 402.

Physical Anthropology

ANP 120, 210, 321, 330, 340, 403, 404.

Honors Program in Anthropology

The honors program is designed for students preparing to enter a graduate program in anthropology. It is open to anthropology majors in their junior or beginning senior year who have an excellent academic record (3.0 G.P.A. overall) and a G.P.A. of 3.5 or higher in anthropology courses. Qualified students are eligible to enroll in the anthropology honors program at, but preferably before, the beginning of their senior year.

The student, after asking a faculty member to be a sponsor, must submit a proposal indicating the topic and procedure of the planned research to the departmental honors committee through the director of undergraduate studies. The supervising faculty member must also submit a statement supporting the student's proposal and indicating the merit of the planned research. This must ordinarily be done in the semester prior to the beginning of the student's senior year.

Students will register for ANT or ANP 495 in the first semester of their senior year and conduct research for the project. They will register for ANT or ANP 496 during the last semester of their final year. They must submit a draft of their thesis to their faculty sponsor by April 1 for May graduation or by November 1 for December graduation. Students must submit an honors thesis of 20 pages or more of fully referenced material to the director of undergraduate studies no later than Monday of the penultimate week of classes (excluding final examination week). Each thesis will be read by two anthropologists and a member of another department, as arranged by the director of undergraduate studies. If the paper is judged to be of sufficient merit and the student's record warrants such a determination, the department will recommend honors. The program consists of:

	<i>Credits</i>
1. Completion of all requirements for the major in anthropology with a G.P.A. of 3.5 or higher in anthropology courses	36-37
2. ANP 495 and 496, or ANP 495 and 496	6
3. The honors thesis	—
Total	42-43

Requirements for the Minor in Anthropology

The minor in anthropology is designed for students majoring in other fields who wish to take anthropology courses relevant to their interests. The student must choose one of the tracks listed below. At least nine credits must be in upper-division courses. All courses used to satisfy minor requirements must be taken for a letter grade and passed with a C or higher. No transfer credits lower than C may be applied toward the minor requirements. No more than one directed readings or research course may be used.

General Anthropology

	<i>Credits</i>
1. Two introductory courses chosen from ANT 102, 103, 104, 110, ANP 120	6-7
2. One social and cultural anthropology course	3
3. One archaeology course	3
4. One physical anthropology (ANP) course	3
5. Two anthropology elective courses	6
Total	21-22

Social and Cultural Anthropology

	<i>Credits</i>
1. ANT 102 or 103	3
2. ANT 230	3
3. ANT 240	3
4. ANT 300	3
5. One ethnographic area course in social and cultural anthropology	3
6. One topical course in social and cultural anthropology	3
7. One elective course in social and cultural anthropology	3
Total	21

Archaeology and Cultural History

	<i>Credits</i>
1. ANT 104	3
2. Six courses in archaeology, at least five of which must be ANT courses; one may be designated HIS with the approval	—

of the director of undergraduate studies	18
Total	21

Physical Anthropology

	<i>Credits</i>
1. ANP 120	4
2. ANP 321	3
3. ANP 330	3
4. Three additional ANP courses	9
5. One course from approved list of ARS, BIO, GEO, and HBA courses	2-3
Total	21-22

Courses

See p. 60, Course Credit and Prerequisites, and p. 61, Undergraduate Numbering System.

Courses designated ANP satisfy the College natural sciences and mathematics elective requirement. Courses designated ANT are appropriate for the elective requirement in social and behavioral sciences.

ANT 102 Introduction to Cultural Anthropology

The analysis of social and cultural topics such as kinship, family, marriage, politics, and religious systems, with an emphasis on their particular expression in non-Western societies. A Core Course satisfying Social and Behavioral Sciences Category A, Group 3.

Fall and spring, 3 credits

ANT 103 Honors Introduction to Cultural Anthropology

An enriched introduction to the institutions and beliefs of various cultures through an examination of forms of kinship, marriage, family, age group, voluntary associations, and various levels of political, judicial, religious, and economic organization. This course will require more reading and will present a more sophisticated view than ANT 102. May not be taken for credit in addition to ANT 102. A Core Course satisfying Social and Behavioral Sciences Category A, Group 3. Also satisfies Lower-Division Writing Requirement for students who score "Strong" on the English Placement Examination.

Prerequisite: Permission of department; priority given to Honors College students
Fall or spring, 3 credits

ANT 104 Introduction to Archaeology

An overview of archaeology as a field of study and an introduction to the methods, goals, and theoretical concepts used by archaeologists. The course outlines how archaeologists make behavioral interpretations using the cultural material of past human societies. Techniques used to detect and study past settlements will be presented. A Core Course satisfying Social and Behavioral Sciences Category B.

Fall and spring, 3 credits

ANT 110 Introduction to Anthropological Linguistics

An introduction to the principles, methods, and topics in the field of anthropological linguistics.

It begins with a description of the nature and structure of language and the importance of the study of language in understanding culture. Major subsequent topics include historical relationships among languages; language concepts of reality; categories of meaning; folklore; non-verbal communication; relationship of language and gender, class, race, and ethnicity. The focus is comparative, using examples from languages and cultures throughout the world.

Fall or spring, 3 credits

ANT 160 The Individual in Society

A study of the ways in which individuals form stable communities and societies. The course focuses on the socialization of sexuality and aggression, conflict and social order, and social control. These and other problems are explored from the perspective of the psychological and social sciences. The role of individual men and women in group dynamics is viewed in cross-cultural perspective. A Core Course satisfying Social and Behavioral Sciences Category A, Group 2.

Fall or spring, 3 credits

ANT 201 Peoples of South America

A survey of the social, cultural, and historical aspects of South American native peoples. Attention is given to issues of demography and biology, ecology, and cultural evolution. In-depth study of selected cultures and comparative study in selected cultural topics form the core of the course. Particular emphasis is given to topics of culture contact, culture change, tribal cultures in a context of national development, and cultural pluralism. A Core Course satisfying Social and Behavioral Sciences Category A, Group 4, and Study of Another Culture.

Prerequisite: ANT 102 or 103

Fall or spring, 3 credits

ANT 203 Native Peoples of North America

The various peoples and cultures of North America will be studied with respect to their political, educational, linguistic, social, and cultural patterns. Selected societies will be studied in depth. A Core Course satisfying Social and Behavioral Sciences Category A, Group 4, and Study of Another Culture.

Prerequisite: ANT 102 or 103

Fall or spring, 3 credits

ANT 209 Ancient Civilizations of Mexico and Peru

Ecological adaptation, economic systems, social and political institutions, religion, and intellectual achievements of the Aztecs, Incas, and other peoples of ancient Mexico and Peru. A Core Course satisfying Social and Behavioral Sciences Category A, Group 4, and Study of Another Culture.

Prerequisite: ANT 102 or 103

Fall or spring, 3 credits

ANT 215 Anthropology of Law

The handling and resolution of disputes in simple and complex societies. Courts, mediation, and the alternatives to law courts will be studied. Students will be introduced to the prevailing theories about conflict and its resolution in modern societies. May not be taken for credit in addition to the discontinued ANT 355. A Core Course satisfying Social and Behavioral Sciences Category A, Group 2.

Prerequisite: ANT 102 or 103

Fall or spring, 3 credits

ANT 217 New World Archaeology

A survey of the archaeological and historical Native American cultures of the New World with an emphasis on the pre-contact period. This will involve an overview of both North and Mesoamerica. May not be taken for credit in addition to the discontinued ANT 317.

Prerequisite: ANT 104

Alternate years, 3 credits (not offered in 1989-90)

ANT 219 Peoples of the Caribbean

The study of the environment, history, and cultural and social institutions characteristic of the Caribbean area. Topics covered will include pre-contact cultures, colonialism and the institution of slavery, contemporary economic and political organization, community structure, cults, kinship, marriage and family patterns, gender differences, division of labor, and pluralism and ethnic diversity. A Core Course satisfying Social and Behavioral Sciences Category A, Group 4, and Study of Another Culture.

Prerequisite: ANT 102 or 103

Fall or spring, 3 credits

ANT 230 Peoples of the World

Adaptations and cultural development of peoples in different parts of the world, focusing on subsistence activities and their relationship to the development of distinctive social and political forms. Recent changes brought about by intercultural contact will also be discussed. Readings will be on selected peoples throughout the world.

Prerequisite: ANT 102 or 103

Fall or spring, 3 credits

ANT 240 Immersion in Another Culture

A specific world area such as the highlands of New Guinea or the Nilotic Southern Sudan, or a particularly well-documented people such as the Trobriand Islanders, will be considered in detail. Lectures, texts, and films will consider ecology, history, social change, language, cultural systems, and social arrangements. The aim will be to provide students with a comprehensive understanding of another cultural system. May be repeated as the topic varies. A Core Course satisfying Social and Behavioral Sciences Category A, Group 4, and Study of Another Culture.

Prerequisite: ANT 102 or 103

Fall or spring, 3 credits

ANT 241 Archaeology Laboratory Methods

Training in the laboratory methods used to study archaeological remains. Laboratory techniques covered include the study of lithic and ceramic artifacts, the flotation of soil samples, and examination of plant and animal remains.

Prerequisite: ANT 104

Fall, 3 credits

ANT 250 Medical Anthropology

Concepts of health and illness in cross-cultural perspective. Topics include the achievement of health and harmony, disease causation, and methods of diagnosis and treatment. Physical and psychological states of health and illness are considered from both an individual and a community perspective. Readings encompass studies of cultures from all parts of the world.

Prerequisite: ANT 102 or 103

Fall, 3 credits

ANT 255 Technology, Art, and Material Culture

An introduction to various approaches to the study of material culture in its technological and artistic aspects, using ethnographic and archaeological studies from many different cultures. Emphasis will be on viewing artifacts and their associated technologies within the context of a total culture, and in particular on seeing the relationship between material and nonmaterial forms of culture.

Prerequisite: ANT 102 or 103

Spring, 3 credits

ANT 257 The Agricultural Revolution

An in-depth examination of a fundamental transformation in human history, the shift from hunting and gathering to farming, from reacting to the environment to controlling it, and from a nomadic way of life to permanent settlement. The course will consider the archaeological evidence as to how this readaptation to the natural environment took place in different parts of the world. May not be taken for credit in addition to the discontinued ANT 357.

Prerequisite: ANT 104

Alternate years, 3 credits (not offered in 1990-91)

ANT 290 Science and Technology in Ancient Society

Science and technology, including mining and engineering, from the earliest humans through the archaic non-Western civilizations of the Americas and the Near East. These technological achievements are related to the changes in the organization of the societies involved. A Core Course satisfying Natural Sciences Category B.

Prerequisite: ANP 120

Fall or spring, 3 credits

ANT 300 Approaches to Anthropological Theory

Designed for majors, this course is a systematic and comparative treatment of the various theoretical approaches in social and cultural anthropology, including functionalism, structuralism, evolutionism, cultural ecology, etc. The various theories are applied to specific ethnographic data. Current theoretical issues in the field will be discussed.

Prerequisites: ANT 102 or 103; two other anthropology courses

Fall or spring, 3 credits

ANT 310 Ethnography

A particular cultural area of the world such as sub-Saharan Africa, the Mediterranean, Oceania, Mexico and Guatemala, Asia, or the Middle East will be considered in terms of its history and ecology, with a comparative analysis of the cultural systems and social arrangements of representative ethnic groups. The aim of the course will be to provide an overview of cultural diversity and uniformity in a world area. May be repeated as the topic changes. A Core Course satisfying Social and Behavioral Sciences Category A, Group 4.

Prerequisites: ANT 102 or 103; one other ANT course

Fall or spring, 3 credits

ANT 321 Archaeological Field Methods

An opportunity to participate in all aspects of an archaeological research project. Students will be trained in excavation, recording, artifact retrieval,

surveying, field sorting techniques, and interpretation. This course will usually be held in the summer and will involve excavation of a prehistoric or early historic site on Long Island. May not be taken for credit in addition to the discontinued ANT 421.

Prerequisites: ANP 104; at least one other archaeology course to be specified when the course is offered

Fall, spring, or summer, 3 to 6 credits

ANT 333 Witchcraft and Magic

An exploration of the variety of witchcraft and magic beliefs and practices through examples from many periods and cultural areas. The course will consider psychological, social, and political interpretations of witchcraft and sorcery beliefs, including the study of accusations, confessions, mass hysteria, divination, trance, possession, fantasies, the social roles of the victim and accused, and magical techniques and practices. May not be taken for credit in addition to the discontinued ANT 260.

Prerequisites: ANT 102 or 103; one other ANT course

Fall or spring, 3 credits

ANT 351 Comparative Religion

A survey of religious behavior in cross-cultural perspective. The approach is broadly comparative and eminently anthropological, involving theories of origin and evolution of religious systems, as well as the functioning of religious behavior and institutions within the total culture. Case study material is drawn primarily from preliterate societies, but some reference is made to the large organized religious systems of complex stratified societies. May not be taken for credit in addition to the discontinued ANT 251.

Prerequisites: ANT 102 or 103; one other ANT course

Fall, 3 credits

ANT 352 Personality and Culture

The role of culture as a factor in personality and character formation and how different cultures handle the basic human drives, especially aggression. The course also discusses cultural influences on gender role, violence and social control, and mental health. Case studies from South America, Oceania, Malaysia, and southern Europe are compared. A Core Course satisfying Social and Behavioral Sciences Category A, Group 2.

Prerequisites: ANT 102 or 103; one other ANT course or a social science course approved by the instructor

Fall or spring, 3 credits

ANT 354 Family, Kinship, and Marriage

Concepts of family, kinship, marriage, incest, exogamy, nature, and culture and their social entailments. Major theories are discussed historically, demographically, and ecologically. Brief case studies will be presented to illustrate theories of social anthropology.

Prerequisites: ANT 102 or 103; one other ANT course

Alternate years, 3 credits (not offered in 1989-90)

ANT 356 Urban Anthropology

A review of current anthropological research on family and kinship behavior, status and role,

social stratification, mobility, assimilation, and political relations in complex and urban societies.

Prerequisites: ANT 102 or 103; one other ANT course

Fall or spring, 3 credits

ANT 358 Ways to Civilization

A comparative study of processes of cultural evolution from simple agricultural societies to the achievement of civilization in different parts of the world. Emphasis will be on current theories of state formation and on how these theories are supported by cultural evidence, especially from the six "pristine" states of Mesopotamia, Egypt, Indus Valley, China, Mesoamerica, and Peru.

Prerequisites: ANT 104; one other anthropology course

Alternate years, 3 credits (not offered in 1989-90)

ANT 361 Peasants

The concept of peasantry from political, religious, cultural, and social-class perspectives, as well as from the more traditional economic viewpoint. These agricultural peoples are described and analyzed especially in relation to the national societies of which they form a part. Case studies from Latin America, Europe, and Asia are used as illustrations. Special attention is given to the agrarian political movements and revolutions in the Third World.

Prerequisites: ANT 102 or 103; one other ANT course

Fall or spring, 3 credits

ANT 363 Language and Culture

The study of linguistic behavior and its interrelationship with other aspects of culture. Topics include sociolinguistics, language acquisition, non-verbal behavior, and linguistic acculturation. Crosslisted with LIN 363. A Core Course satisfying Social and Behavioral Sciences Category A, Group 2.

Prerequisites: LIN 101 or ANT 110; one other ANT course

Fall or spring, 3 credits

ANT 367 Male and Female

A study of the development and manifestation of sex roles in different cultures, with an emphasis on the different adaptations of males and females in economics, politics, religion, and education.

Prerequisites: ANT 102 or 103; one other ANT course

Fall or spring, 3 credits

ANT 391 Topics in Social and Cultural Anthropology

Discussion of a topic of current interest in social and cultural anthropology such as symbolism, comparative religion, and patterns of empire. May be repeated as the topic changes.

Prerequisites: ANT 102 or 103; one other ANT course to be specified when the topic is announced

Schedule to be announced, 3 credits

ANT 393 Topics in Archaeology

A focused study of a specific topic in archaeology. Topics will vary and might include ancient Mesopotamia, Mesoamerican archaeology, comparative empires, palaeolithic Europe, etc. May be repeated as the topic changes.

Prerequisites: ANT 104; one other anthropology course to be specified when the topic is announced

Schedule to be announced, 3 credits

ANT 401 Problems in Social and Cultural Anthropology

Research on and discussion of a selected topic in social and cultural anthropology that will be announced in advance. Topics might include gender roles, religion and symbolism, politics, development of anthropological theory. May be repeated as the topic changes.

Prerequisite: ANT 300

Fall or spring, 3 credits

ANT 402 Problems in Archaeology

Research on and discussion about selected topics in the prehistory of the Old and New Worlds. Specific problem areas will vary and will be announced in advance. May be repeated as the topic varies.

Prerequisite: ANT 104; two other archaeology courses to be specified when the topic is announced

Alternate years, 3 credits (not offered in 1989-90)

ANT 411 Law and Conflict Resolution: Socio-Legal Perspectives

Major theoretical issues in the study of law in society. Empirical data and research will illustrate ideas and theories. Topics include folk law and state law, the legal profession, legal ethics, litigating for social change and human rights.

Prerequisites: POL 220; two other courses in socio-legal studies minor; permission of instructor

Fall or spring, 3 credits

ANT 447 Readings in Anthropology

Individual advanced readings on selected topics in anthropology. May be repeated twice.

Prerequisites: ANT 300; permission of instructor and department

Fall and spring, 3 credits

ANT 475 Undergraduate Teaching Practicum

Each student will conduct a regular recitation or tutorial section to supplement a lecture course and will receive regularly scheduled supervision from a faculty member. Responsibilities may include preparing material for discussion and helping students with research papers. Satisfactory/Unsatisfactory grading only.

Prerequisites: Senior or advanced junior anthropology major or minor status; permission of instructor

Fall and spring, 3 credits

ANT 476 Advanced Undergraduate Teaching Practicum

Advanced training in the techniques of organization and management in the teaching of anthropology courses. Students will be expected to assume greater responsibility in such areas as leading discussions, designing homework, analyzing and evaluating test results, and observing and helping new teaching assistants to develop new teaching techniques. Students may not serve as teaching assistants in the same course twice. It is expected that the course in which a student is permitted to work as a teaching assistant will be of at least equal difficulty as the course in which he or she previously served as teaching assistant. Satisfactory/Unsatisfactory grading only.

Prerequisites: ANT 475; permission of instructor

Fall and spring, 3 credits

ANT 487 Independent Research in Anthropology

Independent research projects carried out by upper-division students. The student must propose the research project, carry it out, analyze the data, and submit the results in a written form acceptable to the sponsor. An outline of the research project and written agreement outlining the responsibility of the faculty member must be filed with the Undergraduate Office in Anthropology. May be repeated up to a limit of six credits.

Prerequisites: 15 credits in anthropology; permission of instructor and department

Fall and spring, 3 to 6 credits

ANT 488 Internship

Participation in local, state, and national public and private agencies and organizations. Students will be required to submit written progress reports and a final written report on their experience to the faculty sponsor and the department. May be repeated up to a limit of 12 credits. Satisfactory/Unsatisfactory grading only.

Prerequisites: 15 credits of anthropology; permission of instructor, department, and Office of Undergraduate Studies

Fall and spring, 3 to 12 credits

ANT 495-496 Senior Honors Project in Anthropology

A two-semester project for anthropology majors who are candidates for the degree with honors. Arranged in consultation with the department through the director of undergraduate studies; the project involves independent readings or research and the writing of a paper under the close supervision of an appropriate faculty member on a suitable topic selected by the student. Students enrolled in ANT 495 are obliged to complete ANT 496 the following semester.

Prerequisite: Admission to the anthropology honors program

Fall and spring, 3 credits each

Physical Anthropology

ANP 120 Introduction to Physical Anthropology

An introduction to the evolutionary study of humankind based on a survey of the diversity and evolutionary history of primates. The development of scientific and evolutionary thought and method. The biological basis of inheritance and variation. Human variations and adaptations in relation to the environment. Physical characteristics and behavior of living primates. Evolution of primates and current research on human origins. Three hours of lecture and one two-hour laboratory per week. A Core Course satisfying Natural Sciences Category A-1.

Fall and spring, 4 credits

ANP 210 Primate Biology and Behavior

The comparative study of the anatomy, ecology, and behavior of humankind's closest living relatives, the primates. The anatomy of apes, monkeys, and prosimians will be used to classify these animals according to their evolutionary relationships. Their anatomy will be related to their ecology and behavior. Primate behavior will be related to ecology, and this behavior, together with that of other animals not closely related to humans but ecologically similar, will be used to explore behavioral and ecological models for

human evolution. May not be taken for credit in addition to the discontinued ANP 320.

Prerequisite: ANP 120

Alternate years, 3 credits (not offered in 1990-91)

ANP 321 Primate Evolution

The evolution of the order Primates from the earliest origins up to the appearance of the human family. Relationships among living primates; reconstruction of common ancestral conditions. Primate origins; Eocene primates; anthropoid and catarrhine origins, evolution, and adaptations; hominoid origins, evolution, and adaptations.

Prerequisites: ANP 120; either ANP 210 or two relevant courses in biological sciences as approved by the instructor

Alternate years, 3 credits (not offered in 1990-91)

ANP 330 Human Evolution (Formerly ANP 220)

A comprehensive survey of the fossil record for human evolution from the appearance of the earliest hominids to the emergence of modern humans, with emphasis on morphological and behavioral evolution in the human lineage.

Prerequisites: ANP 120; ANT 104

Alternate years, 3 credits (not offered in 1989-90)

ANP 340 Field Methods in Physical Anthropology (Formerly ANP 421)

Methods, problems, and experience in field techniques. Course will focus on field methods such as fossil excavation, reconstruction of skeletal and dental remains, anthropometry, craniometry. The specific focus may vary each year and will be announced in advance. May be repeated as topic varies.

Prerequisites: ANP 321 or 330; permission of instructor

Fall, spring, or summer, 3 to 6 credits

ANT 391 Topics in Physical Anthropology

Discussion of a topic of current interest in physical anthropology. Topics may include human biology, dental anthropology, primate locomotion, diet and evolution, functional morphology.

Prerequisites: ANP 120; one other ANP course to be specified when topic is announced

Fall or spring, 3 credits

ANP 403 Problems in Physical Anthropology

Research and discussion about selected topics in physical anthropology. Specific problem areas will vary each year. May be repeated as the topic varies.

Prerequisites: ANP 120; one other ANP course to be specified when the topic is announced

Fall or spring, 3 credits

ANP 404 Human Osteology (Formerly ANP 322)

A detailed study of the anatomy of the human skeleton with special emphasis on the interpretation of skeletal remains from archaeological contexts. Consideration will be given to the growth, structure, and function of bones, and to forensic aspects such as the determination of age, sex, stature, and pathology from skeletal remains. Students will conduct a research project on a human skeleton.

Prerequisites: ANP 330; ANT 104; permission of instructor

Alternate years, 3 credits (not offered in 1990-91)

ANP 447 Readings in Physical Anthropology

Individual advanced readings on selected topics in physical anthropology. May be repeated twice.

Prerequisites: ANP 321, 330; permission of instructor

Fall and spring, 3 credits

ANP 475 Undergraduate Teaching Practicum

Each student will conduct a regular recitation or tutorial section to supplement a lecture course and will receive regularly scheduled supervision from a faculty member. Responsibilities may include preparing material for discussion and helping students with research papers. Satisfactory/Unsatisfactory grading only.

Prerequisites: ANP 321, 330; permission of instructor

Fall and spring, 3 credits

ANP 476 Advanced Undergraduate Teaching Practicum

Advanced training in the techniques of organization and management in the teaching of physical anthropology courses. Students will be expected to assume greater responsibility in such areas as leading discussions, designing homework, analyzing and evaluating test results, and observing and helping new teaching assistants to develop new teaching techniques. Students may not serve as teaching assistants in the same course twice. It is expected that the course in which a student is permitted to work as a teaching assistant will be of at least equal difficulty as the course in which he or she previously served as teaching assistant. Satisfactory/Unsatisfactory grading only.

Prerequisites: ANT 475; permission of instructor

Fall and spring, 3 credits

ANP 487 Independent Research in Physical Anthropology

Independent research projects carried out by upper-division students. The student must propose the research project, carry it out, analyze the data, and submit the results in a written form acceptable to the sponsor. An outline of the research project and written agreement outlining the responsibility of the faculty member must be filed with the Undergraduate Office in Anthropology. May be repeated up to a limit of six credits.

Prerequisites: ANP 321, 330; permission of instructor and department

Fall and spring, 3 to 6 credits

ANP 495-496 Senior Honors Project in Anthropology

A two-semester project for anthropology majors who are candidates for the degree with honors. Arranged in consultation with the department through the director of undergraduate studies, the project involves independent readings or research and the writing of a paper under the close supervision of an appropriate faculty member on a suitable topic selected by the student. Students enrolled in ANT 495 are obliged to complete ANT 496 the following semester.

Prerequisite: Admission to the anthropology honors program

Fall and spring, 3 credits each semester

Department of Art

Chairperson: Melvin H. Pekarsky
Director of Undergraduate Studies:
Toby Buonagurio

Faculty

Lawrence Alloway, Professor: Art criticism; 20th-century art. (On leave)

Yee Jan Bao, Assistant Professor, M.F.A., Claremont Graduate School: Painting; drawing.

Michele H. Bogart, Assistant Professor, Ph.D., University of Chicago: Art and architectural history; American and 20th-century art.

Toby Buonagurio, Associate Professor, M.A., The City College of New York: Ceramics; ceramic sculpture.

Rhonda Cooper, Adjunct Lecturer, M.A., University of Hawaii: Oriental art; museum and gallery administration.

Michael Edelson, Associate Professor, B.A., Empire State College: Photography; photographic criticism; film and television theory and criticism.

Jacques Guilmain, Professor, Ph.D., Columbia University: Art and architectural history; medieval art; modern design.

Aldona Jonaitis, Professor, Ph.D., Columbia University: Art and architectural history; primitive and pre-Columbian art.

Hetty Joyce, Assistant Professor, Ph.D., Harvard University: Art and architectural history; Greek and Roman art and architecture.

George Koras, Professor, Diploma, Athens Academy of Fine Arts: Modeling; plastic and cast-metal sculpture.

Donald B. Kuspit, Professor, Ph.D., University of Michigan; D.Phil., University of Frankfurt: Art criticism; 20th-century and northern Renaissance art.

Stephen Larese, Adjunct Lecturer, M.F.A., University of Cincinnati: Painting and drawing.

Martin Levine, Assistant Professor, M.F.A., California College of Arts and Crafts: Printmaking.

Nina A. Mallory, Professor, Ph.D., Columbia University: Art and architectural history; Renaissance, baroque, and 18th-century art.

Molly Mason, Assistant Professor, M.F.A., University of Iowa School of Art and Art History, Iowa City: Sculpture and ceramics.

Anita F. Moskowitz, Associate Professor, Ph.D., New York University: Art and architectural history; medieval and Renaissance art.

Stephen Nash, Adjunct Lecturer, M.A., Royal College of Art, London: Anatomical and biological illustration.

D. Terence Netter, Adjunct Associate Professor, M.F.A., George Washington University: Drawing; painting; art and philosophy.

Melvin H. Pekarsky, Professor, M.A., Northwestern University: Drawing; painting; public art.

Meg Perlman, Adjunct Lecturer, M.A., The Institute of Fine Arts, New York University: 20th-century art.

Howardena Pindell, Professor, M.F.A., Yale University: Drawing; painting.

Stephen Polcarl, Assistant Professor, Ph.D., University of California, Santa Barbara: Art and architectural history; 20th-century art and intellectual history.

James H. Rubin, Professor and Director of Graduate Studies, Ph.D., Harvard University: Art and architectural history; 18th- and 19th-century European art and criticism.

Thomas Thompson, Adjunct Lecturer, M.F.A., Ohio University: Photography and printmaking.

Robert W. White, Associate Professor Emeritus, Rhode Island School of Design: Drawing; terra-cotta, stone, and wood sculpture.

Teaching Assistants

Estimated number: 11

The undergraduate programs in art are designed to provide the student with a thorough background in the history and criticism of art, as well as sound training in studio techniques and theory. The courses of study, while allowing students a considerable degree of choice, are carefully integrated with fulfilling requirements for graduate study or preparation for professional work in the field.

Requirements for the Major in Art History and Criticism

The major in art history and criticism leads to the Bachelor of Arts degree.

	Credits
1. ARH 101, 102	6
2. Twenty-one additional credits in art history and criticism, of which at least 12 must be upper division and so distributed as to include at least one course in four of the following areas:	
a. Ancient art and architecture: ARH 300, 301	
b. Medieval art and architecture: ARH 303, 304	
c. Renaissance art and architecture: ARH 306, 307, 310, 337	
d. Baroque or 18th-century art and architecture: ARH 314, 316, 320	

e. Modern art and architecture (19th or 20th century): ARH 313, 322, 324, 341, 342	
f. Far Eastern, primitive, or pre-Columbian art and architecture: ARH 203, 318	21
3. ARS 151 and ARS 152 or—especially for students planning graduate work in art history—a year of French or German in addition to the College language requirement	6
4. In consultation with the departmental advisor, six credits in humanities or social sciences, in addition to the College requirements in those areas and the recommended language year under item 3, above	6
5. Upper-Division Writing Requirement Before the end of their junior year, all art history and criticism majors must submit to the department's director of undergraduate studies three term papers, at least two of them done in upper-division courses. These will normally be papers written in art history courses, but papers done in other humanities or social sciences courses will also be accepted. The papers will be reviewed by a faculty committee for evidence of writing skill rather than mastery of content. The portfolio of papers will be graded satisfactory or unsatisfactory. If the dossier is judged to be unsatisfactory, the student will be asked to submit new or revised samples of writing in the senior year. Students must demonstrate acceptable writing skills before they graduate.	
Total	39

Notes:

1. Of the total credits in art or related fields required for the major, only three may be taken for Pass/No Credit (and the rest must be for letter grade).
2. All upper-division ARH courses must be passed with a grade of C or higher.

Requirements for the Major in Studio Art

The major in studio art leads to the Bachelor of Arts degree.

	Credits
1. ARH 101, 102	6
2. ARS 151, 152, 153	9
3. ARH 342	3
4. At least six additional credits in art history/criticism, of which at least three must be in modern (i.e., one course from ARH 313, 322, 324, or 341)	6
5. Thirty-three additional credits in studio art, of which 12 credits must be in upper-division courses	33
6. The courses in item 5 must be distributed to include at least one course in four of the following areas:	
a. Painting and drawing: ARS 250, 259, 350, 452	
b. Printmaking: ARS 274, 275, 374, 375	
c. Ceramics: ARS 264, 364	
d. Sculpture: ARS 365, 366, 465, 466	
e. Design: ARS 395, 396	
f. Photography: ARS 281, 381	
7. At least 12 credits of item 5 must be in studio/theory courses (see note 4 below)	
8. Upper-Division Writing Requirement Before the end of their junior year, all studio art majors must submit to the department's director of undergraduate studies three term papers, at least two of them done in upper-division courses. These will normally be papers written in art history courses, but papers done in other humanities or social sciences courses will also be accepted. The papers will be reviewed by a faculty committee for evidence of writing skill rather than mastery of content. The portfolio of papers will be graded satisfactory or unsatisfactory. If the dossier is judged to be unsatisfactory, the student will be asked to submit new or revised samples of writing in the senior year. Students must demonstrate acceptable writing skills before they graduate.	
Total	57

Notes:

1. Students are reminded that in the studio program only those courses designated as studio/theory courses (see note 4, below) may count toward the 90 liberal arts credits required for the B.A. degree

- (see p. 60). In some cases, more than 120 credits may be needed to complete the requirements for the B.A. with a studio art major.
- Of the total credits required for the major, only one ARH course may be taken for Pass/No Credit; all ARS courses must be taken for letter grade.
 - All upper-division ARS courses must be passed with a grade of C or higher.
 - The following are studio/theory courses: ARS 259, 350, 364, 365, 366, 374, 375, 381, 395, 396, 452, 465, 466, 475, 487, 491, 492

Honors Program in Art

The honors program is open to seniors majoring in art history/criticism or studio art who have maintained a grade point average of at least 3.0 overall and a 3.0 in the major. Students should apply for the honors program before the beginning of their senior year. The student must find a faculty member of the department to act as sponsor. The student, with the approval of the sponsor, must submit a proposal of a project, in writing, to the department. Acceptance into the honors program depends on the approval of the proposal by the department.

In the art history area, the student's research project will be supervised by the honors advisor. In the studio art area, the student will be expected to prepare a small one-person show or similar project (i.e., one large, more ambitious work) in lieu of a thesis, under the supervision of the honors advisor.

The student's project will be judged by a jury composed of at least two members of the Art Department and a faculty member from another department. This pertains to students in both the art history/criticism and studio art majors.

If the honors program is completed with distinction, and the student achieves a 3.5 grade point average in all art courses taken in the senior year, honors will be conferred.

Minor in Art History

The minor in art history requires 21 credits in art history, of which at least nine credits must be in upper-division courses. With this minor, the student acquires both a broad background in art history and a more thorough knowledge of the art history of one of the following areas of concentration: ancient/medieval, Far Eastern/primitive/pre-Columbian, Renaissance/baroque, or modern. Further information is available from the director of undergraduate studies. The distribution of courses for the minor is as follows:

	Credits
1. ARH 101, 102	6
2. An ancient, medieval, Far Eastern, primitive, or pre-Columbian art course	3

3. A Renaissance, baroque, or modern art course	3
4. Six additional credits in the area of concentration	6
5. ARH 400, 401, 402, 403, or 487 in the area of concentration	3
Total	21

Minor in Studio Art

The minor in studio art requires 21 credits, distributed as follows:

	Credits
1. Two of the following courses: ARS 151, 152, 153	6
2. Fifteen additional studio credits, of which at least nine must be upper division	15
Total	21

Minor in Design

	Credits
1. ARS 395	3
2. ARS 396	3
3. An additional ARS or ARH lower-division course chosen in consultation with minor advisor	3
4. ARH 324	3
5. ARH 485	3
6. Any six-credit combination of ARH 487 and ARS 487	6
Total	21

Courses

See p. 60, Course Credit and Prerequisites, and p. 61, Undergraduate Numbering System.

Many courses in the Art Department require one or more trips to New York City museums and galleries.

Art History/Criticism

ARH 101 Art in Culture from Prehistoric Times to the Age of the Cathedrals, ca. 1400 A.D.

A survey of the history of painting, sculpture, and architecture from its beginnings in prehistoric times to the end of the Middle Ages. Works of art are studied both as individual monuments with intrinsic aesthetic appeal and as expressions of the needs, ideals, and aspirations of the particular society in which they were created. A Core Course satisfying Humanities and Fine Arts Category A.

Fall and spring, 3 credits

ARH 102 Art in Culture from the Early Renaissance, ca. 1400, to Postmodernism

A survey of the history of painting, sculpture, and architecture from the Renaissance to the present day. Works of art are studied both as individual monuments with intrinsic aesthetic appeal and as expressions of the needs, ideals, and aspirations of the particular society in which they were created. A Core Course satisfying Humanities and Fine Arts Category A.

Fall and spring, 3 credits

ARH 203 Survey of Far Eastern Art

A general course on Far Eastern art covering India, China, and Japan from its beginnings to the present. Emphasis will be on the major arts of painting and sculpture, with some reference to architecture.

Prerequisites: ARH 101 or 102

Alternate years, 3 credits (not offered in 1989-90)

ARH 300 Greek Art and Architecture

The study of ancient Greek art and architecture from the earliest beginnings in the geometric period through the archaic, classical, and Hellenistic periods. A Core Course satisfying Humanities and Fine Arts Category C.

Prerequisites: COR 101, 102; or ARH 101 and two other courses in the humanities

Fall or spring, 3 credits

ARH 301 Roman Art and Architecture

The study of ancient Roman art and architecture from the Republic through the Constantinian period in Italy and the greater Roman world. A Core Course satisfying Humanities and Fine Arts Category C.

Prerequisites: COR 101, 102; or ARH 101 and two other courses in the humanities

Fall or spring, 3 credits

ARH 303 The Art and Architecture of the Early Middle Ages, ca. 400-1050

After a short background introduction to Early Christian art and architecture, the course concentrates on migration and Hiberno-Saxon art; Carolingian art and architecture; and the 9th- and 10th-century art traditions of northern Spain, Anglo-Saxon England, Ottonian Germany, and Viking Scandinavia. A Core Course satisfying Humanities and Fine Arts Category C.

Prerequisites: COR 101, 102; or ARH 101 and two other courses in the humanities

Fall or spring, 3 credits

ARH 304 The Art and Architecture of the High and Late Middle Ages, ca. 1050-1400

The study of Romanesque, Byzantine, Gothic, and Late Gothic art and architecture. Monuments and art objects are examined in terms of their intrinsic aesthetic appeal as well as in their historical, religious, technological, and cultural contexts. The emphasis will be on the development in northern Europe. A Core Course satisfying Humanities and Fine Arts Category C.

Prerequisites: ARH 101; two other courses in the humanities

Fall or spring, 3 credits

ARH 306 The Early Renaissance in Italy

(Formerly ARH 211)

Art in Italy in the 15th century, with special emphasis on the major figures of the period: Masaccio, Donatello, Piero della Francesca, Botticelli, and the early Leonardo.

Prerequisites: ARH 101; two other courses in the humanities

Fall or spring, 3 credits

ARH 307 High Renaissance and Mannerism in Central Italy

Art and architecture in Florence and Rome in the 16th century. The High Renaissance will be studied in the works of Leonardo, Michelangelo, Raphael, and Bramante; Mannerism in the works

of Pontormo, Bronzino, Gianbologna, Giulio Romano, and Vignola, among others.

Prerequisites: ARH 101, 102; one other course in the humanities

Fall or spring, 3 credits

ARH 310 Renaissance Art in Venice

Venetian painting of the 15th and 16th centuries studied through the works of such major figures as Bellini, Mantegna, Giorgione, Titian, Veronese, and Tintoretto, stressing the special character and continuity of the art of Venice.

Prerequisites: ARH 102; two other courses in the humanities

Alternate years, 3 credits (not offered in 1990-91)

ARH 313 Art of the United States

Painting, sculpture, and architecture from the American Revolution to modern times. Special emphasis will be placed on John Singleton Copley, the Hudson River School, and important individual artists of the 19th and 20th centuries up to World War II. A Core Course satisfying Humanities and Fine Arts Category C.

Prerequisites: COR 101, 102; or ARH 101 and two other courses in the humanities

Fall or spring, 3 credits

ARH 314 Baroque Painting in the Netherlands

The work of the major Flemish and Dutch painters of the 17th century with special emphasis on Rubens, Van Dyck, and Rembrandt. The various genres that flourished in Holland in the 17th century (portraiture, genre painting, landscape, etc.) will be studied through the works of the major figures in each field, such as Hals, Vermeer, and van Ruisdael.

Prerequisites: ARH 102; two other courses in the humanities

Alternate years, 3 credits (not offered in 1989-90)

ARH 316 Baroque Art in Italy and France

Italian and French painting and sculpture in the 17th century. The painting of Caravaggio, the Carracci, and their schools, and the sculpture of Bernini will be studied in detail with special emphasis on Rome. The study of French art in both Italy and France will focus particularly on the painting of the French caravaggisti, on Poussin and Claude Lorraine, and on the sculptors of Versailles.

Prerequisites: ARH 102; two other courses in the humanities

Alternate years, 3 credits (not offered in 1990-91)

ARH 318 History of Chinese Painting

A study of Chinese painting from its beginnings to the present, in relation to art theories written by the artists themselves and their contemporaries. Satisfies Study of Another Culture requirement.

Prerequisites: ARH 101 or 102; two other courses in the humanities. Chinese history or philosophy courses recommended.

Alternate years, 3 credits (not offered in 1990-91)

ARH 320 Art of the 18th Century

A study of the development of 18th-century European art from rococo to neoclassicism.

Prerequisites: ARH 102; two other courses in the humanities

Fall or spring, 3 credits

ARH 322 American Art Since 1947

A survey of painting and sculpture in New York, including abstract expressionism, "hard edge" painting, pop art, minimal art, and earthworks.

Prerequisites: ARH 102; two other courses in the humanities

Fall or spring, 3 credits

ARH 324 Architecture and Design of the 19th and 20th Centuries

A survey of architecture and design from the end of the 18th century to the present. Subjects and concepts covered will include the crystallization and evolution of Romantic classicism and Romantic naturalism, historicism, the arts and crafts movement, art nouveau, machine aesthetics, the beaux arts tradition, functionalism, the international style, art deco, and postmodernism. A Core Course satisfying Humanities and Fine Arts Category C.

Prerequisites: ARH 101, 102

Fall or spring, 3 credits

ARH 337 Northern Renaissance Art

Painting and graphic art in the Netherlands and Germany in the 15th and 16th centuries will be studied with special emphasis on the major figures of this period, from van Eyck and van der Weyden to Dürer, Holbein, and Bruegel.

Prerequisites: ARH 101 or 102; two other courses in the humanities

Alternate years, 3 credits (not offered in 1989-90)

ARH 341 Art of the 19th Century

A survey of European art from about 1780 to 1890. Emphasis will be on individual artists, artistic attitudes, and progression of style. Art will be examined in its historical and cultural contexts. Movements studied will include neoclassicism, romanticism, realism, and impressionism.

Prerequisites: ARH 102; two other courses in the humanities

Fall or spring, 3 credits

ARH 342 Art of the 20th Century

The major movements and individual artists in 20th-century painting and sculpture, including reference to the broader sociocultural context of art. A Core Course satisfying Humanities and Fine Arts Category C.

Prerequisites: COR 101, 102; or ARH 102; and two other courses in the humanities

Fall or spring, 3 credits

ARH 349 The Creative Process in the Fine Arts

An examination of the creative process and its philosophical foundations in Western culture. Students will explore highlights of the philosophical tradition since Plato; attend exhibits, rehearsals, and performances; and discuss with visiting artists their work and its sources. Crosslisted with THR 349 and MUS 349.

Prerequisites: One course in philosophy; ARH 101 or 102 or MUS 101 or 119 or THR 101 or 104

Fall or spring, 3 credits

ARH 350 Film Genre as Popular Art

An examination of genre films, their origins, essences, manifestations, and the function of this popular art within contemporary society. The western, musical, gangster, and horror/science fiction genres are to be explored through such films as *Dracula* (1979), *Cabaret* (1972), *The Invasion of the Body Snatchers* (1956), and *Blazing Saddles* (1974).

Prerequisite: THR 117 or HUM 201 or 202

Spring, 3 credits

ARH 400-403 Topics in Art History and Criticism

Advanced seminars offered from time to time by the department, utilizing the varied areas of expertise of the art history/criticism faculty. Topics to be announced. May be repeated as subject matter varies.

Prerequisites: ARH 101 or 102; one other ARH course, varying with topic

Schedule to be announced, 3 credits each

ARH 475 Undergraduate Teaching Practicum

Each student will periodically conduct a recitation section that will supplement a regular art course. The student will receive regularly scheduled supervision from the instructor. Responsibilities may include supplementary teaching and review sessions and assisting students with research methods. Satisfactory/Unsatisfactory grading only.

Prerequisites: Art history/criticism major; preferably senior standing; sponsorship of an instructor; permission of department

Fall and spring, 3 credits

ARH 485 Projects in Art History and Criticism in New York City

Under the supervision of a faculty advisor, the student will carry out an assignment including reading; examination of a single work or a group of works from a particular style period in New York City (its streets, its museums, or its galleries); and the preparation of a report, lecture, or critical essay. Interested students should contact the department's director of undergraduate studies for the list of possible projects. May be repeated once.

Prerequisites: ARH 101, 102; two other ARH courses; permission of sponsor and department

Fall and spring, 3 credits

ARH 487 Independent Reading and Research in Art

A project designed by the student involving reading, research, or field work in art history or criticism conducted under the supervision of a faculty member. The course may be repeated for a maximum of 12 credits.

Prerequisites: At least four courses in art; sponsorship of a faculty member; permission of department

Fall and spring, 1 to 6 credits

ARH 488 Internship

Participation in the work of galleries, museums, arts agencies, and art historical societies. Students will be required to submit written progress reports and a final report of their experience to the faculty coordinator and the department. May be repeated up to a limit of 12 credits, but no more than six credits may count toward the major in art history/criticism, and none toward the major in studio art. Satisfactory/Unsatisfactory grading only.

Prerequisites: Fifteen credits in the Art Department, of which at least six shall be in art history/criticism; upper-division standing with preference given to seniors; permission of instructor, department, and Office of Undergraduate Studies

Fall and spring, 3 credits

Studio and Studio/Theory

Students in all ARS courses will be expected to purchase certain supplies. Each instructor will provide a list of the supplies needed.

Only those courses designated as studio/theory courses (see "Notes" for the ARS major) may count toward the 90 liberal arts credits required for the B.A. degree.

ARS 150 Fundamentals of Drawing

An introductory course intended for non-art majors. Emphasis will be on drawing techniques. *Fall or spring, 3 credits*

ARS 151 Fundamentals of Composition, Still-Life, Painting, and Drawing

Introducing the student to drawing and painting media and techniques, and to the study of color, perspective, and composition. *Fall and spring, 3 credits*

ARS 152 Fundamentals of Figure Drawing and Painting

Studio course stressing drawing and painting from the nude and draped model, and investigating anatomy, foreshortening, and the expressive potential of the figure in the visual arts. *Fall and spring, 3 credits*

ARS 153 Fundamentals of Sculpture and Three-Dimensional Design

An exploration of basic sculptural ideas and techniques including construction, modeling, carving, and casting, and the use of sculptural media such as wood, plaster, plastics, and clay. The elements of three-dimensional design and composition will also be emphasized. *Fall and spring, 3 credits*

ARS 250 Life Drawing and Painting

Drawing and painting of the human figure. May be repeated once. *Prerequisites:* ARS 151, 152 *Fall or spring, 3 credits*

ARS 259 Drawing: Conceptual Problems (Theory)

Drawing for the second-year student, focusing on conceptual processes, individual solutions to problems, and use of a wide variety of media. *Prerequisites:* ARH 101, 102; either (a) ARS 150 or (b) ARS 151, 152; permission of department *Fall or spring, 3 credits*

ARS 264 Ceramics

Investigation of ceramic ware and ceramic sculpture media, techniques, and styles through wheel, hand-built, slab, and modeled projects; firing processes with gas and electric kilns. *Prerequisite:* ARS 153 *Fall or spring, 3 credits*

ARS 274 Fundamentals of Printmaking: Intaglio Processes

An introduction to intaglio techniques: etching, drypoint, engraving, softground, and aquatint. The course will include demonstration and instruction in both traditional and experimental techniques for creating an intaglio print. May not be taken for credit in addition to the discontinued ARS 271. *Prerequisite:* ARS 151 or 152 *Fall, 3 credits*

ARS 275 Fundamentals of Printmaking: Lithography

Basic lithographic techniques on both stone and metal plates. The course will include demonstration and instruction in various techniques used for creating a lithographic print. May not be taken for credit in addition to the discontinued ARS 272.

Prerequisite: ARS 151 or 152 *Fall, 3 credits*

ARS 281 Photography I

An intensive course with extensive practice and experimentation in the aesthetics, techniques, and materials of black-and-white photography. It will be expected that the student's academic program or vocational objectives require a legitimate need for photographic training, and the course will be structured accordingly. Students must provide their own 35mm or 2 1/4" x 2 1/4" camera with the ability for full manual operation and expect to spend approximately \$250 on materials.

Prerequisites: Sophomore standing; interview; permission of instructor *Fall, 3 credits*

ARS 350 Painting: Studio and Theory

Painting and drawing studio, practice and theory stressing exploration of media and crafts, historical styles, and individual development. May be repeated once, but total credit for ARS 350 and the discontinued ARS 251 and 252 may not exceed six.

Prerequisites: ARS 151, 152 *Fall, 3 credits*

ARS 355 Anatomical and Biological Illustration

An introduction to human anatomy for the studio artist who is interested in biological illustration. The course will provide an introduction to techniques of illustration utilizing as subject matter the skeleton, prosection, and cadaver dissection. Details of human anatomy will often be discussed by comparison of humans with other vertebrates. Lectures will precede each laboratory/studio class and involve proportion, topographic and surface anatomy, bone-muscle relationships and human movement, comparative forms of visceral organs, and the comparative anatomy of humans and higher primates. Crosslisted with HBA 325.

Prerequisite: ARS 152 or BIO 101 or 151 *Fall or spring, 2 credits*

ARS 364 Advanced Theory and Practice of Ceramics

An advanced course in ceramics stressing sophisticated sculptural forms. Class work will be based on individual projects that will stress the expression of ideas and image-making.

Prerequisite: ARS 264 *Fall or spring, 3 credits*

ARS 365 Theory and Practice of Sculpture: Wood, Metal, and Mixed Media

Theory, techniques, and formal principles of wood sculpture, including carving and constructions; metal sculpture, including welding, forming, and finishing; and related concepts and techniques in mixed-media sculpture. May not be taken for credit in addition to the discontinued ARS 262.

Prerequisite: ARS 153 *Fall or spring, 3 credits*

ARS 366 Theory and Practice of Sculpture: Modeling, Casting, and Carving

Theory, practice, techniques, and formal principles of clay modeling, plaster casting, carving, and related techniques. May not be taken for credit in addition to the discontinued ARS 261.

Prerequisite: ARS 153 *Fall or spring, 3 credits*

ARS 374 Theory and Practice of Printmaking: Intaglio Processes

Further development of the craft of intaglio printing, including a variety of black-and-white, multi-plate and single-color printing processes. The course will include demonstrations, lectures, critiques, and discussions with a greater emphasis on the history of printmaking. Emphasis will be placed on individual development. May be repeated once, but total credit for ARS 374 and the discontinued ARS 371 may not exceed six.

Prerequisite: ARS 274 *Spring, 3 credits*

ARS 375 Theory and Practice of Printmaking: Lithography

Further development of the craft of lithographic printing with emphasis on a variety of multi-color and single-color printing on stones and plates. The course will include demonstrations, lectures, critiques, and discussions with a greater emphasis on the history of printmaking. Emphasis will be placed on individual development. May be repeated once, but total credit for ARS 375 and the discontinued ARS 372 may not exceed six.

Prerequisite: ARS 275 *Spring, 3 credits*

ARS 381 Theory and Practice of Photography

An advanced course in the theory and practice of black-and-white photography utilizing 35 mm or larger cameras, lenses, materials, and varied processes. Further exploration of photography as a means of personal visual expression along with a continued intensive examination and application of materials and refined techniques. Students must provide their own cameras and materials. May not be taken for credit in addition to the discontinued ARS 282.

Prerequisites: ARS 281; permission of instructor after interview and review of portfolio *Fall or spring, 3 credits*

ARS 395 Theory and Practice of Two-Dimensional Design

The exploration, analysis, and interpretation of the formal organization of visual elements on two-dimensional surfaces. Elements of design such as line, shape, value, color, and space (including perspective studies) will be analyzed and applied to projects according to principles that develop a unity in the total work of art. Relevant works from non-Western cultures will be explored as well. A Core Course satisfying Humanities and Fine Arts Category B. May not be taken for credit in addition to the discontinued ARS 291.

Prerequisite: ARS 151 *Fall or spring, 3 credits*

ARS 396 Theory and Practice of Three-Dimensional Design

The exploration, analysis, and interpretation of the formal organization of the visual elements in three-dimensional space. Elements such as mass, volume, plane, shape, and line will be analyzed and applied to projects in varied media

according to principles that develop a unity in the total work of art. Relevant works from non-Western cultures will also be discussed in each section of the course. A Core Course satisfying Humanities and Fine Arts Category B. May not be taken for credit in addition to the discontinued ARS 292.

Prerequisite: ARS 153
Fall or spring, 3 credits

ARS 452 Advanced Theory and Practice of Painting

Examination of ideas and techniques of painting through studio, lecture, critique, exhibition, and painting assignments. May be repeated once, but total credit for ARS 452 and the discontinued ARS 352 may not exceed six.

Prerequisites: Six credits of ARS 350; ARH 342
Spring, 3 credits

ARS 465 Advanced Theory and Practice of Sculpture: Welding, Construction, and Related Techniques

An advanced course in the theory, techniques, and formal principles of wood sculpture, including carving and constructions; metal sculpture, including welding, forming, and finishing; and related concepts and techniques in mixed media sculpture. May be repeated once, but total credit for ARS 465 and the discontinued ARS 362 may not exceed six.

Prerequisites: ARS 365; ARH 342
Fall or spring, 3 credits

ARS 466 Advanced Theory and Practice of Sculpture: Modeling, Carving, and Casting

A course in advanced sculpture utilizing clay and wax modeling. Representational sculptures, including work from a nude model, and more abstract works will be developed. Advanced reproduction techniques (including plaster and flexible rubber molds) will be used with subsequent castings in a variety of media such as plaster, polyester resin, and metal. May be repeated once, but total credit for ARS 466 and the discontinued ARS 361 may not exceed six.

Prerequisites: ARS 366; ARH 342
Fall or spring, 3 credits

ARS 475 Undergraduate Teaching Practicum: Theory and Practice

Each student will assist in the instruction of a studio section. The student will receive regularly scheduled supervision from the instructor. Responsibilities may include helping students to familiarize themselves with various studio and darkroom techniques and with studio projects. Satisfactory/Unsatisfactory grading only.

Prerequisites: Studio art major; preferably senior standing; sponsorship of an instructor; permission of department
Fall and spring, 3 credits

ARS 487 Advanced Directed Projects in Studio Theory and Practice

Advanced projects for outstanding students in areas of their specific interest. Students will work independently in their area of concentration under the guidance of a sponsor, with whom they will meet periodically for critique and discussion of work. Specific assignments, reports, readings, and field trips may be required. May be repeated once.

Prerequisites: Advanced status in one of the studio tracks; sponsorship of a faculty member; permission of department
Fall and spring, 3 credits

ARS 491, 492 Special Topics in Studio/ Theory and Practice (Formerly ARS 421, 422)
Special courses may be offered from time to time by the department, utilizing the unique talents and facilities of the department faculty and the university environment, and presenting particular areas for consideration on an advanced level in seminar, critique, and studio sessions. May be repeated as subject matter varies.
Prerequisite: Permission of department
Schedule to be announced, 3 credits each semester

Asian Studies

Director: Shi Ming Hu, Social Sciences Interdisciplinary

The Asian studies minor (ANS) is designed for students interested in an interdisciplinary study of Asia that combines coursework in social and behavioral sciences with that in arts and humanities.

Students work out an individualized program of study in consultation with the director of the Asian studies minor. They are encouraged to consider special opportunities for overseas studies programs coordinated through the Office of International Programs. See Study Abroad, p. 54.

Requirements for the Minor in Asian Studies

	<i>Credits</i>
A. Two courses chosen from HIS 219, 220, 317	6
B. Two social science courses chosen from the list below	6
C. Two humanities courses chosen from the list below	6
D. One other course from the lists below	3
E. SSI 461	3
Total	24

Notes:

No more than one course may be taken for Pass/No Credit.

At least nine credits must be taken in upper-division courses.

Though there is no language requirement for the minor, at least one year of Chinese (below), Japanese (see Linguistics), Korean (see Korean studies), Sanskrit (see Religious studies), or another Asian language offered by the Department of Linguistics is recommended for the insight it offers into an Asian culture.

The humanities courses may be used to satisfy the social sciences major's "related courses" option (see p. 170) if they are numbered 300 or above, with permission of the minor director.

Social Science

ECO 339 China's Economy Since 1949
HIS 340 Intellectual History of China
HIS 341 20th-Century China
HIS 344 20th-Century Japan
HIS 431 Colloquium in Asian History

Note: SSI 447 Directed Readings in Social Science and SSI 487 Independent Project in the Social Sciences may also be accepted if the topics concern Asian studies. No more than six credits of independent work may be used toward fulfillment of the minor requirement.

Humanities

ARH 203 Survey of Far Eastern Art
ARH 318 History of Chinese Painting
CHI 191, 192 Intermediate Chinese I, II
CHI 221, 222 Advanced Chinese I, II
CHI 487 Independent Research
JPN 191, 192 Intermediate Japanese I, II
KOR 191, 192 Intermediate Korean I, II
KRH 240 Introduction to Korean Culture
KRH/RLS 246 Korean and Japanese Religions
KRH 400 Seminar in Korean Studies
PHI 111 Introduction to Eastern Philosophy
PHI 340 Indian Buddhism: Its Essence and Development
PHI 342 Chinese and Japanese Buddhism
RLS 240 Confucianism and Taoism
RLS 260 Buddhism
RLS 341 Meditation and Enlightenment
RLS 370 Tibetan Buddhism

Courses in Chinese

See p. 60, Course Credit and Prerequisites, and p. 61, Undergraduate Numbering System.

CHI 111, 112 Elementary Chinese I, II

An introduction to spoken and written Chinese Mandarin, with equal attention to speaking, reading, and writing. Laboratory practice supplements class work. No student who has had two or more years of Chinese in high school or who has otherwise acquired an equivalent proficiency will be permitted to enroll in CHI 111 without written permission from the supervisor of the course.
Fall (111) and spring (112), 3 credits each semester

CHI 191, 192 Intermediate Chinese I, II

An intermediate course in Chinese Mandarin to develop audiolingual skills and reading and writing ability. Selected texts will serve as the basis for practice in reading comprehension and composition. Intensive exercises in character writing will be required to develop writing technique.

Prerequisite: CHI 112
Fall (191) and spring (192), 3 credits each semester

CHI 221, 222 Advanced Chinese I, II

An advanced course in Chinese Mandarin to increase comprehension and writing ability. Select-

ed reading materials include newspapers, contemporary Chinese literature, and other samples of different writing styles.

Prerequisite: CHI 192

Fall (221) and spring (222), 3 credits each semester

CHI 475 Undergraduate Teaching Practicum

Each student will conduct a weekly recitation section that will supplement a lecture course. The student will receive regularly scheduled supervision from the instructor. Responsibilities may include preparing material for discussion and helping students with practice sessions. Satisfactory/ Unsatisfactory grading only.

Prerequisites: Interview; permission of instructor
Fall and spring, 3 credits

CHI 487 Independent Research

An individual research project in Chinese, such as translation, analysis of documents or literature, etc., in consultation with the instructor. Students are expected to meet at regular intervals and to present the completed project at the end of the semester. May be repeated.

Prerequisites: CHI 222; permission of instructor
Fall and spring, 3 credits

Division of Biological Sciences

Director of Undergraduate Studies (Biology Major): George J. Hechtel

Director of Undergraduate Studies (Biochemistry Major): Carl Moos

Divisional Teaching Assistants

Estimated Number: 60

Department of Biochemistry

Chairperson: William Lennarz

Faculty

Paul M. Bingham, Associate Professor, Ph.D., Harvard University: Regulation of transcription in and transposon biology of developing multicellular organisms.

Elof Axel Carlson, Distinguished Teaching Professor, Ph.D., Indiana University: Mutation and gene structure; history of genetics; human genetics.

Vincent P. Cirillo, Professor, Ph.D., University of California, Los Angeles: Membrane transport processes in yeast and bacteria.

Bernard S. Dudoek, Professor, Ph.D., Pennsylvania State University: Structure and function of cellular and viral tRNA. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1974.

Frank C. Erk, Professor, Ph.D., The Johns Hopkins University: Nutritional factors in insect development; developmental genetics; human genetics. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1982.

Martin Freundlich, Professor, Ph.D., University of Minnesota: Regulation of gene expression.

H. Bentley Glass, Distinguished Professor Emeritus, Ph.D., University of Texas: Human genetics; history of genetics.

Abraham D. Krikorian, Professor, Ph.D., Cornell University: Plant growth and development.

William Lennarz, Professor, Ph.D., University of Illinois: The role of glycoproteins in cellular and developmental biology.

Erwin London, Associate Professor, Ph.D., Cornell University: Membrane biochemistry and biophysics.

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

Carl Moos, Associate Professor, Ph.D., Columbia University: Molecular mechanisms of muscle contraction.

Manuel Perucho, Associate Professor, Ph.D., University of Madrid: Isolation and characterization of human tumor genes.

Monica Riley, Professor, Ph.D., University of California, Berkeley: Bacterial genetics.

Raghupathy Sarma, Associate Professor, Ph.D., Madras University: X-ray crystal structure analysis of molecules of biological interest.

Nisson Schechter, Associate Professor, Ph.D., Western Michigan University: Molecular basis of nerve growth and regeneration.

Jakob Schmidt, Associate Professor, Ph.D., University of California, Riverside; M.D., University of Munich: Neurochemistry.

Richard B. Setlow, Adjunct Professor, Ph.D., Yale University: DNA repair; biological effects of ultraviolet and ionizing radiation.

Sanford R. Simon, Associate Professor, Ph.D., Rockefeller University: Structure-function relationships in hemoglobin; membrane biochemistry.

Melvin V. Simpson, Professor, Ph.D., University of California, Berkeley: Replication of mitochondrial DNA; conformational changes in ribosomes.

Rolf Sternglanz, Professor and Director of Graduate Studies for Molecular Biology, Ph.D., Harvard University: DNA replication.

F. William Studier, Adjunct Professor, Ph.D., California Institute of Technology: Genetics and physiology of bacterial viruses.

Department of Ecology and Evolution

Chairperson: Jeffrey S. Levinton

Faculty

Edwin H. Battley, Associate Professor, Ph.D., Stanford University: Thermodynamics of microbial growth; ecological energetics; microbial ecology; nitrification and denitrification in aquatic systems.

Michael A. Bell, Associate Professor, Ph.D., University of California, Los Angeles: Evolutionary biology; population genetics; ichthyology; paleobiology and geographic variation.

Barbara L. Bentley, Associate Professor, Ph.D., University of Kansas: Nitrogen fixation; plant-animal interactions; tropical ecology.

Daniel E. Dykhuizen, Assistant Professor, Ph.D., University of Chicago: Molecular evolution; population genetics; bacterial population biology.

Walter F. Eanes, Associate Professor, Ph.D., State University of New York at Stony Brook: Population and biochemical genetics of *Drosophila*; molecular evolution.

James S. Farris, Associate Professor, Ph.D., University of Michigan: Theory of phylogenetic inference.

Douglas J. Futuyma, Professor and Director of Graduate Studies, Ph.D., University of Michigan: Ecological genetics; coevolution of species, especially of plants and insects; effects of evolution on the structure of ecological communities. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1974.

Lev R. Ginzburg, Professor, Ph.D., Agrophysical Institute, Leningrad: Evolutionary theory; mathematical population genetics; theoretical and applied ecology.

Jessica Gurevitch, Assistant Professor, Ph.D., University of Arizona: Evolutionary ecology of plant populations and communities; plant physiological ecology.

George J. Hechtel, Associate Professor, Ph.D., Yale University: Systematics and zoogeography of marine demospongiae. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1982.

Charles H. Janson, Assistant Professor, Ph.D., University of Washington, Seattle: Social ecology of vertebrates; plant dispersal strategies.

Richard K. Koehn, Professor, Ph.D., Arizona State University: Population genetics; enzyme functions and adaptation in natural populations.

Jeffrey S. Levinton, Professor, Ph.D., Yale University: Marine benthic ecology; population genetics of bivalve mollusks; paleoecology.

F. James Rohlf, Professor, Ph.D., University of Kansas: Multivariate data analysis applied to taxonomy and ecology; applied ecology.

Lawrence B. Slobodkin, Professor, Ph.D., Yale University: Evolutionary strategy and constraints; Hydra; ecotoxicology.

Robert R. Sokal, Professor, Ph.D., University of Chicago: Numerical taxonomy; theory of systematics; geographic variation; spatial models.

James D. Thomson, Associate Professor, Ph.D., University of Wisconsin: Pollination biology; plant reproductive systems; community ecology.

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

Department of Neurobiology and Behavior

Chairperson: Lorne M. Mendell

Faculty

Paul R. Adams, Professor, Ph.D., London University: Biophysical aspects of synaptic transmission.

John B. Cabot, Associate Professor, Ph.D., University of Virginia: Neural control of the cardiovascular system.

Albert D. Carlson, Professor, Ph.D., University of Iowa: Neurophysiology, pharmacology, and behavior of fireflies. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1983.

N.T. Carnevale, Assistant Professor, M.D., Ph.D., Duke University: Neuronal oscillations, dendritic electrotonus, and the cellular neurobiology of immune-related disorders.

Angel L. de Blas, Associate Professor, Ph.D., Indiana University: Neurochemistry; synaptic function; molecular mechanisms of cellular recognition during synaptogenesis.

L. Craig Evinger, Associate Professor, Ph.D., University of Washington: Control of eye movement.

Simon Halegoua, Associate Professor, Ph.D., State University of New York at Stony Brook: Molecular basis of neuronal determination and differentiation.

Joel M. Levine, Assistant Professor and Director of Graduate Studies, Ph.D., Washington University: Identification and biochemical characterization of cell surface molecules of the developing central nervous system.

Gary G. Matthews, Associate Professor, Ph.D., University of Pennsylvania: Cellular neurophysiology of the vertebrate central nervous system; visual transduction; synaptic transmission.

Stuart A. McLaughlin, Professor, Ph.D., University of British Columbia: Biophysics of membranes.

Lorne M. Mendell, Professor, Ph.D., Massachusetts Institute of Technology: Spinal physiology; modifiability of spinal circuitry.

Robert W. Merriam, Associate Professor, Ph.D., University of Wisconsin: Developmental movements and their molecular basis in egg cells.

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

Sheryl A. Scott, Associate Professor, Ph.D., Yale University: Developmental neurobiology.

S.M. Sherman, Professor, Ph.D., University of Pennsylvania: Functional organization and plasticity of mammalian visual systems.

Bernard D. Tunik, Associate Professor, Ph.D., Columbia University: Physiology and mechanics of muscle contraction.

Stephen Yazulla, Professor, Ph.D., University of Delaware: Electrophysiology, synaptic organization, and pharmacology of the vertebrate retina.

The Division of Biological Sciences sponsors two undergraduate majors: biochemistry (BCH) and biology (BIO). Both majors lead to the Bachelor of Science degree.

The undergraduate program in biochemistry provides an introduction to the chemical basis of biological phenomena. The student is prepared for graduate study in biochemistry or other biological sciences, for professional study in the health sciences, or for employment in research or industry. The program is based on a core of introductory courses in biology, chemistry, and biochemistry, with pertinent courses in mathematics and physics.

The undergraduate program in biology introduces the principles and methodology of the biological sciences. The student can prepare for graduate study, for professional study in the health sciences, for secondary school teaching, and for certain positions in industry and research.

Physical Facilities in the Biological Sciences

Three departments—Biochemistry, Ecology and Evolution, and Neurobiology and Behavior—have faculty offices and research laboratories in the Life Sciences Building. Faculty research laboratories are used by students involved in individual research projects. Divisional course laboratories and their preparation areas are

located in the Life Sciences Building, Computer Science Building, and Central Hall. The Biological Sciences complex also includes a separate library and a 15-bay greenhouse.

The Biology Undergraduate Studies Office is located in the Life Sciences Building.

Requirements for the Biochemistry Major

All courses offered for the major must be taken for a letter grade. In requirements B and C below, a minimum grade point average of 2.0 must be obtained for all courses numbered 300 or above.

A. Courses in Related Fields Credits

1. CHE 131, 132 General Chemistry or 141, 142 Honors Chemistry	8
2. CHE 133, 134 General Chemistry Laboratory or 143, 144 Honors Chemistry Laboratory	2
3. CHE 321, 322 Organic Chemistry or 331, 332 Honors Organic Chemistry	6
4. CHE 327 Organic Chemistry Laboratory A (CHE 333, 334 Organic Chemistry Laboratory B, 4 credits, may be substituted.)	2
5. CHE 301 or 312 Physical Chemistry	3
6. MAT 131, 132 Calculus I, II or 141, 142 Calculus Alpha, Beta (MAT 125, 126, 127, 9 credits, may be substituted)	8
7. MAT 231 or 241 Calculus III (Linear Algebra) or 221 Calculus III (Differential Equations)	3
8. PHY 103, 104 Physics for the Life Sciences or PHY 101, 102 Classical Physics I, II or PHY 105, 106 Classical Physics I, II: Honors	8
Subtotal	40

B. Courses in Biological Sciences

1. BIO 151, 152 Principles of Biology	8
2. BIO 220 General Genetics	3
3. BIO 361, 362 Biochemistry I, II	6
4. BIO 365 Biochemistry Laboratory	2
Subtotal	19

C. Required Electives

Two additional courses, totaling at least five credits, chosen from the following list, including at least one course marked with an asterisk (*):

BIO 310	Cell Biology
BIO 315	Microbiology
BIO 322*	Animal Development
BIO 347	Botany and Biotechnology
BIO 355	Computer Programming and Modeling Techniques in Biology
BIO 366*	Crystal Structure of Macromolecules
BIO 374*	Molecular and Cellular Neurobiology
BIO 409*	Current Research in Structure and Function of Proteins
BIO 410*	Current Research in Nucleic Acids and Molecular Genetics
CHE 302	Physical Chemistry II
CHE 303	Solution Chemistry Laboratory
CHE 345	Structure and Reactivity in Organic Chemistry
HBP 390*	Basic Mechanisms in Pathology
MAR 413	Marine Biochemistry
PHY 251	Modern Physics
Selected graduate courses in molecular biology (BMO) or the Health Sciences Center, with the permission of the biochemistry advisor and the course instructor, and subject to university limits (see p. 60).	
Subtotal	5-6

D. Upper-Division Writing Requirement

To fulfill the Upper-Division Writing Requirement in biochemistry, a sample of writing from an upper-division course in biological sciences must be submitted to the Biochemistry Department for evaluation by the Biochemistry Writing Committee. This writing sample can be a laboratory report, a term paper, or a report for a readings or research course, and it must contain at least 750 words of text. It is to be accompanied by a form (available in the Biochemistry Department Office) signed by the student and by the instructor of the course for which the material was written. The deadline for submission of the writing sample is December 1 for students graduating in the following May or August, and May 1 for students graduating in the following December.

If the writing in this sample is judged satisfactory by the writing committee, the requirement is fulfilled. If the writing is judged unsatisfactory, the student will be advised to seek

help in writing skills from the Writing Center and must pass a writing examination administered by the Biochemistry Department at a scheduled time prior to graduation.

Total 64-65

Additional courses to meet requirement C may be allowed each semester; a complete list is available in the Biochemistry Department Office. Research may not be used to satisfy major requirements; however, biochemistry majors are encouraged to do research in biochemistry or molecular biology (BIO 488 or similar course).

Honors Program in Biochemistry

Graduation with honors in biochemistry requires (1) a cumulative grade point average of 3.5 or higher in all courses in items A, B, and C above, and (2) presentation of an acceptable thesis based on a research project performed under BIO 488, written in the format of a paper in a scientific journal. A student interested in becoming a candidate for honors should submit an outline of the proposed thesis research project to the department's honors coordinator as early as possible, but in any case *no later than* the second week of classes in the last semester. (Acceptance of a project for BIO 488 registration does not imply automatic acceptance of that project for honors). The honors coordinator, in consultation with the student, will then appoint a thesis committee consisting of the research sponsor and two additional faculty members. Two members of the thesis committee will be members of the Biochemistry Department and one will be a member of another department in a related field.

Three copies of the finished thesis, approved by the research sponsor, must be presented to the honors coordinator at least 21 days before the date of graduation. The honors coordinator will then submit the thesis for final approval to the other two members of the thesis committee.

Requirements for the Biology Major

All courses offered for the major must be taken for a letter grade. Courses taken under P/NC may *not* be applied to the major. Requests for waivers of major requirements must be approved by the Biology Undergraduate Studies Committee (USC).

A. Study within Biology Credits

The 30 required credits in biology must include the following: 30

1. Principles of Biology: BIO 151, 152
2. General Genetics: BIO 220

3. Lecture/Seminar Courses
At least one lecture or seminar course in four of the following five areas of inquiry. Students in the Biology Teacher Preparation Program must take a course in each of the five areas for a letter grade.

Area I Cell Biology and Biochemistry

BIO 310, 313, 314, 315, 361, 362, 366

Area II Genetics and Development

BIO 220 (required), 321, 322, 327

Area III Neurobiology and Physiology

BIO 328, 330, 334, 374, 376, 379

Area IV Organisms

BIO 341, 342, 343, 344, 347, 380

Area V Ecology and Evolution
BIO 351, 353, 354, 355, 357, 359, 385

The applicability of special seminars (BIO 401-405) to area requirements will be announced.

Courses taken elsewhere apply to area requirements only when explicitly authorized by the Biology transfer evaluator.

4. Laboratory Experiences
(a) A laboratory course, or course including laboratory, in two of the four areas chosen from section 3, as listed below. (Some of these courses also apply to the lecture/seminar requirements of section 3.)
Area I BIO 365
Area II BIO 321, 324
Area III BIO 232, 335
Area IV BIO 341, 342, 343, 344, 380
Area V BIO 352

(b) A third laboratory experience, to be met by any of the courses listed in 4(a) or by research (BIO 486, 487, 488, 489, but *not* 484). Research in the Health Sciences may meet the requirement if approved by the Biology Undergraduate Studies Committee.

Note for Transfer Students:

Laboratories taken elsewhere apply to section 4 requirements only when explicitly authorized by the Biology

transfer evaluator. At least one of the three laboratories required for section 4 must be taken at Stony Brook.

5. Study in Depth

Every biology major must explore one aspect of biology in greater depth, and preferably in a course with extensive faculty-student interaction. The requirement can be met in any one of the following three ways:

(a) a second lecture/seminar course in one of the areas of inquiry listed in section A-3

(b) BIO 301 or 303

(c) any 400-level BIO course for majors

(d) Students completing the Biology Teacher Preparation Program are exempted from the depth requirement; they must instead take courses in all five areas of inquiry (see section A-3).

6. Electives

Additional courses to complete the total of 30 credits in biology courses offered for the major. These electives may be selected from any of the area courses listed under sections 3 and 4, and from non-area courses for majors (BIO 204, 301, 302, 303, 305, 306, 401-405). A maximum of two credits of readings (BIO 444, 446, 447, 448, 449) and a maximum of eight credits of research (BIO 484, 486, 487, 488, 489) can be applied to the 30-credit requirement. Up to eight credits (three for transfer students) of major electives may be chosen from a diverse list of courses offered by other departments. The current list is available from the Biology Undergraduate Studies Office.

Transfer students must take at least 15 of the 30 credits at Stony Brook (excluding BIO 151, 152); of these, at least 12 must be taken in the Division of Biological Sciences.

7. Quality Requirements

At least 26 of the 30 credits must be passed with a grade of C or higher. Transfer students must obtain at least 12 of the 26 quality credits from Stony Brook courses.

8. Transfer Student Summary

Transfer students are reminded that biology courses taken elsewhere do not meet major requirements unless authorized by the Biology transfer evaluator or in an

SUSB transfer booklet.

Transfer students must take 15 of the 30 total credits (excluding BIO 151, 152), 12 of the 26 quality credits (section 7), and one of the three laboratory experiences (section 4) at Stony Brook. The evaluator can be contacted at the Biology Undergraduate Studies Office.

B. Courses Required in Related Fields

Credits

1. Chemistry and Physics

One year of introductory chemistry with laboratory: CHE 131, 132 or 141, 142 and CHE 133, 134 or 143, 144.

10

One year of organic chemistry, with one semester of laboratory: CHE 321, 322 or 331, 332; and CHE 327 or 333.

8

One year of physics with

laboratory: PHY 103, 104 or 101, 102, or 105, 106.

8

2. Mathematics

One year of calculus (MAT 125, 126 or 131, 132 or 141, 142) and one semester of probability and statistics (BIO 305 or AMS 110 or 310).

9-11

Additional mathematics is recommended for many areas of research.

Subtotal 35-37

C. Upper-Division Writing Requirement

The advanced writing component of the major in biology requires approval by the writing committee of either:

- (a) a term paper written for an upper-division course in biological or health sciences at Stony Brook (including readings and research), or
- (b) two laboratory reports from a single upper-division course in biological or health sciences.

The material must be submitted by the Monday of the last week of classes in the fall semester for students planning to graduate in the following May or August, and by the Monday of the last week of classes in the spring semester for students planning to graduate in the following December. Forms and information can be obtained in the Biology Undergraduate Studies Office. If material is rejected, the student is urged to attend the

Writing Center (or to take an appropriate course) before re-submitting the paper or material from another biology course.

Total 65-67

Biology Teacher Preparation Program

This program is designed for the biology major who is preparing to teach in junior or senior high school. Professional courses are provided through the Center for Science, Mathematics, and Technology Education (see alphabetical listing, Science, Mathematics, and Technology Education). Please note that the depth requirement (see A-5) is waived, since students in biology teacher preparation must complete a lecture/seminar course in each of the five areas of inquiry (see A-3). Guidelines used by the teacher selection committee include a minimal overall G.P.A. of 2.7 (at Stony Brook and previous institutions).

Honors Program in Biology and in Biology and Society

Biology majors with a grade point average of 3.5 or higher in courses in the biological sciences and related fields (see A and B, above) are eligible to apply for candidacy in the honors program in biology or in biology and society. A potential honors student must obtain a sponsor (and a co-sponsor in biological sciences, if the sponsor is not a member of the division). Candidates for honors in biology should be enrolled in BIO 486-89 (Research) or research courses in health sciences, normally for two semesters. Candidates for honors in biology and society should be enrolled in BIO 484, normally for two semesters.

Application is made to the Undergraduate Studies Committee (USC) in the form of a proposal or interim report, approved by the sponsor. Applications normally are submitted at the beginning of the last semester of the project, and must be submitted no later than one month before graduation. The USC will appoint an examination committee for approved candidates.

The honors thesis has the format of a master's thesis and must be written solely by the student. Three copies of the thesis must be submitted to the examination committee no later than Monday of the penultimate week of classes (excluding final examination week). The student will meet with the examination committee for a formal thesis defense no later than Monday of the last week of classes. If satisfied, the examination committee will schedule a public seminar to be given by the candidate no later than the last day of classes. A copy of the thesis, with approvals page, must be sent to the USC for final review of the grade point average (which must be no less than 3.5 in the biological sciences and related

fields). Conferment of honors also requires maintenance of the highest standards of academic integrity by the student.

Requirements for the Minor in Biology

The biology minor, which is for students in majors other than biology and biochemistry, requires completion of at least 20 credits in those biology courses designed for the biology major, including:

- A. BIO 151 Principles of Biology: From Organisms to Ecosystems
- B. BIO 152 Principles of Biology: From Molecules to Organisms
- C. Nine credits at the 300 level, which must be passed with a C or higher
- D. A lecture/seminar course in at least two of the five areas of inquiry (I-V) listed under the biology major.

Up to two credits of biology research (BIO 484, 486, 487, 488, 489) and one credit of tutorial readings (BIO 444, 446, 447, 448, 449) may be applied toward the minor. The list of substitute electives for the major does not apply to the minor.

Note: Transfer students must complete at least 12 of the 20 credits at Stony Brook. Courses must be taken for a letter grade. Requests for waivers of minor requirements must be approved by the Biology Undergraduate Studies Committee.

Courses

See p. 60, Course Credit and Prerequisites, and p. 61, Undergraduate Numbering System.

BIO 101, 102 Biology: A Humanities Approach

The major concepts of biology are presented from historical, contemporary, and critical viewpoints. These concepts include the cell, the gene, molecular biology, development, and evolution. The human implications or values associated with each concept are emphasized. Not for major credit. Core Courses, with BIO 101 satisfying Natural Sciences Category A-1, and BIO 102 satisfying Natural Sciences Category B. *Prerequisite to BIO 102:* BIO 101
Fall (101) and spring (102), 3 credits each semester

BIO 105 Human Reproduction

Human reproduction is examined from a biological viewpoint. This includes anatomy, physiology, conception, pregnancy, intrauterine development, contraception, disorders and diseases, and attitudes and values. Not for major credit. *Fall, alternate years, 3 credits (not offered in 1990-91)*

BIO 111 Genetics and Man

A general introduction to genetics, with special attention to its importance in medicine, agriculture, and other aspects of human life and culture. Not for major credit. *Fall or spring, 3 credits*

BIO 113 General Ecology

Designed to provide a sense of the problems of modern ecology. Population growth and regulation, interspecific interactions in natural communities, and the concept of the balance of nature will be analyzed. The mutual relation between human activities and ecology will be discussed. Mathematics is not a prerequisite but might prove helpful. Not for major credit. A Core Course satisfying Natural Sciences Category A-1. *Fall, 3 credits*

BIO 114 The Aquatic World

An introduction to the animals, plants, and communities of the sea, rivers, and lakes. Three hours of lecture and one three-hour laboratory per week. Not for major credit or for credit after BIO 151.

Prerequisite: High school biology
Spring, alternate years, and summer, 4 credits (not offered in 1989-90)

BIO 115 Evolution and Society

The historical development of evolutionary thought, the evolutionary diversification of life, and the mechanisms of evolution are presented. The geological, genetic, and other biological principles necessary to comprehend evolutionary concepts are presented as background. Current controversies over the evidence for evolution are reviewed. Human evolution, medical and agricultural applications of evolutionary theory, and its implications for the development of human and other social systems will be considered. An introductory course in biology is not a prerequisite, but would be helpful. Not for major credit. A Core Course satisfying Natural Sciences Category A-1. *Fall, 3 credits*

BIO 151 Principles of Biology: From Organisms to Ecosystems

A survey of the diversity and evolutionary history of major groups of organisms, ecological relations of organisms to their environments, elementary genetics, and the mechanisms of evolution. Intended for prospective majors. Three hours of lecture and one three-hour laboratory per week. A Core Course satisfying Natural Sciences Category A-1.

Prerequisites: High school biology and chemistry
Fall, 4 credits

BIO 152 Principles of Biology: From Molecules to Organisms

The chemical and cellular bases of structure, energy metabolism, and heredity in living organisms, and the reproduction, development, and physiology of animals. Intended for prospective majors. Three hours of lecture and one three-hour laboratory per week. A Core Course satisfying Natural Sciences Category A-1.

Prerequisites: High school biology and chemistry
Spring, 4 credits

BIO 204 Ecology of Food Production

A survey of the ecology of agricultural systems and the natural limits of food production. Topics include the impact of environmental factors on agricultural systems, the biology of food production by major crop plants, and the role that human population growth and evolution may play

in global patterns of feast or famine. May not be taken for credit after BIO 347. A Core Course satisfying Natural Sciences Category B.

Prerequisites: Sophomore standing; a Natural Sciences Category A course
Fall, 3 credits

BIO 208 Cell, Brain, Mind

An introduction to the human brain and how it is the target of diseases, drugs, and psychological disturbances. The course will explore these topics through a knowledge of basic cell neurobiology. The implications of brain science for human behavior in society will also be considered. Not for major credit. A Core Course satisfying Natural Sciences Category B.

Prerequisites: High school chemistry or CHE 111; BIO 101 or 152
Spring, 3 credits

BIO 220 General Genetics

An introductory course in genetics for biology majors. General areas to be discussed include transmission genetics, cytogenetics, immunogenetics, molecular genetics, population genetics, and quantitative genetics.

Prerequisites: BIO 151, 152
Pre- or corequisite: CHE 131 or 141
Fall, 3 credits

BIO 231 Anatomy Laboratory for Pre-Nursing Students

Mammalian anatomy, including human material and an intensive dissection of the cat. One hour of recitation and one three-hour laboratory per week. Not for major credit.

Pre- or corequisite: HBA 300
Fall, 2 credits

BIO 232 Physiology Laboratory for Pre-Nursing Students

Laboratory studies in mammalian physiology. One hour of recitation and one three-hour laboratory per week. May not be taken for credit after BIO 335.

Prerequisites: BIO 231; HBA 300
Spring, 2 credits

BIO 301 Biological Literature and Its Use

Use of a research library in biology. Preparation and use of bibliographies; various philosophies of classification of literature, information storage, and retrieval. A review paper, meeting professional standards of style, will be required.

Prerequisite: At least 14 credits of biology major's courses
Fall, 1 credit

BIO 302 Computers for Biologists

Fundamentals of programming, concentrating on the C language and MS-DOS microcomputers. Introduction to assembly language stressing understanding of C constructs. Students gain experience in research applications by developing a program relevant to their field of interest.

Prerequisites: At least 14 credits of biology major's courses
Spring, 2 credits

BIO 303 Writing in the Biological Sciences

The process of writing within the biological sciences practiced as a process of thought, explanation, analysis, and persuasion.

Prerequisite: At least 14 credits of biology major's courses
Fall, 1 credit

BIO 305 Statistics for Biologists

An introductory statistics course for students in all areas of biology. Normal statistics to analysis of variance, regression analyses, and transformations. Nonparametric tests and chi-square testing. Properties of distributions and tests of fit to distributions. Fundamentals of probability theory, statistical decision theory, and the concept of statistical inference.

Prerequisite: Completion of one of the required calculus options
Fall, 3 credits

BIO 306 Ecological Risks and Environmental Decisions

The role of ecology in solving practical environmental problems in aquatic and terrestrial ecosystems. Topics include ecologically based technologies, methods of ecological risk analysis, releases of genetically engineered organisms, and response of ecosystems to pollution and overexploitation. A Core Course satisfying Natural Sciences Category B.

Prerequisites: Completion of a Natural Sciences Category A-1 course; MAT 125 or 131
Spring, 3 credits

BIO 310 Cell Biology

The cell is studied as the unit of structure, biochemical activity, genetic control, and differentiation. The principles of biochemistry and genetics are applied to an understanding of nutrition, growth, and development.

Prerequisites: BIO 152; CHE 321 or 331
Spring, 3 credits

BIO 313 Genetic Engineering and Recombinant DNA

Recent advances in gene cloning and cell cloning methodologies will be described. Examples will be given of applications of these techniques to molecular biology, developmental biology, and commercial manufacture, as well as to whole-animal cloning and genetic engineering. May not be taken for credit after BIO 362.

Prerequisites: BIO 220; CHE 131 or 141
Fall, 3 credits

BIO 314 Biological Clocks

The temporal dimension of biological organization focusing on the cellular and molecular timekeeping mechanisms characteristic of living systems. Topics include a survey of circadian rhythms and their properties in eukaryotic microorganisms; cell cycle clocks; the quest for anatomical loci; dissection of clocks by chemicals and molecular genetic techniques; entrainment and coupling pathways; biochemical and molecular models of circadian oscillators; pacemaker dysfunction; cellular aspects of chronopharmacology and chronotherapy; and cellular clocks in development and aging. Not for credit after the discontinued BIO 377.

Prerequisite: BIO 310 or 322 or 361 or 374
Spring, 3 credits

BIO 315 Microbiology

The organization, structure, energetics, and reproduction of microorganisms. Interactions of bacteria and viruses will be discussed.

Prerequisites: BIO 151, 152; CHE 322
Fall, 3 credits

BIO 321 Animal Embryology

A survey of the developmental anatomy of vertebrates. Laboratory exercises consist of the study of embryonic development from sectioned ma-

terial and whole embryos of selected vertebrates. Lectures and readings cover the principal developmental sequences and some of the important experimental analyses of these processes. Three hours of lecture and one three-hour laboratory per week.

Prerequisites: BIO 151, 152
Fall and spring, 4 credits

BIO 322 Animal Development

An introductory analysis of the development of form and function in animals emphasizing the experimental evidence underlying general principles. Topics covered include differentiation, determination, positional information, molecular developmental genetics, cell-cell interactions, and hormonal regulation.

Prerequisite: BIO 220
Pre- or corequisite: CHE 321 or 331
Spring, 3 credits

BIO 324 Laboratory in Animal Development

Laboratory studies designed to complement BIO 322, emphasizing the use of live invertebrate organisms in the analysis of developmental events. One hour of recitation and one three-hour laboratory per week.

Pre- or corequisite: BIO 322
Spring, 2 credits

BIO 327 Human Genetics

A consideration of the principles of genetics as they apply to humans. The course includes Mendelian inheritance, cytogenetics, immunogenetics, developmental genetics, and population genetics, and gives attention to genetic counseling and genetic screening.

Prerequisite: BIO 220
Spring, 3 credits

BIO 328 Mammalian Physiology

The basic principles of mammalian physiology. The subject matter includes circulation, respiration, nutrition, excretion (and their control by the nervous and endocrine systems), and sensation and coordination. May not be taken for credit in addition to HBY 350 or the discontinued BIO 230.

Prerequisites: BIO 151, 152; CHE 131 or 141
Spring, 3 credits

BIO 330 Comparative Physiology

An introduction to the physiological adaptations of various animal species to environmental variables. Emphasis is placed on homeostatic mechanisms at the organismic level.

Prerequisite: BIO 328
Fall, 3 credits

BIO 334 Principles of Neurobiology

The ionic basis of nerve potentials, the physiology of synapses, sense organs and effectors, and the integrative action of the nervous system will be discussed.

Prerequisites: BIO 151, 152; CHE 131 or 141
Fall, 3 credits

BIO 335 Animal Physiology Laboratory

Laboratory exercises designed to illustrate principles learned in BIO 328. Topics include muscles and hormones, physiological activities of nerves, circulation, respiration, excretion, digestion, sensory function, and central processes of

coordination. One hour of lecture and one three-hour laboratory per week.

Prerequisites: BIO 328; CHE 132, 133
Fall, 2 credits

BIO 341 Aquatic Organisms

Evolution, diversity, and adaptations of water-dwelling chordates and plants and of freshwater invertebrates. Study of the transitions from water to land and land to water. Three hours of lecture and one three-and-one-half-hour laboratory per week.

Prerequisites: BIO 151, 152
Spring, alternate years, 4 credits (not offered in 1990-91)

BIO 342 Comparative Biology of the Nonvascular Plants

A summary of the biology of the algae, fungi, slime molds, lichens, liverworts, hornworts, and mosses. The course will include considerations of the morphology, physiology, ecology, and biochemistry of these groups. Three hours of lecture and three hours of laboratory per week.

Prerequisites: BIO 151, 152; CHE 322 or 332
Fall, 4 credits

BIO 343 Marine Invertebrate Zoology

A study of the diversity, comparative and functional morphology, natural history, and evolution of multicellular marine invertebrates. Three hours of lecture and one three-and-one-half-hour laboratory per week.

Prerequisites: BIO 151, 152 or GEO 302
Fall, 4 credits

BIO 344 Chordate Zoology

An introduction to the diversity, comparative and functional morphology, natural history, and evolution of chordates, with interest centered on the modern fauna. Three hours of lecture or discussion and one three-and-one-half-hour laboratory per week.

Prerequisites: BIO 151, 152
Spring, 4 credits

BIO 347 Botany and Biotechnology

An introduction to the developmental origin, structure, and growth of the higher plant body as a basis for understanding the broader principles of plant biology and biosynthesis of useful products, as well as the relations of plants to human life. Economically important plants and their products, especially as sources of food, shelter, clothing, drugs, and industrial raw materials, are stressed. Current problems in agriculture, medicine, plant industry, and biotechnology, as well as the use, conservation, and appreciation of plants are included. A Core Course satisfying Natural Sciences Category B.

Prerequisites: BIO 151, 152
Pre- or corequisite: CHE 321 or 331
Fall, alternate years, 3 credits (not offered in 1989-90)

BIO 351 Ecology

An examination of the interactions of living organisms with their physical and biological environments. Special attention is given to population dynamics and the interactions among organisms that determine the structure, function, and evolutionary development of biological communities.

Prerequisites: BIO 151, 152; completion of biology major mathematics requirement
Fall, 3 credits

BIO 352 Ecology Laboratory

Stresses the collection, analysis, and interpretation of ecological data, mostly in terrestrial settings. Laboratory and field exercises demonstrate the operation of general ecological principles in specific populations and communities. One lecture, one three-hour field trip or laboratory weekly, and one hour of discussion. Three all-day Saturday field trips.
Pre- or corequisite: BIO 351
Fall or spring, 3 credits

BIO 353 Marine Ecology

A survey of biotic responses to ecological challenges in different marine realms. Controls of diversity and trophic structure in the marine ecosystem, historical aspects of marine realms, productivity in the oceans, plankton, soft-bottom communities, intertidal habitats, coral reefs, deep-sea environments, and effects of pollution in the ocean will be discussed. Crosslisted with GEO 353.

Prerequisite: BIO 343
Spring, 3 credits

BIO 354 Evolution

A detailed discussion of the mechanisms of evolution, focusing on the ways in which genetic changes in populations lead to adaptation, speciation, and historical patterns of evolutionary change.

Prerequisites: BIO 220; completion of biology major mathematics requirement
Fall, alternate years, 3 credits (not offered in 1989-90)

BIO 355 Computer Programming and Modeling Techniques in Biology

An introduction for advanced biology, mathematics, and physics majors to Pascal programming applications in ecology, population genetics, and taxonomy. Mathematical methods used in modeling of biological phenomena. Both analytical and simulation techniques will be emphasized.

Prerequisites: A year of calculus; either BIO 151, 152 or PHY 102 or 104 or 106

Fall, 3 credits

BIO 357 General Microbial Ecology

An introduction to the study of the interaction of microorganisms with their natural or artificial environments. The course will include the historical development of microbial ecology, a review of microbial diversity and structure, ecological parameters, population interactions, applied microbial ecology, experimental design and data analysis, and ecosystem modeling as applied to microbial ecology.

Prerequisites: BIO 151, 152; CHE 322 or 332
Spring, 3 credits

BIO 359 Animal Behavior

A consideration of observed patterns and underlying mechanisms of animal behavior in relation to ecological circumstances and evolutionary history, with examples mainly from the vertebrates. Crosslisted with PSY 343.

Prerequisites: PSY 103 or 104; BIO 101 or 151
Fall, 3 credits

BIO 361, 362 Biochemistry I, II

Biochemistry I surveys the major chemical constituents of the cell, including carbohydrates, lipids, and proteins. Emphasis is on enzyme structure, enzyme kinetics, reaction mechanisms, and metabolic pathways. Biochemistry II treats nucleic acid structure, replication, and transcrip-

tion, both *in vivo* and *in vitro*. The machinery of protein synthesis is also covered, including amino acid activation; transfer RNA; ribosomes; the genetic code; and the peptides chain initiation, elongation, and termination.

Prerequisites for BIO 361: BIO 152; CHE 322 or 332

Prerequisite for BIO 362: BIO 361

Fall (361) and spring (362), 3 credits each semester

BIO 365 Biochemistry Laboratory

A series of laboratory experiments and discussions designed particularly to complement BIO 361. Topics include isolation of cellular organelles, extraction and characterization of nucleic acids and enzymes, osmosis and permeability, and bioenergetics. Four hours of laboratory and discussion per week.

Pre- or corequisite: BIO 310 or 361
Fall, 2 credits

BIO 366 Crystal Structure of Macromolecules

The determination of the three-dimensional structures of biological macromolecules using the X-ray diffraction analysis of their single crystals.

Prerequisites: CHE 322 or 332; MAT 127 or 132 or 142; BIO 361 is recommended
Fall, alternate years, 3 credits (not offered in 1990-91)

BIO 374 Molecular and Cellular Neurobiology

The structure, function, and development of nerve, muscle, and glia will be presented at the molecular level. The cellular and molecular processes underlying neurotransmitters, their receptors and ion channels, neuromodulators, synaptogenesis, and axonal growth and transport will be described. Emphasis will be placed on relating various experimental model neurobiological systems to the mammalian nervous system.

Prerequisite: BIO 310 or 334 or 361
Spring, alternate years, 3 credits (not offered in 1989-90)

BIO 376 General Plant Physiology

The physiological patterns and integration of cellular processes that culminate in plant growth.

Prerequisites: BIO 151, 152; CHE 132
Fall, alternate years, 3 credits (not offered in 1989-90)

BIO 379 Developmental Neurobiology

An introduction to the development of the nervous system. General areas to be discussed include neuroembryology, neuronal differentiation, synapse formation, neurotrophic interactions, and specificity and plasticity of neuronal connections.

Prerequisite: BIO 328 or PSY 241
Spring, alternate years, 3 credits (not offered in 1990-91)

BIO 380 Entomology

A survey of the anatomy, development, classification, biogeography, physiology, ecology, and evolution of the insects. The laboratory will stress a knowledge of insect diversity and morphology. Two hours of lecture and one three-hour laboratory per week.

Prerequisites: BIO 151, 152
Fall, alternate years, 3 credits (not offered in 1990-91)

BIO 385 Ecology of Land Plants

Lectures and discussions on ecological phenomena and problems important to plants and plant communities, including such areas as physiological processes, competitive interactions, plant-animal interactions, and community dynamics.

Prerequisites: BIO 151, 152; completion of biology major mathematics requirement; BIO 351 recommended
Fall, alternate years, 3 credits (not offered in 1989-90)

BIO 401-405 Seminars in Biology

Discussions of a specific area of current interest in biology. The work of each semester covers a different area of biology. May be repeated as subject matter differs.

Prerequisite: Permission of instructor
Schedule to be announced, 2 credits each

BIO 409 Current Research in Structure and Function of Proteins

A series of reports by members of the Department of Biochemistry on their current research on structural and functional aspects of proteins including enzymes, structural proteins, and membrane proteins.

Prerequisite: BIO 361
Fall or spring, 2 credits

BIO 410 Current Research in Nucleic Acids and Molecular Genetics

A series of reports by members of the Department of Biochemistry on their current research on nucleic acids, protein synthesis, and molecular genetics.

Prerequisite: BIO 362
Fall or spring, 2 credits

BIO 420 Developmental Genetics

The genetic analysis of developmental events in higher organisms.

Prerequisites: BIO 220 and 310; permission of instructor
Fall, 2 credits

BIO 444, 446-449 Readings in Biological Sciences

BIO 444 Readings in Biology and Society

BIO 446 Readings in Neurobiology and Physiology

BIO 447 Readings in Genetics and Development

BIO 448 Readings in Biochemistry

BIO 449 Readings in Ecology and Evolution

Tutorial readings in the biological sciences.

These courses may be repeated, but not more than two credits may be used toward major requirements. Limit of one topic per semester.

Prerequisites for BIO 444, 446, 447, and 449: Written permission of instructor and undergraduate studies committee.

Prerequisites for BIO 448: Permission of instructor and Biochemistry Department
Fall and spring, 1 or 2 credits each

BIO 475 Undergraduate Teaching Practicum in College Biology I

Study of the literature, resources, and teaching strategies in a field of biology, coordinated with a supervised clinical experience in instruction. Not for major credit. Satisfactory/Unsatisfactory grading only.

Prerequisites: Permission of instructor and undergraduate studies committee
Fall and spring, 2 or 3 credits

BIO 476 Undergraduate Teaching Practicum in College Biology II

Study of the literature, resources, and teaching strategies in a field of biology, coordinated with a teaching experience in a course other than the one used for BIO 475. Not for major credit. Satisfactory/Unsatisfactory grading only. *Prerequisites:* BIO 475; permission of instructor and undergraduate studies committee
Fall and spring, 2 or 3 credits

BIO 484, 486-489 Research in Biological Sciences

BIO 484 Research in Biology and Society
BIO 486 Research in Neurobiology and Physiology
BIO 487 Research in Genetics and Development
BIO 488 Research in Biochemistry
BIO 489 Research in Ecology and Evolution
In these courses the student will work under the supervision of a faculty member in developing an individual project that makes use of the knowledge and techniques acquired in previous courses. The student will prepare an appropriate report on the project. Any of the courses may be taken for more than two semesters, but no more than eight credits may be used for biology major requirements. Limit of one topic per semester. BIO 484 does not apply to the laboratory requirements of the biology major. Request for approval of the Undergraduate Studies Committee must be submitted no later than two days prior to the last day of the add period as scheduled in the academic calendar.
Prerequisites for BIO 484, 486, 487, and 489: Written permission of instructor and undergraduate studies committee
Prerequisites for BIO 488: Written permission of instructor and Biochemistry Department
Fall and spring, 1 to 4 credits each

Department of Chemistry

Chairperson: Jerry L. Whitten
Director of Undergraduate Studies: Robert C. Kerber

Faculty

Mohammad J. Akhtar, Lecturer and Coordinator of General Chemistry Laboratories, Ph.D., University of the Pacific: Kinetics and mechanisms of inorganic reactions.

John M. Alexander, Professor, Ph.D., Massachusetts Institute of Technology: Nuclear chemistry.

Scott L. Anderson, Associate Professor, Ph.D., University of California, Berkeley: Chemical reaction dynamics.

Rodney A. Bednar, Adjunct Assistant Professor, Ph.D., University of Delaware: Mechanisms of enzyme action; affinity labeling and suicide enzyme inactivators; rational design of drugs.

Thomas W. Bell, Associate Professor, Ph.D., University College, London: Isolation and synthesis of insect pheromones; synthetic methods; synthesis and study of new cation complexing agents.

Jacob Bigeleisen, Professor, Ph.D., University of California, Berkeley: Chemistry of isotopes.

Francis T. Bonner, Professor, Ph.D., Yale University: Nitrogen and isotope chemistry.

Cynthia J. Burrows, Assistant Professor, Ph.D., Cornell University: Organic coordination chemistry; biomimetic chemistry.

Benjamin Chu, Professor, Ph.D., Cornell University: Light-scattering spectroscopy; X-ray scattering.

Frank W. Fowler, Professor and Director of Graduate Studies, Ph.D., University of Colorado: Synthesis and study of heterocycles.

Harold L. Friedman, Professor, Ph.D., University of Chicago: Theory of equilibrium; dynamic properties of solutions.

Theodore D. Goldfarb, Associate Professor, Ph.D., University of California, Berkeley: Environmental chemistry. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1979.

Albert Haim, Professor, Ph.D., University of Southern California: Kinetics and mechanisms of inorganic reactions. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1981.

David M. Hanson, Professor, Ph.D., California Institute of Technology: Theoretical and experimental investigations of molecular crystals.

Gerard S. Harbison, Assistant Professor, Ph.D., Harvard University: Solid state nuclear magnetic resonance studies of biological systems.

Patrick J. Herley, Professor, Ph.D., Rhodes College; Ph.D., Imperial College, London: Thermal decomposition; catalysis.

Takanobu Ishida, Professor, Ph.D., Massachusetts Institute of Technology: Chemistry of stable isotopes.

Francis Johnson, Professor, Ph.D., Glasgow University: Structure and total synthesis of naturally occurring biologically active molecules.

Philip M. Johnson, Professor, Ph.D., Cornell University: Optical molecular spectroscopy.

Marjorie Kandel, Lecturer, Coordinator of Organic Chemistry Laboratories, M.S., Indiana University.

Robert C. Kerber, Professor, Ph.D., Purdue University: Organo-transition metal chemistry. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1986, and the President's Award for Excellence in Teaching, 1986.

Stephen A. Koch, Associate Professor, Ph.D., Massachusetts Institute of Technology: Bioinorganic chemistry.

Chirakkal V. Krishnan, Adjunct Professor, Ph.D., University of Bombay: Chemistry education.

Joseph W. Lauher, Associate Professor, Ph.D., Northwestern University: Inorganic and organometallic synthesis and structure.

William J. le Noble, Professor, Ph.D., University of Chicago: Chemistry of highly compressed solutions.

Robert L. Lichter, Professor, Ph.D., University of Wisconsin: Organic chemistry; nuclear magnetic resonance.

Andreas Mayr, Associate Professor, Ph.D., University of Munich: Synthesis, reactivity, and physical properties of new transition metal compounds.

Michelle M. Millar, Research Associate Professor, Ph.D., Massachusetts Institute of Technology: Transition metal complexes; organometallic chemistry; bioinorganic chemistry.

Marshall D. Newton, Adjunct Professor, Ph.D., Harvard University: Theoretical chemistry; prediction and analysis of molecular structure and energetics.

Iwao Ojima, Professor, Ph.D., University of Tokyo: Synthetic, bioorganic, and organometallic chemistry.

Yoshi Okaya, Professor, Ph.D., Osaka University: Crystallography; computer-controlled data acquisition.

Richard N. Porter, Professor, Ph.D., University of Illinois: Theoretical chemistry.

Glenn D. Prestwich, Professor, Ph.D., Stanford University: Bioorganic chemistry; chemical ecology.

Steven E. Rokita, Assistant Professor, Ph.D., Massachusetts Institute of Technology: Bioorganic and enzyme chemistry; DNA photochemistry.

Robert F. Schneider, Associate Professor, Ph.D., Columbia University: Nuclear quadrupole resonance.

Stanley Seltzer, Adjunct Professor, Ph.D., Harvard University: Elucidation of enzyme and organic reaction mechanisms.

Richard Solo, Adjunct Associate Professor, Ph.D., University of California, Berkeley: Gas phase kinetics.

Charles S. Springer, Professor, Ph.D., Ohio State University: Metal coordination chemistry; nuclear magnetic resonance in membranes.

George Stell, Professor, Ph.D., New York University: Molecular theory of the fluid state; ionic fluid structural properties; transport in multiphase systems.

Sei Sujishi, Professor, Ph.D., Purdue University: Organosilicon chemistry.

Hans Thomann, Adjunct Assistant Professor, Ph.D., State University of New York at Stony Brook: Magnetic resonance in disordered heterogeneous and amorphous condensed matter.

Jerry L. Whitten, Professor, Ph.D., Georgia Institute of Technology: Theoretical chemistry.

Arnold Wishnia, Associate Professor, Ph.D., New York University: Physical chemistry of proteins.

Teaching Assistants

Estimated number: 47

The Bachelor of Science program in chemistry is designed to prepare the student for graduate study in chemistry or for industrial or other employment. It includes options in biological chemistry, chemical physics, and environmental chemistry, in addition to the traditional chemical science option. The program of the Department of Chemistry is approved by the Committee on Professional Training of the American Chemical Society.

The Bachelor of Arts program allows more flexibility in the choice of electives, accommodating the needs of premedical students and others whose career objectives may call for a substantial introduction to chemistry. It can also accommodate students who wish to obtain a strong undergraduate background in another science or mathematics while earning a degree in chemistry.

Students interested in combining the study of chemistry with the study of materials science should see also the Interdisciplinary Program in Engineering Chemistry.

Physical Facilities

Chemistry laboratory facilities consist of about 7,000 square feet of general chemistry laboratories in the Old Chemistry Building and over 11,000 square feet of advanced undergraduate laboratories in the Chemistry Building. Students taking laboratory courses are issued lockers that contain the appropriate basic glassware and other apparatus; more specialized equipment and apparatus are issued for a laboratory period. All laboratories have conveniently located balance rooms or weighing areas; instructional stockrooms are located adjacent to the work areas. Equipment associated with (1) general chemistry laboratory (CHE 133, 134 and CHE 143, 144) includes analytical balances, pH meters, and visible spectrophotometers; (2) organic chemistry laboratory (CHE 327 and CHE 333, 334) includes gas chromatographs, infrared and ultraviolet spectrometers, and melting-point apparatus; and (3) physical chemistry laboratory (CHE 303, 304 and CHE 357) includes digital spectrophotometers, bomb calorimeter, oscilloscopes, digital electronic equipment, EPR, pulsed NMR, X-ray generator and camera,

as, spectrofluorimeter, atomic absorption spectrometer, and mass spectrometer.

Requirements for the Bachelor of Science Degree in Chemistry

All required courses must be taken for a letter grade. No transferred course with a grade lower than C- may be used to fulfill any major requirement.

A. Core Requirements	Credits
1. CHE 131, 132 or 141, 142 General or Honors Chemistry	8
2. CHE 133, 134 or 143, 144 General or Honors Chemistry Laboratory	2
3. CHE 301, 302 Physical Chemistry	6
4. CHE 303 Solution Chemistry Laboratory	2
5. CHE 321, 322 or 331, 332 Organic or Honors Organic Chemistry	6
6. CHE 333 Organic Chemistry Laboratory B	2
7. CHE 375 Inorganic Chemistry I	3
8. MAT 131, 132 Calculus I, II	8
9. MAT 231 Calculus III: Linear Algebra	3
10. PHY 101, 102 Classical Physics I, II	8
Subtotal	48

B. Area Requirements

One of the following options:

1. Chemical Science Option	Credits
CHE 304 Chemical Instrumentation Laboratory	2
CHE 334 Organic Chemistry Laboratory B	2
CHE 357 Molecular Structure and Spectroscopy Laboratory	2
One elective chemistry lecture course, numbered above CHE 340	3
MAT 306 Calculus IV: Multivariate Calculus	3
PHY 251 Modern Physics	4
Subtotal	16

2. Biological Chemistry Option	Credits
CHE 334 Organic Chemistry Laboratory B	2
One organic or inorganic chemistry elective: CHE 344, 345, or 376	3
BIO 152 Principles of Biology: From Molecules to Organisms	4
BIO 361 Biochemistry I	3
BIO 310 Cell Biology or BIO 362 Biochemistry II	3
Subtotal	15

3. Chemical Physics Option

CHE 304 Chemical Instrumentation Laboratory	2
CHE 357 Molecular Structure and Spectroscopy Laboratory	2
MAT 306 Calculus IV: Multivariate Calculus	3
PHY 251 Modern Physics	4
PHY 252 Optics and Waves	4
Physical chemistry or physics elective: CHE 350, 351, 353, PHY 301, 303, or 306	3
Subtotal	18

4. Environmental Chemistry Option

CHE 304 Chemical Instrumentation Laboratory	2
CHE 310 Chemistry in Technology and the Environment	3
CHE 334 Organic Chemistry Laboratory B	2
CHE 357 Molecular Structure and Spectroscopy Laboratory	2
BIO 151 Principles of Biology: From Organisms to Ecosystems or BIO 113 General Ecology	3-4
ATM/ESC 397 Air Pollution and Its Control	3
Subtotal	15-16

C. Upper-Division Writing Requirement

Each student majoring in chemistry must submit a portfolio of three to five papers from previous chemistry coursework, at least two of which should be full laboratory reports from chemistry courses. This portfolio is to be submitted to the Chemistry Department by the end of the junior year. It must be found acceptable in its clarity and precision of communication before the student can be cleared for graduation.

Total 63-66

Notes:

1. The following alternate sequences may be substituted in major requirements or prerequisites: MAT 141, 142 or 125, 126, 127 for 131, 132; MAT 241 for 231; MAT 307 for 306; PHY 103, 104 or 105, 106 for 101, 102.

2. At least 12 credits of chemistry courses must be taken at Stony Brook; these must be taken in at least two of the major subdisciplines (inorganic, physical, and organic chemistry).

3. The American Chemical Society's Committee on Professional Training has set nationally recognized standards for professional preparation in chemistry. The Chem-

istry faculty recommends that students intending to pursue careers in the chemical sciences secure ACS certification along with their Bachelor of Science degree.

For ACS certification students electing the chemical science option will need to complete two additional electives in chemistry or related fields. Students electing the biological chemistry option will need to complete one additional elective in chemistry or a related field and the CHE 304 and 357 laboratories. Students electing the chemical physics option will need one additional chemistry elective and the CHE 334 laboratory. Students electing the environmental chemistry option will need one additional chemistry elective.

4. For those students who plan to pursue post-college studies in chemistry, it is recommended that a reading knowledge be attained in German and in French or Russian.

Requirements for the Bachelor of Arts Degree in Chemistry

All required courses must be taken for a letter grade. No transferred course with a grade lower than C- may be used to fulfill any major requirement.

A. Study Within the Area of Chemistry

	<i>Credits</i>
1. CHE 131, 132 or 141, 142 General or Honors Chemistry	8
2. CHE 133, 134 or 143, 144 General or Honors Chemistry Laboratory	2
3. CHE 301 or 312 Physical Chemistry I or Short Course	3
4. CHE 302 Physical Chemistry II	3
5. CHE 303 Solution Chemistry Laboratory, and one additional laboratory course (304, 334, or 357)	4
6. CHE 321, 322 or 331, 332 Organic or Honors Organic Chemistry	6
7. CHE 327 or 333 Organic Chemistry Laboratory	2
8. CHE 375 Inorganic Chemistry I	3
Subtotal	31

B. Courses in Related Fields

1. Three semesters of calculus: MAT 131, 132, 231	11
2. Three semesters of physics: PHY 101, 102, 251	12
Subtotal	23

C. Upper-Division Writing Requirement

Same as for Bachelor of Science Program, requirement C.

Total 54

Notes:

1. The following alternate sequences may be substituted in major requirements or prerequisites: MAT 125, 126, 127 or 141, 142 for 131, 132; MAT 241 for 231; PHY 103, 104 or 105, 106, for 101, 102.

2. At least 12 credits of chemistry courses must be taken at Stony Brook; these must be taken in at least two of the major subdisciplines (inorganic, physical, and organic chemistry).

Honors Program in Chemistry

Students who have maintained a minimum cumulative grade point average of 3.0 in science and mathematics through the junior year are eligible for departmental honors in chemistry. An additional requirement for honors is the submission of a senior thesis based on research performed during the senior year. The student will be given an oral examination in May by his or her research supervisor and the undergraduate research committee. The awarding of honors requires the recommendation of this committee and is a recognition of superior performance in research and scholarly endeavors. If the student has also achieved a 3.4 cumulative grade point average in chemistry courses taken in the senior year, honors will be conferred.

Teacher Preparation Program in Chemistry

This program is designed for the student who is preparing to teach chemistry in secondary schools. Professional courses are provided through the Center for Science, Mathematics, and Technology Education. Consult the director of undergraduate studies for further details.

Courses

See p. 60, Course Credit and Prerequisites, and p. 61, Undergraduate Numbering System.

CHE 111 Elementary Chemistry I

An introduction to the concepts of chemical composition, structure, and reactions, illustrated with examples from the life sciences. Appropriate for students preparing for admission to nursing and some other undergraduate health professions programs, liberal arts students, and those lacking high school preparation for CHE 131. Not open to students who have completed high school chemistry, except by permission, nor to students who have completed any college chemistry course. A Core Course satisfying Natural Sciences Category A-2.

Fall, 3 credits

CHE 112 Elementary Chemistry II

A terminal course in fundamental organic and biological chemistry, appropriate for students preparing for admission to nursing and some other undergraduate health professions programs. A Core Course satisfying Natural Sciences Category A-2.

Prerequisite: CHE 111 or 131

Spring, 3 credits

CHE 131, 132 General Chemistry

A broad introduction to the fundamental principles of chemistry, including substantial illustrative material drawn from the chemistry of inorganic, organic, and biochemical systems. The principal topics covered are stoichiometry, the states of matter, chemical equilibrium and introductory thermodynamics, electrochemistry, chemical kinetics, electron structure and chemical bonding, and chemical periodicity. The sequence emphasizes basic concepts, problem solving, and factual material. It provides the necessary foundation for students who wish to pursue further coursework in chemistry. This sequence is inappropriate for students who have completed two or more years of chemistry in high school; such students should take CHE 141, 142. It is strongly recommended that General Chemistry Laboratory and mathematics be taken concurrently with CHE 131, 132. (Note that the laboratory courses are prerequisite to organic chemistry.) Three lecture hours and one discussion hour per week. Core Courses satisfying Natural Sciences Category A-2.

Prerequisite to CHE 131: High school chemistry or CHE 111

Prerequisite to CHE 132: CHE 131

Fall and spring (131), spring and summer (132), 4 credits each semester

CHE 133, 134 General Chemistry Laboratory

Designed to familiarize students with (1) some chemical and physical properties of substances, (2) techniques of quantitative chemistry, and (3) scientific methodology. Four hours of laboratory and discussion per week.

Pre- or corequisite to CHE 133: CHE 131

Prerequisite to CHE 134: CHE 133

Pre- or corequisite to CHE 134: CHE 132

Fall and spring (133), spring and summer (134), 1 credit each semester

CHE 141, 142 Honors Chemistry

The topics covered in this sequence are similar to those in CHE 131, 132, but the sequence draws more on students' previous background in science and mathematics in order to present the material in a more quantitative manner. The students in CHE 141, 142 typically have good backgrounds in mathematics and science, especially chemistry and physics. It is strongly recommended that Honors Chemistry Laboratory be taken concurrently. Three lecture hours and one discussion hour per week. Core Courses satisfying Natural Sciences Category A-2.

Prerequisite to CHE 141: High school chemistry and precalculus

Corequisite to CHE 141: MAT 131 or 141

Prerequisite to CHE 142: CHE 141

Corequisite to CHE 142: MAT 132 or 142

Fall (141) and spring (142), 4 credits each semester

CHE 143, 144 Honors Chemistry Laboratory. Laboratory program similar in content to CHE 133, 134 but conducted at a more intensive and stimulating level. Four hours of laboratory and discussion per week.
Corequisite to CHE 143: CHE 141
Prerequisite to CHE 144: CHE 143
Corequisite to CHE 144: CHE 142
Fall (143) and spring (144), 1 credit each semester

CHE 301 Physical Chemistry I

Equations of state. The principles of thermodynamics and their application to chemical reactions, phase equilibria, ideal and nonideal solutions, and electrochemical systems. Transport properties.
Prerequisites: CHE 132 or 142; MAT 132 or 127
Corequisite: PHY 101 or 103 or 105
Fall, 3 credits

CHE 302 Physical Chemistry II

Introductory quantum mechanics, with applications to atomic and molecular systems. The Schrödinger equation will be solved for simple systems and the general theory applied in the discussion of chemical bonding, molecular structure, and spectroscopy. Statistical thermodynamics.
Prerequisites: CHE 301 or 312; MAT 231
Corequisite: PHY 102 or 104 or 106
Spring, 3 credits

CHE 303 Solution Chemistry Laboratory

Quantitative techniques of solution chemistry. Measurement: accuracy and precision, analysis, computation, and reporting. Spectrophotometry. Solution equilibria and kinetics. Use of computers will be introduced. Six hours of laboratory and discussion.
Prerequisite: CHE 134 or 144
Corequisite: CHE 301
Fall, 2 credits

CHE 304 Chemical Instrumentation Laboratory

Electrochemical and thermochemical measurements. Electronics in chemical instrumentation. Vacuum techniques. Electrical and magnetic properties of materials. Data-handling methods. Six hours of laboratory and discussion.
Prerequisites: CHE 303; knowledge of computer programming
Corequisite: CHE 302
Spring, 2 credits

CHE 310 Chemistry in Technology and the Environment

Use of chemical principles in understanding processes that occur in the modern technological world and in the natural environment. Certain ecological problems of a chemical nature are analyzed. Methods of controlling these problems are discussed. A Core Course satisfying Natural Sciences Category B.
Prerequisite: CHE 112 or 132 or 142
Fall or spring, 3 credits

CHE 312 Physical Chemistry (Short Course)

A one-semester treatment of fundamental concepts of physical chemistry, intended primarily for students of the biological sciences desiring an introduction to physical chemistry. Topics include equations of state; classical thermodynamics and its application to chemical equilibrium in reaction systems, multiphase systems, and electrochemical cells; kinetic theory of

gases; transport properties; chemical kinetics. Cannot be taken for credit by students who have completed CHE 301.

Prerequisite: CHE 132 or 142
Pre- or corequisites: MAT 132 or 142; PHY 101 or 103 or 105
Spring, 3 credits

CHE 321, 322 Organic Chemistry

A systematic discussion of the structures, physical properties, and syntheses of carbon compounds, based on modern views of chemical bonding and mechanism. The chemistry of substances important in biology and technology, including macromolecules, will be emphasized.
Prerequisites to CHE 321: CHE 132 or 142; 134 or 144
Prerequisite to CHE 322: CHE 321
Fall and summer (321), spring and summer (322), 3 credits each semester

CHE 327 Organic Chemistry Laboratory

Techniques of isolating and handling organic substances, including biological materials. A one-semester course that provides a basic organic laboratory experience. It is recommended that students take CHE 327 at the same time as or immediately following CHE 322 or 332. Safety considerations make it necessary to prohibit wearing contact lenses in these laboratories. Four laboratory hours and one lecture hour per week. Not for credit in addition to CHE 333.
Prerequisites: CHE 134 or 144; 321 or 331
Fall and spring, 2 credits

CHE 331, 332 Honors Organic Chemistry

An organic chemistry course similar to CHE 321, 322 but providing a more fundamental view of organic compounds, reaction mechanisms, and synthesis, based somewhat more explicitly on thermodynamics and kinetics. Especially for those who may major in chemistry, biochemistry, or another physical science.
Prerequisites to CHE 331: CHE 132 or 142; 134 or 144
Prerequisite to CHE 332: CHE 331
Fall (331) and spring (332), 3 credits each semester

CHE 333, 334 Organic Chemistry Laboratory B

Fundamental laboratory techniques of organic chemistry, including methods of isolation, purification, and structure identification, with applications to synthetic, structural, and mechanistic problems. For students who will require substantial laboratory skills, such as those planning careers in research. Safety considerations make it necessary to prohibit wearing contact lenses in these laboratories. Not for credit in addition to CHE 327.
Prerequisite: CHE 134 or 144
Corequisites: CHE 321, 322 or 331, 332
Prerequisite to CHE 334: CHE 333
Fall (333) and spring (334), 2 credits each semester

CHE 344 Spectroscopy of Organic Compounds

Modern spectroscopic methods applied to organic compounds. Structural effects on spectroscopic properties are surveyed with dual emphasis on fundamental aspects and problem solving. The student learns how spectroscopic

methods are used both to solve complex structural problems and to investigate bonding features in organic molecules.

Prerequisite: CHE 322 or 332
Spring, 3 credits

CHE 345 Structure and Reactivity in Organic Chemistry

Electronic and stereochemical theories relating to organic structure and reactions. Topics such as bonding, strain, aromaticity, MO theory, molecular rearrangements, pericyclic reactions, and photochemistry will be covered.
Prerequisite: CHE 322 or 332
Fall or spring, 3 credits

CHE 347 Physical Chemistry of Metal-Gas and Metal-Liquid Interfaces

The behavior and chemical properties of solid-gas and solid-liquid interfaces. Adsorption and the specific factors influencing (a) heterogeneous catalysis on gas-solid interfaces, and (b) oxidation and reduction processes at metal-liquid interfaces are described. Examples are drawn from industrial processes to describe these effects. Crosslisted with ESM 347.
Prerequisites: CHE 302; PHY 102 or 106
Spring, 3 credits

CHE 350 Research Frontiers in Physical Chemistry

Selected topics of active research interest introduced at the advanced undergraduate level and developed to the level of the current research literature. The topics will vary from year to year and will be taken from areas such as spectroscopy, molecular kinetics and dynamics, polymer and biophysical chemistry, solid state and surface chemistry, and nuclear chemistry, and may include theoretical developments of interest to chemists. May be repeated as the topic varies.
Prerequisites: CHE 302; MAT 306
Fall or spring, 3 credits

CHE 351 Quantum Chemistry

Concepts of quantum theory, Schrödinger wave mechanics, and related mathematical techniques illustrated by application to systems of chemical bonding, spectroscopy, molecular structure, and molecular collision phenomena.
Prerequisites: CHE 302; MAT 306
Fall, 3 credits

CHE 353 Chemical Thermodynamics

A rigorous development of thermodynamics and its application to systems of interest to chemists, including electrochemical cells, gases, polymers, and homogeneous and heterogeneous equilibrium. An introduction to statistical mechanics is included.
Prerequisites: CHE 302; MAT 306
Fall, 3 credits

CHE 357 Molecular Structure and Spectroscopy Laboratory

Spectroscopic study of molecular properties. Magnetic resonance and optical spectra. X-ray crystallography, mass spectrometry. Six hours of laboratory and discussion.
Prerequisite: CHE 304
Fall, 2 credits

CHE 361 Nuclear Chemistry

Properties of radioactive substances and their use in the study of chemical problems, nuclear stability and structure, nuclear reactions, radioac-

tive decay, interactions of radiation with matter, nuclear medicine, isotope applications, and environmental control.

Prerequisites: Four semesters of chemistry; PHY 102 or 106; MAT 132 or 142; permission of department through application by January 30
Corequisite: CHE 362
Summer, 3 credits

CHE 362 Nuclear Chemistry Laboratory

Detection and measurement of radiation, electronic instrumentation, radiation safety, and application of radioactivity to chemical problems.
Corequisite: CHE 361
Summer, 3 credits

CHE 375 Inorganic Chemistry I

A survey of inorganic chemistry covering various classes of inorganic compounds and reactions with emphasis on the structural aspects. Wherever possible, the subject is treated on the basis of modern concepts of chemical bonding. Thermodynamic and kinetic aspects of inorganic reactions are included.

Prerequisites: CHE 302; 321 or 331
Fall, 3 credits

CHE 376 Inorganic Chemistry II

The chemistry of the elements with an emphasis on the transition metals. Reaction mechanisms, synthesis, and structure will be covered. Specific areas of concern will include coordination chemistry, organometallic chemistry, bioinorganic chemistry, and selected topics from solid-state and non-transition metal chemistry.

Prerequisite: CHE 375
Spring, 3 credits

CHE 461 Selected Topics in Chemistry

Topics of current interest in the chemical sciences. Topics will be announced in the *Undergraduate Bulletin Supplement* prior to the beginning of the semester in which the course is offered. May be repeated as the subject matter differs.

Prerequisites: Varying with topic
Fall or spring, 1 to 3 credits

CHE 475 Undergraduate Teaching Practicum I

An opportunity for selected upper-division students to collaborate with the faculty in teaching. In addition to working as tutors or laboratory assistants, students will meet at least weekly with their faculty supervisors to discuss teaching strategies and problems encountered. Students may participate only in courses in which they have excelled. Satisfactory/Unsatisfactory grading only.

Prerequisite: Permission of department
Fall and spring, 3 credits

CHE 476 Undergraduate Teaching Practicum II

The continuation of training in the teaching of chemistry courses. Students may participate only in courses in which they have excelled. Either increased or different responsibilities will be assigned, adding to the quality of academic experience already gained in CHE 475. Students may offer only two teaching practica for credit. Satisfactory/Unsatisfactory grading only.

Prerequisites: CHE 475; permission of department
Fall and spring, 3 credits

CHE 487 Tutorial in Special Topics in Chemistry

Supervised readings, laboratory work, or both, on specialized topics in chemistry. For students who wish to gain familiarity with a subject or area not included in sufficient depth in other undergraduate courses. Departmental permission to register will be based on a brief outline jointly submitted by the student and faculty supervisor. A final report will be submitted by the student. May be repeated.

Prerequisites: Permission of instructor and department
Fall and spring, 1 to 3 credits

CHE 488 Internship

Research participation in off-campus laboratories. Students will be required to submit to the department a proposal at the time of registration and a research report at the end of the semester. May be repeated up to a limit of 12 credits.

Prerequisites: CHE 334; permission of instructor, department, and Office of Undergraduate Studies
Fall and spring, 3 to 6 credits

CHE 491-492 Senior Research

A two-semester research program to be carried out under the supervision of a staff member. The results of this work are to be submitted to the department in the form of a senior research report. The student will be given an oral examination in May by a faculty committee consisting of the student's supervisor and three other faculty members. A composite grade for the two semesters will be assigned.

Prerequisites: Senior standing; permission of instructor and department
Fall (491) and spring (492), 3 credits each semester

Graduate Courses

Advanced chemistry students may elect 500- and 600-level graduate courses in aspects of chemistry of particular interest to them, subject to university limits (see p. 60). The requirement for registration is a 3.0 average in CHE courses or permission of the instructor. See the *Graduate Bulletin* for course descriptions.

CHE 502 Mechanistic Organic Chemistry

CHE 503 Synthetic Organic Chemistry

CHE 511 Structural Inorganic Chemistry

CHE 514 Transition Metal Chemistry

CHE 515 Advanced Inorganic Chemistry

CHE 522 Quantum Chemistry II

CHE 524 Magnetic Resonance

CHE 525 Theoretical Chemistry

CHE 526 Chemical Kinetics

CHE 527 Chemical Dynamics

CHE 528 Statistical Mechanics

CHE 529 Nuclear Chemistry

CHE 530 Physical Chemistry of Macromolecules

CHE 542 Physical Methods in Chemistry

CHE 591 Chemistry in Society

CHE 592 Instrumental Methods

CHE 593 Chemical Demonstrations

CHE 623 Molecular Spectroscopy

CHE 625 Molecular Structure and Crystallography

CHE 641 Organometallic Chemistry

Child and Family Studies

Director: Beverly Birns, Social Sciences Interdisciplinary

Affiliated Faculty

Barbara Baskin, Social Sciences Interdisciplinary

Joan F. Kuchner, Social Sciences Interdisciplinary

Requirements for the Minor in Child and Family Studies

The child and family studies minor (CFS) focuses on the child's development and its role in the family and in the wider society. Theoretical and practical issues will be explored from an interdisciplinary perspective. Students will complement coursework and observations with directed work in campus day care centers and other *approved* facilities. In order to fulfill the minor, students will complete at least 24 credits of designated SSI courses, including three upper-division courses, one of them at the 400 level.

A. Required Courses Credits

SSI 110 Human Development: The Family Context (PSY 211 may be substituted)	3
SSI 220 The Infant and Young Child	3
SSI 281 Seminar in Child Development	3
SSI 283 Practicum in Child Development	3

B. Four additional SSI courses (at least three of which must be upper division and one of these at the 400 level):

SSI 210 Children and Families: Images and Realities	
SSI 221 Early Childhood Environments	
SSI 287 Supervised Research in the Social Sciences	
SSI 308 Battered Women, Endangered Children	
SSI 320 The Special Child	
SSI 327 Adolescent Growth and Development	
SSI 339 Children's Play	
SSI 350 Foundations of Education	
SSI 405 Seminar in Children and Social Policy	
SSI 417 Senior Seminar in Child and Family Studies	

SSI 447 Directed Readings in Social Science	
SSI 487 Independent Project in the Social Sciences	
SSI 488 Internship	12
Total	24

One of the following courses may be substituted for an SSI course in requirement B (see individual course listings for pre-requisites):

- AFS 251 Education of the Afro-American in America
- AFS 370 The Black Family
- EGL 396 Literature and Psychology of Adolescence
- PSY 311 Topics in Advanced Developmental Psychology
- PSY 312 Behavior Deviation in Children
- SOC 304 Sociology of the Family
- SOC 384 Sociology of the Life Course
- SOC 387 Sociology of Education
- WNS 307/PSY 377 Psychology of Women

Notes:

1. No more than one course may be taken for Pass/No Credit.
2. No more than six credits of independent work may be used toward fulfillment of the minor requirements.
3. SSI 287, 447, 487, and 488 may be used only if the topics concern child and family studies.
4. Students planning to work in the day care centers should make arrangements for an interview at the center of their choice prior to registering. Proof of having had a recent medical examination must be presented upon reporting to work.

Classics and Classical Languages

Minor Coordinator: Aaron Godfrey,
Comparative Studies

Affiliated Faculty

- Per Ålln, History
- Krin Gabbard, Comparative Studies
- Thomas Kranidas, English
- Victorino Tejera, Philosophy

Teaching Assistants

Estimated number: 2

Minor in Classical Civilization

The minor in classical civilization provides students with a broad knowledge of the cultures of ancient Greece and Rome. After elementary literary surveys, the student completes at least two semesters of either Latin or Greek and selects a mixture of

courses with classical content from offerings in classics, classical languages, and related courses from other departments. The student must fulfill the following minimum requirements by selecting at least two courses from group IA or IB, and one course each from groups II through VI, including nine credits numbered 300 or above. Substitutions may be permitted for other courses with classical content with permission of the minor coordinator. No more than one of the courses required for the minor may be taken for Pass/No Credit.

	Credits
Group IA: GRK 111, 112, 251, 252, 447	
Group IB: LAT 111, 112, 251, 252, 353, 354, 355, 356, 447	6
Group II: CLS/CLT 113	3
Group III: CLS 215, EGL 260	3
Group IV: CLS 120, ARH 300, ARH 301	3
Group V: HIS 100, 230, 231, 232, 300, HIS/JDS 225	3
Group VI: PHI 200, 300	3
Total	21

Courses

See p. 60, Course Credit and Prerequisites, and p. 61 Undergraduate Numbering System.

Classics

CLS 113 Greek and Latin Literature in Translation

Historical and analytical study of the development of classical Greek and Latin literature. Extensive readings in translation will include works illustrating epic, lyric, drama, history, oration, and literary criticism. Crosslisted with CLT 113.
Fall, 3 credits

CLS 120 Classical Archaeology

Introduction to archaeology describing the range and variety of artifacts that can be used as evidence for recovering and reconstructing the civilizations of Greece and Rome, including the history of methods used to infer information from the artifacts. Emphasis will be on particular facts of daily life rather than an overview of high culture. A Core Course satisfying Humanities and Fine Arts Category B.
Spring, 3 credits

CLS 215 Classical Mythology

A study of the Greek myths and an introduction to ancient Greek religion, literature, and art. Discussion of the mythology of the Romans, the relationship between Greek and Roman myths, and the influence of classical mythology on later literature, art, and philosophy.
Prerequisite: One course in literature
Fall and spring, 3 credits

CLS 311 Classical Drama and Its Influence

A study of the Greco-Roman theatre, dramatic festivals, and play production. Readings in English translation of most of the extant trage-

dies, comedies, and satyr plays, with consideration of their meaning and influence in European culture.

Spring, alternate years, 3 credits (not offered in 1989-90)

CLS 313 The Classical Tradition

A study, through analysis of Greek and Roman literature, of the basic ideas that distinguish the classical world view from the romantic-modern world view: reverence for tradition; the idea of high style; the tragic vision; the ethical approach to history and to the arts and sciences.

Fall, alternate years, 3 credits (not offered in 1990-91)

CLS 447 Directed Readings in Classics

Intensive study of a particular author, period, or genre of Greek and Latin literature in translation under close faculty supervision. May be repeated.

Prerequisite: Permission of Comparative Studies chairperson

Fall and spring, 1 to 4 credits

Greek

GRK 111 Elementary Ancient Greek I

An introduction to the language and culture of ancient Greece. The course focuses on grammar, syntax, and techniques of translation. Development of reading skills is stressed.

Prerequisite: Permission of instructor
Fall, 3 credits

GRK 112 Elementary Ancient Greek II

A continuation of GRK 111: the grammar and syntax of ancient Greek, with emphasis on reading comprehension.

Prerequisite: GRK 111
Spring, 3 credits

GRK 251, 252 Readings in Ancient Greek Literature I, II

The translation and critical examination of selected works of ancient Greek literature, with emphasis on Attic authors (e.g., Herodotus, Plato, Sophocles). The course will include a brief review of grammar. Student interests will be considered and the content of the course may change from semester to semester.

Prerequisite to GRK 251: GRK 112

Prerequisite to GRK 252: GRK 251

Fall (251) and spring (252), 3 credits each semester

GRK 447 Directed Readings in Ancient Greek

Intensive study of a particular author, period, or genre of Greek literature in the original under close faculty supervision. May be repeated.

Prerequisite: Permission of Comparative Studies chairperson

Fall and spring, 1 to 4 credits

Latin

LAT 111, 112 Elementary Latin I, II

An intensive course designed to prepare the beginning student to translate Latin that may be needed for use in undergraduate or graduate study. Focus of the course is on the fundamentals of grammar and techniques of translation. No student who has had two or more years of Latin in high school or who has otherwise acquired an equivalent proficiency will be permitted

to enroll in LAT 111 without written permission from the course supervisor.

Prerequisite to LAT 112: LAT 111

Fall (111) and spring (112), 3 credits each semester

LAT 251, 252 Readings in Latin Literature I, II

Readings in classical Latin literature of the Republic. The course will include a brief intensive review of grammar and the sampling of a number of authors including Catullus, Cicero, Virgil, and Livy.

Prerequisite to LAT 251: LAT 112

Prerequisite to LAT 252: LAT 251

Fall (251) and spring (252), 3 credits each semester

LAT 353 Literature of the Roman Republic

Selected works of Plautus, Terence, Cicero, Lucretius, and Catullus will be translated and examined in their social and historical context. The reading of critical works in English will also be required.

Prerequisite: Permission of instructor

Fall, alternate years, 3 credits (not offered in 1990-91)

LAT 354 Literature of the Roman Empire

Selected works of Virgil, Horace, Livy, Petronius, Martial, Tacitus, and Juvenal will be translated and examined in their social and historical context. The reading of critical works in English will also be required.

Prerequisite: Permission of instructor

Spring, alternate years, 3 credits (not offered in 1990-91)

LAT 355 Early Medieval Latin

Translation and discussion of Christian and secular Latin literature from the 4th to the 12th century. The course will include an intense review of Latin grammar and an outline of the changes in the language that took place during early medieval times. Selections from the Vulgate and the writings of Jerome, Augustine, and Bede will be read.

Prerequisite: Permission of instructor

Fall, alternate years, 3 credits (not offered in 1989-90)

LAT 356 Late Medieval Latin

Translation and discussion of Latin literature from the 12th to the 16th century. Authors will include the Archpoet, Thomas Aquinas, Petrarch, Erasmus, and Thomas More.

Prerequisite: Permission of instructor

Spring, alternate years, 3 credits (not offered in 1989-90)

LAT 447 Directed Readings in Latin

Intensive study of a particular author, period, or genre of Latin literature in the original under close faculty supervision.

Prerequisite: Permission of Comparative Studies chairperson

Fall and spring, 1 to 4 credits

Comparative Literature

*Chairperson: Robert Goldenberg
Director of Undergraduate Studies:
Carrol Lasker*

Affiliated Faculty

Román de la Campa, Spanish

Edward J. Czerwinski, Slavic Languages

Thomas Kranidas, English

Mary C. Rawlinson, Philosophy

Elias Rivers, Spanish

Hugh J. Silverman, Philosophy. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1977

Leif Sjöberg, Scandinavian

Michael Sprinker, English

Victorino Tejera, Philosophy

Eléonore Zimmermann, French; Director of Graduate Studies in Comparative Literature

Teaching Assistants

Estimated number: 10

The comparative literature major offers two options to students: the first, Option A, is a broadly based program for the student interested in comparative studies and general literature; the second, Option B, is intended for the student planning to undertake graduate studies in comparative literature or foreign languages. Both options stress the comparative study of national literatures; both stress the relationship between literature and other disciplines. Individual programs can be adjusted to the special interests of the student through consultation with the director of undergraduate studies.

Requirements for the Major in Comparative Literature

The interdisciplinary major in comparative literature leads to the Bachelor of Arts degree. The following courses are required and must be taken for a letter grade. All upper-division courses offered to satisfy major requirements must be passed with a grade of C or higher.

<i>Option A</i>	<i>Credits</i>
A. Introductory course: CLT 108	3
B. CLT 120 or any literature course with a strong non-Western component as approved in advance by the director of undergraduate studies	3
C. Literature in the original language: two semester courses in the literature of a language other than English	6
D. Period courses: CLT 113, 211, 212. Similar courses in other literature departments may be substituted with permission of the chairperson or the director of undergraduate studies.	9
E. Theory: CLT 301	3

F. Seven courses selected from the following with at least one course in each category of Genre, Theme, and Interdisciplinary: Genre—CLT 331, 332, 333, 334, 335 Theme—CLT 351, 352 Interdisciplinary—CLT 361, 362, 363 CLT 487 Senior Project	21
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G. Upper-Division Writing Requirement: In order to satisfy this requirement, students majoring in comparative literature must submit a portfolio of their writing pertaining to the major to the director of undergraduate studies no later than seven weeks after the start of the second semester of their junior year. They must achieve an evaluation of S (Satisfactory) on the portfolio. Further details are available from the department chairperson or from the director of undergraduate studies.

Total 45

<i>Option B</i>	<i>Credits</i>
A. Introductory course: CLT 108	3
B. CLT 120 or any literature course with a strong non-Western component as approved in advance by the director of undergraduate studies	3
C. Literature in the original language: 1. Two semester courses in the literature of a language other than English 2. Two semester courses at any level in an additional language other than English	6 6
D. Period courses: CLT 113, 211, 212. Similar courses in other literature departments may be substituted with permission of the chairperson or director of undergraduate studies.	9
E. Theory: CLT 301	3
F. Five courses selected from the following with at least two of the first three categories represented: Genre—CLT 331, 332, 333, 334, 335 Theme—CLT 351, 352	15

Interdisciplinary—CLT 361,
362, 363

CLT 487 Senior Project

G. Upper-Division Writing

Requirement: See Option A

Total 45

Recommended Courses

The student majoring in comparative literature is advised to take the following courses:

- A. CLT 201 The Study of Literature or EGL 204 Literary Analysis and Argumentation
- B. Courses in linguistics and in the history and development of language, such as ANT/LIN 363 Language and Culture; EGL 380 The English Language; GER 338 History of the German Language; etc.
- C. Courses in classics, and in the history, arts, and philosophy of the period or languages of the student's principal interests.
- D. Students may earn credit toward the major through SUNY-sponsored study abroad programs at universities in all parts of the world. See Study Abroad, p. 54, for further information about these programs.

Honors Program in Comparative Literature

Comparative literature majors who have maintained a grade point average of 3.5 in the major and 3.0 overall through their junior year may attempt the degree in comparative literature with honors.

The honors program requires an additional three credits above the 45 required for the major. These three additional credits will be earned in a special research project pursued in the final semester of the senior year. The project involves the completion of a senior thesis.

Students who are eligible for the honors program must find a full-time or affiliated member of the comparative literature faculty to act as thesis advisor. The student, with the approval of the supervising faculty member, must submit a proposal of the project in writing to the department by the last day of classes of the first semester of the senior year. Students who have obtained permission from the department to pursue the project must enroll in CLT 495 while writing the thesis.

The thesis will be evaluated by the thesis advisor, another member of the comparative studies faculty, and a third reader from outside the department.

For further information consult the director of undergraduate studies.

Requirements for the Minor in Comparative Literature

The minor in comparative literature, designed especially to interest students majoring in foreign languages, English, and the humanities, provides a comprehensive overview of the theory and techniques of comparative literature, culminating in a practical course in which the student applies comparative techniques to his or her major field of study.

	Credits
A. Introductory course: CLT 108	3
B. CLT 120 or any literature course with a strong non-Western component as approved in advance by the director of undergraduate studies	3
C. Period courses: two courses selected from CLT 113, 211, 212. Similar courses in other literature departments may be substituted with permission of the chairperson or the director of undergraduate studies.	6
D. Language: one course in the literature of a language other than English	3
E. Theory: CLT 301	3
F. One Genre or Themes course selected from the following: CLT 331, 332, 333, 334, 335, 351, 352	3
G. Interdisciplinary course: one course selected from CLT 361, 362, 363	3
Total	24

Courses

See p. 60, Course Credit and Prerequisites, and p. 61, Undergraduate Numbering System.

CLT 108 Masterpieces of Imaginative Literature

Readings in the major texts of Western literature that are essential to further literary study. Selected works from such authors as Homer, Virgil, Dante, Shakespeare, Cervantes, Molière, Goethe, Ibsen, Dostoevsky, Mann, and Beckett will be approached from a comparative perspective. A Core Course satisfying Humanities and Fine Arts Category A.
Fall or spring, 3 credits

CLT 113 Greek and Latin Literature in Translation

Historical and analytical study of the development of classical Greek and Latin literature. Extensive readings in translation will include works illustrating epic, lyric, drama, history, oration, and literary criticism. Crosslisted with CLS 113.
Fall, 3 credits

CLT 120 Masterpieces of Non-Western Literature

A survey of the major themes and forms of non-Western literature, such as Oriental, Indian, African. Topics will vary. May be repeated. Satisfies Study of Another Culture requirement.
Fall and spring, 3 credits

CLT 201 The Study of Literature

An introduction to the most important methods of studying the literatures of the world conceived as a single phenomenon. Students will read important literary and critical texts in terms of theme, genre, history, influence, imitation, and other considerations crucial to the discipline of comparative literature. A Core Course satisfying Humanities and Fine Arts Category B.
Prerequisite: One course in literature
Spring, alternate years, 3 credits (not offered in 1989-90)

CLT 211 Literary Survey: Medieval through Late Renaissance

Historical and analytical study of representative works illustrating medieval epic, romance, and lyric. The beginnings of humanism through the late Renaissance.
Prerequisite: One course in literature
Fall, alternate years, 3 credits (not offered in 1989-90)

CLT 212 Literary Survey: Enlightenment through Modern

Historical and analytical study of literature from the late 17th century, the neoclassic era, the romantic revolution, the 19th century (realism, naturalism, symbolism), leading to the culmination of modernism.
Prerequisite: One course in literature
Spring, alternate years, 3 credits (not offered in 1990-91)

CLT 266 The Modern Novel

A study of major works and developments in the modern novel. Crosslisted with EGL 266.
Prerequisite: EGC 101 or "Strong" on English Placement Examination
Fall or spring, 3 credits

CLT 301 Theory of Literature

An introduction to the different modes of analyzing literature by periods, ideas, traditions, genres, and aesthetic theories. Stress will be placed on classical theory and on developments in the 20th century. A Core Course satisfying Humanities and Fine Arts Category B.
Prerequisites: Two courses in comparative literature
Alternate years, 3 credits (not offered in 1990-91)

Genre, Theme, and Interdisciplinary Courses

Detailed information on the content of CLT 331-363 is published by the Comparative Studies Department before registration each semester. Reading lists are also available in advance. These courses may be repeated once only as the subject matter differs.

CLT 331 Literary Genres: Poetry

Analysis of poetic form as illustrated by various kinds of poetry, e.g., epic, lyric. Works selected

from different national literatures and literary movements. A Core Course satisfying Humanities and Fine Arts Category C.

Prerequisites: Two courses in literature
Schedule to be announced, 3 credits

CLT 332 Literary Genres: Drama

Analysis of dramatic form through readings of major works in tragedy and comedy. Works selected from different national literatures and literary movements. A Core Course satisfying Humanities and Fine Arts Category C.

Prerequisites: Two courses in literature
Schedule to be announced, 3 credits

CLT 333 Literary Genres: Novel

Historical and analytical study of the novel form. Works selected from different national literatures and literary movements. A Core Course satisfying Humanities and Fine Arts Category C.

Prerequisites: Two courses in literature
Schedule to be announced, 3 credits

CLT 334 Other Literary Genres

Historical and analytical study of such literary genres as satire, fable, romance, epistle, saga, allegory, etc.

Prerequisites: Two courses in literature
Schedule to be announced, 3 credits

CLT 335 The Interdisciplinary Study of Film

An inquiry into the aesthetics, history, and theory of film as it relates principally to literature but also to disciplines such as art, music, psychology, and cultural history.

Prerequisites: One course in literature; HUM 201 or 202 or THR 117

Spring, alternate years, 3 credits (not offered in 1989-90)

CLT 351 Attitudes in Western Literature

Comparative analysis of attitudes in literature toward such subjects as love, marriage, women, death, etc. Works selected from different national literatures and literary movements.

Prerequisites: Two courses in literature
Schedule to be announced, 3 credits

CLT 352 Mythical Themes and Archetypal Characters

Comparative analysis of the literary treatment of mythical themes and archetypal characters, e.g., Prometheus, Ulysses, Faust, Don Juan, etc.

Prerequisites: Two courses in literature
Schedule to be announced, 3 credits

CLT 361 Literature and Society

An inquiry, interdisciplinary in nature, into the relationship between the events and materials of political and social history and their effect on the form and content of the literature of a period. Also subsumed under the rubric Literature and Society is the topic Literature and Psychology.

Prerequisites: Two courses in literature
Schedule to be announced, 3 credits

CLT 362 Literature and Ideas

An inquiry into the primary writings and significant documents in the history of ideas and their effect on the form and content of the literature of a period.

Prerequisites: Two courses in literature
Schedule to be announced, 3 credits

CLT 363 Literature and the Arts

An inquiry into the aesthetic milieu (including the plastic arts, theatre, and music) and its relationship to the form and content of the literature of a period.

Prerequisites: Two courses in literature
Schedule to be announced, 3 credits

CLT 475 Undergraduate Teaching Practicum I

Each student will receive regularly scheduled supervision from the instructor of the course specified as the forum for the practicum. Responsibilities will include regular attendance in the specified course and may include conducting practice or discussion sessions that will supplement regular class meetings, preparing material for practice or discussion, initial correction of homework and tests, and helping students with course problems. Satisfactory/Unsatisfactory grading only.

Prerequisites: Senior standing; permission of instructor and chairperson
Fall and spring, 3 credits

CLT 476 Undergraduate Teaching Practicum II

The continuation of training in CLT 475. Students may participate only in courses in which they have excelled. Either increased or different responsibilities will be assigned, adding to the quality of academic experience already gained in CLT 475. Satisfactory/Unsatisfactory grading only.

Prerequisites: CLT 475; permission of instructor and chairperson
Fall and spring, 3 credits

CLT 487 Independent Reading and Research

Intensive reading and research on a special topic undertaken with close faculty supervision. May be repeated.

Prerequisites: Permission of instructor and department
Fall and spring, 3 credits

CLT 495 Comparative Literature Honors Project

A one-semester project for comparative literature majors who are candidates for the degree with honors. Arranged during the first semester of the senior year, to begin the following semester, the project involves independent study and the writing of a senior thesis under close supervision of an appropriate faculty member.

Prerequisites: Permission of instructor and department
Fall and spring, 3 credits

Department of Comparative Studies

Chairperson: Robert Goldenberg
Director of Undergraduate Studies: Carol Lasker

Faculty

Thomas J.J. Altizer, Professor, Ph.D., University of Chicago: Religion and literature; theology.

Konrad Bieber, Professor Emeritus, Ph.D., Yale University: 18th-century and contemporary French literature; comparative literature.

Ruth S. Bottigheimer, Adjunct Assistant Professor, D.A., State University of New York at Stony Brook: German literature; fairy tales.

William Chittick, Assistant Professor, Ph.D., Teheran University: Islamic studies; comparative mysticism.

Dorothy Figueira, Assistant Professor, Ph.D., University of Chicago: East-West literary reception; religions in literature.

Krin Gabbard, Associate Professor, Ph.D., Indiana University: The arts and their interrelations; film; drama.

Christopher S. George, Adjunct Associate Professor, Ph.D., University of Pennsylvania: Indic and Tibetan studies.

Aaron W. Godfrey, Lecturer, M.A., Hunter College: Latin, medieval studies.

Robert Goldenberg, Associate Professor, Ph.D., Brown University: Jewish thought; history of Judaism; Talmudic literature.

Harvey Gross, Professor, Ph.D., University of Michigan: Prosody and poetic theory; modern intellectual history.

Patrick A. Heelan, Professor, Ph.D., University of Louvain; Ph.D., St. Louis University: Science and religion.

Robert Hoberman, Associate Professor, Ph.D., University of Chicago: Linguistic theory; Hebrew; Arabic; Aramaic.

Carole Kessner, Assistant Professor, part time, Ph.D., State University of New York at Stony Brook: 17th-century English literature; Bible; modern Jewish literature and culture.

Jan Kott, Professor Emeritus, Ph.D., Lodz University: Shakespeare; the drama; literary criticism.

Carrol Lasker, Assistant Professor, part time, Ph.D., State University of New York at Stony Brook: African and Third World literatures; translation.

Peter B. Manchester, Associate Professor, Ph.D., Graduate Theological Union: Christian origins; philosophical theology.

Sachiko Murata, Assistant Professor, Ph.D., Teheran University: Islam; Japanese religions.

Sung-Bae Park, Associate Professor, Ph.D., University of California, Berkeley: Buddhist studies; Indian, Chinese, Japanese, and Korean religious thought.

Sandy Petrey, Professor, Ph.D., Yale University: 19th-century French literature.

Lauren Taaffe, Assistant Professor, Ph.D., Cornell University: Greek and Roman literature; classical mythology; literary theory.

Louise O. Vasvari, Professor, Ph.D., University of California, Berkeley: Medieval Spanish literature; Romance philology; linguistics; translation theory. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1976.

Adjunct Faculty

Estimated number: 1

Teaching Assistants

Estimated number: 10

The Department of Comparative Studies houses major and minor programs in the following fields: classical civilization, comparative literature, humanities, Judaic studies, Korean studies, and religious studies. Requirements for these programs appear under each program title elsewhere in the alphabetical listings of Arts and Sciences programs. Further information is available in the Comparative Studies Office.

Department of Earth and Space Sciences

Chairperson: Gilbert N. Hanson

*Director of Undergraduate Studies:
Peter W. Bretsky*

Faculty

Robert C. Aller, Professor, Ph.D., Yale University: Marine geochemistry.

Steven R. Bohlen, Adjunct Associate Professor, Ph.D., University of Michigan: Geochemistry.

Henry J. Bokuniewicz, Associate Professor, Ph.D., Yale University: Marine geophysics.

Peter W. Bretsky, Professor, Ph.D., Yale University: Paleontology.

J. Kirk Cochran, Associate Professor, Ph.D., Yale University: Marine geochemistry.

Daniel M. Davis, Assistant Professor, Ph.D., Massachusetts Institute of Technology: Geophysics.

Robert T. Dodd, Jr., Professor, Ph.D., Princeton University: Geochemistry.

Miriam A. Forman, Adjunct Associate Professor, Ph.D., State University of New York at Stony Brook: Astronomy.

Gilbert N. Hanson, Professor, Ph.D., University of Minnesota: Geochemistry.

Roger F. Knacke, Professor, Ph.D., University of California, Berkeley: Astronomy.

James M. Lattimer, Professor and Director of Graduate Studies, Ph.D., University of Texas at Austin: Astronomy.

Robert C. Liebermann, Professor, Ph.D., Columbia University: Geophysics.

Donald H. Lindsley, Professor, Ph.D., The Johns Hopkins University: Geochemistry; petrology.

Jack J. Lissauer, Assistant Professor, Ph.D., University of California, Berkeley: Astronomy.

Scott M. McLennan, Assistant Professor, Ph.D., Australian National University: Geochemistry.

William J. Meyers, Professor, Ph.D., Rice University: Sedimentology.

Hanna Nekvasil, Assistant Professor, Ph.D., Pennsylvania State University: Geochemistry; petrology.

Tobias C. Owen, Professor, Ph.D., University of Arizona: Planetary science.

John B. Parise, Assistant Professor, Ph.D., James Cook University: Crystallography; mineral physics.

Deane M. Peterson, Associate Professor, Ph.D., Harvard University: Astronomy.

Charles T. Prewitt, Adjunct Professor, Ph.D., Massachusetts Institute of Technology: Geochemistry.

Richard J. Reeder, Associate Professor, Ph.D., University of California, Berkeley: Geochemistry; sedimentology.

Warren D. Sharp, Assistant Professor, Ph.D., University of California, Berkeley: Structural geology; geochemistry.

Michal Simon, Professor, Ph.D., Cornell University: Astronomy.

Philip M. Solomon, Professor, Ph.D., University of Wisconsin: Astronomy.

Clifford H. Thurber, Associate Professor, Ph.D., Massachusetts Institute of Technology: Geophysics.

Donald J. Weidner, Professor, Ph.D., Massachusetts Institute of Technology: Geophysics.

Teng-fong Wong, Associate Professor, Ph.D., Massachusetts Institute of Technology: Geophysics.

Amos Yahil, Professor, Ph.D., California Institute of Technology: Astronomy.

Curator

Steven C. Englebright, M.S., State University of New York at Stony Brook: Geology.

Teaching Assistants

Estimated number: 20

The Department of Earth and Space Sciences offers undergraduate programs leading either to a Bachelor of Science or to a Bachelor of Arts degree. The B.S. programs in geology (GEO), astronomy/planetary sciences (AST), and atmospheric sci-

ences/meteorology (ATM) aim at giving the student maximum preparation to carry out graduate work in each of these fields. The B.A. program (ESS) is more flexible in that it is designed to meet the needs of students who desire a more diverse liberal arts and sciences background. The various programs prepare students to choose careers in teaching, law, or research in private industry and government.

Minimum course requirements for both the B.S. and B.A. programs are listed below. Upon declaring a major, the student will be assigned a faculty advisor in the appropriate area who, along with the director of undergraduate studies, will assist in the selection of a course sequence leading to the desired degree. Students should consult frequently with their faculty advisors regarding their progress and regarding appropriate science courses. Because the position of the scientist in society is responsible and complex, the student is cautioned to pay careful attention to general education in the arts, humanities, and social sciences.

Physical Facilities

The following facilities may be used by undergraduates either directly in coursework or in senior research projects:

Laboratories

Physical Geology—Rock collections, maps
Historical Geology—Fossil and rock collections

Mineralogy—Crystal models and suites of mineral samples

Paleontology—Fossil collections

Optical Mineralogy—Polarizing microscopes

Petrology—Igneous and metamorphic rock suites; thin sections

Structural geology—Rock collections

Sedimentology—Rock collections

Crystallography—X-ray generators, diffractometers

Spectroscopy—Visible and IR spectrometers, gas cells

General Use

Computer terminals

Microcomputers

Fourteen-inch reflecting telescope

Museum of Long Island Natural Sciences

Requirements for the Bachelor of Science Degree

All courses taken to meet requirements for the geology, astronomy/planetary sciences, and atmospheric sciences/meteorology majors must be taken for a letter grade. In addition, a 2.0 G.P.A. must be achieved in all upper-division courses used to meet the requirements.

Upper-Division Writing Requirement

All students majoring in geology, astronomy/planetary sciences, or atmospheric sciences/meteorology must submit two papers (term papers, laboratory reports, or independent research papers) to the director of undergraduate studies for department evaluation by the end of the junior year. If this evaluation is satisfactory, the student will have fulfilled the Upper-Division Writing Requirement. If it is not, the student must fulfill the requirement before graduation.

I. Geology Major Credits

A. Required departmental courses:	
GEO 122 Physical Geology	4
GEO 226 Historical Geology	4
GEO 301 Mineralogy	4
GEO 303 Stratigraphy	4
GEO 305 Field Geology	3
GEO 306 Igneous Petrology	3
GEO 309 Structural Geology	4
GEO 310 Introduction to Geophysics	3
B. Advanced elective:	
In addition to the courses listed above, at least three credits are required from any 300-level or higher GEO, AST, ATM, or MAR course	3
C. Required courses in the related sciences: MAT 131, 132, 221 (or equivalent)	11
CHE 131, 132 or 141, 142	8
PHY 101, 102 or 105, 106	8
D. Advanced related sciences:	
In addition to the courses listed under item C above, any two of the following courses must be successfully completed:	
CHE 301, 302, MAT 306, 307, 341, PHY 251, 306, CSE 111, ESG 261	6-7
Total:	65-66

Geological Oceanography

Students interested in geological oceanography should complete two of the following biological sciences courses: BIO 220, 343, 344, 353, or 354. In the senior year, qualified students may enroll in approved graduate courses at the Marine Sciences Research Center (MSRC), subject to university limits (see p. 60), and subsequently may be considered for admittance to the accelerated master's program at the MSRC. Interested students must consult with the department's director of undergraduate studies regarding the sequence of courses.

II. Astronomy/Planetary Sciences Major (AST) Credits

A. Required departmental courses:	
GEO 102 The Earth	3
AST 203 Astronomy	4
AST 341, 342 Astrophysics I, II	6
At least 3 credits from additional AST or ATM courses numbered 200 or higher (except AST 248)	3
B. Required physics courses:	
PHY 101, 102 or 105, 106	8
PHY 251	4
PHY 252	4
At least 12 credits from approved PHY courses numbered 300 or higher	12
C. Required mathematics courses:	
MAT 131, 132 or 141, 142 (MAT 125, 126, 127, 9 credits, may be substituted)	8
MAT 221 or 231 or 241	3
MAT 306 or 307	3
Total	58

III. Atmospheric Sciences/Meteorology Major (ATM) Credits

A. Required departmental courses:	
GEO 122 Physical Geology	4
ATM 205 Introduction to Atmospheric Sciences	3
ATM 343 Planetary Atmospheres	3
B. Required atmospheric sciences/engineering courses:	
ATM/ESC 345 Theoretical Meteorology	3
ATM/ESC 346 Dynamic Meteorology	3
ATM/ESC 348 Elements of Atmospheric Sciences	3
ATM/ESC 397 Air Pollution and Its Control	3
C. Required courses in related sciences:	
MAT 131, 132 or 141, 142 (MAT 125, 126, 127, 9 credits, may be substituted)	8
MAT 221 or 231 or 241	3
MAT 306 or 307	3
CHE 131, 132 or 141, 142	8
PHY 101, 102 or 105, 106	8
PHY 251	4
PHY 252	4
PHY 306	3
Total	63

Requirements for the Major in Earth and Space Sciences

The major in earth and space sciences leads to the Bachelor of Arts degree. It is a diversified program in the natural sciences and mathematics aimed at fostering a basic understanding of the earth and space sciences; it includes concentrated study in one of the natural sciences or

mathematics. The program is intended for those seeking a science-related career, but not necessarily planning on graduate-level studies.

All courses taken to meet major requirements must be taken for a letter grade. In addition, a 2.0 G.P.A. must be achieved in all upper-division courses used to meet the requirements.

Credits

A. Introductory earth and space sciences courses:	
GEO 122 Physical Geology	4
AST 203 Astronomy	4
ATM 205 Introduction to Atmospheric Sciences	3
B. Upper-division earth and space sciences courses:	
Any 13 to 15 credits from upper-division GEO, AST, ATM courses	13-15
C. Introductory related science courses:	
1. MAT 131, 132 (MAT 125, 126, 127, 9 credits, may be substituted)	8
2. Any two of the following sequences:	
PHY 101, 102 or 103, 104* or 105, 106	
CHE 111, 112** or 131, 132 or 141, 142	
BIO 151, 152	14-16

*Not acceptable for MAT or PHY concentration
**Not acceptable for CHE concentration

D. Specific science concentration:	
12 to 15 credits in courses approved for the chosen concentration:	
astronomy, atmospheric sciences, biology, chemistry, geology, marine sciences, mathematics, or physics*	12-15

*For concentration in physics, MAT 231 and 306 are required, and two semesters under item C.2. may be waived.

E. Upper-Division Writing Requirement:
All students majoring in earth and space sciences must submit two papers (term papers, laboratory reports, or independent research papers) to the director of undergraduate studies for department evaluation by the end of the junior year. If this evaluation is satisfactory, the student

will have fulfilled the Upper-Division Writing Requirement. If it is not, the student must fulfill the requirement before graduation.

Total 58-65

Preparation for Teachers of Earth Science in Secondary Schools

Curricula leading to provisional certification in earth sciences for secondary school teachers are available from the Department of Earth and Space Sciences. Professional courses are provided through the Center for Science, Mathematics, and Technology Education (see alphabetical listing, Science, Mathematics, and Technology Education).

Honors Programs

Students following one of the B.S. degree programs who have maintained a cumulative grade point average of 3.5 in natural sciences and mathematics through the junior year may become candidates for departmental honors in geology, astronomy/planetary sciences, or atmospheric sciences/meteorology by applying to the department. Candidates for honors in geology must include GEO 302 in their program. Candidates for honors in astronomy/planetary sciences or atmospheric sciences/meteorology must include a sequence of mathematics, physics, or engineering courses approved by the student's advisor following petition by the student.

In addition to the academic program, the student must complete an honors thesis, which will be evaluated by a committee composed of the student's advisor and two other science faculty members including one from outside of the department. If the honors program is completed with distinction and the student has maintained a minimum 3.5 grade point average in all coursework in natural sciences and mathematics, honors will be conferred.

Geology Minor

For students majoring in other areas who are interested in obtaining a fundamental understanding of the earth sciences, a minor concentration in geology is available. The minor acquaints students with earth materials, the origin and evolution of life on the earth, and physical processes that have shaped the surface of the earth through time. This program, comprising courses offered yearly by the earth sciences faculty, is administered by the director of undergraduate studies, who also serves as student advisor. Minimum requirements for the minor in geology shall be satisfactory completion of the following courses (20 credits):

1. GEO 122 Physical Geology
2. GEO 226 Historical Geology

3. Twelve (12) additional credits from among GEO courses numbered 300 or higher

Courses

See p. 60, Course Credit and Prerequisites, and p. 61, Undergraduate Numbering System.

Geology Courses

GEO 102 through 109 are primarily designed for the general university student who is not majoring in a physical science but who elects the course because of personal interest or to fulfill the natural sciences distribution requirement. Most GEO courses numbered 112 or higher are designed primarily for science majors.

GEO 102 The Earth

A summary of the processes that have shaped the earth and the other terrestrial planets as inferred from study of their surface materials, structural features, and interiors. Topics considered include (1) the earth in the solar system; (2) earth materials and rock-forming processes; (3) surface processes and their bearing on human activities; (4) crustal deformation and global tectonics; (5) the earth's interior; and (6) the geological features, compositions, and evolution of the terrestrial planets. A Core Course satisfying Natural Sciences Category A-2.

Fall and spring, 3 credits

GEO 107 Natural Hazards

An introduction to the concepts, techniques, and scientific methods used in the earth sciences. The natural hazards posed by earthquakes and volcanic eruptions are used as a focus for such studies. These phenomena are examined in the context of the theory of plate tectonics to determine their cause, destructive potential, and the possibility of predicting and controlling their occurrence. Elementary probability methods are introduced in the treatment of approaches to prediction. Societal responses to forecasts are also considered. A Core Course satisfying Natural Sciences Category A-2.

Fall and spring, 3 credits

GEO 109 Dinosaurs and Mass Extinctions

The study of fossils, emphasizing terrestrial vertebrates and the impact of that study toward an understanding of evolutionary change and especially the reality of mass extinctions. A Core Course satisfying Natural Sciences Category A-2.

Fall, alternate years, 3 credits (not offered in 1990-91)

GEO 112 Physical Geology Laboratory

Rock and mineral identification, introduction to topographic and geologic maps. This course may not be taken concurrently with GEO 102.

Prerequisite: GEO 102

Fall, 1 credit

GEO 122 Physical Geology

The nature of the earth and of the processes that shape it: the earth's external and internal energy; minerals and rocks; external processes and the evolution of the landscape; internal processes

and the structure of the earth; the earth compared with other planets; sources of materials and energy. Laboratory includes study of minerals and rocks; landforms as shown on topographical maps and aerial photographs; geologic structures inferred from maps and block diagrams; problem sets. Two lectures and one three-hour laboratory and recitation per week. GEO 102/112 and GEO 122 may not both be taken for credit.

Prerequisite: High school chemistry
Fall, 4 credits

GEO 226 Historical Geology

A summary of earth history stressing principles and broad trends rather than detailed classifications of geological features. Topics will be designed to integrate various aspects of physical stratigraphy, processes of sedimentation, and evolutionary paleontology and paleoecology in an attempt to decipher random or directed patterns in the evolution of the earth.

Prerequisites: GEO 122 or 102/112

Spring, alternate years, 4 credits (not offered in 1990-91)

GEO 287 Introductory Research in Geology

Under the supervision of a faculty member, a student may conduct research for academic credit. A research proposal must be prepared by the student, approved by the sponsoring faculty member, and submitted to the department's URECA coordinator for approval by the end of the first week of the semester in which credit is to be given. A written report of the completed project must be submitted to the URECA coordinator before the end of classes.

Prerequisites: Lower-division standing; one GEO course; permission of instructor and URECA coordinator

Fall and spring, 1 to 3 credits

GEO 300 A History of Geology

The development of theories about earth processes from the 16th century to the mid-19th century. Hutton and Lyell's notions of uniformitarianism will be discussed against the prevailing concepts of catastrophic changes in the configuration of the earth. A Core Course satisfying Natural Sciences Category B.

Prerequisite: GEO 102 or 109

Fall, alternate years, 3 credits (not offered in 1989-90)

GEO 301 Mineralogy

An introduction to the crystal chemistry, chemistry, phase equilibria, and paragenesis of the rock-forming minerals. Laboratories are devoted to elementary crystallography and mineral identification. Two one-hour lectures, one one-hour recitation, and two three-hour laboratories per week.

Prerequisites: GEO 122; CHE 132 or 142

Spring, 4 credits

GEO 302 Paleontology

Principles and methods in the study of the history of life. The origin of life, premetazoan evolution, principles of evolution illustrated by extinct biotas, analysis of diversity and community structure, morphology and autecology of extinct species, and paleobiogeography and dating are considered. Three hours of lecture and one three-hour laboratory session per week.

Prerequisite: GEO 226

Spring, alternate years, 4 credits (not offered in 1989-90)

GEO 303 Stratigraphy

The history and practice of defining units of layered rocks and interpreting their spatial relationships. Topics include the basis for the geologic time scale, lithostratigraphic versus chronostratigraphic units, biostratigraphy, magnetostratigraphy, facies patterns and Walther's Law, sub-surface stratigraphy, and the application of stratigraphy to geological problems. Laboratory will emphasize practical techniques in stratigraphy. *Prerequisites:* GEO 301 and 306
Fall, 4 credits

GEO 304 Energy, Mineral Resources, and the Environment

A survey of the origin, distribution, and importance to modern civilization of the fuels and minerals won from the earth. Geology of mineral resources and problems of finding, extracting, and supplying fossil fuels, metallic ores, water, and nonmetallic commodities to industry and community as well as the ultimate limits of their abundances. Environmental concerns related to the exploitation of mineral resources with review of legislation and other steps being taken to minimize environmental damage. A Core Course satisfying Natural Sciences Category B. *Prerequisites:* GEO 102; CHE 111 or high school chemistry
Fall or spring, 3 credits

GEO 305 Field Geology

A field course that may be taken at any one of several approved university field stations. *1 to 6 credits*

GEO 306 Igneous Petrology

Principles of the description, classification, and interpretation of igneous rocks. The student will be introduced to the use of field and laboratory data for interpreting the origin and evolution of various rock types and to the use of the petrographic microscope. Two one-hour lectures and one three-hour laboratory session per week. *Prerequisite:* GEO 301
Fall, 3 credits

GEO 307 Metamorphic Petrology

Principles of the description, classification, and interpretation of metamorphic rocks. Study of hand specimens and thin sections; principles of determining conditions of metamorphism. Two one-hour lectures and one three-hour laboratory session per week. *Prerequisite:* GEO 306
Spring, 3 credits

GEO 308 The Earth in the Nuclear Age

Exploration of some complex societal issues concerning nuclear power and nuclear arms that involve fundamental aspects of earth sciences. Impact of research in geological, geophysical, geochemical, and atmospheric sciences on nuclear power plant siting, nuclear test ban verification, nuclear waste disposal, and nuclear winter theories. Throughout the course, the empirical nature of scientific research will be stressed. A Core Course satisfying Natural Sciences Category B. *Prerequisite:* GEO 102
Spring, 3 credits

GEO 309 Structural Geology

Principles of structural geology, including classification, criteria for recognition, and mechanics of formation of crustal structural features. Elementary concepts of rock mechanics. Discus-

sion of important tectonic features of the continents and oceans. Accompanying laboratory to cover map interpretation and algebraic and graphical solutions of structural problems. Three hours of lecture and one three-hour laboratory per week. A two-day weekend field trip will be made to visit classical structural localities in the east.

Prerequisite: GEO 122
Spring, 4 credits

GEO 310 Introduction to Geophysics

The study of the techniques and results of geophysics. The course will cover seismology, gravity, magnetics, and heat flow, with applications to the structure of the earth's crust and interior, earthquakes, and dynamic processes.

Prerequisites: MAT 127 or 132 or 142; GEO 122 or 112
Fall, 3 credits

GEO 311 Analytical Geophysics Laboratory

Laboratory course to develop computational skills for solving earth science problems. *Prerequisites:* MAT 127 or 132 or 142; GEO 122
Corequisite: GEO 310
Fall, 1 credit

GEO 315 Groundwater Hydrology

Physical and chemical principles of geohydrology. Concepts of groundwater geology. Introduction to quantitative models of regional fluid flow and groundwater contamination. Groundwater and geologic processes, with examples from tectonics, petroleum geology, geothermics, and economic mineralization.

Prerequisites: GEO 102; MAT 127 or 132 or 142
Spring, 3 credits

GEO 323 Thermodynamics for Geologists

Introduction to chemical thermodynamics in a geologic context: multicomponent phase equilibria in natural systems; ideal and nonideal behavior in solid, aqueous, and gas phases; mineral solubilities; brief introduction to kinetics with examples from geologic systems.

Prerequisites: CHE 132 or 142; MAT 127 or 132 or 142
Fall, 3 credits

GEO 351 Solid Earth Geophysics

An advanced course in the application of potential theory to problems in geophysics including geodesy and gravity and magnetism and heat flow.

Prerequisite: MAT 306 or 307
Fall, 3 credits

GEO 352 Seismology

An advanced course in the study of earthquakes, earth structure, and tectonics. Topics include wave propagation, body and surface waves, faulting, plate tectonics, and earthquake prediction.

Prerequisites: MAT 306 or 307; PHY 102 or 106
Spring, 3 credits

GEO 353 Marine Ecology

A survey of biotic responses to ecological challenges in different marine realms. Controls of diversity and trophic structure in the marine ecosystem, historical aspects of marine realms, productivity in the oceans, plankton, soft-bottom

communities, intertidal habitats, coral reefs, deep-sea environments, and effects of pollution in the ocean will be discussed. Crosslisted with BIO 353.

Prerequisite: BIO 343
Spring, 3 credits

GEO 447 Senior Tutorial in Geology

Independent readings in advanced topics to be arranged prior to the beginning of the semester. Weekly conferences will be held with a faculty member. May be repeated once.

Prerequisite: Permission of instructor and chairperson
Fall and spring, 1 to 3 credits

GEO 475 Teaching Practicum in Geology

Supervision of laboratory or recitation sections under the close guidance of the course instructor. Includes regular meetings with the instructor for purposes of planning and evaluation; supplementary reading in preparation for laboratory or recitation sessions; and opportunities to make oral presentations, provide individual or innovative instruction, and reinforce previously acquired knowledge. Satisfactory/Unsatisfactory grading only.

Prerequisites: Senior standing; previous preparation in subject field; interview; permission of instructor
Fall and spring, 3 credits

GEO 487 Senior Research in Geology

Under the supervision of a faculty member, a major in the department may conduct research for academic credit. A research proposal must be prepared by the student and submitted to the department chairperson for approval before the beginning of the semester in which credit is to be given. A written report must be submitted before the end of the semester. May be repeated once.

Prerequisite: Permission of instructor and chairperson
Fall and spring, 1 to 3 credits

Astronomy/Planetary Sciences Courses

AST 101, 105, and 248 are primarily designed for the general university student who is not majoring in a physical science but who elects the course because of personal interest or to fulfill the natural sciences distribution requirements.

AST 101 Introduction to Astronomy

Description of planets, stars, galaxies, black holes, pulsars, quasars, supernovae, and white dwarfs. Man's place in the cosmos. Cosmological and cosmogonical theories. AST 101 and 203 may not both be taken for credit. A Core Course satisfying Natural Sciences Category A-2.
Fall and spring, 4 credits

AST 105 Introduction to the Solar System

A general survey of present knowledge of the planets, satellites, interplanetary medium, comets, asteroids, and outer regions of the sun. Begins with an historical introduction and discussion of the methods of science. Emphasizes current NASA deep-space exploration missions and other modern astronomical methods. A Core Course satisfying Natural Sciences Category A-2.
Fall and spring, 3 credits

AST 203 Astronomy

A survey of the physical nature of the universe for the student with some background in physics and mathematics. May be taken instead of AST 101 by students with better science preparation, but AST 101 and 203 may not both be taken for credit. An optional observing session will be held one evening per week.

Prerequisite: PHY 101 or 103 or 105

Spring, 4 credits

AST 248 The Search for Life in the Universe

A scientific approach to the question: Do intelligent civilizations exist elsewhere in the universe? A review of astronomical setting; the origin of life on earth; possibilities for other types of life in the solar system; methods for communicating with distant advanced civilizations in the galaxy; and analysis of UFO reports and hypotheses of "ancient astronauts." A Core Course satisfying Natural Sciences Category B.

Prerequisite: A Natural Sciences Category A course

Fall, 3 credits

AST 287 Introductory Research in Astronomy

Under the supervision of a faculty member, a student may conduct research for academic credit. A research proposal must be prepared by the student, approved by the sponsoring faculty member, and submitted to the department's URECA coordinator for approval by the end of the first week of the semester in which credit is to be given. A written report of the completed project must be submitted to the URECA coordinator before the end of classes.

Prerequisites: Lower-division standing; one AST course; permission of instructor and URECA coordinator

Fall and spring, 1 to 3 credits

AST 341, 342 Astrophysics I, II

An introduction to, and development of, a firm physical understanding of the observed properties of the stars, Galaxy, and galaxies. Topics will include the structure of the interior and atmosphere of stars; evolution of stars; dynamics of multiple star systems; physics of the interstellar medium; the kinematics, dynamics, and evolution of galaxies; the cosmology and the synthesis of the chemical elements.

Prerequisites to AST 341: AST 203; PHY 306

Prerequisite to AST 342: AST 341

Fall (341) and spring (342), 3 credits each semester

AST 344 Black Holes, Quasars, and Cosmology

A discussion of some of the most exciting astronomical discoveries of the past 20 years relating to situations of intense gravity fields. The evolution of objects leading to black holes, quasars, pulsars, supernovae, and related objects is followed. Big Bang and competing cosmological models are described with emphasis on how such models may be tested.

Prerequisites: PHY 102 or 106; MAT 127 or 132 or 142

Corequisites: PHY 251; MAT 221 or 231 or 241
Fall, alternate years, 3 credits (not offered in 1990-91)

AST 345 Undergraduate Research in Astronomy

Student participation in faculty-directed research projects in the area of theoretical and observational astronomy. Topics may include abundance analysis in stars, instrument design and construction, and ionization balance in the interstellar medium.

Corequisite: AST 342

Spring, 1 credit

AST 351 Introduction to Planetary Physics

Overview of the solar system for science majors. Topics include orbits and bulk properties of the planets, moons, asteroids, and comets; composition, structure, and origin of planetary atmospheres; cratering and other surface processes; tidal heating; planetary rings; the origin of the solar system and formation of other planetary systems.

Prerequisite: AST 341 (may be taken concurrently) or ATM 343

Fall, alternate years, 3 credits (not offered in 1989-90)

AST 443 Observational Techniques in Optical Astronomy

An introduction to modern astronomical instrumentation and data handling and to the use of telescopes. Emphasis will be placed on techniques and equipment appropriate for wavelengths shorter than one micron. Extensive laboratory and observing exercises will be required.

Prerequisites: AST 341 or PHY 301; MAT 341
Spring, alternate years, 4 credits (not offered in 1989-90)

AST 447 Senior Tutorial in Astronomy

Independent readings in advanced topics to be arranged prior to the beginning of the semester. Weekly conferences will be held with a faculty member. May be repeated once.

Prerequisite: Permission of instructor and chairperson

Fall and spring, 1 to 3 credits

AST 475 Teaching Practicum in Astronomy

Supervision of laboratory or recitation sections under the close guidance of the course instructor. Includes regular meetings with the instructor for purposes of planning and evaluation; supplementary reading in preparation for laboratory or recitation sessions; and opportunities to make oral presentations, provide individual or innovative instruction, and reinforce previously acquired knowledge. Satisfactory/Unsatisfactory grading only.

Prerequisites: Senior standing; previous preparation in subject field; interview; permission of instructor

Fall and spring, 3 credits

AST 487 Senior Research in Astronomy

Under the supervision of a faculty member, a major in the department may conduct research for academic credit. A research proposal must be prepared by the student and submitted to the department chairperson for approval before the beginning of the semester in which credit is to be given. A written report must be submitted before the end of the semester. May be repeated once.

Prerequisite: Permission of instructor and chairperson

Fall and spring, 1 to 3 credits

Atmospheric Sciences/Meteorology Courses

ATM courses (except for ATM 102) are designed primarily for science majors.

ATM 102 Weather and Climate

Introduces the nature and causes of common meteorological phenomena, severe weather occurrences, and climatic patterns. Topics include formation and movement of air masses and large-scale storms; techniques for weather prediction; weather satellites; hurricanes, tornadoes, and thunderstorms; cloud and precipitation types; the climatic history of the earth; and actual and potential effect of human activities on weather and climate, and of weather and climate on humans. Crosslisted with ESC 102.

Fall, 3 credits

ATM 205 Introduction to Atmospheric Sciences

The nature and causes of atmospheric phenomena. Basic physical and chemical processes and energetics. Atmospheric thermodynamics, hydrostatics, dynamics, kinematics. Atmospheric wind systems and pressure patterns, clouds and precipitation, severe storms. Crosslisted with ESC 205.

Prerequisites: PHY 101 or 105; MAT 126 or 131 or 141

Spring, 3 credits

ATM 343 Planetary Atmospheres

An introduction to the origin, evolution, and current chemical and physical structures of the atmospheres of the planets and satellites in the solar system. Topics include the thermal structure of atmospheres, atmospheric regions, interaction of atmospheres with the surfaces of planets, atmospheric escape, luminosity, and neutral and ionospheric chemical reactions. Contributions of space probes and satellite data to the understanding of planetary atmospheres are discussed. Crosslisted with ESC 343.

Prerequisites: PHY 252; CHE 131

Spring, alternate years, 3 credits (not offered in 1990-91)

ATM 345 Theoretical Meteorology

An introduction to the quantitative interpretation of the thermal and dynamical structure of planetary atmospheres. Topics to be covered include hydrostatic equilibrium, hydrostatic stability and convection, solar and terrestrial radiation, the atmospheric equations of motion for a rotating planet, and atmospheric energy relationships and general circulation. Crosslisted with ESC 345.

Prerequisite: ATM/ESC 205

Fall, alternate years, 3 credits (not offered in 1990-91)

ATM 346 Dynamic Meteorology

Introduction to the structure and dynamics of the large-scale atmospheric motions that are responsible for weather and climate. Topics will include principles of fluid dynamics; Coriolis force, geostrophic equilibrium, and the Proudman-Taylor theorem; circulation and vorticity, baroclinic instability, cyclogenesis, frontogenesis, and the weather systems; and climate and the general circulation of the atmosphere. Crosslisted with ESC 346.

Prerequisite: ATM/ESC 205

Fall, 3 credits

ATM 348 Atmospheric Physics

An investigation of the relationship between atmospheric phenomena and the nature of matter as expressed in the principles of physics. Topics studied include gravitational effects, thermodynamic properties of atmospheric gases, formation and growth of cloud particles, atmospheric electricity, solar and terrestrial radiation, atmospheric signal phenomena, atmospheric motions, and heat and mass transfer in the atmosphere. Crosslisted with ESC 348.

Prerequisite: PHY 102 or 106

Spring, alternate years, 3 credits (not offered in 1989-90)

ATM 397 Air Pollution and Its Control

A detailed introduction to the causes, effects, and control of air pollution. The pollutants discussed include carbon monoxide, sulfur oxides, nitrogen oxides, ozone, hydrocarbons, and particulate matter. The emissions of these gases from natural and industrial sources and the principles used for controlling the latter are described. The chemical and physical transformations of the pollutants in the atmosphere are investigated and the phenomena of urban smog and acid rain are discussed. Crosslisted with ESC 397.

Prerequisites: PHY 102 or 106; CHE 131 or 141; upper-division standing

Fall, 3 credits

ATM 447 Senior Tutorial in Atmospheric Sciences

Independent readings in advanced topics to be arranged prior to the beginning of the semester. Weekly conferences will be held with a faculty member. May be repeated once.

Prerequisite: Permission of instructor and chairperson

Fall and spring, 1 to 3 credits

ATM 487 Senior Research in Atmospheric Sciences

Under the supervision of a faculty member, a major in the department may conduct research for academic credit. A research proposal must be prepared by the student and submitted to the department chairperson for approval before the beginning of the semester in which credit is to be given. A written report must be submitted before the end of the semester. May be repeated once.

Prerequisite: Permission of instructor and chairperson

Fall and spring, 1 to 3 credits

Graduate Courses

Qualified seniors may take 500-level courses with the permission of the department chairperson and the Graduate School. See the current *Graduate Bulletin*.

Department of Economics

Chairperson: Bryce Hool

Director of Undergraduate Studies:

William Dawes

Faculty

Edward Ames, Professor Emeritus, Ph.D., Harvard University: Economic theory; comparative systems; economic history.

James Anton, Assistant Professor, Ph.D., Stanford University: Macroeconomics; game theory.

James Brown, Assistant Professor, Ph.D., University of Chicago: Labor economics; econometrics.

Steven Cassou, Assistant Professor, Ph.D., University of Minnesota: Macroeconomics; monetary economics.

William Dawes, Assistant Professor, Ph.D., Purdue University: Econometrics; economic history. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1974.

Teresa Garcia-Mila, Assistant Professor, Ph.D., University of Minnesota: Macroeconomics; econometrics.

John Hause, Professor, Ph.D., University of Chicago: Theory of measurement and econometric estimation in human capital; industrial organization; applied microeconomics.

Bryce Hool, Professor, Ph.D., University of California, Berkeley: Macroeconomics; general equilibrium theory; monetary theory.

Michael Hurd, Professor, Ph.D., University of California, Berkeley: Econometrics; labor; macroeconomics.

Estelle James, Professor, Ph.D., Massachusetts Institute of Technology: Welfare economics; human resources.

Marvin Kristein, Associate Professor Emeritus, Ph.D., New School for Social Research: Managerial economics; economics of health.

Audrey Light, Assistant Professor, Ph.D., University of California, Los Angeles: Labor economics; industrial organization.

Stefan Mittnik, Assistant Professor, Ph.D., Washington University: Econometrics; macroeconomics.

Mark Montgomery, Assistant Professor, Ph.D., University of Michigan: Economic demography; development economics.

Thomas Muench, Professor and Director of Graduate Studies, Ph.D., Purdue University: Mathematical economics; econometrics; urban economics.

Egon Neuberger, Professor, Ph.D., Harvard University: Comparative systems; Soviet and East European economics.

Thomas Prusa, Assistant Professor, Ph.D., Stanford University: International economics; industrial organization.

Warren Sanderson, Associate Professor, Ph.D., Stanford University: Economic history; economic demography.

James Schmitz, Assistant Professor, Ph.D., University of Minnesota: Industrial organization; macroeconomics.

Charles Staley, Associate Professor, Ph.D., Massachusetts Institute of Technology: History of economic thought; international trade.

Mark Walker, Professor, Ph.D., Purdue University: Mathematical economics.

Yoram Weiss, Professor, part time, Ph.D., Stanford University: Labor economics; microeconomics.

Dieter Zschock, Associate Professor, Ph.D., Tufts University: Development economics; labor economics.

Michael Zweig, Associate Professor, Ph.D., University of Michigan: Political economy; labor economics.

Adjunct Faculty

Estimated number: 4

Teaching Assistants

Estimated number: 27

The undergraduate major in economics provides training for graduate studies in economics, business, and law. Students may also use it to prepare for entry-level positions in research and policy-making organizations such as the government, banks, and consulting firms.

Economics is a quantitative social science, and the curriculum reflects that. Although major requirements include only a semester of calculus, students planning to use their background in economics for graduate studies or in their careers are strongly urged to take additional courses in mathematics and computer science.

The areas of study in the department fall into three broad classifications. The first of these, *microeconomics*, deals with the theoretical and empirical study of the behavior and interrelationships of individual economic agents, such as firms and individuals, and their interaction through markets. Next, *macroeconomics* examines the large sectors of the economy such as government,

business, money and banking, and international trade. It also covers such topics as unemployment, inflation, and economic growth. Finally, *econometrics* uses statistics to estimate, test, and predict patterns of behavior of the various units and relationships that make up the economy.

Requirements for the Major

The major in economics leads to the Bachelor of Arts degree. The following courses are required.

	<i>Credits</i>
A. A minimum of 11 courses in economics (including not more than two 100-level courses) distributed as follows:	
1. An introductory course in economics (ECO 101 or 104)	4
2. ECO 251 Intermediate Microeconomic Theory	4
3. ECO 252 Intermediate Macroeconomic Theory	4
4. Six economics courses numbered 310 and above	18-22
5. Two additional economics courses	6-8
B. One semester of calculus (MAT 125 or 131 or 141)	3-4
C. Upper-Division Writing Requirement: Majors will be required to demonstrate their writing proficiency in the discipline by achieving an evaluation of Satisfactory on their written work for one of the following courses: ECO 333, 335, 337, 339, 342, 345, or 379. This course must be completed by the end of the junior year. Students will make known to the instructor of the course in advance their plan to use the term paper or other assigned writing in fulfillment of the Upper-Division Writing Requirement for the major. In addition to the grade for the course, the instructor will then make a separate evaluation of writing competency in the field of economics. If this evaluation is Satisfactory, the student will have fulfilled the Upper-Division Writing Requirement. If it is not, the student must fulfill the requirement before graduation.	
Total	39-46

Note: No course used to satisfy requirements for the major may be taken Pass/No Credit. The grade point average for the six economics courses numbered 310 and above (requirement A.4.) must be at least 2.0. The calculus course must be taken for a letter grade and must be passed with a grade of C or higher. No transfer course with a grade lower than C may be applied toward requirement A.4.

Honors Program in Economics

The honors program in economics is designed to develop the student's research and writing skills. It is composed of three courses, usually beginning in the second semester of the student's junior year, although some students may enter the program as first-semester seniors. To be admitted to the honors program, students must have completed ECO 251, 252 and one economics course numbered 325 or above, and must have maintained a grade point average of at least 3.4 in economics and at least 3.2 overall. Interested students should apply to the director of undergraduate studies to obtain the permission of the department.

The first course, ECO 395, involves much writing and preparation of small research projects. By the end of the semester the student should already have a senior thesis topic well in mind and have a faculty supervisor for the thesis. The thesis itself will be written usually in the first half of the senior year in ECO 495. Each student writing a thesis will also enroll in ECO 496 Senior Seminar, where work will be presented and critically evaluated by the students in the program.

The thesis will be evaluated by the student's faculty supervisor, the faculty member in charge of the senior seminar, and a faculty member from another department. If the honors project is completed with distinction, and the student has achieved a 3.5 grade point average in all economics courses taken in the senior year, honors will be conferred.

Courses

See p. 60, Course Credit and Prerequisites, and p. 61, Undergraduate Numbering System.

ECO 100 Current Economic Issues

An examination of major economic issues using the basic tools of economic analysis. Particular emphasis is placed on understanding the influence of international trade, exchange rates, government monetary and fiscal policy, deficits, interest rates, and the financial markets on the economic environment of individuals and businesses.

Fall, 3 credits

ECO 101 Introduction to Economic Analysis

An introduction to economic analysis. Microeconomics (the study of individual, firm, industry, and market behavior) and macroeconomics (the

study of the determination of national income, employment, and inflation). May not be taken for credit in addition to ECO 104. A Core Course satisfying Social and Behavioral Sciences Category A, Group 3.

Fall and spring, 4 credits

ECO 104 Introduction to Economic Analysis: Honors

An introduction to economics that emphasizes the analytical and quantitative nature of the discipline. Microeconomics (the study of individual, firm, industry, and market behavior) and macroeconomics (the study of the determinants of national income, employment, prices, and economic growth) are covered in more depth than in a traditional introductory course. May not be taken for credit in addition to ECO 101. A Core Course satisfying Social and Behavioral Sciences Category A, Group 3.

Prerequisite: Permission of department; priority given to Honors College students

Pre- or corequisite: One semester of calculus
Fall, 4 credits

ECO 114 Financial Accounting

Introduction to some formal accounting statements commonly involved in economic analysis. Topics include business balance sheet and profit and loss statements and flow of funds accounting.

Fall and spring, 3 credits

ECO 203 History of Economic Thought

A study of the evolution of economic thought with reference to the basic problems of the discipline: factor allocation, distribution, growth, etc. The major schools are emphasized in the survey. A Core Course satisfying Social and Behavioral Sciences Category A, Group 2.

Prerequisite: ECO 101 or 104
Fall, 3 credits

ECO 214 Managerial Accounting

Concepts, theories, and use of the accounting system as a source of information in the planning, control, and evaluation of the enterprise by the manager. Cash and funds flow analysis, budget development, and cost control mechanisms.

Prerequisite: ECO 114
Fall and spring, 3 credits

ECO 237 Economics of Industrial and Labor Relations

Evolution of labor unions and collective bargaining, with an emphasis on current labor problems, union and non-union; changing composition of the labor force; wage differentials; the theory of wage determination; labor legislation; and unemployment.

Prerequisite: ECO 101 or 104
Spring, 3 credits

ECO 243 Comparative Economic Systems

A study of different types of economic systems, comparing structures, the ways basic economic problems of factor allocation and distribution are dealt with, and the result achieved in output and growth. A Core Course satisfying Social and Behavioral Sciences Category A, Group 2.

Prerequisite: ECO 101 or 104
Fall, 3 credits

ECO 251 Intermediate Microeconomic Theory

Analytical study of the behavior of fundamental economic units (consumer and the firm) and its implications for the production and distribution of goods and services. Emphasis on the use of economic theory to provide explanations of observed phenomena, including the analytical derivation of empirically verifiable propositions. A Core Course satisfying Social and Behavioral Sciences Category B. Also satisfies Quantitative Literacy Graduation Requirement.

Prerequisites: A grade of C or higher in one semester of calculus; ECO 101 or 104
Fall and spring, 4 credits

ECO 252 Intermediate Macroeconomic Theory

The theory of national income determination, employment, distribution, price levels, inflation, and growth. Keynesian and classical models of the different implications of monetary and fiscal policy. A Core Course satisfying Social and Behavioral Sciences Category B.

Prerequisites: A grade of C or higher in one semester of calculus; ECO 101 or 104
Fall and spring, 4 credits

ECO 310 Basic Computational Methods In Economics

A first course in the computational and graphical techniques for finding numerical solutions to the economic models presented in undergraduate courses. Includes the foundations of programming (using BASIC), data management, Newton's method for solving nonlinear equations, exploring and fitting functions graphically, and finding maxima of functions.

Pre- or corequisite: ECO 251
Fall and spring, 4 credits

ECO 317 Marxist Political Economy

A Marxian analysis of capitalism, including some of the writings of Marx, Lenin, and Mao Zé Dōng. The method of dialectical, historical materialism is applied to the historical development of capitalism, the operation of modern advanced monopoly capitalism, and such phenomena as economic crisis, war, and the capitalist conditions that give rise to socialism. A Core Course satisfying Social and Behavioral Sciences Category A, Group 2.

Prerequisites: ECO 101 or 104
Fall, 3 credits

ECO 318 Economics of Manpower Planning

Analysis of changing manpower requirements and labor force composition in the United States. Evaluation of manpower legislation and programs at national, regional, and local levels, and of educational and other institutional responses to employment problems.

Prerequisite: ECO 237
Spring, 3 credits

ECO 320 Mathematical Statistics

An introduction to statistical methods and their properties that are useful in analysis of economic data. Topics include elements of probability theory and its empirical application, univariate and multivariate distributions, sampling distributions,

limiting distributions, point and interval estimation. Regular problem sets and occasional projects are required. Students may not receive credit for this course and AMS 310.

Prerequisites: ECO 101 or 104; one semester of calculus
Fall, 4 credits

ECO 321 Econometrics

The application of mathematical and statistical methods to economic theory. Topics include the concept of an explanatory economic model, multiple regression, hypothesis testing, simultaneous equation models, and estimating techniques. Emphasis is placed on the application of econometric studies.

Prerequisite: ECO 320 or AMS 310
Spring, 4 credits

ECO 322 Applied Econometrics

Application of econometric methods to real problems, using panel data sets and problems involving qualitative dependent variables.

Prerequisites: ECO 251, 252, and 321
Fall or spring, 3 credits

ECO 325 International Economics

Economic theory of international trade, protection, commercial policy, customs unions, capital movements, and international finance.

Prerequisite: ECO 251
Fall or spring, 3 credits

ECO 326 Economics of American Industry

Application and extension of the theory of the firm to actual firms and industries, emphasizing problems that might call for various sorts of regulation of firms. Topics include market concentration, applications of the theories of monopoly and oligopoly, mergers, price discrimination, product variation, advertising, and public utility pricing, with illustrations from specific industries.

Prerequisite: ECO 251
Fall or spring, 3 credits

ECO 333 Demographic Economics

Problems related to both economics and demography. In scope, the material deals with both contemporary and historical situations and with both developing and developed countries. Microeconomic aspects of the course concern fertility, marriage, divorce, and migration; macroeconomic aspects concern the implications for growth and development of various patterns of population increase.

Prerequisites: ECO 251 and 252
Corequisite: ECO 321
Fall or spring, 3 credits

ECO 335 Economic Development

An examination of problems and aspects facing developing countries in the transition from traditional, predominantly rural economic systems to modern, largely urban-oriented economies. Theories of economic growth and development will be presented in the light of the actual experience of developing countries. A Core Course satisfying Social and Behavioral Sciences Category A, Group 4.

Prerequisite: ECO 252
Fall or spring, 3 credits

ECO 337 Advanced Labor Theory

Microeconomic theory is used to investigate specific topics in the field of labor economics. Areas to be covered include the household's decision-making process and the supply of

labor, investments in human capital and discrimination in the marketplace, the effect of market structure on the demand for labor, and the distribution of income.

Prerequisite: ECO 251
Fall or spring, 3 credits

ECO 339 China's Economy Since 1949

Economic development policies in the People's Republic of China from the revolution in 1949 to the present. Topics include agricultural and industrial organization, population policies, sectoral balances, foreign trade, and attempts to reconcile planning with market forces. A substantial term paper is required. A Core Course satisfying Social and Behavioral Sciences Category A, Group 4, and Study of Another Culture.

Prerequisite: ECO 251
Spring, 3 credits

ECO 342 Human Resources: Health

An application of microeconomic theory to the health sector of the economy. Areas to be covered include the demand for health care and the role of health insurance, the alleged shortage of physicians' services, the effects of physician specialty choice and location, the hospital sector of the health care market, and the utilization of non-physician support personnel.

Prerequisite: ECO 251
Fall or spring, 3 credits

ECO 344 Urban Economics

Theories of residential and industrial location; examination of intrametropolitan changes in industry location, suburbanization of employment and population, and ethnic problems in metropolitan areas; costs and benefits of urban services; and policy formation for urban development and renewal.

Prerequisite: ECO 251
Fall or spring, 3 credits

ECO 345 Law and Economic Issues

How the American legal system reflects the developing economy. The American court system as a social decision-making mechanism that allocates social costs and benefits among economic effects; the allocation of liability for increasingly complex goods; the development of the contract; property under the 14th Amendment; changes in the value of money; and government role in creating wealth.

Prerequisite: ECO 251
Fall or spring, 3 credits

ECO 348 Analysis for Managerial Decision Making

Development of analytical techniques (such as linear programming and statistical decision theory) for making economic decisions, both in public and private enterprises. The student will be making decisions on large-scale and detailed cases in realistic managerial situations and will be introduced to the use of the computer.

Prerequisite: ECO 251
Fall and spring, 4 credits

ECO 351 Advanced Mathematical Microeconomics

Alternative concepts of equilibrium state of an economic system: Do such states exist? Can they actually be attained? What properties do

they have? This analysis leads to the study of market failures and the possibilities for remedying such failures.

Prerequisites: ECO 251; MAT 127 or 132 or 142
Fall or spring, 3 credits

ECO 360 Money and Banking

An introduction to modern monetary institutions and mechanisms, their relationship to the economy, and governmental policies in this area.

Prerequisite: ECO 252
Fall and spring, 3 credits

ECO 368 Modern Portfolio Theory

The economics of uncertainty and modern portfolio theory. Topics will include expected utility theory, measurement of risk, the capital asset pricing model, and efficient markets. Students will maintain a portfolio of common stocks and evaluate its performance.

Prerequisites: ECO 251 and 320
Corequisite: ECO 321
Spring, 3 credits

ECO 370 Application and Theory of Financial Markets

The study of financial markets. The course reviews net present value as an investment criterion. Capital asset pricing models and market efficiency are covered briefly. Pricing of stocks, bonds, options, and futures, together with hedging strategies using options and futures, are covered in more detail.

Prerequisites: ECO 251 and 320
Fall, 3 credits

ECO 379 Economics of Exhaustible Resources

The application of economic theory to the analysis and evaluation of the different ways of organizing the use of exhaustible resources. The common property problem is examined in fisheries, oil extraction, and oil exploration; the theory of intertemporal resource allocation is applied to fisheries, forests, and oil pools; the issue of whether resources are becoming more or less scarce will be considered. The emphasis is on analytical models.

Prerequisite: ECO 251
Fall or spring, 3 credits

ECO 383 Public Finance

Theories of taxation and the satisfaction of public wants; the nature of public goods; theory of public expenditure; effects of taxes on resource allocation and welfare; theories of tax incidence; fiscal and equity implications of alternative tax schemes; fiscal dynamics and growth; intergovernmental fiscal relations.

Prerequisites: ECO 251 and 252
Fall or spring, 3 credits

ECO 385 American Economic History I

A survey of the U.S. economy from colonial times to the present. The changing structure of the economy is analyzed using the standard tools of the economist to examine the determinants of changes in factor inputs, institutional arrangements, prices and money, balance of payments, and government policy.

Prerequisites: ECO 251 and 252
Fall or spring, 3 credits

ECO 386 American Economic History II

Intensive study of selected topics in U.S. economic history. Topics may include (1) long-term growth, (2) technical change, (3) monetary

history, (4) institutional change and growth, and (5) cyclical economic phenomena. Emphasis will be placed on interrelating economics and history and on student research.

Prerequisite: ECO 385
Corequisite: ECO 321
Spring, 3 credits

ECO 387 Stabilization Policy, Business Cycles, and Forecasting

The use of econometric models and techniques to forecast economic conditions and evaluate alternative economic policies. Properties of the Federal Reserve Board model, the Brookings model, and other major models in use in the U.S. economy will be investigated. Topics will also include specification of demand and supply equations in the analysis of single-product markets. Students will be expected to estimate and manipulate actual models.

Prerequisites: ECO 251, 252, and 321
Fall or spring, 3 credits

ECO 389 Corporate Finance

The corporation as a social and economic institution for raising capital and organizing economic activity, emphasizing financial decision making. The birth, operation, growth, and death of corporations; risk-taking and control; sources and uses of funds, financial management; mergers, acquisitions, conglomerations; reorganization, bankruptcy; regulation; public responsibility.

Prerequisites: ECO 251 and 252
Fall or spring, 3 credits

ECO 395 Junior Seminar

The first course of the honors sequence in economics, stressing development of research and writing skills on economic subject matter. The student will write several papers, which will be evaluated critically in the seminar. Particular subject matter will vary. Enrollment will be limited to 15 students.

Prerequisite: Admission to honors program in economics
Spring, 3 credits

ECO 400 Topics in Economic Theory

Topics in economic theory will be offered as student demand and faculty time and interest coincide. Some of the possible topics are optimization theory, growth theory, investment determination, and advanced microeconomic theory. Students should check with the department for information about the topic to be offered in any particular semester. May be repeated for different topics.

Prerequisites: ECO 101 or 104; at least one other course specified when the topic is announced.
Schedule to be announced, 3 credits

ECO 402 Topics in Quantitative Economics

Topics in quantitative economics will be offered as student demand and faculty time and interest coincide. Some of the possible topics are forecasting with econometric models, time series and spectral analysis, decision theory, game theory. Students should check with the department for information about the topic to be offered in any particular semester. May be repeated for different topics.

Prerequisites: ECO 101 or 104; at least one other course specified when the topic is announced.
Schedule to be announced, 3 credits

ECO 404 Topics in Development and Comparative Systems

Topics in development and comparative systems will be offered as student demand and faculty time and interest coincide. Some of the possible topics are economic development in modern Europe or China, Soviet or Eastern European economies, and economic development in the Middle East or Latin America. Students should check with the department for information about the topic to be offered in any particular semester. May be repeated for different topics.

Prerequisites: ECO 101 or 104; at least one other course specified when the topic is announced.
Schedule to be announced, 3 credits

ECO 406 Topics in Political Economy

Topics in political economy will be offered as student demand and faculty time and interest coincide. Some of the possible topics are imperialism, political economy of Latin America, and property relations. Students should check with the department for information about the topic to be offered in any particular semester. May be repeated for different topics.

Prerequisites: ECO 101 or 104; at least one other course specified when the topic is announced.
Schedule to be announced, 3 credits

ECO 408 Topics in Applied Economics

Topics in applied economics will be offered as student demand and faculty time and interest coincide. Some of the possible topics are advanced topics in economics of education, capital and financial markets, and medical economics. Students should check with the department for information about the topic to be offered in any particular semester. May be repeated for different topics.

Prerequisites: ECO 101 or 104; at least one other course specified when the topic is announced.
Schedule to be announced, 3 credits

ECO 475 Undergraduate Teaching Practicum in Economics I

Each student will conduct a regular recitation or problem section that will supplement a regular economics course. The student will receive regularly scheduled supervision from the instructor. Responsibilities may include preparing material for discussion, initial correction of homework and tests, and helping students with problems. Satisfactory/Unsatisfactory grading only.

Prerequisite: Permission of instructor and department
Fall and spring, 3 credits

ECO 476 Undergraduate Teaching Practicum in Economics II

This course continues on a more advanced level training in the techniques of organization and management in the teaching of economics courses. Students will be expected to assume greater responsibility in such areas as designing practice homework, analyzing and evaluating test results, and observing and helping new teaching assistants to develop new teaching techniques. Students may not serve as teaching assistants in the same course twice. It is expected that the course in which a student is permitted to work as a teaching assistant will be of at least equal difficulty as the course in which he or she previously served as teaching assistant. Satisfactory/Unsatisfactory grading only.

Prerequisites: ECO 475; permission of instructor and department
Fall and spring, 3 credits

ECO 487 Independent Research

A course of study providing opportunities for a student to undertake independently a special project entailing advanced readings, reports and discussion, or research on topics of his or her choosing with the guidance of an assigned faculty member. When the work of two or more students in this course is related, a seminar may be organized covering the area of common interest. May be repeated.

Prerequisite: Permission of department

Fall and spring, 1 to 6 credits each semester

ECO 488 Internship

Participation in local, state, and national public and private agencies and organizations. Students will be required to submit written progress reports and a final written report on their experience to the faculty sponsor and the department. Satisfactory/Unsatisfactory grading only. May be repeated to a limit of 12 credits, but no more than six credits count toward economics major requirements.

Prerequisites: ECO 251 and 252; permission of instructor, department, and Office of Undergraduate Studies

Fall and spring, 3 to 12 credits

ECO 495 Senior Thesis

The student will write a major research paper under the supervision of a faculty member as part of the requirements for successful completion of the honors program in economics.

Prerequisites: ECO 395; permission of department

Corequisite: ECO 496

Fall, 4 credits

ECO 496 Senior Seminar

Comprised of all students enrolled in ECO 495. Each student will be required to make periodic and final presentations of the senior thesis. Students will be evaluated on their participation, particularly the helpfulness of their evaluations of other students' work.

Prerequisites: ECO 395; permission of department

Corequisite: ECO 495

Fall, 2 credits

Interdisciplinary Program in Engineering Chemistry

Program Committee

Patrick Herley: Materials Science and Engineering

Robert Kerber: Chemistry

The interdisciplinary program in engineering chemistry (ECM), which leads to the Bachelor of Science degree, is designed to provide students with a basic understanding of the chemistry and materials technology underlying modern materials engineering.

This program emphasizes a strong background in physical chemistry infused with an orientation toward the solid-state sciences and materials technology. Its cen-

tral theme is a chemistry core strengthened by materials science and laboratory courses, the latter with a unique "chemistry of materials" component. The choice of suitable electives will help the student to prepare for work or advanced study in areas such as electronic materials, interfacial phenomena, solid-state science and technology, polymers, ceramics, biomaterials, etc.

Jointly sponsored by the College of Arts and Sciences and the College of Engineering and Applied Sciences, the program is a basic preparation for training chemical and materials professionals who can enter a wide range of industries or proceed to graduate work in either solid-state chemistry or materials science.

B.S./M.S. Program

Engineering chemistry students who are interested in pursuing graduate study in materials science may wish to apply for the five-year program at the end of their junior year. For further details, see page 201.

College Proficiency and Distribution Requirements

Students majoring in engineering chemistry must meet the requirements of the College of Arts and Sciences with the following exceptions to the distribution requirements:

- A. Elementary foreign language courses numbered 101 or 111 through 116, if taken to fulfill the language proficiency requirement, may also be used to fulfill the Humanities and Fine Arts Elective requirement.
- B. No Core Course need be chosen from Natural Sciences Category A-1: Introduction to the Biological Sciences.
- C. No Core Course need be taken from Social and Behavioral Sciences Category C: Elective

Requirements for the Major

The interdisciplinary major in engineering chemistry leads to the Bachelor of Science degree. The following courses are required and must be taken for a letter grade. No transferred course with a grade lower than C- may be used to fulfill any major requirement. At least six credits each of upper-division work in chemistry and in materials science and engineering must be taken at Stony Brook.

A. Mathematics and Basic Science Requirements	Credits
1. MAT 131 Calculus I and MAT 132 Calculus II	8
2. MAT 231 Calculus III: Linear Algebra and MAT 306 Calculus IV: Multivariate Calculus or	

MAT 221 Calculus III: Differential Equations and AMS 362 Engineering Mathematics, B	6-7
3. CSE 111 Computer Science for Engineers	3
4. CHE 131, 132 General Chemistry or CHE 141, 142 Honors Chemistry	8
5. CHE 133, 134 General Chemistry Laboratory or CHE 143, 144 Honors Chemistry Laboratory	2
6. PHY 101, 102 Classical Physics I, II or PHY 105, 106 Classical Physics I, II: Honors; PHY 251 Modern Physics or ESG 281 An Engineering Introduction to the Solid State	11-12
Subtotal	38-40

Note: The following alternate calculus sequences may be substituted: MAT 141, 142 or 125, 126, 127 for 131, 132; MAT 241 for 231; MAT 307 for 306.

B. Core Program	Credits
1. CHE 301, 302 Physical Chemistry I, II	6
2. CHE 303 Solution Chemistry Laboratory	2
3. CHE 304 Chemical Instrumentation Laboratory	2
4. CHE 321 or 331 Organic Chemistry	3
5. ESG 332 Materials Science I: Structure and Properties of Materials	4
6. ESG 333 Materials Science II: Electronic Properties	4
7. ESM 302 Materials Design and Techniques	3
Subtotal	24

C. Upper-Division Writing Requirement

Each student majoring in engineering chemistry must submit a portfolio of three to five papers from previous coursework, at least two of which should be full laboratory reports from chemistry courses. This portfolio is to be submitted by the end of the junior year. It must be found acceptable in its clarity and precision of communication before the student can be cleared for graduation.

Total 62-64

Electives

Selection of technical and open electives to give a total number of 120 credits. Students are advised to divide their electives

among courses within the College of Engineering and Applied Sciences and the Chemistry Department that strengthen their professional interests, and courses in the social sciences and humanities that help them place the problems of society and industry in perspective.

Students who wish to meet the American Chemical Society certification requirements must take, in addition to the above, CHE 322, 333, and 334 (organic), 375 (inorganic), and one other advanced chemistry course.

Department of English

Chairperson: David Sheehan
Director of Undergraduate Studies: Paul A. Newlin
Director of Writing Programs: Patricia A. Belanoff

Faculty

Bruce W. Bashford, Assistant Professor, Ph.D., Northwestern University: Literary criticism; rhetoric and the teaching of composition.

Patricia A. Belanoff, Assistant Professor, Ph.D., New York University: The teaching of composition; Old English; Middle English.

Helen Cooper, Associate Professor and Director of Graduate Studies, Ph.D., Rutgers University: Victorian literature; creative writing; women's studies.

Paul J. Dolan, Associate Professor, Ph.D., New York University: Modern British and American literature; Yeats; literature and politics.

David V. Erdman, Professor Emeritus, Ph.D., Princeton University: Romantic literature; Blake; textual and critical editing.

Thomas B. Flanagan, Professor, Ph.D., Columbia University: Irish literature; modern British literature; Joyce; Yeats.

Diane Fortuna, Assistant Professor, Ph.D., The Johns Hopkins University: 20th-century British and American literature; 19th-century American literature.

Leonard Gardner, Lecturer, Ph.D., University of Chicago: Secondary education.

Homer B. Goldberg, Distinguished Teaching Professor, Ph.D., University of Chicago: Restoration and 18th-century literature; the novel; literary criticism. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1973, and the President's Award for Excellence in Teaching, 1987.

Harvey S. Gross, Professor, Ph.D., University of Michigan: Comparative literature; prosody and poetic theory; modern intellectual history.

William J. Harris, Associate Professor, Ph.D., Stanford University: American literature; Black American literature; creative writing.

James Harvey, Assistant Professor, A.M., University of Michigan: The novel; drama; film.

Clifford C. Huffman, Associate Professor, Ph.D., Columbia University: Renaissance literature; Shakespeare.

June Jordan, Professor, Director of Creative Writing and the Poetry Center: Creative writing; children's literature; women's studies; Black American literature.

E. Ann Kaplan, Professor, Ph.D., Rutgers University: 19th- and 20th-century British and American literature; women's studies; film.

Thomas Kranidas, Professor, Ph.D., University of Washington: 17th-century literature; Milton.

Richard L. Levin, Professor, Ph.D., University of Chicago: Renaissance drama; literary criticism.

Richard A. Levine, Professor, Ph.D., Indiana University: Victorian literature; the novel; literature and society.

Aaron Lipton, Associate Professor and Coordinator of English Teacher Preparation, Ed.D., New York University: The teaching of reading, composition, and literature; the psychology of literature.

Jack Ludwig, Professor, Ph.D., University of California, Los Angeles: 20th-century literature; Joyce; Yeats; creative writing.

Thomas E. Maresca, Professor, Ph.D., The Johns Hopkins University: Restoration and 18th-century literature; the epic; satire.

Ruth Miller, Professor Emerita, Ph.D., New York University: Early American literature; poetry; Dickinson; Black American literature.

Adrienne Munich, Assistant Professor, Ph.D., City University of New York: Victorian literature.

Gerald B. Nelson, Associate Professor, Ph.D., Columbia University: 20th-century British and American literature; poetry.

Paul A. Newlin, Associate Professor, Ph.D., University of California, Los Angeles: 19th-century American literature; creative writing. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1985, and the President's Award for Excellence in Teaching, 1985.

Stacey Olster, Associate Professor, Ph.D., University of Michigan: 20th-century British and American literature; the novel. Recipient of the President's Award for Excellence in Teaching, 1986, and the Chancellor's Award for Excellence in Teaching, 1987.

Joseph Pequigney, Professor, Ph.D., Harvard University: 17th-century literature; Shakespeare.

Alice B. Robertson, Lecturer and Associate Director of Writing Programs, Ph.D., Arizona State University: Composition theory and practice; 20th-century American literature.

Marion B. Ross, Assistant Professor, Ph.D., University of Chicago: Romantic literature; literary criticism.

Walter Scheps, Associate Professor, Ph.D., University of Oregon: Old English; Middle English; the history of the English language.

Sallie Sears, Associate Professor, Ph.D., Brandeis University: The novel; Henry James; literary criticism; women's studies.

David Sheehan, Associate Professor, Ph.D., University of Wisconsin: Restoration and 18th-century literature.

Louis Simpson, Professor, Ph.D., Columbia University: 19th- and 20th-century British and American literature; poetry; creative writing; literary criticism.

Clifford H. Siskin, Associate Professor, Ph.D., University of Virginia: British romanticism; critical theory.

Stephen J. Spector, Associate Professor, Ph.D., Yale University: Old English; Middle English; the history of the English language.

Michael Sprinker, Professor, Ph.D., Princeton University: Literary criticism; modern literature.

Susan Squier, Associate Professor, Ph.D., Stanford University: 19th- and 20th-century British literature; women's studies.

Judah L. Stampfer, Professor, Ph.D., Harvard University: Renaissance and 17th-century literature; Shakespeare; literature and psychology.

Patricia Steenland, Assistant Professor, Ph.D., Brown University: Renaissance and 17th-century literature; Milton.

Rose Zimbardo, Professor, Ph.D., Yale University: Restoration, Renaissance, and 18th-century literature; modern drama. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1981.

Teaching Assistants

Estimated number: 50

Adjunct Faculty

Estimated number: 9

Courses offered by the Department of English seek to develop students' understanding of important works of English and American literature, to provide a historical awareness of the range of thought and experience that has found expression in the English language, and to enlarge students' personal horizons by reflection upon cultural, social, and aesthetic experience. The development of this kind of knowledge also means a development of students' ability to express themselves effectively in speech and in writing. Courses in English instruct students in becoming more observant,

thoughtful, and articulate in response to what they read. The English Department's Writing Center offers individual tutoring to all members of the Stony Brook community, including undergraduate and graduate students and faculty.

Requirements for the Major in English

The major in English leads to the Bachelor of Arts degree. The following courses are required.

A. Study within the Area of the Major (Courses must be taken for a letter grade, and only two courses with grades in the D range may be counted.)

	<i>Credits</i>
1. EGL 204 Literary Analysis and Argumentation, which should be taken as an introduction to the major	3
2. EGL 205 and 206 Survey of British Literature I and II, which should be taken in the sophomore year	6
3. <i>Either</i> EGL 217 American Literature I or EGL 218 American Literature II, which should be taken early in the major	3
4. One of the following Shakespeare courses: EGL 243 or 345 or 346	3
5. Three Period Courses from the sequence numbered EGL 300-320	9
6. One Major Author course from the sequence numbered EGL 338-353	3
7. One Interdisciplinary or Genre course from the sequences numbered EGL 260-276 or 361-376	3
8. EGL 380 History and Structure of the English Language	3
9. Elective: one additional course elected from those offerings numbered EGL 202-496, <i>exclusive of those listed in note 1 below</i>	3
Subtotal	36

Notes on Section A

- No English course below the 200 level may be used to fulfill English major requirements. In addition, the following courses may not be used for the English major: EGL 285, 286, 287, 288, 385, 387, 388, 393, 394, 398, 488.
- Any two Shakespeare courses may be taken for credit, in which case EGL 345 or 346 may satisfy requirement 6.

- Appropriate EGL 490 seminars may be used to satisfy the above requirements by permission of the director of undergraduate studies.

B. Study in Related Areas (Courses may be taken under the P/NC option.)

	<i>Credits</i>
1. One year (or its six-credit equivalent) of college study of a foreign language at the intermediate level or beyond	6
2. Six credits of study of British, American, medieval, or Renaissance history	6
3. Six credits of study in the Humanities and Fine Arts Division (excluding English courses) in addition to the foreign language requirement above	6
Subtotal	18

C. Upper-Division Writing Requirement

Before the end of the second semester of his or her junior year, each student shall submit to the director of undergraduate studies two papers, each written for a different instructor in an upper-division English course, together with the instructor's written confirmation that the paper demonstrates suitably advanced writing proficiency. The departmental course descriptions for the forthcoming semester will regularly specify those courses in which students may satisfy this requirement. The student must notify the instructor before the paper is turned in to him or her that it is intended to satisfy this requirement in addition to the course requirements. A student anticipating or experiencing difficulty in satisfying this requirement should seek the advice and assistance of the director of undergraduate studies no later than the beginning of the semester before the one in which the student expects to graduate.

Total 54

Teacher Preparation

Students majoring in English and seeking provisional certification as secondary school English teachers are required to have a departmental advisor. They are asked to consult with the coordinator of

English teacher preparation as soon as they have decided to seek certification.

Requirements for Provisional Certification

- All requirements for the major in English
- A 3.0 grade point average
- A writing sample
- Professional educational requirements:
 - EGL 396 Literature and Psychology of Adolescence (3 credits)
 - EGL 398 Methods of Instruction in Literature and Composition (3 credits)
 - EGL 450 Supervised Secondary School Student Teaching (12 credits)
 - EGL 454 Student Teaching Seminar (3 credits)
 - SSI 350 Foundations of Education (3 credits)

Note: Courses taken for Pass/No Credit may not be used to satisfy the preparation in professional education component of the teacher preparation program.

The Honors Program in English

To be awarded honors a department major must (1) attain an overall G.P.A. of at least 3.0 and a G.P.A. of at least 3.5 in English courses taken for the major; (2) receive a grade of A or A- in EGL 490; (3) write a senior thesis judged worthy of honors. Completion of EGL 490 is a prerequisite for undertaking the senior thesis. Students eligible to write a senior thesis must find a member of the department faculty to act as a thesis advisor and enroll in EGL 495 or 496. The thesis topic must be approved by the undergraduate program committee before the last week of the semester prior to taking EGL 495 or 496. The thesis will be evaluated by the thesis advisor, a member of the undergraduate program committee, and a third reader from outside the department. For further information consult the director of undergraduate studies.

The Minor in English

The minor, which requires 18 credits, allows students to pursue within a framework of general requirements their specific interests in *one* of three areas: British literature, American literature, or modern and contemporary literature. Each student's particular choice of courses within these three options *must* be determined in consultation with the director of undergraduate studies.

All courses must be taken for a letter grade.

	<i>Credits</i>
A. Courses required of all minors:	
EGL 204 Literary Analysis and Argumentation	3
Shakespeare: EGL 243 or 345 or 346	3
B. Requirements varying according to student's chosen area of interest:	
One Survey course (EGL 205, 206, 217, 218, 224, or 226)	3
One Period course (EGL 300-320)	3
One Major Author, Genre, or Interdisciplinary course	3
One additional upper-division course	3
Total	18

Courses

See p. 60, Course Credit and Prerequisites, and p. 61, Undergraduate Numbering System.

Details of staffing and specific course descriptions should be obtained from brochures published by the English Department before registration each semester. Reading lists are also available in advance.

Writing

Note: EGC courses may not be used for English major or College distribution area elective credit.

EGC 100 Introduction to the Writing Process

Extensive practice in writing to help students develop clear thinking and more fluent use of language. Writing from experience will be emphasized. There will be less emphasis on expository writing and formal revision than in EGC 101. Satisfactory/Unsatisfactory grading only. *Prerequisite:* Placement by English Placement Examination or by ESL instructor
Fall and spring, 3 credits

EGC 101 Writing Workshop

Intensive practice in writing frequent short papers. Emphasis on strategies for drafting and revising. Students must earn a C or higher in this course to satisfy the Lower-Division Writing Requirement. A through C/Unsatisfactory grading only. The Pass/No Credit option may not be used. (This course does not satisfy the writing requirement for students who score "Strong" on the Placement Examination.) *Prerequisite:* Placement by English Placement Examination or by EGC 100 or ESL instructor.
Fall and spring, 3 credits

EGC 102 Writing Workshop II

A continuation of EGC 101. Emphasis on the development of expository and argumentative writing skills. Frequent papers. May satisfy Lower-Division Writing Requirement for students who do not satisfy it through EGC 101. *Prerequisite:* EGC 101 or recommendation of EGC 101 instructor
Fall and spring, 3 credits

EGL 202 Intermediate Writing Workshops

Intensive work on more complex problems in writing. Different sections may have different emphases (e.g., argument, personal reflection, research methods), but all will concentrate on nonfictional prose. Descriptions of current offerings are available before registration each semester. Satisfies Lower-Division Writing Requirement for students who score "Strong" on the English Placement Examination. May be repeated once with permission of the director of writing programs.

Prerequisites: EGC 101 and sophomore standing, or "Strong" on the English Placement Examination

Fall and spring, 3 credits

EGL 204 Literary Analysis and Argumentation

For description and prerequisite see Lower-Division Courses in Literature below.

Note: For additional courses in writing, see EGL 285, 286, 287, 288, 381, 382, 385, 387, 388, 393, 394.

Introduction to Literature

These courses give instruction and practice in responding thoughtfully to literature, in speech and in writing. They are designed primarily for freshmen but may be suitable for other students seeking basic courses in reading, discussing, and writing about literary works. These courses may not be used for English major credit.

EGL 191 Introduction to Poetry

Intensive analysis of poems in English of various periods and types and varying complexity. (Not for English major credit.) A Core Course satisfying Humanities and Fine Arts Category B. Also satisfies Lower-Division Writing Requirement for students who score "Strong" on the English Placement Examination.

Prerequisite: EGC 101 or "Strong" on the English Placement Examination

Fall and spring, 3 credits

EGL 192 Introduction to Fiction

An analysis of fictional prose in terms of each section's specific theme. A goal of each section is to interpret various pieces of literature in relation to a political or historical view, or a particular literary technique. (Not for English major credit.) A Core Course satisfying Humanities and Fine Arts Category B. Also satisfies Lower-Division Writing Requirement for students who score "Strong" on the English Placement Examination.

Prerequisite: EGC 101 or "Strong" on the English Placement Examination

Fall and spring, 3 credits

EGL 193 Introduction to Drama

Introduction to the analysis of drama, emphasizing the literary more than the theatrical dimension of the works, through examination of a range of plays from a variety of genres and periods. (Not for English major credit.) A Core Course satisfying Humanities and Fine Arts Category B. Also satisfies Lower-Division Writing Requirement for students who score "Strong" on the English Placement Examination.

Prerequisite: EGC 101 or "Strong" on the English Placement Examination

Fall and spring, 3 credits

EGL 199 Freshman Honors Seminar

Intensive reading and discussion of related works of imaginative literature. Enrollment limited to 15. For freshmen with exceptionally strong records in high school. (Not for English major credit.) Satisfies Lower-Division Writing Requirement for students who score "Strong" on the English Placement Examination.

Prerequisite: Permission of department; EGC 101 or "Strong" on the English Placement Examination. Priority given to Honors College students.

Fall or spring, 3 credits

Lower-Division Courses in Literature

These courses develop skills in interpretation and provide the background necessary for advanced courses in literature. They may also be of interest to the non-major. *EGL 204 Literary Analysis and Argumentation* offers intensive instruction in the preparation of argumentative essays. Students should note that EGL 204 is, with some exceptions, a standard prerequisite for most upper-division courses in English. Prospective English majors should consult the major requirements listed above for information concerning required lower-division courses.

Note: For description of EGL 202 see Writing, above.

EGL 204 Literary Analysis and Argumentation

An introduction to the techniques and terminology of close literary analysis and argumentation as applied to poetry, fiction, and drama. The course will include frequent demanding writing assignments and is designed for students beginning their major study in English. A Core Course satisfying Humanities and Fine Arts Category B.

Prerequisite: EGC 101 or "Strong" on the English Placement Examination

Fall and spring, 3 credits

EGL 205 Survey of British Literature I

The study of British literature from the Old English period to Milton. A Core Course satisfying Humanities and Fine Arts Category A.

Prerequisite: EGC 101 or "Strong" on the English Placement Examination

Fall and spring, 3 credits

EGL 206 Survey of British Literature II

The study of British literature from Dryden to the end of the 19th century. A Core Course satisfying Humanities and Fine Arts Category A.

Prerequisite: EGC 101 or "Strong" on the English Placement Examination

Fall and spring, 3 credits

EGL 217 American Literature I

The study of American literature from 1607 to 1865.

Prerequisite: EGC 101 or "Strong" on the English Placement Examination

Fall or spring, 3 credits

EGL 218 American Literature II

The study of American literature from 1865 to 1945.

Prerequisite: EGC 101 or "Strong" on the English Placement Examination

Fall or spring, 3 credits

EGL 224 Modern English and American Literature

The study of English and American literature from the end of the Victorian era to World War II. *Prerequisite:* EGC 101 or "Strong" on the English Placement Examination
Fall or spring, 3 credits

EGL 226 Contemporary English and American Literature

The study of English and American literature from World War II to the present. *Prerequisite:* EGC 101 or "Strong" on the English Placement Examination
Fall or spring, 3 credits

EGL 243 Shakespeare: The Major Works

A study of major works in several genres. Designed for students who want a one-semester survey of Shakespeare. May not be taken for credit in addition to the discontinued EGL 241 or 242. *Prerequisite:* EGC 101 or "Strong" on the English Placement Examination
Fall and spring, 3 credits

EGL 260 Mythology in Literature

The analysis of Mediterranean myth in literature from antiquity to the present. The course explores the earliest literary texts that use mythic material, analyzes the irrational in myth, and examines the history of motifs, figures, and themes in myth that persist in Western literature, with special emphasis on English literature. *Prerequisite:* EGC 101 or "Strong" on the English Placement Examination
Fall or spring, 3 credits

EGL 261, 262 The Bible as Literature

The study of literary forms and themes in the Bible. The Old and New Testaments will be treated in alternate semesters. *Prerequisite:* EGC 101 or "Strong" on the English Placement Examination
Fall (261) and spring (262), 3 credits each semester

EGL 265 Development of the Novel

A survey of major works and developments in the 18th- and 19th-century novel. *Prerequisite:* EGC 101 or "Strong" on the English Placement Examination
Fall or spring, 3 credits

EGL 266 The Modern Novel

A study of major works and developments in the modern novel. Crosslisted with CLT 266. *Prerequisite:* EGC 101 or "Strong" on the English Placement Examination
Fall or spring, 3 credits

EGL 274 Black American Literature

A survey of 19th- and 20th-century Black American literature. A Core Course satisfying Humanities and Fine Arts Category C. *Prerequisite:* EGC 101 or "Strong" on the English Placement Examination
Fall or spring, 3 credits

EGL 276 Women and Literature

An examination of works written by or about women that studies the development and conception of women in drama, poetry, and fiction. The course focuses on literature seen in relation to women's sociocultural and historical position.

May be repeated with permission of the director of undergraduate studies as the subject matter varies. A Core Course satisfying Humanities and Fine Arts Category C.

Prerequisite: EGC 101 or "Strong" on the English Placement Examination
Fall or spring, 3 credits

Note: For descriptions of EGL 285 and 286, see Creative Writing, below. For descriptions of EGL 287, 288, and 289, see Journalism, below.

Upper-Division Courses in Literature

These are advanced courses designed primarily for majors. They presuppose the capacity to elucidate prose and poetry of a variety of historical periods and the ability to write sustained expository commentary on the reading. In these courses students will engage in intensive reading and discussion and have the opportunity to develop an informed, independent critical perspective. *EGL 204 Literary Analysis and Argumentation* is strongly recommended for background and is a prerequisite for most courses.

Period Courses

These courses are directed toward an understanding of the various periods of English and American literature. They include study of both major and minor authors, with attention to developments in theme and style and consideration of intellectual and social history. Detailed course descriptions and reading lists are provided for each course before registration.

EGL 300 Old English Literature

The study of English literature from its beginnings to the 11th century. *Prerequisites:* EGL 204 and 205
Fall or spring, 3 credits

EGL 302 Medieval Literature in English

Major authors, themes, and forms of British literature from the 13th to the early 16th century, usually excluding Chaucer. *Prerequisites:* EGL 204 and 205
Fall or spring, 3 credits

EGL 304 Renaissance Literature in English

The study of English literature of the 16th century. *Prerequisites:* EGL 204 and 205
Fall or spring, 3 credits

EGL 306 English Literature of the 17th Century

The study of English literature from the late Renaissance to the age of Dryden. *Prerequisites:* EGL 204 and 205
Fall or spring, 3 credits

EGL 308 The Age of Dryden

The study of English literature of the Restoration period. *Prerequisites:* EGL 204, and 205 or 206
Fall or spring, 3 credits

EGL 310 Neoclassical Literature in English

The study of English literature from about 1700 to 1790. *Prerequisites:* EGL 204, and 205 or 206
Fall or spring, 3 credits

EGL 312 Romantic Literature in English

The study of English literature from the end of the neoclassical period to the Victorian Age, 1798-1832. *Prerequisites:* EGL 204 and 206
Fall or spring, 3 credits

EGL 314 Victorian Literature

The study of English literature from the end of the romantic period to World War I. *Prerequisites:* EGL 204 and 206
Fall or spring, 3 credits

EGL 316 American Colonial and Federal Writers

The study of American literature from its beginnings to about 1800. *Prerequisites:* EGL 204 and 217
Fall or spring, 3 credits

EGL 318 19th-Century American Literature

Themes and trends in American literature from 1800 to 1900. *Prerequisites:* EGL 204, and 217 or 218
Fall or spring, 3 credits

EGL 320 Literature of the Modern Period

An intensive study of modern British and American literature from the end of the 19th century to World War II. *Prerequisites:* EGL 204 and 224
Fall or spring, 3 credits

Major Authors

These courses deal intensively with the work of one or two writers at a time. An author representative of a period is not likely to be treated more often than every other year. Except for EGL 345 and 346, EGL 344 through 353 may be repeated for credit with permission of the director of undergraduate studies as the subject matter differs.

EGL 338 Beowulf and Finnsburh

Translation and analysis of the Old English poems *Beowulf* and the *Finnsburh Fragment*. Consideration of Latin and Germanic backgrounds in literature, mythology, and archaeology. *Prerequisite:* EGL 300
Spring, 3 credits

EGL 340 Chaucer

Prerequisites: EGL 204 and 205
Fall or spring, 3 credits

EGL 342 Milton

Prerequisites: EGL 204 and 205
Fall or spring, 3 credits

EGL 344 Major Writers of the Renaissance Period in England

Prerequisites: EGL 204 and 205
Fall or spring, 3 credits

EGL 345 Shakespeare I

A study of the comedies and the history plays. Designed to complement EGL 346. May not be taken for credit in addition to the discontinued EGL 241. *Prerequisites:* EGL 204 and 205
Fall, 3 credits

EGL 346 Shakespeare II

A study of the tragedies and the romances. Designed to complement EGL 345. May not be taken for credit in addition to the discontinued EGL 242.

Prerequisites: EGL 204 and 205
Spring, 3 credits

EGL 347 Major Writers of the Neoclassical Period in England

Prerequisites: EGL 204, and 205 or 206
Fall or spring, 3 credits

EGL 348 Major Writers of the Romantic Period in England

Prerequisites: EGL 204 and 206
Fall or spring, 3 credits

EGL 349 Major Writers of the Victorian Period in England

Prerequisites: EGL 204 and 206
Fall or spring, 3 credits

EGL 350 Major Writers of American Literature

Prerequisites: EGL 204, and 217 or 218 as appropriate
Fall or spring, 3 credits

EGL 352 Major Writers of Modern British and American Literature

Prerequisites: EGL 204 and 224
Fall or spring, 3 credits

EGL 353 Major Writers of Contemporary British and American Literature

Prerequisites: EGL 204 and 226
Fall or spring, 3 credits

Genre and Interdisciplinary Courses

These courses cover the various literary kinds and the relations between literature in English and other disciplines or literatures. Detailed information on course content is published by the English Department before registration each semester. Reading lists are also available in advance. Except for EGL 370, these courses may be repeated for credit with permission of the director of undergraduate studies as the subject matter differs.

EGL 361, 362 Poetry in English

The study of the development of form, theme, and language of poetry in English.
Prerequisite: A literature course at the 200 level or higher
Schedule to be announced, 3 credits

EGL 364 Drama in English

The study of the development of plot, structure, character, setting, theme, and language of drama in English.
Prerequisite: A literature course at the 200 level or higher
Schedule to be announced, 3 credits

EGL 365, 366 Fiction in English

The study of the development of plot, structure, character, theme, and language of fiction in English.
Prerequisite: A literature course at the 200 level or higher
Schedule to be announced, 3 credits

EGL 368 Prose in English

The study of the various forms of prose such as the essay, utopias, memoirs, autobiography, biography, and nonfictional narrative.
Prerequisite: A literature course at the 200 level or higher
Schedule to be announced, 3 credits

EGL 370 Literary Criticism

Analytic survey of major texts in European and American literary theory and criticism.
Prerequisite: A literature course at the 200 level or higher
Schedule to be announced, 3 credits

EGL 371, 372 Literature in English and Its Relations to Other Literatures

The study of literature in English as it affects and is affected by other literatures.
Prerequisite: A literature course at the 200 level or higher
Schedule to be announced, 3 credits

EGL 373, 374 Literature in English and Its Relations to Other Disciplines

The study of literature in English as it affects and is affected by other disciplines, such as anthropology, science, sociology, the history of ideas, theology, and psychology.
Prerequisite: A literature course at the 200 level or higher
Schedule to be announced, 3 credits

EGL 376 The Literature of Imperialism

A course in the history and culture of European imperialism as it is evidenced primarily in the literary texts produced both by Europeans and by the indigenous populations they colonized. The course will present the colonial/imperial experience from three different perspectives: the imperial ideology; the liberal reaction by colonizers to the injustice of imperialism; the response of colonial and formerly colonial peoples to their experience as the colonized. A Core Course satisfying Humanities and Fine Arts Category B.
Prerequisite: A literature course at the 200 level or higher
Fall or spring, 3 credits

Advanced Writing and Language Courses**EGL 380 The English Language**

The development of the English language from its Indo-European origins with emphasis on English phonology, morphology, syntax, and lexicography, as well as a study of traditional, structural, and transformational approaches to the language. May not be taken for credit in addition to the discontinued EGL 207.
Prerequisite: EGL 205
Fall or spring, 3 credits

EGL 381, 382 Advanced Analytic and Argumentative Writing

An intensive writing course, refining skills appropriate to upper-division work. Content varies: focus may be on analysis of various intellectual issues, rhetorical strategies, and compositional problems within or across disciplines, but frequent substantial writing projects are central to every version of the course.
Prerequisites: EGL 204, upper-division standing
Schedule to be announced, 3 credits

Note: For description of EGL 385, see Creative Writing, below. For descriptions of EGL 387, 388, and 393, 394, see Journalism, below. For descriptions of EGL 396, 398, 450, and 454, see Secondary Education, below.

Special Studies in English

Request for approval of the undergraduate studies committee for EGL 487 and 488 must be submitted no later than the last week of classes of the prior semester.

EGL 487 Independent Project

Intensive study of a special topic undertaken with close faculty supervision. May be repeated.
Prerequisite: Permission of instructor and director of undergraduate studies
Fall and spring, 1 to 3 credits

EGL 488 Internship

Participation in local, state, and national public and private organizations. The work must involve skills related to the educational goals of the department. Students will be required to submit written progress reports and a final written report on their experience to the faculty sponsor and the department. Satisfactory/Unsatisfactory grading only. May be repeated up to a limit of 12 credits. This course will not fulfill English major requirements.
Prerequisites: 12 credits of English; 2.5 G.P.A.; permission of instructor, department, and Office of Undergraduate Studies
Fall and spring, 3 to 12 credits

EGL 490 Honors Seminar

Advanced work in periods, genres, and authors of English and American literature will be offered in small classes. One or more seminars will be given each semester. The subject matter and its treatment as well as specific prerequisites for each section will be published in the department's brochure of course descriptions before advance registration in the previous semester. May be repeated for credit with the permission of the director of undergraduate studies as the subject matter differs.
Prerequisite: Permission of instructor
Fall and spring, 3 credits

EGL 495, 496 Senior Honors

See description of the Honors Program in English above.
Prerequisite: Permission of department
Fall (495) and spring (496), 3 credits each semester

Creative Writing**EGL 285 Writing Workshop: Fiction**

A workshop in the development of skills in writing fiction through practice supplemented by readings.
Prerequisite: Permission of instructor; EGC 101 or "Strong" on the English Placement Examination
Fall and spring, 3 credits

EGL 286 Writing Workshop: Poetry

A workshop in the development of skills in writing poetry. Poetry writing is supplemented by readings.
Prerequisites: Permission of instructor; EGC 101 or "Strong" on the English Placement Examination
Fall and spring, 3 credits

EGL 385 Advanced Creative Writing

A creative writing workshop. Students will receive detailed criticism of their work. May be repeated with permission of the director of undergraduate studies.

Prerequisites: EGL 285 or 286; permission of instructor
Fall and spring, 3 credits

Journalism

For description of the minor in journalism, see alphabetical listing, Journalism, p. 128.

EGL 287 Newswriting I

Basic elements and issues of news stories. A short history of journalism and study of foreign, national, and local newspapers are included. News stories are written on standard subjects, such as crime, news conferences, and court proceedings.

Prerequisites: EGC 101 or "Strong" on the English Placement Examination; typing speed of at least 25 words per minute
Fall or spring, 3 credits

EGL 288 Feature Writing I

Reviews, interviews, humorous writing, and other forms of feature writing for newspapers and magazines are studied and written. A short history of magazines and readings in several periodicals are included.

Prerequisites: EGC 101 or "Strong" on the English Placement Examination; typing speed of at least 25 words per minute
Fall or spring, 3 credits

EGL 289 Readings in Journalism

The study of writing by journalists such as Mencken, Orwell, Dickens, and Tom Wolfe, as well as writings on topics such as racism in America, capital punishment, and ecology.

Prerequisite: EGC 101 or "Strong" on the English Placement Examination
Fall or spring, 3 credits

EGL 387 Newswriting II

Development of the techniques of writing news stories studied in Newswriting I. The emphasis will be on preparing stories requiring extensive research and investigation for actual submission to regional and national newspapers.

Prerequisite: EGL 287
Fall or spring, 3 credits

EGL 388 Feature Writing II

Development of the techniques of writing feature stories studied in Feature Writing I. The emphasis will be on feature stories written for actual publication in regional and national magazines. Students will be required to do extensive research, rewriting, and editing of longer features than can be written in Feature Writing I.

Prerequisite: EGL 288
Fall or spring, 3 credits

EGL 393, 394 Practicum in Journalism

Provides actual working situations for journalists. Regular writing assignments—including some supervised off-campus work—are given, and student publications are discussed. Editing, editorial policy, beat coverage and organization,

production, layout, and management will be studied and individual instruction given.

Prerequisites: EGL 287; permission of instructor
Fall (393) and spring (394), 3 credits each semester

Secondary Education

EGL 396 Literature and Psychology of Adolescence

The study of literary texts dealing with the subject of adolescence. Readings will be mostly 20th-century novels written about adolescents, and will be studied from various theoretical perspectives (e.g., Freudian, Eriksonian, family systems).

Prerequisite: One 200-level literature course
Fall or spring, 3 credits

EGL 398 Methods of Instruction in Literature and Composition

Consideration of specific problems in the teaching of English, e.g., posing questions about literary texts and commenting on student papers. There is frequent use of writing by secondary school students, and the goals of instruction in literature and language are examined. Required of students seeking certification in secondary school English.

Prerequisites: EGL 204; permission of department
Fall, 3 credits

EGL 450 Supervised Secondary School Student Teaching

Supervised practice teaching by arrangement with selected Long Island secondary schools. Applications must be filed in the semester preceding that in which the student plans to student teach. Satisfactory/Unsatisfactory grading only.

Prerequisites: Enrollment in English Teacher Preparation Program; permission of instructor
Corequisite: EGL 454

Fall and spring, 12 credits

EGL 454 Student Teaching Seminar

Seminar on problems and issues of teaching English at the secondary school level. Analysis of actual problems and issues encountered by the student in the student teaching experience. Among the topics to be discussed is an instructional unit on drug and alcohol education, which is designed to meet the New York State requirement for instruction in drug and alcohol education.

Corequisite: EGL 450
Fall and spring, 3 credits

English as a Second Language

Director: Kamal K. Sridhar

Teaching Assistants

Estimated number: 18

A variety of courses in English may be taken by students whose first language is not English. Ranging in level from elementary to advanced, these courses are designed to improve students' speaking, reading, writing, and comprehension of English and

to enable students to participate more fully in their university program and American life.

These courses are open both to regularly enrolled Stony Brook students and to members of the community.

Courses

See p. 60, Course Credit and Prerequisites, and p. 61, Undergraduate Numbering System.

ESL 190 Intermediate Grammar

Introduction or review of intermediate-level grammar, both oral and written. The material will reinforce work done in ESL 191, 192, and 195. Curriculum will include verb tenses and compound/complex sentences as well as some modals, participles, and gerunds.

Prerequisite: Departmental diagnostic test
Corequisite: ESL 191, 192, or 195
Fall and spring, 3 credits

ESL 191 Oral/Aural Skills

Students improve skills necessary for speaking and understanding English. Special emphasis on developing communication capabilities. Class work includes pronunciation, vocabulary development, guided conversation, and listening practice. Language and listening laboratories required.

Prerequisite: Departmental diagnostic test
Fall and spring, 3 credits

ESL 192 Intermediate Composition

A course for students who have attained a degree of fluency in speaking English but need additional training in reading and writing skills. Beginning with basic sentence patterns and working toward paragraph development and, eventually, longer themes, each student has the opportunity to practice many different varieties of writing. May be repeated but counts only once toward graduation.

Prerequisite: Permission of instructor, based on outcome of English Placement Examination
Fall and spring, 3 credits

ESL 193 Advanced Composition

Advanced training in writing for ESL students who need to concentrate on paragraph development. The first half of the semester deals with paragraph construction, stressing concepts of the main thesis and supporting arguments. Some advanced grammar is reviewed, but the assumption is that basic structures and mechanics of writing have already been mastered. The second half of the semester stresses combining paragraphs into short compositions. Both descriptive and argumentative writing are practiced.

Prerequisite: ESL 192 or placement based on outcome of English Placement Examination
Fall and spring, 3 credits

ESL 195 Intermediate Reading Skills

Analysis of approximately college-level reading material on various topics for the purposes of comprehension and increased reading speed. The course focuses on vocabulary building, word forms, idioms, sentence and paragraph structure, and when and how to use a dictionary.

Prerequisite: Departmental diagnostic test
Fall and spring, 3 credits

ESL 196 Advanced Reading Improvement
Strategies for improving reading comprehension of university-level fiction and nonfiction, emphasizing techniques of critical reading, skimming and scanning, deriving meaning from context, and rhetorical devices. Provides preparation for verbal portions of standardized tests such as the Graduate Record Examination.

Prerequisite: ESL 195 or departmental diagnostic test

Fall and spring, 3 credits

ESL 197 Advanced Grammar

Review of complex grammar of English, both oral and written. Material will reinforce the work done in ESL 193 and 198 and is intended to supplement those courses. Topics will include all modals, indirect speech, the conditional and subjunctive, sequence of tenses, and more, depending on the needs of the class. Students will work from an advanced grammar handbook as well as a workbook.

Prerequisite: ESL 190 or departmental diagnostic test

Corequisite: ESL 193 or 198

Fall and spring, 3 credits

ESL 198 Advanced Oral/Aural Skills and Accent Improvement

An advanced course in speaking and listening skills for non-native speakers of English. Work is done with individual problem sounds, stress, and intonation in order to help students modify their accent and make their speech more intelligible. Techniques of speaking before a group are taught to enable non-native speakers to feel more confident in participating in their other classes. Advanced work in American idioms and grammar is usually included. Language laboratory work may be required by individual instructors. Especially useful for undergraduate and graduate students who need to make seminar presentations and for graduate students with teaching assistantships.

Prerequisite: Permission of instructor

Fall and spring, 3 credits

ESL 199 English Structure and Paragraph Development

A course for students who are non-native speakers of English and graduates of American high schools. The focus of the course is on paragraph and essay development. Students work on different types of paragraph writing (e.g., descriptive, narrative, enumerative, etc.). They will also be trained in proofreading and editing their own essays.

Prerequisites: U.S. high school diploma; ESL placement test

Fall and spring, 3 credits

**Foreign Languages
Secondary Teacher
Preparation Program**

Program Coordinator: Joseph A. Tursi, French and Italian

Requirements

In addition to fulfillment of the requirements for the major in French, German, Italian, Russian, or Spanish, prospective student teachers of foreign languages are required to take the following courses in order to satisfy all requirements for State provisional certification:

	<i>Credits</i>
A. SSI 327 Adolescent Growth and Development	3
B. SSI 350 Foundations of Education	3
C. FLA 339 Methods and Materials in the Teaching of Foreign Languages	3
D. FLA 340 Curriculum Development and Micro-Teaching	3
E. FLA 450 Supervised Student Teaching	12
F. FLA 454 Student Teaching Seminar	3
Total	27

Note: Courses taken for Pass/No Credit may not be used to satisfy the preparation in professional education component of the teacher preparation program.

Prospective student teachers are also urged to take as many advanced language courses as possible through the semester prior to student teaching. For further information, students are asked to consult with departmental advisors. All questions concerning application for student teaching and requirements for certification are to be directed to the program coordinator.

Courses

See p. 60, Course Credit and Prerequisites, and p. 61, Undergraduate Numbering System.

FLA 339 Methods and Materials in the Teaching of Foreign Languages

A review of methods and materials for the teaching of foreign languages and literatures in the secondary schools, including a survey of audio-lingual techniques and other recent developments. Special attention will be given to the problems and purposes of the teaching of foreign languages at the high school level.

Prerequisites: Foreign language major; at least one 300-level language course; at least one 300-level literature course
Fall, 3 credits

FLA 340 Curriculum Development and Micro-Teaching

A course designed to train future language teachers in the development of well-articulated programs in secondary schools. Through mini- and micro-teaching, students will have the opportunity to enjoy clinical experiences in the actual classroom each week for at least two hours. Clinical experiences will be discussed in a weekly seminar.

Prerequisite: FLA 339
Spring, 3 credits

FLA 450 Supervised Student Teaching—Languages

Prospective foreign language teachers at the secondary level receive extensive practice under selected cooperating teachers. Student teachers work with one or two certified foreign language teachers in one school each regular school day for the entire semester. Frequent consultations with university faculty members are designed to assist the student. Applications must be filed with the Teacher Training Office for the Foreign Languages two months prior to student teaching. Satisfactory/Unsatisfactory grading only. Not for major credit.

Prerequisites: FLA 339 and 340; a 3.0 grade point average in the major; a 2.75 grade point average overall

Corequisite: FLA 454

Fall and spring, 12 credits

FLA 454 Student Teaching Seminar

Seminar on problems encountered by student teachers and public school teachers at the secondary level in foreign language teaching. Study and analysis of the many aspects of the foreign language teaching profession, such as individualized teaching, audiolingual training, use of audio-visuals, testing, and professional organizations.

Prerequisites: FLA 339 and 340

Corequisite: FLA 450

Fall and spring, 3 credits

**Department of
French and Italian**

Chairperson: Mario B. Mignone

Director of Undergraduate Studies:

Charles Franco

Faculty

Harriet Allentuch, Professor and Undergraduate Coordinator in French, Ph.D., Columbia University: 17th-century French literature.

Konrad Bieber, Professor Emeritus, Ph.D., Yale University: 18th-century and contemporary French literature; comparative literature.

Carol Blum, Professor and Director of Graduate Studies, Ph.D., Columbia University: 18th-century French literature; literature of the French Revolution.

Frederick Brown, Professor, Ph.D., Yale University: 19th- and 20th-century French literature.

Luigi Fontanella, Associate Professor, Ph.D., Harvard University: Modern Italian literature.

Angelica Forti-Lewis, Assistant Professor, Ph.D., University of Pennsylvania: 18th- and 19th-century Italian literature; history of genres; comparative literature.

Charles Franco, Associate Professor, Ph.D., Rutgers University: Medieval Italian literature.

Oscar A. Haac, Professor Emeritus, Ph.D., Yale University: 18th- and 19th-century French literature; comparative literature.

Robert Harvey, Assistant Professor, Ph.D., University of California, Berkeley: Contemporary French literature.

Mario B. Mignone, Professor, Ph.D., Rutgers University: Contemporary Italian literature.

Leslie K. Morgan, Assistant Professor, Ph.D., Yale University: Italian and Romance philology and linguistics.

Sandy Petrey, Professor, Ph.D., Yale University: 19th-century French literature.

Elizabeth P. Riggs, Assistant Professor Emerita, Ph.D., Columbia University: Medieval French language and literature; 20th-century literature. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1975.

Anthony Rizzuto, Associate Professor, Ph.D., Columbia University: 19th- and 20th-century French literature.

Antonio Toscano, Assistant Professor and Graduate Coordinator in Italian, Ph.D., Rutgers University: Italian humanism; Renaissance.

Joseph A. Tursi, Professor Emeritus, Ph.D., New York University: 18th-century Italian literature. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1975.

Ruth Plaut Weinreb, Assistant Professor, Ph.D., Columbia University: Pedagogy.

Mark Whitney, Professor, Ph.D., University of Pennsylvania: 16th-century French literature.

Éléonore M. Zimmermann, Professor, Ph.D., Yale University: 17th-, 19th-, and 20th-century French literature; comparative literature.

Adjunct Faculty

Estimated number: 2

Teaching Assistants

Estimated number: 11

The Department of French and Italian offers a diversified program that meets the needs of all students interested in the study of French or Italian. Those wishing to major in either or both languages are offered several possible concentrations, each structured to assist students preparing for future careers or advanced study. The department also offers a minor in each language and a variety of courses of interest to non-majors, some in translation (see FRN 199 and 381 and ITL 199, 281, and 381), some in the original language.

Requirements for the Majors

A student wishing to major in either French or Italian may choose between two concentrations in each. These concentrations are

designed to allow maximum flexibility in the students' programs and to fulfill their varying needs and interests. All require as a basis a solid preparation in the language of the major. Students will choose one of the concentrations offered according to whether they wish to acquire a general humanistic background or to prepare for graduate study in literature (Concentration A); whether they wish to prepare for teaching on the secondary school level (Concentration A); whether they wish to prepare for work in law, government, international relations, business, banking, hotel management, etc.; or translation and interpretation (Concentration A or B).

All courses for the major in French or Italian must be taken for a letter grade (except that S is acceptable for courses completed through Challenge credit). All upper-division courses offered for the major must be passed with a grade of C or higher.

Transfer students who wish to graduate with a major in French or Italian must take at least 12 credits of French or Italian in residence at Stony Brook.

Note: All students should consult with the appropriate departmental advisors. Students opting for Concentration B must obtain departmental approval for their program by submitting it in advance, after consultation with the advisor, to the director of undergraduate studies. In order to complement the major in French or Italian, students will be encouraged to take upper-division courses in related fields: English, history, art, music, etc.

French

The major in French leads to the Bachelor of Arts degree. The following courses are required.

A. Concentration in Language and Literature

	<i>Credits</i>
1. Required courses for a total of 18 credits:	
a. Language courses:	
FRN 221 Conversation and Composition	3
FRN 222 Introduction to Stylistics	3
FRN 321 Phonetics and Diction	3
FRN 322 Stylistics	3
b. Literature courses:	
FRN 295, 296 Readings in French Literature: Analysis and Interpretation	6
2. Elective courses:	
18 additional credits in courses beyond FRN 295, 296, of which 12 credits must be in literature	18

3. Upper-Division Writing Requirement: See C below

Total 36

B. Concentration in French and a Second Discipline

1. Required courses for a total of 30 credits:	
FRN 221 Conversation and Composition	3
FRN 222 Introduction to Stylistics	3
FRN 295, 296 Readings in French Literature: Analysis and Interpretation	6
FRN 320 Business French	3
FRN 321 Phonetics and Diction	3
FRN 322 Stylistics	3
One course in French literature numbered 300 or above	3
FRN 390 French Civilization	3
FRN 447 Directed Readings in French in the student's second discipline (to be undertaken after completion of FRN 322 and 390)	3
2. Elective courses:	
12 additional credits (nine of which must be at the 300 level) to be chosen with the help of the designated advisor and approved by the department. Students will normally choose a sequence of four courses in a department or program other than French and Italian.	12

C. Upper-Division Writing Requirement

The department requires that majors demonstrate adequate mastery in writing English. Students must submit three samples of their own writing to their major advisor before the end of their junior year. A faculty committee will evaluate the submitted samples for satisfaction of the requirement, recommending remedial work during the senior year where appropriate. Information on the required types of writing is available from the department.

Total 42

Italian

The major in Italian leads to the Bachelor of Arts degree. The following courses are required. If a student wishes to concentrate in Italian and another literature, concentration A is strongly recommended. For individual questions, the student should not hesitate to consult the undergraduate advisor.

A. Concentration in Language and Literature	Credits
1. Required courses for a total of 18 credits:	
a. Language courses:	
ITL 221, 222 Conversation and Composition I, II	6
ITL 321, 322 Advanced Conversation and Composition I, II	6
b. Literature courses:	
ITL 295, 296 Introduction to Italian Literature I, II	6
2. Elective courses:	
15 additional credits in courses beyond ITL 295, 296, of which 12 credits must be in literature	15
3. Upper-Division Writing Requirement: See C below.	
Total	33

B. Concentration in Italian and a Second Discipline	Credits
1. Required courses for a total of 30 credits:	
ITL 221, 222 Conversation and Composition I, II	6
ITL 295, 296 Introduction to Italian Literature I, II	6
ITL 320 Business Italian	3
ITL 321, 322 Advanced Conversation and Composition I, II	6
One course in Italian literature numbered 300 or above	3
ITL 390 The Italian Scene	3
ITL 447 Directed Readings in Italian in the student's second discipline (to be undertaken after completion of ITL 322 and 390)	3
2. Elective courses:	
12 additional credits (nine of which must be at the 300 level) to be chosen with the help of the designated advisor and approved by the department. Students will normally choose a sequence of four courses in a department or program other than French and Italian	12

C. Upper-Division Writing Requirement
The department requires that majors demonstrate adequate mastery in writing English. Students must submit three samples of their own writing to their major advisor before the end of their junior year. A faculty committee will evaluate the submitted samples for satisfaction of the requirement, recommending remedial work during the senior year

where appropriate. Information on the required types of writing is available from the department.

Total	42
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Notes:
Credits for ITL 321 and 322 *cannot be transferred* from any other institution without *prior* permission of the department.
Students whose language proficiency is such that they can be exempted from FRN or ITL 221, 222 may, and are strongly urged to, apply to have a course in art, music, history, or other languages count for major credit.
Students who wish to offer their native language as the main area of concentration will be asked to replace FRN or ITL 221, 222, 320, and 321 by English courses appropriate to their level of proficiency in that language.

Teacher Training Program
Students who wish to prepare for certification as secondary school teachers of French or Italian or both should consult appropriate departmental advisors concerning requirements and procedures for the teacher preparation program. All students will be required to take FLA 339 and FLA 340 among the four courses in education required by the State Education Department. See also alphabetical listing, Foreign Languages Secondary Teacher Preparation Program.

Honors Program in French and Italian
To be eligible to participate in the honors program, departmental majors must have an overall average of 3.0 and an average of 3.5 in French or Italian through the junior year. An eligible student wishing to write a senior thesis must find a faculty member of the department to act as thesis advisor. The student, with the approval of this advisor, must submit a proposal of a project in writing to the department. Deadline for submission of the proposal for fall semester is April 30 and for spring semester is November 30. Final selection of candidates and topics will be determined by an honors committee of the Department of French and Italian. Students selected for the program must enroll in FRN or ITL 495 for the semester in which the thesis is written. The thesis will be evaluated by the thesis advisor, another member of the French or Italian faculty, and a third reader from outside the department. For further information consult the director of undergraduate studies.

Requirements for the Minors
The Department of French and Italian also offers a minor in each language. There are two emphases in each language: one in language and one in literature.

All courses for the minor in French or Italian must be taken for a letter grade (except that S is acceptable for Challenge credit). All upper-division courses intended to fulfill minor requirements must be passed with a grade of C or higher.
Transfer students who wish to graduate with a minor in French or Italian must take at least six credits of upper-division French or Italian courses in residence at Stony Brook.

Minor in French	Credits
A. Emphasis on Language	
Required courses: FRN 192, 221, 222, 295 or 296, 320, 321, 322, 390	24
Note: A literature course may be substituted for FRN 320	
Total	24

or

B. Emphasis on Literature	
Required courses: FRN 192, 221, 222, 295, 296	15
Electives: Three literature courses from 300 to 394	9
Total	24

Minor in Italian	Credits
A. Emphasis on Language	
Required courses: ITL 192, 221, 222, 295 or 296, 320, 321, 322, 390	24
Note: Literature courses may be substituted for ITL 222 or 320 or both.	
Total	24

or

B. Emphasis on Literature	
Required courses: ITL 192, 221, 222, 295, 296	15
Electives: Three literature courses on the 300 level	9
Total	24

Note: Credits for ITL 321 and 322 *cannot be transferred* from any other institution without *prior* permission of the department.

Study Abroad
The Department of French and Italian sponsors study abroad programs in Avignon, France, and Rome, Italy, during the academic year and the summer. In the summer program, students may earn three to six credits. These programs are available to all students of French and Italian, both majors and non-majors. The department also encourages qualified students to consider the program sponsored by the Department of Philosophy at the University of Paris, IV, The Sorbonne.

The Department requires that students enrolling in programs abroad sponsored by other colleges and universities (either

for a summer, an academic year, or any portion thereof) clear such plans through the departmental undergraduate advisor at *least one semester* before departure if they wish to offer the courses taken abroad for major or minor credit.

See also Study Abroad, p. 54.

Placement

Entering students who wish to continue the study of French or Italian started in high school should consult a departmental advisor to help them in the choice of the appropriate course.

Courses

See p. 60, Course Credit and Prerequisites, and p. 61, Undergraduate Numbering System.

French Language and Literature

FRN 101 Elementary French (An Intensive Course) (Formerly FRN 113)

An intensive course covering the elementary French program (FRN 111, 112) in one semester. No student who has had two or more years of French in high school (or who has otherwise acquired an equivalent proficiency) may receive credit for this course without written permission from the supervisor of the course. May not be taken for credit after FRN 111 or any other course in French.
Spring, 6 credits

FRN 111, 112 Elementary French I, II

An introduction to spoken and written French, stressing pronunciation, speaking, comprehension, reading, and writing. Language laboratory will supplement class work. No student who has had two or more years of French in high school (or who has otherwise acquired an equivalent proficiency) may receive credit for FRN 111 without written permission from the supervisor of the course.
Fall (111) and spring (112), 4 credits each semester

FRN 191, 192 Intermediate French I, II

An intermediate course in conversation, composition, and the interpretation of French texts.
Prerequisite: FRN 101 or 112
Fall (191) and spring (192), 3 credits each semester

FRN 195 Intermediate French (An Intensive Course)

Review of grammar and discussion of simple French texts through reading, writing, and discussion. Language laboratory will supplement class work.
Prerequisite: FRN 101 or 112
Fall, 6 credits

FRN 199 Modern France (in English)

A survey of contemporary France and its political, social, and economic structure, as well as the study of cultural life and institutions. Special attention will be given to other French-speaking countries and their relations to France. A Core Course satisfying Humanities and Fine Arts Category C. May not be used toward satisfaction of the foreign language proficiency requirement.
Spring, 3 credits

FRN 221 Conversation and Composition

A course in the active use of spoken and written French. Language laboratory will supplement class work.

Prerequisite: FRN 192 or 195
Fall, 3 credits

FRN 222 Introduction to Stylistics

Reading of selected short passages of prose and poetry in class with emphasis on improved writing skills, oral expression, and increased mastery of French syntax and techniques of literary analysis.

Prerequisite: FRN 221
Spring, 3 credits

FRN 295, 296 Readings in French Literature: Analysis and Interpretation

These courses will teach literary analysis and its application to representative texts chosen from various periods of French literature. All readings will be done in French. Discussions will be in French.

Prerequisite: FRN 222
Fall (295) and spring (296), 3 credits each semester

FRN 300 French Poetry

The development of French poetry from the Middle Ages to the 20th century, including poetry from francophone countries.

Prerequisite: FRN 222 or 295 or 296
Alternate years, 3 credits (not offered in 1990-91)

FRN 301 The French Novel

A study of the nature and development of the novel from its beginnings to the present with special attention to the stylistic and thematic aspects of the works considered.

Prerequisite: FRN 222 or 295
Fall or spring, 3 credits

FRN 302 The French Comedy from Molière to Ionesco

The study of the comic tradition from Molière to the contemporary theatre.

Prerequisite: FRN 222 or 295
Fall or spring, 3 credits

FRN 320 Business French

A course designed for students who wish to become more proficient in reading, writing, and translating French. Students will also be trained in the use of French in business, in administration, and in everyday professional life. Emphasis will be placed on the idiomatic peculiarities of the French language and the relation of French to the structure of English.

Prerequisite: FRN 222
Fall or spring, 3 credits

FRN 321 Phonetics and Diction

A course designed to develop mastery of the spoken language. Students will learn to express themselves in the current idiom with fluency and accuracy. At least one hour of laboratory will be required weekly.

Prerequisite: FRN 221 or 295 or 296
Fall or spring, 3 credits

FRN 322 Stylistics

A course designed to acquaint students with the subtleties of French grammar and style. Extensive practice in composition and in translation from English to French.

Prerequisite: FRN 222 or 295 or 296
Fall or spring, 3 credits

FRN 323 Advanced French Conversation

A course designed to develop and maintain complete fluency in the language.

Prerequisite: FRN 221 or 295 or 296
Fall or spring, 3 credits

Further Studies in French Literature

The specific topics of FRN 333, 343, 351, 361, 373, and 393 will appear in the class schedule and a description of the specific contents will be available in the department each semester. These courses may be repeated for credit with permission of the department as the subject matter differs.

Prerequisites for these courses: FRN 222; 295 or 296

FRN 333 Studies in Renaissance Literature

Schedule to be announced, 3 credits

FRN 343 Studies in 17th-Century Literature

Schedule to be announced, 3 credits

FRN 351 Studies in 18th-Century Literature

Schedule to be announced, 3 credits

FRN 361 Studies in 19th-Century Literature

Schedule to be announced, 3 credits

FRN 373 Studies in 20th-Century Literature

Schedule to be announced, 3 credits

FRN 381 French Literature in Translation

A course given in translation on a major French author or literary movement, designed primarily to give students in other disciplines an opportunity to become acquainted with the French tradition. Majors will be admitted by special permission of their advisors, and will do the reading and term papers in French. May not be used toward satisfaction of the foreign language proficiency requirement.

Prerequisites: Two literature courses
Schedule to be announced, 3 credits

FRN 390 French Civilization

A discussion of French civilization from the creation of the modern state to the present. The course is intended for those interested in studying the background and traditions of modern France. An anthology of historical texts and documents will serve as a point of departure; the institutions and life in France will be considered, along with the development of art, architecture, music, and literature. The emphasis will be on discussion (in French) and individual projects. Visiting lecturers will contribute to the variety of topics and points of view.

Prerequisites: FRN 222; 295 or 296
Fall or spring, 3 credits

FRN 393 Free Seminar

Free seminars built around themes like "Women in French Literature," "Self-Deception in the 17th-Century *Moralistes* and the 20th-Century Novel," and "The City in the French Novel." A

detailed description of the seminar may be obtained from the department for each semester it is offered. May be repeated.

Prerequisite: Permission of department
Schedule to be announced, 3 credits

FRN 447 Directed Readings in French

Individually supervised readings in selected topics of French language and literature or, alternatively, for the purpose of developing French vocabulary in a secondary field, in selected topics in the humanities, social sciences, or natural sciences. May be repeated.

Prerequisite: Permission of department
Fall and spring, 1 to 6 credits

FRN 475 Undergraduate Teaching Practicum in French

Each student will conduct a regular problem or tutorial section that will supplement a regular language course under the guidance of a master teacher. Responsibilities may include preparing material for discussion, initial correction of homework and tests, and helping students with problems. Not for major or minor credit. Satisfactory/Unsatisfactory grading only.

Prerequisites: Fluency in French; permission of instructor and department
Fall and spring, 3 credits

FRN 495 Senior Honors Project in French

A one-semester project for seniors. Arranged in consultation with the department, the project involves the writing of a paper, under the close supervision of an appropriate instructor, on a suitable topic. Students who are candidates for honors will take this course.

Prerequisite: Permission of department
Fall and spring, 3 credits

Italian Language and Literature

ITL 101 Intensive Elementary Italian *(Formerly ITL 113)*

An intensive course covering the elementary Italian program (ITL 111, 112) in one semester. No student who has had two or more years of Italian in high school (or who has otherwise acquired an equivalent proficiency) may receive credit for this course without written permission from the supervisor of the course. May not be taken for credit after ITL 111 or any other course in Italian.

Fall and spring, 6 credits

ITL 111, 112 Elementary Italian I, II

An introduction to spoken and written Italian, stressing pronunciation, speaking, comprehension, reading, and writing. Selected texts will be read. Practice in language laboratory supplements class work. No student who has had two or more years of Italian in high school (or who has otherwise acquired an equivalent proficiency) may receive credit for ITL 111 without written permission from the supervisor of the course.

Fall and spring, 4 credits each semester

ITL 191, 192 Intermediate Italian

An intermediate course in the reading and discussion of selected Italian texts. An intensive grammar review will offer an opportunity to develop conversational ability.

Prerequisite: ITL 101 or 112

Fall (191) and spring (192), 3 credits each semester.

ITL 195 Intensive Intermediate Italian

An intensive course covering the intermediate Italian program (ITL 191, 192) in one semester.

Prerequisite: ITL 101 or 112
Fall and spring, 6 credits

ITL 199 Modern Italy (in English)

A survey of contemporary Italy and its political, social, and economic structure, as well as the study of cultural life and institutions with comparisons to American models and standards. A Core Course satisfying Humanities and Fine Arts Category C. May not be used toward satisfaction of the foreign language proficiency requirement.

Fall, 3 credits

ITL 221 Italian Conversation and Composition I

A course in spoken and written Italian, with emphasis on precision and fluency in the spoken form.

Prerequisite: ITL 192 or 195
Fall, 3 credits

ITL 222 Italian Conversation and Composition II

A course in spoken and written Italian, with emphasis on precision in written form.

Prerequisite: ITL 221
Spring, 3 credits

ITL 281 Italian Film (in English)

Major trends in Italian cinema from neorealism to the present. Films by famous directors, such as Rossellini, De Sica, Fellini, Antonioni, the Taviani brothers, and others, will be viewed and analyzed. The course is conducted in English and all films are provided with English subtitles. May not be used toward satisfaction of the foreign language proficiency requirement or for the major. Two hours of lecture and two film showings per week.

Spring, 3 credits

ITL 295 Introduction to Italian Literature I

Readings and discussions of representative writers in Italian literature of the 19th and 20th centuries. This course is designed to introduce students to the main currents of Italian literature through analysis of literary texts.

Prerequisite: ITL 222
Fall, 3 credits

ITL 296 Introduction to Italian Literature II

Readings and discussions of representative texts chosen from various periods of Italian literature from the 13th through the 18th centuries.

Prerequisite: ITL 222
Spring, 3 credits

ITL 320 Business Italian

A course designed for students who wish to become more proficient in reading, writing, and translating Italian. Students will also be trained in the use of Italian in business, in administration, and in everyday professional life. Emphasis will be placed on the idiomatic peculiarities of the Italian language and the relation of Italian to the structure of English.

Prerequisite: ITL 222
Fall or spring, 3 credits

ITL 321 Advanced Conversation and Composition I

A course designed to develop fluency and accuracy in the use of the spoken language through intensive practice, exposition, class discussion, and the use of the language laboratory.

Prerequisite: ITL 222
Fall or spring, 3 credits

ITL 322 Advanced Conversation and Composition II

A course designed to acquaint students with the subtleties of Italian grammar and style. Extensive practice in composition and in translation from English to Italian.

Prerequisite: ITL 222
Fall or spring, 3 credits

ITL 325 Italian and Its Dialects

An examination of the Italian dialects within the larger framework of Romance language development, particularly through primary texts (medieval to modern) in various Italian dialects.

Prerequisite: ITL 222
Fall or spring, 3 credits

Further Studies in Italian Literature

The specific topics of ITL 329, 330, 331, 351, 361, 373, and 393 will appear in the class schedule, and a description of the specific contents will be available in the department each semester. These courses may be repeated for credit with permission of the department as the subject matter differs.

Prerequisites for these courses: ITL 222; 295 or 296.

ITL 329, 330 Studies in 13th- and 14th-Century Literature

Schedule to be announced, 3 credits

ITL 331 Studies in 15th- and 16th-Century Literature

Schedule to be announced, 3 credits

ITL 351 Studies in 17th- and 18th-Century Literature

Schedule to be announced, 3 credits

ITL 361 Studies in 19th-Century Literature

Schedule to be announced, 3 credits

ITL 373 Studies in Contemporary Literature

Schedule to be announced, 3 credits

ITL 381 Italian Literature in Translation

A course given in translation on a major Italian author or literary movement, designed primarily to give students in other disciplines an opportunity to become acquainted with the Italian tradition. Majors will be admitted by special permission of their advisors, and will do the reading and term papers in Italian. May not be used toward satisfaction of the foreign language proficiency requirement.

Prerequisites: Two literature courses
Schedule to be announced, 3 credits

ITL 390 The Italian Scene

The reality of Italy and the Italian people through a study of the evolution of the historical, cultural, political, and social character of the nation.

Prerequisite: ITL 222 or 295 or 296
Fall or spring, 3 credits

ITL 393 Free Seminar

Seminars built around a theme such as "Cities in Italian Literature," "Women in Italian Literature," "Death and Resurrection in Contemporary Italian Literature," and "Sin and Sensuality in the Italian Short Story." A detailed description of the seminar may be obtained from the department for each semester it is offered. May be repeated as the topic varies.

Prerequisite: ITL 222

Schedule to be announced, 3 credits

ITL 447 Directed Readings in Italian

Individually supervised readings in selected topics of Italian language and literature or, alternatively, for the purpose of developing Italian vocabulary in a secondary field, in selected topics in the humanities, social sciences, or natural sciences. May be repeated.

Prerequisite: Permission of department

Fall and spring, 1 to 6 credits

ITL 475 Undergraduate Teaching Practicum in Italian

Each student will conduct a regular problem or tutorial section that will supplement a regular language course under the guidance of a master teacher. Responsibilities may include preparing material for discussion, initial correction of homework and tests, and helping students with problems. Not for major or minor credit. Satisfactory/Unsatisfactory grading only.

Prerequisites: Fluency in Italian; permission of instructor and department

Fall and spring, 3 credits

ITL 488 Italian Internship

Participation in local, state, national, and international public and private agencies and organizations to apply and reinforce language skills and knowledge of social and cultural institutions. Satisfactory/Unsatisfactory grading only.

Prerequisites: ITL 320; permission of instructor, department, and Office of Undergraduate Studies

Fall or spring, 3 credits

ITL 495 Senior Honors Project in Italian

A one-semester project for seniors. Arranged in consultation with the department, the project involves the writing of a paper, under the close supervision of an appropriate instructor, on a suitable topic. Students who are candidates for honors will take this course.

Prerequisite: Permission of department

Fall and spring, 3 credits

Department of Germanic and Slavic Languages and Literatures

Chairperson: Edward J. Czerwinski
Director of Undergraduate Studies: Nicholas Rzhevsky

Faculty

Christina Y. Bethin, Associate Professor, Ph.D., University of Illinois, Urbana: Slavic linguistics; Russian, Polish, and Ukrainian languages. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1983.

Russell E. Brown, Associate Professor and Director of Graduate Studies, Ph.D., Harvard University: Modern German literature; expressionist poetry; Trakl; Brecht; Jahn.

Edward J. Czerwinski, Professor, Ph.D., University of Wisconsin: Comparative Slavic literature; Slavic drama and theatre; Polish literature; Russian literature. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1974.

Vera Dunham, Adjunct Professor, Ph.D., University of Erlangen: Russian and Soviet literature; sociology of literature

Barbara Elling, Professor, Ph.D., New York University: Romanticism; literature and sociology; methods of language teaching. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1973.

Thomas A. Kerth, Associate Professor, Ph.D., Yale University: Medieval literature; Middle High German; philology.

Andreas Mielke, Assistant Professor, Ph.D., Yale University: 18th- and 19th-century German literature; literary theory.

Ferdinand A. Ruplin, Associate Professor, Ph.D., University of Minnesota: Applied linguistics; Middle High German; computer-assisted instruction.

John R. Russell, Associate Professor, Ph.D., Princeton University: Rococo; novella; computer-assisted instruction.

Nicholas Rzhevsky, Associate Professor, Ph.D., Princeton University: Russian and Soviet literature; Russian theatre; Russian intellectual history.

Leif Sjöberg, Professor, Ph.D., Uppsala University: Scandinavian literature; Ibsen; Strindberg; Lagerkvist; Ekelöf; Old Norse.

Lucy E. Vogel, Associate Professor, Ph.D., New York University: Slavic cultures; Russian poetry; Russian literature of the 19th and 20th centuries.

Adjunct Faculty

Estimated number: 3

Teaching Assistants

Estimated number: 8

Requirements for the Major in German

The major in German leads to the Bachelor of Arts degree. The following courses are required:

	<i>Credits</i>
1. GER 199 German Civilization and Culture (in English)	3
2. GER 200 <i>Landeskunde</i>	3
3. GER 201 Contrastive Structures of German and English	3
4. GER 203 Introduction to Germanic Studies	3
5. GER 204 Survey of German Literature	3
6. GER 221, 222 German Conversation and Composition	6
7. GER 301 German Drama	3
8. GER 302 German Prose	3
9. GER 303 German Poetry	3
10. GER 304 <i>Goethezeit</i>	3
11. GER 338 History of the German Language	3
12. Upper-Division Writing Requirement:	
In order to demonstrate proficiency in writing in English, German majors must present a dossier consisting of a minimum of two papers of at least five pages each. This dossier must be submitted before the end of the second semester of the junior year to the director of undergraduate studies. The papers will be essays previously composed for upper-division courses in the department. Those originally in a foreign language must be rewritten in English. A faculty committee will judge the papers for clarity, accuracy, and appropriateness of style. If the dossier is judged to be unsatisfactory, the student will be asked to rewrite and resubmit the work in the senior year. Students must demonstrate acceptable writing skills before they graduate.	
Total	36

Notes: All courses offered to fulfill major requirements must be taken for a letter grade. All upper-division courses in German must be passed with a grade of C or higher. Transfer students must complete at least 18 credits toward the major at Stony Brook.

The ascending numbers of the required options for the major are simply intended to suggest the sequence in which they might be studied most favorably; GER 199-204 are to be regarded as pre- or co-requisites to the courses beyond 204.

Requirements for the Minor in German

For students majoring in other disciplines, a German minor is available with three choices of emphasis. In all three cases, all upper-division courses in German offered to fulfill minor requirements must be passed with a grade of C or higher. At least nine of the upper-division minor credits must be earned at Stony Brook.

A. Emphasis on German Language

	Credits
1. GER 199 German Civilization and Culture (in English)	3
2. GER 200 <i>Landeskunde</i>	3
3. GER 201 Contrastive Structures of German and English	3
4. GER 221, 222 German Conversation and Composition	6
5. GER 321, 322 Advanced German Conversation and Composition	6
6. GER 338 History of the German Language	3
Total	24

B. Emphasis on German Language and Literature

	Credits
1. GER 199 German Civilization and Culture (in English)	3
2. GER 203 Introduction to Germanic Studies	3
3. GER 204 Survey of German Literature	3
4. GER 221, 222 German Conversation and Composition	6
5. GER 301 German Drama	3
6. GER 302 German Prose	3
7. GER 303 German Poetry	3
Total	24

C. Emphasis on German Language and Area Studies

	Credits
1. GER 199 German Civilization and Culture (in English)	3
2. GER 200 <i>Landeskunde</i>	3
3. GER 201 Contrastive Structures of German and English	3
4. GER 221, 222 German Conversation and Composition	6
5. GER 338 History of the German Language	3
6. HIS 311 The Rise of Imperial Germany, 1806-1890	3
7. HIS 312 From Empire to Third Reich: Germany, 1890-1945	3
Total	24

Requirements for the Major in Russian

The major in Russian leads to the Bachelor of Arts degree. The following courses are required:

	Credits
1. RUS 141, 142 Masterpieces of Russian Literature in Translation	6
2. RUS 221, 222 Russian Conversation and Composition	6
3. One additional course chosen from among: RUS 291 Special Author in Translation RUS 292 Special Genre or Period in Translation EEL 293 Contemporary Slavic Culture	3
4. RUS 321, 322 Advanced Conversation and Composition	6
5. RUS 323 Russian Literary Texts	3
6. RUS 302 History of the Russian Language or RUS 339 Structure of Russian	3
7. RUS 490 Senior Seminar	3
8. One additional upper-division course in Russian literature chosen in consultation with the departmental advisor	3
9. Upper-Division Writing Requirement: In order to demonstrate proficiency in writing in English, Russian majors must present a dossier consisting of a minimum of two papers of at least five pages each. This dossier must be submitted before the end of the second semester of the junior year to the director of undergraduate studies. The papers will be essays previously composed for upper-division courses in the department. Those originally in a foreign language must be rewritten in English. A faculty committee will judge the papers for clarity, accuracy, and appropriateness of style. If the dossier is judged to be unsatisfactory, the student will be asked to rewrite and resubmit the work in the senior year. Students must demonstrate acceptable writing skills before they graduate.	3
Total	33

Note: All courses must be taken for a letter grade. All upper-division courses in Russian must be passed with a grade of C or higher.

The department recommends that majors take related courses in the Slavic area such as HIS 209 Imperial Russia and HIS 210 Soviet Russia. Students planning advanced work in Russian are strongly urged to take one year of a second Slavic language.

Students interested in a double major are encouraged to consult with the departmental advisor.

Requirements for the Minor in Russian

For students majoring in other disciplines, a Russian minor is available with two choices of emphasis. In both cases, all courses must be taken for a letter grade.

A. Emphasis on Russian Literature

	Credits
1. RUS 141, 142 Masterpieces of Russian Literature in Translation	6
2. RUS 221, 222 Russian Conversation and Composition	6
3. RUS 321 Advanced Russian Conversation and Composition	3
4. RUS 323 Russian Literary Texts	3
5. Two additional upper-division literature courses chosen in consultation with the departmental advisor	6
Total	24

B. Emphasis on Russian Language

	Credits
1. RUS 141 or 142 Masterpieces of Russian Literature in Translation	3
2. RUS 221, 222 Russian Conversation and Composition	6
3. RUS 321, 322 Advanced Conversation and Composition	6
4. RUS 302 History of the Russian Language	3
5. RUS 339 Structure of Russian	3
6. One additional upper-division course chosen in consultation with the departmental advisor	3
Total	24

Study Abroad

The department encourages both majors and minors to complete some of their coursework abroad in the junior or senior year. SUNY maintains exchange programs with the Federal Republic of Germany (Tübingen, Würzburg), Austria (Graz), Poland (Kraków, Poznan, Warsaw, Wrocław), and the Soviet Union (Moscow).

See also Study Abroad, p. 54.

Teacher Preparation

Students who wish to prepare for certification as secondary school teachers of German or Russian should consult appropriate departmental advisors. Those seeking certification in German are urged to take GER 321 and 322 in addition to the courses required for the major and certification. Students of Russian are urged to take RUS 339 and 302.

See also alphabetical listing, Foreign Languages Secondary Teacher Preparation Program.

Placement in Language Courses for Incoming Students

The prerequisites for courses listed below indicate approximate placement levels. One year of high school foreign language is generally considered the equivalent of one college semester. Students are advised to consult the director of undergraduate studies if they feel that the recommended course is inappropriate.

Courses

See p. 60, Course Credit and Prerequisites, and p. 61, Undergraduate Numbering System.

A brochure with extended descriptions of Germanic and Slavic courses is published by the department before registration each semester.

Germanic Languages and Literatures

GER 101 Elementary German (Intensive)

An intensive course covering the elementary German program (GER 111, 112) in one semester. No student who has had two or more years of German in high school (or who has otherwise acquired an equivalent proficiency) may receive credit for this course without written permission from the supervisor of the course. May not be taken for credit after GER 111 or any other course in German.
Fall or spring, 6 credits

GER 111, 112 Elementary German I, II

An introduction to spoken and written German, stressing pronunciation, speaking, comprehension, reading, writing, and culture. The course consists of one hour of lecture, three hours in a small section conducted in German, and one laboratory hour. No student who has had two or more years of German in high school (or who has otherwise acquired an equivalent proficiency) may receive credit for GER 111 without written permission from the supervisor of the course.
Fall (111) and spring (112), 4 credits each semester

GER 141 Germanic Literature in Translation

A representative selection of works from major Germanic authors in translation. May not be used to satisfy the foreign language proficiency requirement.
Fall or spring, 3 credits

GER 191, 192 Intermediate German I, II

The reading and interpretation of a wide variety of German texts, with a review of German gram-

mar, composition, and conversation. Work in the language laboratory will further develop audio-lingual skills.

Prerequisite: GER 101 or 112

Fall (191) and spring (192), 3 credits each semester

GER 199 German Civilization and Culture (in English)

An introduction to the history and culture of the German-speaking areas (East and West Germany, Austria, and Switzerland) with an emphasis on the post-World War II period. The course, offered in English, is team taught by members of the department and guest speakers, and is suitable for both German majors and non-majors. A Core Course satisfying Humanities and Fine Arts Category A. May not be used to satisfy the foreign language proficiency requirement.
Fall, 3 credits

GER 200 Landeskunde

Cultural and physical geography of Central Europe with emphasis on the German-speaking areas. Particular emphasis will be placed on the definition of cultural units and their reflections in regionalism and particularism.
Pre- or corequisite: GER 192
Spring, 3 credits

GER 201 Contrastive Structures of German and English

A detailed descriptive analysis of modern German phonology, morphology, and syntax from the standpoint of transfer interference.
Prerequisites: GER 221, 222 or fluency in German
Fall, 3 credits

GER 203 Introduction to Germanic Studies

Using selected texts easily read and understood by students whose background in German may be limited, this course is intended to introduce those students to terminology and techniques of literary analysis and interpretation.
Prerequisite: GER 192
Fall, 3 credits

GER 204 Survey of German Literature

A chronological survey of German literature from its beginnings to the present with stress on defining the periods therein. All readings will be in German.
Prerequisite: GER 203
Spring, 3 credits

GER 221, 222 German Conversation and Composition

This course consists of the active use of spoken and written German.
Prerequisite: GER 192
Fall (221) and spring (222), 3 credits each semester

GER 231 German for Business and Career

An introduction to the German business environment. Designed to broaden previous knowledge of German by emphasizing business terms and conversational skills.
Prerequisite: GER 192
Fall or spring, 3 credits

GER 301 German Drama

A survey of German drama and its subgenres. All work will be done in German.
Prerequisite: GER 204
Fall, 3 credits

GER 302 German Prose

A survey of German prose and its subgenres. All work will be done in German.
Prerequisite: GER 204
Spring, 3 credits

GER 303 German Poetry

A survey of German poetry and its subgenres. All work will be done in German.
Prerequisite: GER 204
Fall, 3 credits

GER 304 Goethezeit

An intensive study of German literature in the period 1750-1832. All work will be done in German.
Prerequisite: GER 204
Spring, 3 credits

GER 321, 322 Advanced German Conversation and Composition

A course designed to develop fluency in spoken and written German. Students will learn to express themselves idiomatically and fluently and become acquainted with the subtleties of German grammar and style.
Prerequisites: GER 221, 222
Fall (321) and spring (322), 3 credits each semester

GER 338 History of the German Language

The development of the German language from Indo-European to modern High German. While special emphasis will be placed on western Germanic languages, specifically German, some attention will be given to the Scandinavian languages and Gothic. Work will be done within the framework of modern linguistic theory (generative-transformational phonology). A historically representative selection of texts will be examined. Conducted as a seminar.
Prerequisite: GER 192
Spring, 3 credits

GER 420 Special Topics in German Literature

An intensive study of the works of a German author or a period of German literature. All work will be done in German. May be repeated as the subject matter differs.
Prerequisites: GER 321, 322
Schedule to be announced, 3 credits

GER 447 Special Author

A tutorial demanding intensive study of the works of a specific German-language author. All work will be done in German. May be repeated.
Prerequisites: GER 301-304
Fall and spring, 3 credits

GER 448 Special Period

A tutorial demanding intensive study of German-language literature of a specific period. All work will be done in German. May be repeated.
Prerequisites: GER 301-304
Fall and spring, 3 credits

GER 487 Independent Readings and Research in German

Qualified juniors and seniors may read independently in an approved program of advanced or specialized language, area, or culture studies under the supervision of a faculty member.
Prerequisites: GER 221 or 222 or 231; permission of department
Fall and spring, 1 to 3 credits

GER 488 Internship

Participation in local, state, national, and international public and private agencies and organizations to apply and reinforce language and related skills and knowledge of social and cultural institutions. Satisfactory/Unsatisfactory grading only.

Prerequisites: GER 221, 222, 231; permission of instructor, department, and Office of Undergraduate Studies; specific placement examinations where applicable

Fall and spring, 3 to 12 credits

Selected Germanic Languages

SGL 111, 112 Elementary Selected Germanic Languages I, II

An introduction to a selected Germanic language (Danish, Icelandic, Norwegian, etc.): speaking, comprehension, reading, and writing. Selected texts will be read. Practice in the language laboratory supplements class work. May be repeated for more than one language. No student who has had two or more years of the selected language in high school (or has otherwise acquired equivalent proficiency) may receive credit for SGL 111 without written permission from the supervisor of the course.

Prerequisite to SGL 112: SGL 111

Schedule to be announced, 3 credits each semester

Scandinavian

SWE 111, 112 Elementary Swedish I, II

An introduction to spoken and written Swedish, stressing pronunciation, speaking, comprehension, reading, and writing. Selected texts will be read. Practice in the language laboratory supplements class work. No student who has had two or more years of Swedish in high school (or who has otherwise acquired an equivalent proficiency) may receive credit for SWE 111 without written permission from the supervisor of the course.

Fall (111) and spring (112), 3 credits each semester

SWE 141 Scandinavian Masterworks (in English)

A survey in English of major works of Scandinavian literature from Viking times through the 20th century. This course is designed to develop competence in textual analysis. May not be used to satisfy the foreign language proficiency requirement.

Fall, 3 credits

SWE 191, 192 Intermediate Swedish I, II

The reading and interpretation of Swedish texts, with a review of Swedish grammar, composition, and conversation.

Prerequisite: SWE 112

Fall (191) and spring (192), 3 credits each semester

SWE 447 Directed Readings in Scandinavian

Individually supervised readings of selected Scandinavian authors such as Ibsen, Strindberg, Lagerkvist, Moberg, and Holberg. May be repeated.

Prerequisites: Reading fluency in the language of the author studied; permission of department
Fall and spring, 3 credits

Slavic Languages and Literatures

Russian

RUS 109 Russian Culture (in English)

An introduction to the masterpieces of culture that affect Russian society. Extensive use of video, film, slides, and recordings. May not be used to satisfy the foreign language proficiency requirement.

Fall, 1 credit

RUS 111, 112 Elementary Russian I, II

An introduction to Russian. Class work will be supplemented by practice in the language laboratory. No student who has had two or more years of Russian in high school (or who has otherwise acquired an equivalent proficiency) may receive credit for RUS 111 without written permission from the supervisor of the course.

Fall (111) and spring (112), 4 credits each semester

RUS 141, 142 Masterpieces of Russian Literature in Translation

A survey in English of major Russian writers of the 19th and 20th centuries, including Pushkin, Dostoevsky, and Solzhenitsyn. The course offers a brief history of Russian literary masterpieces in the context of world literature and of major cultural movements such as the Renaissance, the Enlightenment, and 20th-century totalitarianism. A Core Course satisfying Humanities and Fine Arts Category A. May not be used to satisfy the foreign language proficiency requirement.

Fall (141) and spring (142), 3 credits each semester

RUS 191, 192 Intermediate Russian I, II

An intermediate course in Russian stressing an active command of the language.

Prerequisite: RUS 112

Fall (191) and spring (192), 3 credits each semester

RUS 221, 222 Russian Conversation and Composition

A course in the active use of spoken and written Russian. Particular emphasis will be placed on contemporary idiom.

Prerequisite: RUS 192

Fall (221) and spring (222), 3 credits each semester

RUS 291 Special Author in Translation

Analysis of major works and significant criticism. Each semester is devoted to one particular author such as Tolstoy, Dostoevsky, Chekhov, or Bulgakov. May be repeated, but will count toward fulfillment of major requirements only once. A Core Course satisfying Humanities and Fine Arts Category C. May not be used to satisfy the foreign language proficiency requirement.

Schedule to be announced, 3 credits

RUS 292 Special Genre or Period in Translation

Examination of a genre or period. Each semester is devoted to one particular genre such as the Russian novel, or period such as the 20th century. May be repeated, but will count toward fulfillment of major requirements only once. A Core Course satisfying Humanities and Fine Arts Category C. May not be used to satisfy the foreign language proficiency requirement.

Schedule to be announced, 3 credits

RUS 302 History of the Russian Language

The development of the Russian literary language from its beginnings to the present day. The influence of Church Slavonic on the development of the language is discussed.

Prerequisite: RUS 192

Fall or spring, 3 credits

RUS 321, 322 Advanced Russian Conversation and Composition

A course designed to develop mastery of spoken and written Russian. Students will learn to express themselves idiomatically and to translate advanced texts.

Prerequisite: RUS 222

Fall (321) and spring (322), 3 credits each semester

RUS 323 Russian Literary Texts

A survey of representative texts chosen from various periods of Russian literature. Intended to improve the students' command of the literary language; readings and discussions will be in Russian.

Prerequisite: RUS 321

Fall or spring, 3 credits

RUS 339 Structure of Russian

The study of Russian phonetics, phonology, and morphology, with a discussion of different theoretical approaches as well as practical application. This course is especially recommended for teachers of Russian.

Prerequisite: RUS 192

Spring, 3 credits

RUS 391 Special Author

A detailed study of the works of a major 19th- or 20th-century author, such as Pushkin, Gogol, Turgenyev, or Blok. Readings are in Russian, and classes are conducted largely in Russian. May be repeated as the subject matter changes.

Prerequisites: RUS 141, 142 and 222

Schedule to be announced, 3 credits

RUS 392 Special Genre or Period

A detailed study of a special genre such as the Russian novel or Russian drama, or period such as Soviet literature. Readings are in Russian, and classes are conducted largely in Russian. May be repeated as the subject matter changes.

Prerequisites: RUS 141, 142 and 222

Schedule to be announced, 3 credits

RUS 487 Independent Readings and Research in Russian

A program of independent advanced study for qualified juniors and seniors under the supervision of a faculty member.

Prerequisites: RUS 221, 222; a 200- or 300-level course in Russian literature; permission of instructor and department

Fall and spring, 1 to 3 credits

RUS 490 Senior Seminar

Advanced research and discussion in various aspects of Russian studies. May be repeated as the subject matter changes.

Prerequisites: RUS 141, 142 and 222

Fall and spring, 3 credits

Polish

PSH 111, 112 Elementary Polish I, II

An introduction to spoken and written Polish, stressing pronunciation, speaking, comprehension, reading, writing, and culture. No student who has had two or more years of Polish in high school (or who has otherwise acquired an equivalent proficiency) may receive credit for PSH 111 without written permission from the supervisor of the course.

Fall (111) and spring (112), 3 credits each semester

PSH 191, 192 Intermediate Polish I, II

The reading and interpretation of Polish texts, with a review of Polish grammar, composition, and conversation. The student gains an acquaintance with various literary genres through examples drawn from representative Polish authors.

Prerequisite: PSH 112

Fall (191) and spring (192), 3 credits each semester

Selected East European Languages

EEL 111, 112 Elementary Selected East European Language I, II

An introduction to spoken and written selected East European languages (Serbo-Croatian, Czech, Ukrainian, Slovak, Bulgarian), stressing pronunciation, speaking, comprehension, reading, writing, and culture. No student who has had two or more years of the selected language in high school (or who has otherwise acquired an equivalent proficiency) may receive credit for EEL 111 without written permission from the supervisor of the course. May be repeated for more than one language.

Schedule to be announced, 3 credits each semester

EEL 293 Topics in Contemporary Slavic Culture (in English)

Analysis and discussion of contemporary literary and social topics dealing with Russia or Eastern Europe. May be repeated, but will count toward fulfillment of major requirements only once. Satisfies Study of Another Culture requirement. May not be used to satisfy the foreign language proficiency requirement.

Fall or spring, 3 credits

Department of Hispanic Languages and Literature

Chairperson: Román de la Campa
Director of Undergraduate Studies:
Lou Charnon-Deutsch

Faculty

Román de la Campa, Associate Professor, Ph.D., University of Minnesota: Latin-American and Caribbean literature; contemporary critical theory.

Lou Charnon-Deutsch, Associate Professor, Ph.D., University of Chicago: 18th- and 19th-century Peninsular literature; feminist theory.

Jaime A. Giordano, Professor and Director of Graduate Studies, University of Chile; (University Professor, Universidad de Concepción, 1958-1966): Spanish-American literature.

Flora Klein-Andreu, Assistant Professor, Ph.D., Columbia University: Semantics; sociolinguistics and language change.

Pedro Lastra, Professor, University of Chile; (University Professor, University of Chile, 1960-1973): Modern and contemporary Spanish-American literature.

James B. McKenna, Associate Professor, Ph.D., Harvard University: 20th-century Hispanic culture and literature.

Adrian G. Montoro, Associate Professor, Ph.D., Universities of Havana and Madrid: Medieval literature; modern critical theory.

Maria Luisa Nunes, Associate Professor, Ph.D., City University of New York: 19th- and 20th-century Luzo-Brazilian literature.

Hilda Pato, Assistant Professor, Ph.D., University of Pennsylvania: Contemporary Spanish literature, 20th-century Spanish poetry.

Elias L. Rivers, Professor, Ph.D., Yale University: Spanish literature; literary theory.

Georgina Sabat-Rivers, Professor, Ph.D., The Johns Hopkins University: Spanish Golden Age and colonial literature.

Lourdes Torres, Assistant Professor, Ph.D., University of Illinois: Spanish linguistics; sociolinguistics; Spanish in the United States.

Adjunct Faculty

Estimated number: 2

Teaching Assistants

Estimated number: 31

The department offers a major program leading to the Bachelor of Arts degree in Spanish, a minor in Spanish, and courses in Portuguese. Students wishing to major in Spanish should consult with a departmental advisor to choose individual programs.

Requirements for the Major in Spanish

A. Required Basic Courses	Credits
1. a. Either SPN 221 Spanish Conversation and Composition or SPN 220 Spanish Conversation and Composition for Students of Spanish-Speaking Background	3
b. SPN 222 Introduction to Literary Studies (Note: Challenge examinations are given in SPN 221 and 222, but not in SPN 220)	3

2. SPN 301 Advanced Spanish Grammar and Composition	3
3. Either SPN 391 or 392	3
4. Three courses chosen from SPN 396, 397, 398, and 462 or 463	9
Subtotal	21

B. Advanced Courses in Hispanic Linguistics, Literature, and Culture

1. Either SPN 421 or 442. (Taking both is strongly recommended)	3
2. Twelve additional credits in upper-division courses chosen in consultation with the departmental advisor. (A maximum of three credits of SPN 447 is applicable toward this requirement)	12
Subtotal	15

C. Upper-Division Writing Requirement

In order to demonstrate their proficiency in writing English, Spanish majors must present a dossier consisting of a minimum of two papers of at least three to five pages each. This dossier must be submitted before the end of the second semester of their junior year to the director of undergraduate studies. The papers will consist of translations of essays submitted as part of the work for upper-division courses. Papers will be judged for clarity, accuracy, and appropriateness of style by a faculty committee. Students may resubmit in their senior year.

Total 36

Notes:

All courses offered to fulfill major requirements must be taken for a letter grade (except that S is acceptable for SPN 221 and 222 completed through Challenge examinations).

All upper-division courses in Spanish must be passed with a grade of C or higher.

The department requires transfer students to take at least 18 credits of Spanish courses in residence at Stony Brook to complete a Spanish major.

Teacher Training Program

Students who wish to prepare for certification as secondary school teachers of Spanish should choose SPN 462 or 463 in satisfying major requirement A.4. They should consult appropriate departmental advisors

concerning additional requirements and procedures of the teacher preparation program. To be eligible to enter student teaching, students must have maintained a 3.0 grade point average in the major and a 2.5 grade point average overall. See also alphabetical listing, Foreign Languages Secondary Teacher Preparation Program.

The Honors Program in Spanish

To be awarded honors, a department major must (1) maintain an overall grade point average of at least 3.0 and a grade point average of at least 3.5 in Spanish courses taken for the major; and (2) write a senior thesis judged worthy of honors. Students eligible to write a senior thesis must find a member of the department faculty to act as a thesis advisor and enroll in SPN 495. The thesis topic must be approved by the director of undergraduate studies, the chairperson, and the thesis advisor. The thesis will be evaluated by the thesis advisor, another member of the Spanish faculty, and a third reader from outside the department. Prerequisites to register in SPN 495 are (1) same as requirement 1, above; (2) senior standing; and (3) permission of department. Deadline for application is April 7.

Minor in Spanish Language, Culture, and Literature

A. Basic Language	Credits
1. SPN 221 Spanish Conversation and Composition or SPN 220 Spanish Conversation and Composition for Students of Spanish-Speaking Background	3
2. SPN 222 Introduction to Literary Studies	3
B. Advanced Courses	
1. SPN 301 Advanced Spanish Grammar and Composition	3
2. Either SPN 421 Topics in Golden Age Literature or SPN 442 Topics in Spanish-American Literature and Culture from 1880 to the Present	3
3. Four other upper-division courses, one of which must be at the 400 level	12
Total	24

All upper-division courses in Spanish offered to fulfill minor requirements must be passed with a grade of C or higher. At least nine credits of upper-division Spanish courses must be earned at Stony Brook to complete the minor.

Study Abroad

Language majors and other interested students who would like to spend a semester or a year studying abroad should consult the director of undergraduate studies. See also Study Abroad, p. 54.

Placement

Entering students who wish to continue the study of Spanish started in high school should consult a departmental advisor to help them in the choice of the appropriate course.

Courses

See p. 45, Course Credit and Prerequisites, and p. 00, Undergraduate Numbering System.

Portuguese Language

POR 111, 112 Elementary Portuguese I, II
An introduction to spoken and written Portuguese, stressing pronunciation, speaking, comprehension, reading, and writing. Language laboratory will supplement class work. No student who has had two or more years of Portuguese in high school (or who has otherwise acquired an equivalent proficiency) will be permitted to register for POR 111 without written permission from the supervisor of the course.

Fall (111) and spring (112), 3 credits each semester

POR 191 Intermediate Portuguese I

An intermediate course in Portuguese featuring a review of grammar and intensification of reading, writing, and speaking skills.

*Prerequisite: POR 112
Fall, 3 credits*

POR 192 Intermediate Portuguese II

An intermediate course in Portuguese intended to develop competence in reading, writing, and speaking Portuguese through the study of grammar and the interpretation of selected literary texts.

*Prerequisite: POR 191
Spring, 3 credits*

POR 447 Directed Individual Study

Individually supervised studies in selected topics of Luso-Brazilian language, literature, and culture. May be repeated.

*Prerequisite: Permission of instructor and department
Fall and spring, 1 to 3 credits*

Spanish Language

SPN 111, 112 Elementary Spanish I, II

An introduction to spoken and written Spanish, stressing pronunciation, speaking, comprehension, reading, and writing. Language laboratory will supplement class work. No student who has had two or more years of Spanish in high school (or who has otherwise acquired an equivalent proficiency) will be permitted to register for SPN 111 without written permission from the supervisor of the course.

Fall and spring, 4 credits each semester

SPN 191, 192 Intermediate Spanish I, II

A comprehensive review of the Spanish language. It is intended to develop competence in reading, writing, and speaking Spanish through the study of grammar and the interpretation of selected literary texts.

Prerequisite: SPN 112

Fall and spring, 3 credits each semester

SPN 199 Modern Spain (in English)

An examination of major cultural and social developments in Spain during the 20th century, with special emphasis on the Spanish Civil War, the Franco era, and the transition to democracy. Presented in English, the course seeks to enhance understanding of Spain through analysis of such issues as national character, change and continuity, and regional diversity. May not be used to satisfy the foreign language proficiency requirement.

Spring, alternate years, 3 credits (not offered in 1989-90)

SPN 220 Spanish Conversation and Composition for Students of Spanish-Speaking Background

A course intended for students of Spanish-speaking background, designed to improve their competence in oral and written Spanish. May not be taken for credit in addition to SPN 221.

Fall or spring, 3 credits

SPN 221 Spanish Conversation and Composition

A thorough review of Spanish grammar and of the active use of spoken and written forms. SPN 221 may not be taken for credit in addition to SPN 220.

Prerequisite: SPN 192

Fall and spring, 3 credits

SPN 222 Introduction to Literary Studies

Reading of selected passages of prose and poetry in class, with special concentration on improving the students' written and oral skills, and introducing them to the basic elements of literary analysis of Spanish works.

Prerequisite: SPN 220 or 221

Fall and spring, 3 credits

SPN 223 Topics in Hispanic-American and Spanish Culture

The study of a selected cultural aspect of a designated country, region, or group of countries in the Spanish-speaking world. Sample topics include poetry, theatre, cinema, novel, essay, popular culture, short story, epic, or biography of a given national literature. The emphasis will be on the discussion of a selection of representative texts. Visiting lecturers will contribute to the variety of topics and points of view. May be repeated.

Pre- or corequisite: SPN 220 or 221

Fall or spring, 3 credits

Hispanic Linguistics, Literature, and Culture (conducted in Spanish)

SPN 301 Advanced Spanish Grammar and Composition

A review of advanced Spanish grammar with emphasis on improving writing skills and increasing mastery of Spanish syntax. Extensive practice in composition and in translation.

*Prerequisite: SPN 222; permission of instructor
Fall or spring, 3 credits*

SPN 303 Practical Spanish

A course for students who wish to become more proficient in reading, writing, and translating Spanish, to be used in business, administration, and in other fields of everyday professional life. Emphasis will be placed on the idiomatic peculiarities of the Spanish language and the relation of Spanish to the structure of English.

Prerequisite: SPN 222
Fall or spring, 3 credits

SPN 323 Advanced Spanish Conversation

A course designed to develop and maintain complete fluency in the language. Not open to native-background speakers or students who have been in a Spanish-speaking country for a considerable length of time.

Prerequisite: SPN 222
Fall or spring, 3 credits

SPN 391 The Culture and Civilization of Spain

The evolution of the culture and civilization of Spain as seen through its history, art, and literature.

Prerequisite: SPN 222
Fall, 3 credits

SPN 392 The Culture and Civilization of Spanish America

The evolution of the culture and civilization of Spanish America as seen through its history, art, and literature.

Prerequisite: SPN 222
Spring, 3 credits

SPN 396 Introduction to Spanish-American Literature

Readings in Spanish-American literature from the colonial period to the present.

Prerequisite: SPN 222
Fall, 3 credits

SPN 397 Introduction to Spanish Literature I

Readings in Peninsular literature from its origins through the 17th century.

Prerequisite: SPN 222
Fall, 3 credits

SPN 398 Introduction to Spanish Literature II

Readings in Peninsular literature from the 18th century to the present.

Prerequisite: SPN 222
Spring, 3 credits

Advanced Courses (conducted in Spanish)

The topics to be studied in SPN 421, 431, 432, 441, 442, 444, 455, and 465 will appear in the class schedule, and a description of the specific contents will be available one semester in advance from the department. Each course may be repeated for credit as the subject matter changes.

SPN 421 Topics in Golden Age Literature and Culture

Readings and discussion of major literary works of the Golden Age period (16th and 17th centuries) and their interrelation with the cultural context. Topics will vary. May be repeated.

Prerequisite: SPN 397
Schedule to be announced, 3 credits

SPN 431 Topics in 18th- and 19th-Century Peninsular Literature and Culture

Readings and discussion of major literary works of the 18th and 19th centuries in Spain and their interrelation with the cultural context. Topics will vary. May be repeated.

Prerequisite: SPN 398
Schedule to be announced, 3 credits

SPN 432 Topics in Spanish-American Literature and Culture from the Colonial Period to 1880

Readings and discussion of major literary works in Spanish America of the colonial, the independence, and the romantic periods and their interrelation with the cultural context. Topics will vary. May be repeated.

Prerequisite: SPN 398
Schedule to be announced, 3 credits

SPN 441 Topics in Peninsular Literature and Culture from 1898 to the Present

Readings and discussion of major literary works in Spain from the Generation of 1898 to the present and their interrelation with the cultural context. Topics will vary. May be repeated.

Prerequisite: SPN 398
Schedule to be announced, 3 credits

SPN 442 Topics in Spanish-American Literature and Culture from 1880 to the Present

Readings and discussion of major literary works in Spanish America from the outset of modernism and naturalism to the contemporary period and their interrelation with the cultural context. Topics will vary. May be repeated.

Prerequisite: SPN 396
Schedule to be announced, 3 credits

SPN 444 Topics in Caribbean Literature and Culture

Readings and discussion of relevant literary works in Puerto Rico, Cuba, and other Caribbean countries. Special emphasis will be placed on the interrelation of literature and culture. Topics will vary. May be repeated.

Prerequisite: SPN 392 or 396
Schedule to be announced, 3 credits

SPN 447 Directed Individual Studies

Individually supervised studies in selected topics of Hispanic language, literature, and culture. May be repeated. Normally no more than three credits are allowed toward the major requirements; other credits are considered as electives.

Prerequisite: Permission of instructor and department
Fall and spring, 1 to 6 credits

SPN 455 Topics in Literary Genres

Reading of major works in Spanish belonging to specific literary genres such as drama (*comedia* and *entremés*), epic poetry (vernacular and classical), lyric poetry (sonnet, ode, elegy), and fiction (romance, novel, short story); theoretical discussion and analysis of formal and thematic characteristics and of historical development.

Prerequisite: SPN 397 or 398
Schedule to be announced, 3 credits

SPN 461 Hispanic Language and Culture in the United States

Studies in the forms of survival of Hispanic culture in the United States and the identity crisis experienced by the Hispanic communities in this country. This course will include a survey of written material (from journalism to poetry) reflecting this conflict, and a critical analysis of the current theories of bilingualism and biculturalism as applied to those communities.

Prerequisite: SPN 222
Alternate years, 3 credits (not offered in 1990-91)

SPN 462 Contrastive Spanish-English Phonology

A study of Spanish and English phonology and phonetics from a contrastive linguistics perspective. Its relation to the analysis of bilingualism.

Prerequisites: SPN 222; permission of instructor
Alternate years, 3 credits (not offered in 1990-91)

SPN 463 Contrastive Spanish-English Grammar

In-depth investigation of particular areas of Spanish and English grammar for purposes of language teaching.

Prerequisites: SPN 301; permission of instructor
Fall or spring, 3 credits

SPN 465 Topics in Hispanic Linguistics

Investigation of selected topics in Hispanic linguistics. The topic, which will be announced before each semester, may be drawn from such subjects as the development of Spanish, Spanish for teachers, or analysis of meaning in the Spanish language. Topics will vary. May be repeated.

Prerequisites: SPN 301; permission of instructor
Schedule to be announced, 3 credits

SPN 475 Undergraduate Teaching Practicum in Spanish

An opportunity for selected upper-division students to collaborate with the faculty in teaching a language class. Responsibilities may include preparing material for practice sessions, initial correction of homework and tests, and helping students with problems. Application for approval must be submitted to the director of undergraduate studies the previous semester. Satisfactory/Unsatisfactory grading only.

Prerequisites: Upper-division Spanish major; preferably senior standing; permission of director of undergraduate studies
Fall and spring, 3 credits

SPN 495 Spanish Senior Honors

See description and prerequisites of the honors program in Spanish, page 116.
Spring, 3 credits

Department of History

Chairperson: Fred Weinstein
Director of Undergraduate Studies: Michael Barnhart

Faculty

Per A. Alin, Associate Professor, Ph.D., University of Vienna: Ancient; pre-classical archaeology.

Werner T. Angress, Professor Emeritus, Ph.D., University of California, Berkeley: Modern Europe; Germany. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1975.

Michael Barnhart, Associate Professor, Ph.D., Harvard University: U.S. foreign policy; 20th-century U.S. and modern Japan. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1985, and the President's Award for Excellence in Teaching, 1985.

Susan Battley, Adjunct Assistant Professor, Ph.D., State University of New York at Stony Brook: Early modern social and economic history of Europe; Tudor-Stuart England.

Karl S. Bottigheimer, Associate Professor, Ph.D., University of California, Berkeley: England and Ireland.

David B. Burner, Professor, Ph.D., Columbia University: 20th-century U.S. political and social.

Pedro Carrasco, Professor, Ph.D., Columbia University: Mesoamerica; social anthropology; culture history.

Ernesto Chinchilla-Aguilar, Professor, Ph.D., Escuela Nacional de Antropología de México: Colonial Latin America.

Hugh G. Cleland, Associate Professor, Ph.D., Case Western Reserve University: U.S. labor. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1980.

Ruth Schwartz Cowan, Professor, Ph.D., The Johns Hopkins University: History of biology and technology; women in modern society.

Karl W. Demuth, Adjunct Lecturer, M.A., Harvard University: Modern Europe; France.

Daniel Fox, Adjunct Professor, Ph.D., Harvard University: Social welfare and government; medical institutions.

Elizabeth Garber, Associate Professor and Director of Graduate Studies, Ph.D., Case Western Reserve University: History of physics and thermodynamics; European intellectual and social.

Donna Harsch, Assistant Professor, Ph.D., Yale University: Modern Europe; Germany.

Richard F. Kuisel, Professor, Ph.D., University of California, Berkeley: Modern Europe; France.

Eric E. Lampard, Professor, Ph.D., University of Wisconsin: Economic and urban.

Ned Landsman, Associate Professor, Ph.D., University of Pennsylvania: U.S. colonial.

Brooke Larson, Associate Professor, Ph.D., Columbia University: Andean history; colonial and modern Latin America.

Herman E. Lebovics, Associate Professor, Ph.D., Yale University: Modern European intellectual and social.

Robert H.G. Lee, Associate Professor Emeritus, Ph.D., Columbia University: China and the Far East.

Heleen Rodnite Lemay, Associate Professor, Ph.D., Columbia University: Medieval and Renaissance intellectual; paleography. Recipient of the President's Award for Excellence in Teaching, 1984.

Gary Marker, Associate Professor, Ph.D., University of California, Berkeley: 18th- and 19th-century Russian social.

Wilbur R. Miller, Associate Professor, Ph.D., Columbia University: 19th-century U.S.

Leslie Owens, Associate Professor, Ph.D., University of California, Riverside: Afro-American history.

John W. Pratt, Associate Professor, Ph.D., Harvard University: U.S. constitutional and legal; New York State.

Janet Riesman, Assistant Professor, Ph.D., Brown University: The early national era; the Constitution.

Joel T. Rosenthal, Professor, Ph.D., University of Chicago: Medieval Europe; England.

Wolf Schafer, Associate Professor, Ph.D., University of Bremen: Social history of the sciences and science policy.

Eli Seifman, Professor, Ph.D., New York University: History of education; contemporary China.

Bernard Semmel, Professor, Ph.D., Columbia University: Modern British social and intellectual.

William R. Taylor, Professor, Ph.D., Harvard University: 19th- and 20th-century U.S. cultural and intellectual.

Nancy Tomes, Associate Professor, Ph.D., University of Pennsylvania: U.S. social, medical, and women's history.

Barbara Weinstein, Associate Professor, Ph.D., Yale University: Brazil; colonial and modern Latin America; slave societies.

Fred Weinstein, Professor, Ph.D., University of California, Berkeley: Psychohistory; Russia.

Ruben E. Weltsch, Associate Professor Emeritus, Ph.D., University of Colorado: Eastern Europe; Hapsburg Empire.

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

Judith Wishnia, Associate Professor, Ph.D., State University of New York at Stony Brook: Women's history; labor history; European history.

Jane E. Yahil, Adjunct Assistant Professor, Ph.D., The Hebrew University of Jerusalem: Medieval Europe; medieval English constitutional history; Crusades.

Teaching Assistants

Estimated number: 10

The offerings in history concentrate on the fields of United States, Europe, and Latin America, though courses are offered regularly in other areas such as the Far East and the history of science. Courses numbered in the 100s include general surveys, especially suitable for freshmen, and others designed to introduce students to the methods and problems of history. Two-hundred-level courses are basic surveys of areas and periods. The 300-level series deals with historical subjects and problems on a more advanced level, usually involving more intellectual content and written work (although the student must expect written work in every course). Four-hundred-level colloquia offer the student an opportunity to do more intensive reading, research, and writing, usually in small classes, and with closer contact with the instructor.

Although the department does not set prerequisites for many of its courses, it does recommend that students interested in a certain area move from lower- to higher-number courses as they gain experience. History majors, history minors, and other students taking history courses as electives are advised to try a number of fields of history at various levels of course offerings.

Each semester the department issues a booklet with a detailed description of its offerings. Students interested in history, whether as a major, a minor, a related social science course, or for general liberal arts purposes, are invited to read this booklet and to seek advice from the department's director of undergraduate studies and other faculty members.

Requirements for the Major in History

A. Study within the Area of the Major **Credits**

A minimum of ten courses (30 credits) distributed as follows:

1. Two courses at the 100 level

2. A primary field of five courses to be selected from one of the following: United States, European, Latin American, ancient and medieval, or non-Western history. Primary fields developed along topical or thematic lines may be selected with approval of the department's undergraduate committee. The primary field, to be selected and filed with the department no later than the end of the first full semester after

6

declaring the major, shall be distributed as follows:

- Two courses at the 200 level
- Two courses at the 300 level
- One course at the 400 level, excluding HIS 447, 487, 488

3. Three courses selected from outside the primary field and above the 100 level, with at least one of these courses at the 300 or 400 level.	15
	9

Subtotal 30

B. Study in a Related Area

Two upper-division courses in a related discipline, the discipline to be selected with department approval no later than the time limit specified for choosing the primary field. 6

C. Upper-Division Writing Requirement

Students will be required to complete one upper-division course from Group A (study within the area of the major) by the end of their junior year. They will inform the instructor of the course in advance of their plan to use the term paper (or papers) in fulfillment of the writing requirement for the major. In addition to the grade for the course, the instructor will make a second evaluation of writing competency in the field of history. If the second evaluation is favorable, the student will have fulfilled this requirement.

Total 36

Notes:

1. All courses taken to meet requirements A and B must be taken for a letter grade.
2. No grade lower than a C in an upper-division course may be applied toward the major requirements.
3. At least 12 credits in Group A must be taken within the Department of History at Stony Brook.
4. No transferred course with a grade lower than C may be applied toward the major requirements in Group A.

The Honors Program in History

Departmental majors with a 3.0 average in history courses and related disciplines as specified in the major requirements are eligible to enroll in the history honors program at the beginning of their senior year.

The student, after asking a faculty member to be a sponsor, must submit a proposal to the department indicating the merit of the planned research. The supervising faculty member must also submit a statement supporting the student's proposal. This must be done in the semester prior to the beginning of the project.

The honors paper resulting from a student's research will be read by two historians and a member of another department, as arranged by the director of undergraduate studies. If the paper is judged to be of unusual merit and the student's record warrants such a determination, the department will recommend honors.

The Minor in History

The minor, which requires 18 credits, is organized around the student's interest in a particular area of history, defined either by geography (e.g., United States, Latin America) or topic (e.g., imperialism, social change). Courses must be taken for a letter grade. No grades lower than C in upper-division courses may be applied to the history minor. At least nine of the 18 credits must be taken at Stony Brook, with three of the courses at the upper-division level. The specific distribution of the credits should be determined in consultation with the director of undergraduate studies. An example of an acceptable distribution would be the following:

	Credits
A. One two-semester survey course in the period of the student's interest (100 or 200 level)	6
B. One (additional) course at the 200 level	3
C. Three courses at the 300 or 400 level, at least one of which must be at the 400 level	9
Total	18

Courses

See p. 60, Course Credit and Prerequisites, and p. 61, Undergraduate Numbering System.

HIS 100 The Ancient World

A broad survey of the development of the Near Eastern and Mediterranean civilizations of Mesopotamia, Egypt, and neighboring areas, as well as Greece and Rome from their earliest beginnings to the decline of the Roman Empire. A Core Course satisfying Social and Behavioral Sciences Category A, Group 3.

Fall, alternate years, 3 credits (not offered in 1989-90)

HIS 103 American History to 1877

A survey of American history from the Age of Discovery to the end of Reconstruction. Topics to be treated will include such subjects as the transplantation of European culture to America, the rise of American nationalism, the democratization of American society, the institution of slavery, and the emergence of an industrial society. *Fall and spring, 3 credits*

HIS 104 United States Since 1877

A survey of modern American history from the end of Reconstruction to the present. The course will focus on the impact of industrialization on social, cultural, and political life; the emergence of the United States as a world power; and the adaptation of that power to the crises of the later 20th century.

Fall and spring, 3 credits

HIS 133 The Medieval Imagination

An introductory course in the civilization of medieval Europe and its immediate neighbors. The main emphasis is upon culture and society as depicted in creative literature: women and marriage, contemporary view of social structure, the impact of Islam, popular science and religion, travel, the role of "outsiders," and marginal people and groups.

Fall, alternate years, 3 credits (not offered in 1989-90)

HIS 135, 136 Science, Technology, and Medicine in Western Civilization I, II

The development of Western civilization through the intellectual and social development of Western science, technology, and medicine. The first semester will begin with a discussion of the 20th century and will then cover the period from the ancient Greek civilization to the scientific revolution of the 17th century. The second semester will cover the 18th, 19th, and 20th centuries. Core Courses satisfying Social and Behavioral Sciences Category A, Group 3.

Fall (135) and spring (136), alternate years, 3 credits each semester (not offered in 1989-90)

HIS 201 England from 1066 to 1688

The development of English society will be traced from the Norman Conquest to the "Glorious Revolution" with special attention to the feudal constitution, the evolution of Parliament, the Civil War, and the Commercial Revolution.

Spring, alternate years, 3 credits (not offered in 1989-90)

HIS 202 England Since 1688

The transformation of English society by the Industrial Revolution, the development of parliamentary politics and democracy, the growth of imperial power, and the readjustment to 20th-century realities.

Spring, 3 credits

HIS 208 Ireland from St. Patrick to the Present

A survey of the history of Ireland with emphasis on its colonization and the subsequent emergence of an independent, though troubled and fragmentary, national state.

Spring, alternate years, 3 credits (not offered in 1990-91)

HIS 209 Imperial Russia

The political, social, and cultural developments from Peter the Great to the revolutionary era with emphasis on the unique institutional structure of Tsarist Russia and the problem of its relations with the West. A Core Course satisfying Social and Behavioral Sciences Category A, Group 4. *Fall, 3 credits*

HIS 210 Soviet Russia

The ideological and social background of the Russian Revolution and the evolution of Soviet rule: the problem of industrialization, the relations with the capitalist West, and totalitarian control over society. A Core Course satisfying Social and Behavioral Sciences Category A, Group 4. *Spring, 3 credits*

HIS 213 Colonial Latin America

From conquest to independence: Spanish and Portuguese colonialism in the New World and the forging of Latin American societies. A Core Course satisfying Social and Behavioral Sciences Category A, Group 4, and Study of Another Culture. Also satisfies Lower-Division Writing Requirement for students who score "Strong" on the English Placement Examination. *Fall, 3 credits*

HIS 214 Modern Latin America

From independence to the present: the evolution of 19th- and 20th-century Latin America. Emphasis on current social, economic, and political issues. A Core Course satisfying Social and Behavioral Sciences Category A, Group 4, and Study of Another Culture. Also satisfies Lower-Division Writing Requirement for students who score "Strong" on the English Placement Examination. Crosslisted with POL 214. *Spring, 3 credits*

HIS 216 History of U.S.-Latin American Relations

An examination of the impact of U.S. economic and political relations with Latin America from the mid-19th century to the present. The course will consider changes in American policy toward Latin America, as well as the varying responses of Latin American nations to U.S. intervention and influence. A Core Course satisfying Social and Behavioral Sciences Category A, Group 4, and Study of Another Culture. Crosslisted with POL 216. *Spring, alternate years, 3 credits (not offered in 1989-90)*

HIS 219 Far Eastern Civilization: Origins and Development

A survey of the history of the Far Eastern countries of China, Japan, and Korea from prehistory to the mid-19th century. Emphasis will be on social and political changes in these countries and the enduring elements of their cultures. A Core Course satisfying Social and Behavioral Sciences Category A, Group 4, and Study of Another Culture. *Fall, 3 credits*

HIS 220 Far Eastern Civilization: The Modern Transformation

A survey of the modern history of the Far Eastern countries of China, Japan, and Korea from the mid-19th century to the present day. Emphasis will be on the impact of the West, reform movements, wars, and revolutions that transformed their traditional societies into modern states. A Core Course satisfying Social and Behavioral

Sciences Category A, Group 4, and Study of Another Culture.

Prerequisite: HIS 219 recommended
Spring, 3 credits

HIS 225 The Formation of the Judaic Heritage

The course of Jewish history and the development of Judaism during the Persian, Hellenistic, and Roman periods (ca. 500 B.C.E.-ca. 500 C.E.). The course begins with the close of the Hebrew Bible, examines the varieties of Judaism which then arose, and ends with the consolidation of rabbinic Judaism on one hand and Christianity on the other. Crosslisted with JDS 225. A Core Course satisfying Social and Behavioral Sciences Category A, Group 4, and Study of Another Culture. *Fall, 3 credits*

HIS 226 The Shaping of Modern Judaism

The history of the Jews and of Judaism since the fall of the Roman Empire and the rise of Islam. The course concludes with a study of the Holocaust and the creation of the State of Israel, and includes a survey of the major forms of American Jewish life. Crosslisted with JDS 226. *Spring, 3 credits*

HIS 227 Modern Mexico

The emergence of the Mexican nation in the 19th century and its revolution. The course provides an overview of Mexican history since independence, stressing the reform, the 1910-20 conflict, the role of the church, land reform, and the modern one-party state. Satisfies Study of Another Culture requirement. *Alternate years, 3 credits (not offered in 1989-90)*

HIS 230 The Ancient Near East

The development of early civilizations in Mesopotamia, Egypt, and neighboring areas from the Stone Age to the rise of the Persian Empire. A Core Course satisfying Social and Behavioral Sciences Category A, Group 4, and Study of Another Culture. *Spring, alternate years, 3 credits (not offered in 1989-90)*

HIS 231 History of Greece

A survey of Greek history from the Stone Age beginnings with special emphasis on the achievements of the Greeks in the archaic and classical periods. *Spring, alternate years, 3 credits (not offered in 1990-91)*

HIS 232 History of Rome

The development of the Roman Republic and Empire with an emphasis on the institutions that bound the Roman Mediterranean together and on the Greco-Roman civilization of the Empire. *Fall, 3 credits*

HIS 233 Medieval History, 300-1100

European history from the decline of Rome through the 11th century, including the rise of Christianity, Byzantium, Islam, the Gregorian reform, and feudalism. A Core Course satisfying Social and Behavioral Sciences Category A, Group 3. *Fall, 3 credits*

HIS 234 The High Middle Ages, 1100-1400

The High Middle Ages, including the Crusades, courtly love, the 12th-century Renaissance, scholasticism, Franciscanism, and the Inquisition. A Core Course satisfying Social and Behavioral Sciences Category A, Group 3. *Spring, 3 credits*

HIS 235 Humanism and Renaissance

The study of the Italian Renaissance with particular emphasis on the intellectual history of the period. Non-Italian thinkers who played a role in the intellectual movements of the time will also be considered. Satisfies Lower-Division Writing Requirement for students who score "Strong" on the English Placement Examination. *Fall, 3 credits*

HIS 236 The Age of the Reformation

A study of pre-Reformation currents such as mysticism and humanism, followed by an examination of the 16th-century Reformation. The course also includes economic and political changes in the 16th century. *Spring, 3 credits*

HIS 241 The Holocaust: The Destruction of European Jewry—Causes and Consequences

The rise of modern anti-Semitism and its political application in Nazi Germany. Topics covered include the destruction process, ghetto life, resistance, foreign response, and the war crimes trials. Crosslisted with JDS 241. *Prerequisite:* JDS/HIS 226. *Fall, alternate years, 3 credits (not offered in 1990-91)*

HIS 248 Europe, 1815-1914

European history from the Congress of Vienna to the outbreak of the First World War, with emphasis on political and social developments, but also including economic and cultural trends. *Fall, alternate years, 3 credits (not offered in 1989-90)*

HIS 250 The Second World War, 1939-1945

A comprehensive examination of the ordeal of total war. Military history forms the background for a study of how societies mobilized to meet the demands of total war; how people faced foreign occupation and persecution; and how the war changed political, economic, and social institutions, inspired moral reflection and cultural expression, and altered the global balance of power. *Fall, alternate years, 3 credits (not offered in 1989-90)*

HIS 251 Europe Since 1945

A study of contemporary Europe emphasizing political developments beginning with the Cold War, decolonization, the problems of postindustrial society, managed capitalism, and intellectual and cultural movements such as existentialism and Marxist humanism. *Spring, alternate years, 3 credits (not offered in 1989-90)*

HIS 252 The British Commonwealth

Examines British control over dependencies in Africa, Asia, and the Pacific since the 18th cen-

tury through comparative study of imperial advance, colonial policy, plural societies, resistance, and transfer of power.

Alternate years, 3 credits (not offered in 1990-91)

HIS 262 American Colonial Society

Political, economic, social, and cultural characteristics of the American colonies from their founding until their separation from Great Britain.

Alternate years, 3 credits (not offered in 1990-91)

HIS 263 Age of the American Revolution

The social, economic, and political history of the period 1763-1787. The course stresses social and economic changes, the causes and results of the revolution, the formation of new state and national governments, and the first party system.

Spring, alternate years, 3 credits (not offered in 1990-91)

HIS 264 The Birth of Modern America

The beginnings of modern political, economic, and social institutions in the United States, and the conflicts that developed between the North and South because of national consolidation and expansion. Areas covered include economic growth and diversity; political democratization and rise of the professional politician; changes in the roles of men and women; and the development of American popular culture. The format is topical, contrasting society in 1800 to its development by 1850.

Fall, alternate years, 3 credits (not offered in 1990-91)

HIS 265 Civil War and Reconstruction

The course deals with the crisis of sectionalism, the rise of Southern nationalism and of the Republican Party, secession, the Civil War, abolition, and the Reconstruction period.

Spring, alternate years, 3 credits (not offered in 1990-91)

HIS 266 Jefferson's America

Political, economic, and cultural developments from the beginning of the national government to the age of Jackson and Tocqueville.

Fall, 3 credits

HIS 267 American History/American Film

Both a thorough study of American history from the First World War through the mid-1950s and a study of classic American films as a reflection on their times and an influence upon style and belief. This course will try to teach students to view film as a product of history and a reflection of the social and ideological tone and culture of America. May not be taken for credit in addition to HIS 268.

Fall, 3 credits

HIS 268 Recent U.S. History, 1919 to the Present

A survey of recent U.S. history: the 1920s, the Great Depression and New Deal, the Cold War, and the 1960s and after. May not be taken for credit in addition to HIS 267.

Fall, 3 credits

HIS 269 U.S. Military History

A survey of the role of war and of military thought and institutions in U.S. history from the War of Independence to the present. Attention will be given to the relation of military to civilian political, economic, and social developments.

Fall, 3 credits

HIS 271 History of New York State

A general introduction to the history of New York State. The course surveys major political, economic, and social developments within their geographical setting.

Alternate years, 3 credits (not offered in 1989-90)

HIS 291, 292 History of Science, Technology, and Medicine

A survey of the history of Western science, technology, and medicine from Plato (the ancient Greek philosopher) to PLATO (the modern computer language), taught through a close reading of some of the classic texts and biographies of their authors. No specialized knowledge of the sciences is required. Core Courses satisfying Social and Behavioral Sciences Category A, Group 3.

Fall (291) and spring (292), alternate years, 3 credits each semester (not offered in 1989-90)

HIS 300 The Prehistoric Aegean

A study of the prehistoric cultures of Greece, Crete, and Troy, with a particular emphasis on the Minoan and Mycenaean palace centers of the late Bronze Age, primarily using the rich archaeological material but also contemporary and later written sources.

Fall or spring, 3 credits

HIS 303 Medieval Culture and Society

An in-depth study of medieval culture and society, focusing on intellectual or social factors during the Early Middle Ages, High Middle Ages, or Renaissance.

Alternate years, 3 credits (not offered in 1990-91)

HIS 304 Early Modern England: Change and Reformation, 1509-1603

The development of English society from the reign of Henry VIII to the death of Elizabeth; the decline of medieval institutions, the course of the Reformation, and its impact on political, economic, and cultural life.

Prerequisite: A European history course

Fall, alternate years, 3 credits (not offered in 1989-90)

HIS 305 Early Modern England: Revolution and War, 1603-1714

An inquiry into the source, nature, and outcome of the English Revolution of the mid-17th century. Various interpretations will be examined along with representative contemporary documents.

Prerequisite: A European history course

Fall, alternate years, 3 credits (not offered in 1989-90)

HIS 306 The Old Regime and the French Revolution

An examination of the first and most dramatic modern revolution from its origins in the collapse of the *ancien régime*, through the continuing upheavals of 1789-1799 to the aftermath of the revolution in the Napoleonic empire. Although the European context will necessarily be considered, the emphasis throughout will be on developments in France.

Prerequisite: COR 101 or one other course in European history before 1789

Spring, alternate years, 3 credits (not offered in 1990-91)

HIS 308 The History of the Physical Sciences

An investigation in depth of a limited number of topics in the history of mathematics, physics, and astronomy; for example, the relationship between experiment and theory in ancient and modern physics, physics as method, revolution versus evolution in the development of modern physics.

Prerequisite: PHY 102 or 104 or 106

Alternate years, 3 credits (not offered in 1989-90)

HIS 309 Modern France, 1815-1900

The French nation's search for political democracy, economic and social stability, grandeur, and cultural preeminence in the 19th century.

Prerequisite: COR 102

Fall, alternate years, 3 credits (not offered in 1989-90)

HIS 310 Modern France, 1900 to the Present

The French nation's response to the traumas of world wars, depression, decolonization, and the challenge of industrial society from the Dreyfus Affair to the Fifth Republic.

Prerequisite: COR 102

Spring, alternate years, 3 credits (not offered in 1990-91)

HIS 311 The Rise of Imperial Germany, 1806-1890

The course of German history from the Napoleonic to the Bismarckian era. Major theme: the power struggles of traditional authoritarianism versus liberalism and socialism in an age of drastic economic transformation.

Fall, alternate years, 3 credits (not offered in 1989-90)

HIS 312 From Empire to Third Reich: Germany, 1890-1945

From Bismarck's dismissal through the Wilhelminian Empire, the First World War and Revolution, to Germany's unsuccessful experiment with democracy—the Weimar Republic—accompanied by the rise of Hitler's Nazi movement, which culminated in the Third Reich and the Second World War.

Spring, alternate years, 3 credits (not offered in 1989-90)

HIS 313 18th-Century England, 1714-1830

The emergence of Modern England: aristocracy and parliamentary rule; wars for empire; hierarchical society and industrialism; the Augustan and Romantic ages; evangelical revival; French Revolution and reaction. The age of Chatham, Wesley, Burke, Johnson, Adam Smith, Bentham, Wordsworth, Coleridge, and Shelley.

Alternate years, 3 credits (not offered in 1989-90)

HIS 314 Victorian England, 1830-1901

The era of British economic and political preeminence. The establishment of a modern industrial society, flowering of liberalism, imperial expansion, rise of democracy and socialism. The age of Gladstone and Disraeli; Dickens and Kipling; Mill, Darwin, and Marx.

Fall, alternate years, 3 credits (not offered in 1989-90)

HIS 315 20th-Century Britain

The decline and fall of British preeminence and imperial power. The crisis of liberalism, two world wars, trade unionism, socialism, and the welfare

state. The age of Lloyd George and Churchill; Shaw; Russell, Orwell, and Keynes.

Fall, alternate years, 3 credits (not offered in 1989-90)

HIS 316 The Healer and the Witch in History

Female healers, their association with "diabolic" powers, and the progressive development of a mechanism for their repression and control. The course will also treat the development of organized medicine and its impact upon female healers and patients. A Core Course satisfying Social and Behavioral Sciences Category A, Group 2.

Alternate years, 3 credits (not offered in 1990-91)

HIS 317 Expansion of Europe

The European influence on the wider world during the industrial age. Forms of European overseas settlement, conditions of conquest, local responses to European domination, and decolonization will be studied. The course emphasizes comparisons and original documents. A Core Course satisfying Social and Behavioral Sciences Category A, Group 2.

*Prerequisite: 200-level course on modern Europe
Fall or spring, 3 credits*

HIS 318 Social and Intellectual History of Europe

An examination of the great movements of ideas in their social and historical contexts in modern European history. Sample themes include liberalism, conservatism, romanticism, 19th-century realism, and the discovery of the unconscious.

Alternate years, 3 credits (not offered in 1990-91)

HIS 319 U.S. Urban History

Historical studies of urbanization in the United States, with special reference to population growth and economic activities, the government and changing organization of urban settlements, and the rise of planning.

Prerequisites: HIS 103, 104

Fall, alternate years, 3 credits (not offered in 1989-90)

HIS 320 Advanced Ancient History

An examination of selected periods or topics in ancient Greek and Roman history with emphasis on the evidence of the ancient sources and the modern scholarly discussion.

Prerequisite: HIS 231 or 232

Spring, alternate years, 3 credits (not offered in 1990-91)

HIS 323 History of Medicine

The history of medicine from Hippocrates to the present. Three major themes will be traced throughout this period: (1) ideas (theories of disease, therapeutics); (2) institutions (hospitals, role of state, role of corporate sector); (3) people (practitioners, patients, scientists).

Alternate years, 3 credits (not offered in 1990-91)

HIS 325 The Civil Rights Movement

A detailed study of the movement for civil rights from its origins, examining the establishment of the NAACP, race relations between whites and blacks since 1900, the role of the Supreme Court and the federal government, and the turn to militancy in the 1950s and after. Crosslisted with AFS 325. A Core Course satisfying Social and Behavioral Sciences Category A, Group 2.

Fall, 3 credits

HIS 326 History of Popular Culture

The development of popular culture in Europe and the United States. The course will examine different aspects and genres of popular mentality beginning with peasant cultures in the 16th century. Other aspects include artisanal culture in the 18th century in Europe and America, commercial cultures in 19th-century England and America, and the rise of mass media culture in the 20th century.

Prerequisite: One course in history, preferably U.S. history

Fall, alternate years, 3 credits (not offered in 1989-90)

HIS 327 The Culture of American Cities

The character of American culture from the Civil War to the present and its changes will be illustrated and discussed. Special attention will be given to the city as a cultural habitat and to the social and visual arts: theatre, film, and architecture. The examples chosen for study will necessarily be selective and are designed to suggest how popular culture was expressed at a particular time.

Prerequisites: One history course; one art history or English literature or philosophy course

Fall, 3 credits

HIS 328 American Constitutional Origins

An examination of the English and colonial foundations of American constitutionalism, the political thought of the Revolution and creation of republican governments, the formation of the federal Constitution, and the rise of 19th-century political democracy in the United States.

Prerequisite: HIS 103 recommended

Fall, 3 credits

HIS 329 American Constitutional Development

A study of constitutional change ranging from the dispute over the nature of the Union in the 19th century through the Civil War and Reconstruction, and the problems associated with industrial growth, to the rise of big government in the present century.

Spring, 3 credits

HIS 333 Women in U.S. History

An interpretation of the history of women in relation to the major themes in American history such as industrialization and urbanization. Emphasis will be placed on topics of special interest to women, i.e., the cult of domesticity, the birth control movement, feminism, women and reform, changing attitudes toward female sexuality. Crosslisted with WNS 333.

Fall or spring, 3 credits

HIS 336 Women, Work, and Family in Modern European History

An analysis of the effect of urbanization and industrialization on women and the family in Europe from 1750 to the present. Special emphasis will be placed on the development of the ideology of the "angel in the house" and the growth of female participation in the work force. Among the topics covered will be domestic work, prostitution, sexual attitudes and mores, child-rearing practices, women and revolutionary movements, and the growth of feminism. A Core Course satisfying Social and Behavioral Sciences Category A, Group 2. Crosslisted with WNS 334.

*Prerequisite: WNS/SSI 102 or one history course
Fall, alternate years, 3 credits (not offered in 1989-90)*

HIS 338 Modern Russian Intellectual History

The development of modern Russian thought from the Enlightenment of the late 18th century until the revolution of 1917. Emphasis will be placed on the relationship between ideas and society as well as the role of ideas in leading to the revolution of 1917. Political and social ideas (such as gentry radicalism, Hegelianism, nihilism, populism, Marxism, and anarchism) will be given primary consideration, but aesthetic and literary concepts will receive attention as well.

Prerequisite: At least one course in modern European history

Fall, alternate years, 3 credits (not offered in 1989-90)

HIS 339 Russian Social History, 1825-1929

An in-depth review of the transformation of Russian society "from the bottom up." The course will examine the effects of economic and social transformation on large socioeconomic groups in Russia from the end of the old society, through the emancipation of the serfs, to industrialization. It will then proceed to the revolutionary years of 1905-1917 and to the past revolutionary era to examine how the turmoil and the new society affected the lives of common people in Russia.

Prerequisite: At least one course in modern European history

Spring, alternate years, 3 credits (not offered in 1989-90)

HIS 340 Intellectual History of China

A survey of major intellectual trends from ancient to contemporary China. Topics of discussion include the rise of ancient Chinese philosophical schools, the establishment of Confucian orthodoxy, the introduction of Buddhist thought, the neo-Confucian synthesis, and the impact of Western ideologies on modern China.

Alternate years, 3 credits (not offered in 1989-90)

HIS 341 20th-Century China

The history of China from the collapse of the monarchy to the triumph of communism, emphasizing the revolutionary, political, social, and economic changes in China today. Special attention will be given to the theory and practice of Chinese communism. A Core Course satisfying Social and Behavioral Sciences Category A, Group 4, and Study of Another Culture.

Fall or spring, 3 credits

HIS 344 20th-Century Japan

The history of Japan from the beginning of its imperialistic expansion in 1895 to World War II and post-war reconstruction, including such contemporary topics as educational issues, economic policies, and foreign relations. A Core Course satisfying Social and Behavioral Sciences Category A, Group 4, and Study of Another Culture.

Prerequisite: HIS 220 recommended

Alternate years, 3 credits (not offered in 1989-90)

HIS 352 The Social History of Science

A consideration of some important topics on the function and development of science in Western society since 1600. Such topics will include science and government, science in warfare, industrial research, and the professionalization of science.

Prerequisite: COR 102 or HIS 136 or 292 or SOC 105 or 106

Alternate years, 3 credits (not offered in 1990-91)

HIS 353 The History of American Technology

The development of technology in the United States, from the colonial period to the present, considered in many contexts: internal development of a few selected technologies (such as iron and steel, food processing, etc.), as well as changes in economic conditions, social organization of work, and the impact of technological change on general culture. A Core Course satisfying Natural Sciences Category B.
Prerequisite: HIS 103 or 104 or 136 or 292; one Natural Sciences Category A course
Fall, alternate years, 3 credits (not offered in 1989-90)

HIS 360 Women in Premodern Europe

An examination of the position of women in European society from ancient Greece through the Italian Renaissance. The course will emphasize women in the European Middle Ages—their roles in marriage and the economy, their relations with the Christian church, their significance in cultural forms such as courtly love. A Core Course satisfying Social and Behavioral Sciences Category A, Group 2.
Alternate years, 3 credits (not offered in 1989-90)

HIS 362 Marxist Thought before 1917

The roots of Marxism in the first half of the 19th century, the question of the young Marx, aspects of the work of the mature thinker and politician. The critiques of the Revisionists and the defense of orthodoxy; the development of Marxian traditions in various nations of Europe; early Leninism.
Fall, alternate years, 3 credits (not offered in 1989-90)

HIS 363 Marxist Thought Since 1917

The major schools of Marxism since the Russian Revolution: Leninism, the return to Hegel, the Frankfurt School, Trotskyism and Stalinism, structuralism, recent literature.
Prerequisite: HIS 362
Spring, alternate years, 3 credits (not offered in 1989-90)

HIS 367 Change and Reform in the United States, 1877-1919

The growth of industrialism in the United States, emphasizing its impact on politics, society, and culture. Focus will be on the development of modern liberalism as a social and intellectual movement.
Prerequisite: HIS 103, 104
Fall, alternate years, 3 credits (not offered in 1990-91)

HIS 369 American Social History to 1860

An analysis of American social history from the first settlements to the beginnings of industrialization with special emphasis on changes in social structure and institutions such as the community, family, church, and school.
Prerequisite: HIS 103
Fall, 3 credits

HIS 370 U.S. Social History, 1860-1929

The development of American society from the Civil War to the Great Depression, with special emphasis on the evolution of social institutions—primarily the family, church, school, welfare organizations, business, and professions—in response to industrial and urban growth.
Spring, 3 credits

HIS 371 American Roots

The roots of Americans through the immigration or migration experiences of WASPs, blacks, Irish, Germans, Slavs, Jews, Italians, Asians, and Latins will be examined, emphasizing common elements of the immigration process as well as the unique history of the racial and ethnic groups. Homeland conditions, migration experiences, rejection and assimilation in the new land, and generational conflict will form the main themes.
Prerequisites: HIS 103, 104 recommended
Fall, alternate years, 3 credits (not offered in 1989-90)

HIS 373 History of American Labor to 1900

A history of working people from colonial times through the Industrial Revolution to 1900. The evolution of business and industry and the influence of social reformers are considered. May not be taken for credit in addition to the discontinued HIS 277.
Prerequisite: HIS 103 or 104 or ECO 100 or 101 or 104
Fall, alternate years, 3 credits (not offered in 1989-90)

HIS 374 History of American Labor Since 1900

A history of working people during the 20th century. The course includes the evolution of unionism, the rise of mass production and scientific management, and the influence of law and government on labor and business. Lectures are illustrated with photographs, newsreels, paintings, and other visual data from the period. Emphasis is on reasoning from evidence rather than on the presentation of facts. May not be taken for credit in addition to the discontinued HIS 278.
Prerequisite: HIS 103 or 104 or ECO 100 or 101 or 104
Fall, alternate years, 3 credits (not offered in 1990-91)

HIS 375 History of U.S. Foreign Relations to 1917

American foreign policy from the settlement of the first colonies to the emergence of the United States as a great power. Topics include the global context of America's attainment of independence, drives behind and obstacles to continental expansion, and America's response to revolutionary change abroad. A Core Course satisfying Social and Behavioral Sciences Category A, Group 2.
Fall, 3 credits

HIS 376 History of U.S. Foreign Relations Since 1917

The evolution of the United States from great power to superpower. Topics include the forms of American intervention abroad, uses of military and economic power in the global environment, and the role of domestic politics in the formulation of foreign policy. A Core Course satisfying Social and Behavioral Sciences Category A, Group 2.
Spring, 3 credits

HIS 377 American Economic History to 1860

The economic and social development of North America and the United States from colonial settlement through early industrialization. The emphasis is on changing population patterns, use of natural resources, technological advances in production and transport, the development of markets, and the role of public policy.
Fall, alternate years, 3 credits (not offered in 1989-90)

HIS 378 American Economic History Since 1860

The industrial transformation of the American economy and its consequences since 1860. Emphasis is on factors contributing to economic growth and instability, the development of corporate business organization, the changing character of governmental policies, and the international economy.
Spring, alternate years, 3 credits (not offered in 1989-90)

HIS 379 American Legal History

The role of law and legal institutions in American society from the colonial period to the present with emphasis on the relations between the legal system and the processes of economic and social change in the United States.
Prerequisite: HIS 103 or 104
Spring, alternate years, 3 credits (not offered in 1990-91)

HIS 380 Origins of American Society

An inquiry into the origins of America's distinctive social order. Examining the complex process of development of the first European commercial and military outposts into a society, the course will focus on the related processes of democratization and commercialization and their impact on labor, the economy, social relations, and the political system.
Prerequisite: HIS 103 or 262 or 263 or 266 or 369
Alternate years, 3 credits (not offered in 1990-91)

HIS 381 Latin American Society

An examination of the basic elements in the evolution of Latin American society since independence. Topics will include authoritarianism, social control, social deviance, and the role of the middle class, the church, and education.
Prerequisite: One course in history, preferably Latin American history
Fall or spring, 3 credits

HIS 382 Politics and Political Change in Latin America

An examination of revolutionary and reformist movements that have shaped the political, social, and economic contours of 20th-century Latin America. Topics include the Mexican and Cuban revolutions, populism, urban squatter movements, and guerilla warfare. A Core Course satisfying Social and Behavioral Sciences Category A, Group 2, and Study of Another Culture. Crosslisted with POL 382.
Prerequisite: One course in history, preferably Latin American history
Fall, alternate years, 3 credits (not offered in 1989-90)

HIS 383 Cultural and Intellectual History of Latin America to 1825

The cultural and intellectual history of Latin America during the colonial period. Major reports on the discovery and exploration, the spiritual conquest, universities, baroque times, scientific missions and the Enlightenment, colonial newspapers, and the movement of Independence. Satisfies Study of Another Culture requirement. *Prerequisite:* One history course, preferably Latin American history
Fall, 3 credits

HIS 384 Cultural and Intellectual History of Latin America from 1825 to Present

The cultural and intellectual history of Latin America during the 19th and 20th centuries. Romanticism, liberalism, positivism, Arielism, university reform, Marxism in Latin America, liberation theology, major current trends. Satisfies Study of Another Culture requirement. *Prerequisite:* One history course, preferably Latin American history
Spring, 3 credits

HIS 386 Modern Brazil

The history of Brazil since independence, stressing such themes as slavery and race relations, industrialization and the working class, populist politics, urban society and culture, and the rise of authoritarianism. Satisfies Study of Another Culture requirement. *Prerequisite:* One course in history, preferably Latin American history
Spring, alternate years, 3 credits (not offered in 1989-90)

HIS 387 Women, Development, and Revolution in Latin America

Gender relations in Latin America, particularly in contemporary societies undergoing rapid social, economic, and political change. The course considers women, work, and family in historical perspective as well as the impact of agrarian change, migration, and industrialization on women. A major focus will be on women in political protest and revolution. A Core Course satisfying Social and Behavioral Sciences Category A, Group 2, and Study of Another Culture. *Prerequisite:* One course in history, preferably Latin American history, or in women's studies
Alternate years, 3 credits (not offered in 1989-90)

HIS 388 Revolution in Latin America

Case studies of three revolutionary societies: Mexico, Cuba, and Nicaragua. Principal themes include the roots of popular unrest in dependent capitalist societies, the course and consequences of insurrection, the sources and politics of counter-revolution, and social and political legacies of revolution. A Core Course satisfying Social and Behavioral Sciences Category A, Group 2, and Study of Another Culture. *Prerequisite:* HIS 213 or HIS/POL 214 or 216 or HIS 227
Spring, alternate years, 3 credits (not offered in 1990-91)

HIS 395 History of South Africa

An analysis of the development of South African society; expansion of white settlement since the 17th century; British imperialism, frontier conflicts, Afrikaner nationalism in the 19th century; patterns of race relations in the 20th century; apartheid and African resistance. *Prerequisite:* COR 101 or 102
Fall or spring, 3 credits

HIS 401, 402, 403 Colloquia in European History

Subjects and periods, which will vary with student demand and faculty interest, will include such topics as the Renaissance, the Reformation, conservatism, the French and Russian revolutions, Fascism, population, and topics in particular national histories. May be repeated as subject matter differs. *Prerequisite:* Permission of instructor
Schedule to be announced, 3 credits each

HIS 409 Colloquium in Russian History

A seminar in Russian history intended for history majors and other students who have taken courses in Russian studies. The topics will vary from year to year. May be repeated as subject matter differs. *Prerequisite:* HIS 209 or 210 or 338 or 339
Schedule to be announced, 3 credits

HIS 411-414 Colloquia in American History

Subjects and periods, which will vary with student demand and faculty interest, will include such topics as the history of New York, the westward movement, American socialism, the Vietnam War, U.S. military history, American utopianism, the urban novel, and women in the professions. May be repeated as subject matter differs. *Prerequisite:* Permission of instructor
Schedule to be announced, 3 credits each

HIS 421, 422 Colloquia in Latin American History

Subjects and periods, which will vary with student demand and faculty interest, will include such topics as slavery and race relations, culture and ideology, peasant movements and popular rebellion, and 20th-century revolutions. May be repeated as subject matter differs. *Prerequisite:* Permission of instructor
Schedule to be announced, 3 credits each

HIS 431 Colloquium in Asian History

Subjects and periods, which will vary with student demand and faculty interest, will include such topics as Japanese nationalism and expansion, Far Eastern diplomatic history, and nationalism in Southeast Asia. May be repeated as subject matter differs. *Prerequisite:* Permission of instructor
Schedule to be announced, 3 credits

HIS 441 Colloquium in World History

Subjects and periods, which will vary with student demand and faculty interest, will include such topics as the expansion of Europe, theories of imperialism, revolutionary and religious movements, the psychoanalytical interpretation of history, and slavery. May be repeated as subject matter differs. *Prerequisite:* Permission of instructor
Schedule to be announced, 3 credits

HIS 447 Independent Readings in History

Intensive readings in history for qualified juniors and seniors under the close supervision of a faculty instructor on a topic to be chosen by the student in consultation with the faculty member. May be repeated. *Prerequisites:* A strong background in history; permission of instructor and department
Fall and spring, 1 to 3 credits

HIS 451 Colloquium in Medieval History

Selected topics in medieval history will be studied with attention to primary sources and current historiographic controversies and developments. May be repeated as subject matter differs. *Prerequisite:* Permission of instructor
Schedule to be announced, 3 credits

HIS 461 Colloquium in the History of Science

Topics, which will vary with student demand and faculty interest, will include such subjects as the history of American science, the social history of science, the impact of Darwinism, modern physics, and technology and social change. May be repeated as subject matter differs. *Prerequisite:* Permission of instructor
Schedule to be announced, 3 credits

HIS 487 Supervised Research

Qualified advanced undergraduates may carry out individual research projects under the direct supervision of a faculty member. May be repeated. *Prerequisite:* Permission of instructor and either department or departmental URECA coordinator
Fall and spring, 1 to 3 credits

HIS 488 Internship

Participation in local, state, and national public and private agencies and organizations. Students will be required to submit written progress reports and a final written report on their experience to the faculty sponsor and the department. Satisfactory/Unsatisfactory grading only. May be repeated up to a limit of 12 credits. *Prerequisites:* 15 credits in history; permission of instructor, department, and Office of Undergraduate Studies
Fall and spring, 3 to 12 credits

HIS 495-496 Senior Honors Project in History

A two-semester project for history majors who are candidates for the degree with honors. Arranged in consultation with the department, the project involves independent study and the writing of a paper under the close supervision of an appropriate instructor on a suitable topic selected by the student. Students enrolled in HIS 495 are obliged to complete HIS 496. *Prerequisite:* Admission to the history honors program
Fall and spring, 3 credits each semester

Human Development

Minor Coordinator: William Arens, Anthropology

The minor in human development (LHD) is designed for the residents of Langmuir College who wish to add an academic dimension to their residence experience. The aim of the minor is to provide an integrated view of the human life course, defined as infancy and childhood, youth and adolescence, and mid-life and aging.

Requirements for the Minor in Human Development

The minor will consist of 24 credits to be taken in the following manner:

	<i>Credits</i>
1. Six three-credit courses from the approved list (available from the minor coordinator), including:	
a. at least one three-credit course in one phase of the life course and at least one other in another phase or one which provides an overview of the life course;	
b. at least one three-credit course in each of the following divisions: Biological Sciences, Humanities and Fine Arts, Social and Behavioral Sciences.	
c. any other three-credit courses from the list to achieve a total of 18 credits	18
2. Three one-credit courses in human development:	
a. LHD 301, to be taken during the first semester in this program;	
b. LHD 302, to be taken during the second through fourth semesters in this program.	
c. LHD 401, to be taken during the final year of this program.	3
3. One three-credit independent study course in either:	
a. LHD 487 under the supervision of the coordinator; or	
b. an independent study course in any department approved by the coordinator.	3
Total	24

Note: No more than one three-credit course in the minor may be taken P/NC. At least 12 credits for the minor must be in upper-division courses.

Declaration of the Minor

Students must declare the human development minor no later than the middle of their third year, at which time they will consult with the minor coordinator and plan their course of study for fulfillment of the requirements.

Courses

See p. 60, Course Credits and Prerequisites, and p. 61, Undergraduate Numbering System.

LHD 301 Introductory Seminar in Human Development

An interdisciplinary introduction to human development through the consideration and discussion of major works on the human life course. An emphasis will be placed on reading, integration of material, and critical discussion in a seminar format. May be repeated once as the topic differs, with the permission of the minor coordinator.

Prerequisites: Residence in Langmuir College; human development minor
Fall and spring, 1 credit

LHD 302 Colloquium in Human Development

A series of lectures by Stony Brook and visiting scholars on various aspects of human development pertaining to the life course. Students will be expected to participate in subsequent discussions. Content will vary from semester to semester.

Prerequisites: LHD 301; residence in Langmuir College; human development minor
Fall and spring, 1 credit

LHD 401 Advanced Seminar in Human Development

An interdisciplinary seminar in human development through the consideration of topics and issues raised by any of the disciplines concerned with the human life course. The content will vary in relation to the interests and experience of seminar participants. May be repeated once as the topic differs, with the permission of the minor coordinator.

Prerequisites: LHD 301, 302; residence in Langmuir College; human development minor
Fall and spring, 1 credit

LHD 487 Independent Study in Human Development

The completion of an individual project by one or a group of students on human development and the life course. Projects may include library, laboratory, or field research, or literary or artistic endeavor. Each project must result in an individual or group production or written report and be approved in advance by the minor coordinator. May be repeated.

Prerequisites: LHD 301, 302; residence in Langmuir College; human development minor
Pre- or corequisite: LHD 401
Fall and spring, 3 credits

Interdisciplinary Program in the Humanities

Chairperson: Robert Goldenberg, *Comparative Studies*
Director of Undergraduate Studies: Carrol Lasker, *Comparative Studies*

Teaching Assistants

Estimated number: 3

The interdisciplinary program in the humanities is designed for undergraduates attracted to humanistic study—art, history, languages, literature, music, philosophy, religious studies, theatre—who prefer not to specialize in any single field. It involves introductory and upper-division work in several departments, described in the requirements below.

Potential majors are strongly urged to consult the director of undergraduate studies to help them prepare individual programs.

Requirements for the Major in the Humanities

The interdisciplinary major in the humanities leads to the Bachelor of Arts degree. The following courses are required. All must be taken for a letter grade. In choosing courses to satisfy requirements I, II, and IV, the student should be careful to consider the relevant prerequisites for the clusters chosen for requirement III.

- I. Two elementary courses (6 or 8 credits) in a foreign language not offered for college admission or one course above the elementary level (3 credits).
3 or 6-8 credits
- II. One course from *each* group lettered A-C below. The student's choice of courses to satisfy this requirement will influence the choice of clusters for requirement III below. Those clusters most directly related to the following introductory courses are listed in parentheses following the course number.
9 credits

Group A: Literature

HUM 107, 121-123
CLT 108 (All CLT courses in requirement III)
CLS/CLT (Cluster A, requirement III)
113
CLT 201
EGL 204 (All EGL courses, requirement III)

Any survey course on foreign literature in the original language (foreign literature courses in requirement III)

Group B: The Arts

ARH 101 (ARH courses in clusters A and B, requirement III)
ARH 102 (ARH courses in clusters C-F, requirement III)
MUS 101 (All MUS courses, requirement III)

Group C: History and Philosophy

HUM 176
COR 101 (HIS courses in clusters B-D, requirement III)
COR 102 (HIS courses in clusters E and F, requirement III)
PHI 200 (PHI courses in clusters A-C, requirement III)

- PHI 206 (PHI courses in clusters D-F, requirement III)
 RLS 101 (RLS courses in requirement III)

III. From any two of clusters A-F below, a minimum of three courses from each cluster chosen. No more than one course from a single department may count toward the three courses required within a given cluster.

Note that the following list of courses is meant to be representative and does not exclude the possibility of substituting others in consultation with the student's advisor. In particular, there are available a number of additional courses that cover the chronological period of two adjacent clusters (especially of clusters E and F).

18 credits

Cluster A: The Ancient World

- ARH 300 Greek Art and Architecture
 ARH 301 Roman Art and Architecture
 CLS 113 Greek and Latin Literature in Translation
 CLS 215 Classical Mythology
 CLS 311 Classical Drama and Its Influences
 CLS 313 The Classical Tradition
 EGL 261, The Bible as Literature 262
 GRK 251, Readings in Ancient Greek 252 Literature
 HIS 230 The Ancient Near East
 HIS 231 History of Greece
 HIS 232 History of Rome
 HIS 300 The Prehistoric Aegean
 HIS 320 Advanced Ancient History
 JDS/HIS The Formation of the 225 Judaic Heritage
 LAT 251, Readings in Latin 252 Literature
 LAT 353 Literature of the Roman Republic
 LAT 354 Literature of the Roman Empire
 PHI 111 Introduction to Eastern Philosophy
 RLS 240 Confucianism and Taoism
 RLS 260 Buddhism
 RLS 270 Christianity

Cluster B: The Middle Ages

- ARH 303 The Art and Architecture of the Early Middle Ages, Ca. 400-1050
 ARH 304 The Art and Architecture of the High and Late Middle Ages, ca. 1050-1400
 EGL 300 Old English Literature
 EGL 302 Medieval Literature in English
 EGL 340 Chaucer
 HIS 233 Medieval History, 300-1100

- HIS 234 The High Middle Ages, 1100-1400
 HIS 303 Medieval Culture and Society
 LAT 355 Early Medieval Latin
 LAT 356 Late Medieval Latin
 PHI 304 Medieval Philosophy
 RLS 280 Islam
 RLS 321 Christian Classics
 RLS 370 Tibetan Buddhism
 Any course on medieval literature in a foreign language

Cluster C: The Renaissance

- ARH 306 The Early Renaissance in Italy
 ARH 307 High Renaissance and Mannerism in Central Italy
 ARH 310 Renaissance Art in Venice
 ARH 337 Northern Renaissance Art
 CLT 211 Literary Survey: Medieval Through Renaissance
 EGL 243 Shakespeare: the Major Works
 EGL 304 Renaissance Literature in English
 EGL 344 Major Writers of the Renaissance Period in England
 EGL 345 Shakespeare I
 EGL 346 Shakespeare II
 HIS 235 Humanism and Renaissance
 HIS 236 The Age of the Reformation
 THR 344 The Shakespearean Tradition
 Any course on Renaissance literature in a foreign language

Cluster D: Classicism and Enlightenment

- CLT 212 Literary Survey: Enlightenment through Modern
 ARH 320 Art of the 18th Century
 EGL 306 English Literature of the 17th Century
 EGL 308 The Age of Dryden
 EGL 310 Neoclassical Literature in English
 EGL 316 American Colonial and Federal Writers
 EGL 342 Milton
 EGL 347 Major Writers of the Neoclassical Period in England
 HIS 262 American Colonial Society
 HIS 263 Age of the American Revolution
 HIS 305 Early Modern England: Revolution and War, 1603-1714
 HIS 306 The Old Regime and the French Revolution

- MUS 301 Music of the Baroque
 MUS 302 The Music of J.S. Bach
 Any course on 17th- or 18th-century literature in a foreign language

Cluster E: Romanticism and Realism

- ARH 341 Art of the 19th Century
 EGL 217 American Literature I
 EGL 312 Romantic Literature in English
 EGL 314 Victorian Literature
 EGL 318 19th-Century American Literature
 EGL 348 Major Writers of the Romantic Period in England
 EGL 349 Major Writers of the Victorian Period in England
 HIS 248 Europe, 1815-1914
 HIS 264 The Birth of Modern America
 HIS 309 Modern France, 1815-1900
 HIS 338 Modern Russian Intellectual History
 HIS 369 American Social History to 1860
 HIS 370 U.S. Social History, 1860-1929
 MUS 303 The Music of Beethoven
 MUS 305 Music in the Romantic Era
 MUS 307 Music and Drama
 PHI 308 19th-Century Philosophy
 Any course in 19th-century literature in a foreign language

Cluster F: Modern Society

- ARH 322 American Art Since 1947
 ARH 324 Architecture and Design of the 19th and 20th Centuries
 ARH 342 Art of the 20th Century
 CLT/EGL The Modern Novel 266
 EGL 226 Contemporary English and American Literature
 EGL 350 Major Writers of American Literature
 EGL 352 Major Writers of Modern British and American Literature
 EGL 353 Major Writers of Contemporary British and American Literature
 HIS 210 Soviet Russia
 HIS 227 Modern Mexico
 HIS 250 The Second World War, 1939-1945
 HIS 251 Europe Since 1945
 HIS 268 Recent U.S. History, 1919 to the Present
 HIS 310 Modern France, 1900 to the Present
 HIS 315 20th-Century Britain
 HIS 339 Russian Social History, 1825-1929
 HIS 341 20th-Century China
 HIS 386 Modern Brazil

- HUM 201 Film and Television Studies I
 HUM 202 Film and Television Studies II
 JDH/RLS Judaism 230
 JDH/RLS Judaic Responses to Catastrophe 465
 JDS/HIS The Holocaust: The Destruction of European Jewry—Causes and Consequences 241
 KRS/RLS Korean and Japanese Religions 246
 MUS 109 Rock Music
 MUS 309 Music of the 20th Century
 MUS 310 Music and Culture in the 1960s
 PHI 247 Existentialism
 RLS 122 Religion and Ethics Today
 RLS 301 Sources and Methods
 RLS 302 Contemporary Theology
 RLS 341 Meditation and Enlightenment
 RLS 350 Philosophical Theology
 THR 314 Modern Drama on Stage
 Any course in 20th-century literature in a foreign language

IV. Any four additional courses from any department in the humanities division, of which at least two must be numbered 300 or above.

12 credits

V. *Upper-Division Writing Requirement*

In order to satisfy this requirement, students majoring in humanities must submit a portfolio of their writing pertaining to the major to the director of undergraduate studies no later than seven weeks after the start of the second semester of their junior year. They must achieve an evaluation of S (Satisfactory) on the portfolio. Further details are available from the department chairperson or from the director of undergraduate studies.

Total 42-47 credits

Honors Program in Humanities

Humanities majors who have maintained a grade point average of 3.5 in the major and a 3.0 overall through their junior year may attempt the degree in humanities with honors.

The honors program requires an additional three credits above the 42 to 47 required for the major. These three additional

credits will be earned in a special research project pursued in the final semester of the senior year. The project involves the completion of a senior thesis.

Students who are eligible for the honors program must find an appropriate faculty member to act as thesis advisor. The student, with the approval of the supervising faculty member, must submit a proposal of the project in writing to the chairperson of Comparative Studies by the last day of classes of the first semester of the senior year. Students who have obtained permission from the chairperson to pursue the project must enroll in HUM 495 while writing the thesis.

The thesis will be evaluated by the thesis advisor and two members of the humanities faculty chosen by the student with the approval of the thesis advisor.

Courses

See p. 60, Course Credit and Prerequisites, and p. 61, Undergraduate Numbering System.

HUM 107 The Literature of Commitment

A study of works in several national literatures tending to illustrate the concern for social and political commitment of the artist. The writer is viewed as the "living conscience" addressing important issues of his or her time and of all times.

Fall, 3 credits

HUM 121 Death in Literature

Through discussion of representative contemporary and classical texts, this course addresses the topic of how human beings have chosen to live with one certainty of their existence, its eventual conclusion in death. A Core Course satisfying Humanities and Fine Arts Category A.

Fall or spring, 3 credits

HUM 122 Images of Women in Fiction

An examination of a series of representations of women in world fiction ranging from the fantasy literature of the fairy tales to modern studies of women's changing social role and the rise of feminine self-consciousness. A Core Course satisfying Humanities and Fine Arts Category A.

Fall or spring, 3 credits

HUM 123 Sin and Sexuality in Literature

Lectures and discussions will focus on the interpretation of the ideas of sexuality and evil by exploring literary treatments of such notions as sexual gratification, adultery, and deviance. A Core Course satisfying Humanities and Fine Arts Category A.

Fall and spring, 3 credits

HUM 176 Freedom, Consent, and Human Values

This course seeks to establish the minimal features essential to a contemporary philosophy of freedom. Topics include the centrality of freedom, personal and social freedom, freedom and necessity, civil disobedience, freedom as a basic value.

Fall, 3 credits

HUM 201 Film and Television Studies I

An introduction to various methodologies of film, television, and video studies. The technological and aesthetic dimensions of these modern media in contemporary world society will be examined through varied readings, viewings, and discussion. Some of the visual material includes *Yellow Submarine* (1968), *Intolerance* (1916), *All That Jazz* (1979), *Rashomon* (1951), *I Love Lucy* (1951), *Thriller* (1986), and *Star Trek* (1965). A Core Course satisfying Humanities and Fine Arts Category B.

Prerequisite: A Humanities and Fine Arts Category A course

Fall or spring, 3 credits

HUM 202 Film and Television Studies II

An introduction to the theory and criticism of film and television from the "primitive" era to the present. Weekly film and video showings will be accompanied by readings in both contemporary and classical film theory. Special attention will be given to mainstream Hollywood cinema as well as to experimental traditions originating in the Soviet Union, France, and Germany. A Core Course satisfying Humanities and Fine Arts Category B.

Prerequisite: Sophomore standing
 Spring, 3 credits

HUM 291 Seminar on Contemporary Issues

(For course description, see University Studies chapter, Enrichment Courses.)

HUM 491 Seminar on Contemporary Issues

(For course description, see University Studies chapter, Enrichment Courses.)

HUM 495 Humanities Honors Project

A one-semester project for humanities majors who are candidates for the degree with honors. Arranged during the first semester of the senior year, to begin the following semester, the project involves independent study and the writing of a senior thesis under the close supervision of an appropriate faculty member.

Prerequisites: Permission of instructor and director of undergraduate studies
 Fall and spring, 3 credits

International Studies

Minor Coordinator: David Hicks, Anthropology

The interdisciplinary minor in international studies is open to residents of Keller College who wish to add an academic dimension to their residential experience. It provides an integrated view of institutions, ideas, historical traditions, and aspirations of peoples of other countries or regions.

Requirements for the Minor in International Studies

Credits

- A. Students must select a world region for specialization from among the following: western Europe, eastern Europe (including the Soviet Union), southern Europe,

	the Middle East, east Asia, south Asia, Africa, or Latin America.	
B.	ANT 102 Introduction to Cultural Anthropology or ANT 230 Peoples of the World.	3
C.	Fifteen credits selected from courses in the social and behavioral sciences and humanities and fine arts that relate to the world region chosen: Three courses dealing with the region's history, sociology, economic or political institutions, or general culture. One course dealing with the region's philosophic ideas, religious institutions, literature, painting, or music. One course from any of the above topics.	9
D.	KIS 301 Introductory Seminar in International Studies	1
E.	KIS 302 Colloquium in International Studies	1
F.	KIS 401 Advanced Seminar in International Studies	1
G.	KIS 487 Independent Study or an independent study course in any department approved by the coordinator	3
	Total	24

Notes:

1. With the approval of the coordinator up to 15 credits may be taken as part of the study abroad program. See Study Abroad, p. 54.
2. No more than one three-credit course in the minor may be taken P/NC. All other courses must be passed with a grade of C or higher.
3. At least 12 credits for the minor must be in upper-division courses.
4. Students are urged to spend at least one semester studying abroad. Upon returning, students are required to present a talk in one of the seminars or colloquia offered in the minor.

Declaration of the Minor

Students must declare the international studies minor no later than the middle of their third year, at which time they will consult the coordinator and plan their course of study.

Courses

See p. 60, Course Credits and Prerequisites, and p. 61, Undergraduate Numbering System.

KIS 301 Introductory Seminar in International Studies

An introductory seminar dealing with both topical and regional issues on a global scale. Topics, which will be chosen from a cohesive series of

themes, may focus on general subjects such as population problems, comparative political systems, Islam, and genocide or on regions such as Oceania, the Mediterranean world, and Latin America.
Prerequisites: Residence in Keller International College; sophomore standing; minor in international studies
Fall, 1 credit

KIS 302 Colloquium in International Studies

A colloquium on international studies involving guest experts who will discuss particular world topics or regional specialties. Students will also contribute class discussions, oral presentations, and a substantial essay on themes drawn from various topics and regions. May be repeated twice as the topic differs.
Prerequisites: Residence in Keller International College; KIS 301
Spring, 1 credit

KIS 401 Advanced Seminar in International Studies

An advanced seminar focusing on a particular topic or region of the world. Students will demonstrate a close familiarity with the region of their specialty and with the minor themes of significance to that region, as for example population control, industrialization, and political changes in China. They will also compare how such themes relate to the regional studies of other students in the seminar. May be repeated twice.
Prerequisites: Residence in Keller International College; upper-division standing; KIS 302
Fall, 1 credit

KIS 487 Independent Study in International Studies

Independent research projects on international studies by upper-division students in the minor under the supervision of an instructor. May be repeated twice.
Prerequisites: Residence in Keller International College; upper-division standing; KIS 401
Fall and spring, 3 credits

Journalism

Minor Coordinator: Paul A. Newlin, English

The journalism minor (JRN), housed in the Department of English, is staffed by professional, working journalists. Students who have an interest in careers in journalism will find that the program is committed to an academically sound background in arts and sciences, develops the writing and editing skills needed in journalism, and fosters understanding of the principles and responsibilities of journalism.

Requirements for the Minor in Journalism

The minor consists of successfully completing 18 credits from the following courses:

	<i>Credits</i>
A. EGL 287 Newswriting I	3
B. EGL 288 Feature Writing I	3
C. EGL 289 Readings in Journalism	3
D. EGL 387 Newswriting II	3
E. EGL 388 Feature Writing II	3
F. EGL 393, 394 Practicum in Journalism	6

Note: All courses for the minor must be taken for a letter grade. Students interested in minoring in journalism should consult the minor coordinator.

Judaic Studies

Director: Robert Goldenberg, Comparative Studies

Minor Coordinator: Robert Hoberman, Comparative Studies

Affiliated Faculty

Stephen Spector, English

The minor in Judaic studies offers students an opportunity to acquire background in one or more Jewish languages and to study selected areas of Jewish history, culture, or religion. With the approval of an advisor from the Judaic studies program faculty, the student must construct a program of at least 21 credits fulfilling the requirements listed below. The advisor will help assure that the student's program has a curricular focus; courses from other departments that suit that focus may be included.

Requirements for the Minor in Judaic Studies

	<i>Credits</i>
1. One year of a Jewish language (Hebrew or Yiddish) at a level appropriate to the student's previous background	6
2. Two of the following: JDS/HIS 225, JDS/HIS 226, JDH/RLS 230	6
3. Three courses numbered 300 or higher approved in advance by the minor advisor.	9
Total	21

Requirement 3 may be satisfied by courses in the Judaic studies program itself or by related courses in other departments, if the subject is judged appropriate for the student's field of concentration. The following list of courses from other departments is

meant to be representative and does not exclude the possibility of substituting others with the approval of the student's advisor.

ANT 402 Problems in Archaeology
POL 308 Politics of Conflict: The Middle East
RLS 301 Sources and Methods
RLS 302 Contemporary Theology
RLS 350 Philosophical Theology

Appropriate topics from any directed readings course and the following:

ANT 310 Ethnography
EGL 373, Literature in English and Its 374 Relation to Other Disciplines
RLS 330 Special Topics

No more than one course for the minor may be taken for a grade of P. Students interested in enrolling in the minor must consult with the coordinator of the minor in Judaic studies and select an advisor from the faculty of the Judaic studies program.

Courses

See p. 60, Course Credit and Prerequisites, and p. 61, Undergraduate Numbering System.

Courses designated HBW (191 and higher) and JDH are appropriate to satisfy the college humanities and fine arts elective requirement; courses designated JDS are appropriate for the social and behavioral sciences elective requirement.

HBW 111, 112 Elementary Hebrew

An introduction to modern Hebrew as currently spoken and written in Israel, stressing pronunciation, speaking, listening comprehension, reading, and writing. No student who has had two or more years of Hebrew in high school (or who has otherwise acquired an equivalent proficiency) may receive credit for HBW 111 without written permission from the supervisor of the course. *Fall (111) and spring (112), 3 credits each semester*

HBW 115 Introduction to Classical Hebrew

The fundamentals of classical Hebrew grammar and syntax, with readings in Biblical prose narrative. This course enables students to read classical Biblical and post-Biblical texts; it does not teach modern conversational Hebrew. *Fall, alternate years, 3 credits (not offered in 1989-90)*

HBW 116 Biblical Narrative Prose

Readings from the Hebrew Bible in Hebrew emphasizing the simplest and most straightforward of the various genres it contains. Materials progress from short selections to the analysis of entire books. *Prerequisite: HBW 115*
Spring, alternate years, 3 credits (not offered in 1989-90)

HBW 191, 192 Intermediate Hebrew

An intermediate course in conversation, composition, and the reading of texts in modern Hebrew. *Prerequisite: HBW 112*
Fall (191) and spring (192), 3 credits

HBW 221 Advanced Hebrew I

A course in the active use of spoken and written Hebrew. Readings of classics in the Hebrew language. Discussion is conducted mainly in Hebrew. *Prerequisite: HBW 192*
Fall, alternate years, 3 credits (not offered in 1989-90)

HBW 222 Advanced Hebrew II

Readings in modern Hebrew authors. Oral and written reports. Discussion is conducted mainly in Hebrew. *Prerequisite: HBW 192*
Fall, alternate years, 3 credits (not offered in 1990-91)

HBW 305 Studies in Hebrew Literature

A detailed study of a particular author, period, genre, or topic in Hebrew literature, such as Agnon, the contemporary Israeli short story, *Midrash*, or love poetry. The readings, class discussion, and students' written assignments are in Hebrew. May be repeated as the subject matter changes. *Prerequisite: HBW 221 or 222*
Spring, alternate years, 3 credits (not offered in 1990-91)

HBW 315 The History of the Hebrew Language

Readings and discussion (in Hebrew) of selections from Biblical, post-Biblical, and modern literature; lectures and discussion (in English) on the changes of sentence structure, meaning, sound, and style from one period to another. Particular attention is given to classicism, innovation, and restructuring in the rise of modern Hebrew. *Prerequisite: HBW 221*
Spring, alternate years, 3 credits (not offered in 1989-90)

HBW 447 Directed Readings in Hebrew

Intensive study of a particular author, period, or genre of Hebrew literature in the original under close faculty supervision. May be repeated. *Prerequisite: Permission of director*
Fall and spring, 1 to 4 credits

JDS 225 The Formation of the Judaic Heritage

The course of Jewish history and the development of Judaism during the Persian, Hellenistic, and Roman periods (ca. 500 B.C.E.—ca. 500 C.E.). The course begins with the close of the Hebrew Bible, examines the varieties of Judaism which then arose, and ends with the consolidation of rabbinic Judaism on one hand and of Christianity on the other. Crosslisted with HIS 225. A Core Course satisfying Social and Behavioral Sciences Category A, Group 4, and Study of Another Culture. *Fall, 3 credits*

JDS 226 The Shaping of Modern Judaism

The history of the Jews and of Judaism since the fall of the Roman Empire and the rise of

Islam. The course concludes with a study of the Holocaust and the creation of the State of Israel, and includes a survey of the major forms of American Jewish life. Crosslisted with HIS 226. *Spring, 3 credits*

JDH 230 Judaism

A survey of the great texts of the Judaic heritage, with the aim of learning the contribution of each to the Jewish tradition. The course includes an examination of characteristic Jewish beliefs, practices, and attitudes. Crosslisted with RLS 230. A Core Course satisfying Humanities and Fine Arts Category A. Also satisfies Lower-Division Writing Requirement for students who score "Strong" on the English Placement Examination. *Fall, alternate years, 3 credits (not offered in 1989-90)*

JDS 241 The Holocaust: The Destruction of European Jewry—Causes and Consequences

The rise of modern anti-Semitism and its political application in Nazi Germany. Topics covered include the destruction process, ghetto life, resistance, foreign response, and the war crimes trials. Crosslisted with HIS 241. *Prerequisite: JDS/HIS 226*
Fall, alternate years, 3 credits (not offered in 1990-91)

JDH 261 Biblical Narrative

An examination of selected portions of the Bible, using literary and historical modes of interpretation. These texts are analyzed from such perspectives as genre, narrative strategy, language, imagery, redaction skill, legend, chronicle, and epistle. *Fall, alternate years, 3 credits (not offered in 1989-90)*

JDH 320 The Rabbinic Tradition

The origin and development of the rabbinic tradition, examination of the chief elements of rabbinic teaching at various times, and analysis of the major types of rabbinic literature. Crosslisted with RLS 320. A Core Course satisfying Humanities and Fine Arts Category C. *Prerequisite: JDS/HIS 225 or 226 or RLS/JDH 230*
Fall, alternate years, 3 credits (not offered in 1989-90)

JDS 327 Women in Judaism

A survey of women in Judaism and in Jewish life from the Biblical period to the present, focusing on such topics as the representation of women in the Bible, Jewish law concerning women, the role of women in the Enlightenment in Germany and America, immigrant women in America, women in the Holocaust, and women in Israel. Crosslisted with WNS 320. *Prerequisite: One JDS or WNH or WNS course*
Fall, alternate years, 3 credits (not offered in 1989-90)

JDH 366 The American Jewish Experience in Fiction

A study of the American Jewish experience as it is revealed in the fiction of the Jewish writers in the period of 1917 through the present. The course will explore the long-range effect on the

second, third, and fourth generations of immigration; acculturation; the impact of the Depression; World War II and the Holocaust; the emergence of the State of Israel; suburbanization; the entry of the Jewish writer into the center of the literary world; and the new search for Jewish identity. *Prerequisite:* One literature course at the 200 level or higher
Alternate years, 3 credits (not offered in 1990-91 1990-91)

JDH 390 Topics in Judaic Studies

An examination of a selected topic in Judaic studies within the humanities area to be announced whenever the course is offered. May be repeated for different topics.
Prerequisite: JDS/HIS 225 or 226 or RLS/JDH 230
Schedule to be announced, 3 credits

JDS 390 Topics in Judaic Studies

An examination of a selected topic in Judaic studies within the social sciences area to be announced whenever the course is offered. May be repeated for different topics.
Prerequisite: JDS/HIS 225 or 226
Schedule to be announced, 3 credits

JDH 447 Readings in Judaic Studies

Qualified juniors and seniors may read independently in the areas of Jewish religion, philosophy, and literature in an approved program under the supervision of a faculty member. May be repeated.
Prerequisites: Two JDH courses, or one course each in JDS and JDH; permission of director
Fall and spring, 1 to 4 credits

JDS 447 Readings in Judaic Studies

Qualified juniors and seniors may read independently in the areas of Jewish history, culture, and society, in an approved program under the supervision of a faculty member. May be repeated.
Prerequisites: Two JDS courses, or one course each in JDS and JDH; permission of director
Fall and spring, 1 to 4 credits

JDH 465 Judaic Responses to Catastrophe

The response of Judaic thinkers from the Bible to the Second World War to the problem of historical disaster and the need to understand and respond to it. Particular attention will be given to the question of long-term continuity and the appearance of innovation in such responses. Crosslisted with RLS 465. A Core Course satisfying Humanities and Fine Arts Category C.
Prerequisite: JDH/RLS 230 or JDS/HIS 225 or 226
Spring, alternate years, 3 credits (not offered in 1990-91)

Korean Studies

Director: Sung Bae Park, Comparative Studies

Teaching Assistants

Estimated number: 4

The Korean studies minor is an interdisciplinary study focusing on the unique contributions Korea has made to Asian culture. Students design an individualized program to be approved by the director of the program in Korean studies based on combined coursework in history, fine arts, and religious and philosophical thought, with Korean language strongly recommended. Consultation with the director is encouraged for those students considering special opportunities for an overseas exchange program with universities in Korea.

Requirements for the Minor in Korean Studies

1. KRH 240, 246	6
2. Three courses chosen from among the following: KRH, KRS 331, 332; KRH 335, 346	9
3. One related course chosen from among the following: ANT 351 ARH 203, 318 HIS 219, 220, 340, 341, 344 PHI 340, 342 RLS 260, 270, 341, 370 SSI 461	3
4. KRH 400	3
	21

Notes:

1. Students are strongly advised to take at least two courses in Korean language and literature (KOR 111, 112, 191, 192) determined by the director on the basis of previous knowledge of Korean. Students with advanced proficiency in Korean are urged to take an additional Asian language.
2. No more than one course to be counted toward the minor may be taken for Pass/No Credit.

Courses

See p. 60, Course Credit and Prerequisites, and p. 61, Undergraduate Numbering System.

KOR 111, 112 Elementary Korean I, II

An introduction to spoken and written Korean with equal attention to speaking, reading, and writing. Linguistic analysis of the characters will provide cultural and historical background of the language. No student who has had two or more years of Korean in high school (or who has otherwise acquired an equivalent proficiency) will be permitted to enroll in KOR 111 or 112 without written permission from the supervisor of the course.

Prerequisite to KOR 112: KOR 111
Fall (111) and spring (112), 3 credits each semester

KOR 191, 192 Intermediate Korean I, II

An intermediate course in Korean language to develop aural skills and reading and writing ability. Selected literary texts will serve as the basis for practice in reading comprehension and composition. No student who had has three

or more years of Korean in high school (or who has otherwise acquired an equivalent proficiency) will be permitted to enroll in KOR 191 or 192 without written permission from the supervisor of the course.

Prerequisite to KOR 191: KOR 112

Prerequisite to KOR 192: KOR 191

Fall (191) and spring (192), 3 credits each semester

KOR 221 Advanced Korean

An advanced course designed for students who wish to enhance reading comprehension and writing ability in Korean. Reading materials will be selected from modern Korean literature, journals, and newspapers. Students will be trained in samples of various writing styles. Emphasis will also be placed on the idiomatic usage of Korean language and the relation of Korean to Chinese characters.

Prerequisite: KOR 192

Spring, 3 credits

KOR 475 Undergraduate Teaching Practicum in Korean

An opportunity for selected seniors to collaborate with the master instructor in teaching a Korean language class. Each student will conduct a regular class under the guidance of the faculty. Responsibilities may include preparing material for practice sessions, initial correction of homework and tests, and helping students with problems. Satisfactory/Unsatisfactory grading only.
Prerequisites: Fluency in Korean; senior standing; permission of instructor and director
Fall and spring, 3 credits

KRH 240 Introduction to Korean Culture

A general survey of Korean culture from the earliest records to the 20th century, including painting, music, dance, ceramic art, sculpture, architecture, poetry, novels, and folklore. These will be discussed in relation to the intellectual, philosophical, and religious movements of their time.

Fall or spring, 3 credits

KRH 246 Korean and Japanese Religions

An introduction to the main developments in Korean and Japanese religious history from earliest times to the 19th century, with emphasis on Buddhism, Confucianism, and Taoism as well as shamanism in Korean and Shintoism in Japan. The relationship between the Korean form of religious traditions and those found in China and Japan will also be stressed. Cross-listed with RLS 246. A Core Course satisfying Humanities and Fine Arts Category A.

Fall, alternate years, 3 credits (not offered in 1989-90)

KRH, KRS 331, 332 Topics in Korean Studies

An investigation of an area or dimension of Korean studies. Examples of topics for this course are Korean linguistics, folklore, aesthetics, economy and politics, philosophy, conflicts in Korean society, archaeology of Korea, and religious syncretism in Korea. May be repeated with permission of the director.

Prerequisite: KRH 240; an additional Korean studies course announced when the topic is announced

Schedule to be announced, 3 credits each semester

KRH 335 Korean Folk Religions

A survey of Korean folk religious beliefs and practices including those connected with mythology, domestic and communal gods, shamanism, geomancy, and times and seasons. The course will investigate the relationships of those topics to each other, to the ethos and world view of the Korean people, and to other religions such as Taoism, Buddhism, Confucianism, and Christianity, from both the historical and structural perspectives.

Prerequisite: KRH 240 or KRH/RLS 246
Spring, alternate years, 3 credits (not offered in 1989-90)

KRH 346 Moral Education in Korea and Japan

An examination of the principles, ideals, and practical applications of moral education in Korea and Japan. Since moral education has traditionally been based upon the teachings of Confucius, special attention will be paid to his teachings and those of his followers. The roots of moral education in Asia and Korean and Japanese adaptations of Confucianism will also be discussed.

Prerequisite: One 200-level course in Asian religion or philosophy
Spring, alternate years, 3 credits (not offered in 1990-91)

KRH 400 Seminar in Korean Studies

A seminar for upper-division students in the Korean studies minor, exploring in depth a single theme chosen to illustrate the relations among religious, philosophical, historical, and cultural aspects of Korean life. Use of original texts and other materials will be emphasized. May be repeated once for credit as topic differs.

Prerequisites: Upper-division standing; religious studies major or minor or Korean studies or Asian studies minor; one 200-level course in Korean studies
Spring, 3 credits

KRH, KRS 447 Readings in Korean Studies

Directed reading and study in Korean studies. The designator KRH will be assigned to topics in the humanities area, KRS to topics in the social sciences area. May be repeated.

Prerequisites: Permission of instructor, program director, and Comparative Studies chairperson
Fall and spring, 1 to 3 credits

The Liberal Studies Major Program

Coordinator: William J. Wiesner, Undergraduate Studies

This major, which offers no courses of its own, allows the student to design his or her own program of study drawing on all the offerings of the university. It requires careful planning and should be undertaken only after thorough exploration of academic goals with a liberal studies advisor.

Requirements for the Liberal Studies Major (LIB)

To fulfill the requirements for this major, which leads to a Bachelor of Arts degree, the student must complete 54 credits of work in courses numbered 200 and above. (In compliance with the university graduation requirement, at least 39 credits of the 54 will be in courses numbered 300 and above.) The student must choose three areas or departments and distribute the required credits as follows:

1. Course Distribution	Credits
Department or area A	15
Department or area B	12
Department or area C	9
Any department(s) or area(s)	18
Total	54

2. Upper-Division Writing Requirement

All students majoring in liberal studies must satisfy the Upper-Division Writing Requirement established in one of the three departments chosen for distribution of liberal studies major credit. Students must report the department in which they will meet the Upper-Division Writing Requirement to the coordinator of the liberal studies major by the start of the second semester of their junior year. Details of the writing requirement for each major are listed among the major requirements in each department. Where there is no clear disciplinary department, the student should consult with the coordinator of the liberal studies major.

Notes:

- At least six credits in concentration A and at least three credits in concentration B must be in upper-division courses.
- At least 12 credits in the concentrations must be taken at Stony Brook.
- There is a six-credit limit on courses in the major passed with a P.
- No more than one course in a concentration may be passed with a P.
- All courses in the concentrations taken for a letter grade must be passed with a C or higher.
- Only three credits of activity-related courses, methods courses, research courses, directed readings, or internships may be used to fulfill concentration requirements, and then only in area A.
- No more than 10 credits in physical education may be used in fulfillment of the major.
- No more than 15 of the 54 credits may be in courses outside the College of Arts and Sciences.
- Students with a major in liberal studies may not declare a double major.

Department of Linguistics

Chairperson: Mark Aronoff
Director of Undergraduate Studies: S.N. Sridhar

Faculty

Frank Anshen, Associate Professor, Director of Graduate Studies, Ph.D., New York University; Sociolinguistics.

Mark Aronoff, Professor, Ph.D., Massachusetts Institute of Technology; Phonology; morphology.

Ellen Broselow, Associate Professor, Ph.D., University of Massachusetts; Phonetics, phonology, applied linguistics.

Aaron S. Carton, Professor, Ph.D., Harvard University; Psycholinguistics; teaching English to speakers of other languages.

Daniel L. Finer, Assistant Professor, Ph.D., University of Massachusetts; Syntax; semantics; language acquisition.

Richard Larson, Associate Professor, Ph.D., University of Wisconsin; Syntax; semantics.

Kamal K. Sridhar, Assistant Professor, Ph.D., University of Illinois; Teaching English to speakers of other languages; bilingualism; English around the world.

S.N. Sridhar, Associate Professor, Ph.D., University of Illinois; Psycholinguistics; sociolinguistics; second language acquisition; Indian linguistics.

Teaching Assistants

Estimated number: 5

The Department of Linguistics is concerned with the study of language as a central human attribute. It offers courses of general interest as well as programs for students with specialized objectives. In accordance with the pattern developed in modern linguistic theory, courses are offered in three areas. The core area examines the units of human language and their structural relations. The peripheral area is concerned with physiological, psychological, and social problems of language use. The applied area is concerned with language education and includes the application of scientific linguistics in communication technology and language policy.

The major in linguistics serves either as preparation for graduate study or as an organizing theme for a rich undergraduate education. The minor in linguistics is a valuable supplement to many majors offered

on campus. The Department of Linguistics also prepares students for provisional certification as teachers of English to speakers of other languages (TESOL).

Instruction in uncommonly taught languages not offered elsewhere in the university is provided by the Department of Linguistics.

Requirements for the Major in Linguistics

The major in linguistics leads to the Bachelor of Arts degree. The following courses are required.

	<i>Credits</i>
1. LIN 201 Phonetics	3
2. LIN 211 Syntax I	3
3. LIN 301 Phonology I	3
4. Six additional linguistics courses, of which at least five must be upper division	18
5. One year of a non-European language. This requirement may be met by ARB, CHI, HBW, JPN, KOR, LAN, or SKT 111, 112	6
6. Two years of a modern foreign language. (Students should bear in mind that graduate programs in linguistics usually require reading proficiency in both German and French)	12
7. Upper-Division Writing Requirement: By the end of the junior year, linguistics majors must submit two papers for evaluation by the department. The papers may be any combination of (i) a term paper from any LIN course, (ii) a revision of a term paper from any LIN course, or (iii) an analysis and discussion of a body of linguistic data from a course for which no term papers are assigned. The papers should be submitted to the director of undergraduate studies, who will then distribute each of them to two faculty members for evaluation, according to the topics of the papers and the areas of interest of the faculty. Papers that are rejected will have to be revised and resubmitted.	
Total	45

Notes:

- All linguistics courses must be taken for a letter grade.
- Neither LIN 111 nor 121 may be counted toward the major.
- The attention of students majoring in linguistics is directed to the following courses of interest to them in other departments:
ANT 102, 203, 354
CSE 110, 113, 114

EEL 111, 112
EGL 300, 302, 380
FLA 339
GER 201, 338
PHI 220, 325
PSY 370
RUS 302, 339
SPN 462, 463, 465
SWE 111, 112

Requirements for the Minor in Linguistics

LIN 201 Phonetics
LIN 211 Syntax I
and four additional linguistics courses, of which at least three must be at the upper-division level.

Note: One of the courses required for the minor may be taken for Pass/No Credit.

Linguistics minors that are closely integrated with students' majors are strongly encouraged. The fields with which linguistics has special affinities are anthropology, history, sociology, psychology, English, foreign languages, philosophy, and computer science.

Students must consult with the director of undergraduate studies in Linguistics to enroll in the minor.

Teacher Preparation (TESOL)

The program outlined below leads to provisional certification in Teaching English to Speakers of Other Languages (TESOL), from kindergarten to grade 12.

Requirements

- Courses in linguistics and social and anthropological aspects of language: LIN 101, 201, and 305 and one course from a list of applicable courses available from the director of undergraduate studies in Linguistics
- Language study: 12 college-level credits (or College proficiency plus six credits) of a standard, average European language (e.g., French, German, Italian, Russian, Spanish, Swedish, etc.) and six credits of non-European language
- Courses in professional education: SSI 327 Adolescent Growth and Development, SSI 350 Foundations of Education, LIN 375, 376, 450 (student teaching), and 454 (student teaching seminar)
- English Proficiency. In addition to meeting the University Writing Requirement, candidates for TESOL certification are required to pass a test of standard spoken English.

Note: Courses taken for Pass/No Credit may not be used to satisfy the preparation in professional education component of the teacher preparation program.

Courses

See p. 60, Course Credit and Prerequisites, and p. 61, Undergraduate Numbering System.

Uncommonly Taught Languages

ARB 111, 112 Elementary Arabic I, II
IRH 111, 112 Elementary Irish I, II
JPN 111, 112 Elementary Japanese I, II
SLN 111, 112 Elementary Sign Language I, II
LAN 111, 112 Other Uncommonly Taught Language (Elementary) I, II

An introduction to languages not offered elsewhere in the university; speaking, comprehension, reading, and writing. Selected texts will be read. Practice in the language laboratory supplements class work. May be repeated for different languages. No student who has had two or more years of the offered language in high school (or who has otherwise acquired an equivalent proficiency) may receive credit for 111 in that language without written permission from the supervisor of the course.

Prerequisite to 112: 111

Schedule to be announced, 3 credits each semester

ARB 191, 192 Intermediate Arabic I, II
IRH 191, 192 Intermediate Irish I, II
JPN 191, 192 Intermediate Japanese I, II
SLN 191, 192 Intermediate Sign Language I, II
LAN 191, 192 Other Uncommonly Taught Language (Intermediate) I, II

Continued study of languages not offered elsewhere in the university; advanced speaking, comprehension, reading, writing, and grammar. Selected texts will be read. Practice in the language laboratory supplements class work. May be repeated for different languages. No student who has had four years of the offered language in high school (or who has otherwise acquired an equivalent proficiency) may receive credit for 191, 192 in that language without written permission from the supervisor of the course.

Prerequisite to 191: 112

Prerequisite to 192: 191

Schedule to be announced, 3 credits each semester

Linguistics

LIN 101 Introduction to Linguistics

An introduction to the fundamental areas and concepts of modern linguistics. Sounds and their structure, word structure, and sentence structure will be discussed. Other topics covered may include historical linguistics (how languages change over time), dialects, writing systems, and psycholinguistics (especially the question of how children acquire a language). A Core Course satisfying Social and Behavioral Sciences Category B.

Fall and spring, 3 credits

LIN 111 Language: An Interdisciplinary Perspective

The study of language related to issues in other social science disciplines, such as the nature-nurture controversy, models of mental functioning, social class and cultural differences, the maintenance of ethnic identity and assimilation, the reconstruction of proto-history, and the establishment of cultural influences. A Core Course satisfying Social and Behavioral Sciences Category A, Group 2. Not for major credit.

Fall, 3 credits

LIN 121 The Structure of English Words

An introduction to methods of linguistic analysis through the analysis of complex English words. Students will gain some understanding of such areas of linguistics as morphology, semantics, and historical linguistics as well as increase their English vocabulary. Not for major credit.
Fall and spring, 3 credits

LIN 201 Phonetics

Introduction to the sounds used in human language, with discussion of the structure of the vocal tract, the sound structure of English, the acoustic properties of sounds, and the principles of speech synthesis and speech perception. Includes work in the phonetics laboratory on computer analysis of speech. A Core Course satisfying Social and Behavioral Sciences Category B.
Fall, 3 credits

LIN 211 Syntax I

An introduction to transformational-generative grammar: the formal theory of sentence structure. A Core Course satisfying Social and Behavioral Sciences Category B.
Spring, 3 credits

LIN 301 Phonology I

The theory of sound systems of languages and the interaction of sounds in language.
Prerequisite: LIN 201
Spring, 3 credits

LIN 305 Sociolinguistics

An examination of the interaction between language and society. Examples will be drawn largely from English.
Prerequisite: One 200-level linguistics course
Fall, alternate years, 3 credits (not offered in 1989-90)

LIN 311 Syntax II

A detailed consideration of recent developments in syntactic theory applied to problems in English and other languages.
Prerequisite: LIN 211
Fall, 3 credits

LIN 320 Psycholinguistics

An examination of the psychology of language and the relations among languages, behavior, and cognitive processes.
Prerequisites: LIN 201 and 211
Fall, alternate years, 3 credits (not offered in 1989-90)

LIN 330 Language Acquisition

Introduction to the field of language acquisition. Issues include cognitive processes, role of innate ability and environment, developmental stages, individual variation, universal tendencies, interaction of language and cognition, bilingualism, similarities and differences between first- and second-language acquisition, and language disorders.
Prerequisites: LIN 201 and 211
Spring, alternate years, 3 credits (not offered in 1990-91)

LIN 333 Mathematical Aspects of Linguistics

An introduction to the mathematical concepts and procedures that underlie much contemporary linguistic practice.
Prerequisite: LIN 211
Alternate years, 3 credits (not offered in 1989-90)

LIN 340 Historical Linguistics

The application of linguistic theory to the comparative reconstruction of language systems.
Prerequisites: LIN 211 and 301
Fall, alternate years, 3 credits (not offered in 1990-91)

LIN 342 The Development of Linguistics in the 20th Century

The major advances in linguistics from Saussure to Chomsky.
Prerequisites: LIN 201 and 301
Fall, alternate years, 3 credits (not offered in 1989-90)

LIN 351 Phonology II

A direct sequel to LIN 301, covering advanced phonological theory and recent developments in phonology and related areas.
Prerequisite: LIN 301
Fall, alternate years, 3 credits (not offered in 1989-90)

LIN 363 Language and Culture

The study of linguistic behavior and its interrelationship with other aspects of culture. Topics include sociolinguistics, language acquisition, non-verbal behavior, and linguistic acculturation. Crosslisted with ANT 363. A Core Course satisfying Social and Behavioral Sciences Category A, Group 2.
Prerequisites: LIN 101 or ANT 110; one other ANT course
Fall or spring, 3 credits

LIN 375 Methods and Materials of Teaching English as a Second Language

The application of linguistic methodology to teaching English to non-native speakers. The course involves current review of ESL teaching materials applicable to all levels. Students will be given an opportunity to observe TESL classes on campus.
Prerequisites: One 200-level linguistics course; two years of a modern foreign language
Spring, 3 credits

LIN 376 Principles of Language Testing

The principles, methods, functions, uses, and commonly encountered misuses in (a) assessing aptitude for acquiring a second language, (b) measuring achievement in foreign language study, (c) assessing the ability to communicate within one's native linguistic community or in a foreign community, and (d) the use of tests in research and evaluation.
Prerequisite: LIN 375 or FLA 339
Spring, alternate years, 3 credits (not offered in 1989-90)

LIN 405 Field Methods in Sociolinguistics

Problems of sampling, interview techniques, construction and scoring of linguistic variables, and presentation of results will be studied in the context of a study by the class of the sociolinguistic patterns of a nearby community.
Prerequisite: LIN 305
Spring, alternate years, 3 credits (not offered in 1989-90)

LIN 425 Special Topics in Linguistics

A seminar for advanced linguistics students, the topic of which will vary with student demand and

faculty interest. Topics in the past have included animal communication, Creoles, semantics, stylistics, and symbolization. Topics will be announced each semester. The course may be repeated as the topic differs.
Prerequisite: Varies with subject matter
Schedule to be announced, 3 credits

LIN 431 The Structure of an Uncommonly Taught Language

An investigation of the phonology and syntax of either a language or a family of languages. May be repeated if a different language is covered.
Prerequisites: LIN 211 and 301
Alternate years, 3 credits (not offered in 1989-90)

LIN 447 Directed Readings in Linguistics

Qualified juniors and seniors in linguistics will be offered an opportunity to do independent work on topics in linguistics under the guidance of a faculty member. May be repeated.
Prerequisite: Permission of department
Fall and spring, 1 to 4 credits

LIN 450 Supervised Student Teaching in English as a Second Language

Supervised practice teaching in English as a second language by arrangement with selected Boards of Cooperative Educational Services and primary, middle, and secondary schools. Applications must be filed in the semester preceding that in which the student plans to take the course. Satisfactory/Unsatisfactory grading only.
Prerequisites: Enrollment in TESOL Program; permission of department
Corequisite: LIN 454
Fall or spring, 12 credits

LIN 454 Student Teaching Seminar in English as a Second Language

Seminar on problems and issues of teaching English as a second language at the elementary, middle, and secondary school levels. Analysis of actual problems and issues encountered during the student teaching experience.
Corequisite: LIN 450
Fall or spring, 3 credits

LIN 475 Practicum in Teaching English as a Second Language—Oral/Aural Skill

Students will have the opportunity to apply the methodology learned in LIN 375 in small tutorial sections under the direction of a master teacher. They will work with students in the oral/aural ESL courses, emphasizing communicative competency. There will be a seminar component to the course, meeting weekly. Satisfactory/Unsatisfactory grading only.
Prerequisites: LIN 375; permission of instructor
Fall and spring, 3 credits

LIN 476 Practicum in Teaching English as a Second Language—Reading/Composition Skills

Students will have the opportunity to apply the methodology learned in LIN 375 in small tutorial sections under the direction of a master teacher. They will work with students in the reading/composition skills ESL courses, emphasizing preparation for university writing. Satisfactory/Unsatisfactory grading only.
Prerequisites: LIN 375; permission of instructor
Fall and spring, 3 credits

Department of Mathematics

Chairperson: *Irwin Kra*
 Director of Undergraduate Studies:
Anthony Knapp

Faculty

Alfred Adler, Professor, Ph.D., University of California, Los Angeles: Differential geometry and mathematical economics.

Michael T. Anderson, Associate Professor, Ph.D., University of California, Berkeley: Differential geometry.

William Barcus, Professor, Ph.D., Oxford University: Algebraic topology.

Jeff Cheeger, Professor, Ph.D., Princeton University: Differential geometry.

Ronald Douglas, Professor, Ph.D., Louisiana State University: Operator theory; functional analysis.

Catherine Durso, Assistant Professor, Ph.D., Massachusetts Institute of Technology: Partial differential equations.

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

William Fox, Associate Professor, Ph.D., University of Michigan: Complex analysis.

Lenore Frank, Lecturer, M.A., Yeshiva University: Mathematics education.

Daryl Geller, Associate Professor, Ph.D., Princeton University: Analysis.

Detlef Gromoll, Professor, Ph.D., Bonn University: Differential geometry.

C. Denson Hill, Professor, Ph.D., New York University: Partial differential equations; several complex variables.

Eric Jablow, Assistant Professor, Ph.D., Princeton University: Complex analysis.

Lowell Jones, Professor, Ph.D., Yale University: Topology.

Alastair D. King, Assistant Professor, Ph.D., Oxford University: Mathematical physics.

Anthony Knapp, Professor, Ph.D., Princeton University: Lie groups.

Irwin Kra, Professor, Ph.D., Columbia University: Complex analysis; Kleinian groups.

Michio Kuga, Professor, Ph.D., Tokyo University: Complex manifolds, algebraic groups.

Paul G. Kumpel, Professor, Ph.D., Brown University: Algebraic topology.

Henry Laufer, Professor, Ph.D., Princeton University: Several complex variables.

H. Blaine Lawson, Professor, Ph.D., Stanford University: Differential geometry; topology.

Claude Le Brun, Associate Professor, Ph.D., Oxford University: Complex analysis; mathematical physics.

Florence Lecomte, Assistant Professor, Ph.D., University of Paris: Algebra.

William Lister, Professor, Ph.D., Yale University: Algebra.

Bernard Maskit, Professor and Director of Graduate Studies, Ph.D., New York University: Complex analysis; Kleinian groups.

M. Dusa McDuff, Professor, Ph.D., Cambridge University: Operator theory; topology.

Marie-Louise Michelsohn, Professor, Ph.D., University of Chicago: Differential geometry.

John W. Milnor, Visiting Distinguished Professor, Ph.D., Princeton University: Topology and geometry.

Anthony Phillips, Professor, Ph.D., Princeton University: Differential topology.

Joel Pincus, Professor, Ph.D., New York University: Operator theory and integral equations.

Mitchell Rothstein, Assistant Professor, Ph.D., University of California, Los Angeles: Mathematical physics.

Chih-Han Sah, Professor, Ph.D., Princeton University: Algebra; group theory and its applications.

Santiago Simanca, Assistant Professor, Ph.D., Massachusetts Institute of Technology: Analysis.

Richard Skora, Assistant Professor, Ph.D., University of Texas at Austin: Low-dimensional topology.

Ralf Spatzier, Assistant Professor, Ph.D., University of Warwick: Differential geometry; dynamical systems.

E. Rapaport Strasser, Professor Emerita, Ph.D., New York University: Combinatorial group theory.

Peter Szűsz, Professor, Ph.D., University of Budapest: Analytic number theory.

Nicolae Teleman, Professor, Ph.D., Massachusetts Institute of Technology: Differential geometry.

Eugene Vinograd, Lecturer, M.A., New York University: Mathematics education.

Wen-xiang Wang, Assistant Professor, Ph.D., Harvard University: Complex differential geometry.

Eugene Zaustinsky, Associate Professor, Ph.D., University of Southern California: Differential geometry.

Teaching Assistants

Estimated number: 60

The requirements for the major in mathematics allow students to construct individualized programs of study consistent with their career objectives. Students are encouraged to explore the various branches of pure and applied mathematics, as well as other mathematically oriented disciplines, in order to gain both breadth of knowledge and insight into possible career options. Double majors between mathematics and other fields, such as physics, computer science, applied mathematics, and economics, are common and are encouraged.

Within the mathematics major there are three standard tracks. The *general mathematics program* is for students interested primarily in the applications of mathematics to other fields. It allows the greatest flexibility in planning courses of study. The *secondary teacher option* (see p. 138) is for students planning a career teaching mathematics in the secondary schools. The *honors program* is for students who wish to study mathematics at an advanced level with a high standard of achievement. Any student considering graduate studies in mathematics or mathematics-related sciences such as theoretical physics should participate in the honors program.

The Department of Mathematics offers tutorial help in mathematics to all undergraduate students. The Mathematics Learning Center focuses primarily on pre-calculus mathematics (MAP 101, 102, 103, MAT 120), and the Calculus Resource Room focuses on first-year calculus courses (MAT 125, 126, 127, 131, 132).

Mathematics advisors are available in the Undergraduate Mathematics Office to help students plan programs and assess career goals. Advising hours can be obtained by calling the Department of Mathematics.

Requirements for the Major in Mathematics*

The major in mathematics leads to the Bachelor of Science degree. The following courses are required:

	<i>Credits</i>
1. A sequence of courses in one-variable calculus: MAT 125, 126, 127 or 131, 132 or 141, 142	8-9
2. A course in linear algebra/ differential equations: MAT 231 or 241 (MAT 221 is an acceptable substitute)	3

*At press time the requirements were under review. For current information about major requirements for continuing students with fewer than 45 credits at the end of the fall 1988 semester and new students matriculating in August 1989 or later, see the *Undergraduate Bulletin Supplement*.

3. A course that includes an introduction to computer programming: MAT 251 or CSE 110 or 111 or 114 3
4. A course in multivariate calculus: MAT 306 or 307 3
5. An upper-division course in algebra: MAT 310 or 313 3
6. A course in advanced calculus: MAT 320 or 322 or 324 or 341 or 342 3
7. Four additional courses chosen from two of the following areas (two courses from each chosen area, at most three courses outside the department):
 - a. Advanced Calculus/Differential Equations: MAT 320, 322, 324, 335, 341, 342, 350, 353
 - b. Algebra/Number Theory: MAT 310, 311, 313, 314, 315
 - c. Applied Mathematics/Statistics: AMS 301, 350 or 311, 312 or 341, 342. (If two courses are chosen from this area, then they must be paired as indicated)
 - d. Geometry/Topology: MAT 322, 360, 361, 362, 365
 - e. Logic/Mathematics of Computer Science: MAT 371, 373; CSE 303, 352
 - f. Mathematical Physics: PHY 301, 302 or 301, 308 or 303, 408. (If two courses are chosen from this area, then they must be paired as indicated)
 - g. Mathematics of Computation: MAT 331, 332; AMS 326 12
8. Three additional mathematics (or mathematics-related) courses. These courses must be selected from a list of allowed courses that is available in the Undergraduate Mathematics Office. Included on that list are all MAT courses numbered 310 or above (excluding 475), MAE 301, and several upper-division courses in applied mathematics, chemistry, computer science, economics, and physics. At least four of the seven courses used to satisfy requirements 7 and 8 must be MAT courses 9

9. Upper-Division Writing Requirement:
Each mathematics major must submit, before the end of the junior year, a portfolio of at least three examples of writing from upper-division coursework in MAT or MAE courses. The portfolio must be found acceptable in its clarity, in its mathematical accuracy, and in the quality of its use of the English language.

Total 44-45

Note: All courses used to fulfill the requirements for the major must be taken for a letter grade and must be completed with a grade of C or higher.

Recommendations for Students Majoring in Mathematics

Students planning to major in mathematics may begin with any of the three one-variable calculus sequences: MAT 125, 126, 127, MAT 131, 132, or MAT 141, 142. In the sophomore year, mathematics majors normally take the second-year calculus sequence MAT 231, 306 together with MAT 251 and, in the spring semester, an upper-division course such as MAT 310 or 313. However, students who have completed the one-variable calculus sequence with excellent grades are encouraged to consider enrolling in the theoretically oriented second-year calculus sequence MAT 241, 307, rather than in the sequence MAT 231, 306. On completing the 241, 307 sequence, these students will be able to bypass the introductory course in analysis (MAT 320) and proceed directly into more advanced analysis courses, such as MAT 322 or 324.

Students majoring in mathematics are encouraged to include in their programs a year or more of physics, beginning with PHY 101, 102 or 105, 106.

Honors Program in Mathematics

The honors program in mathematics is open to junior and senior mathematics majors who have maintained a 3.0 overall grade point average and a 3.0 or more in the required courses for the major. Additional requirements are described below. These are under review, to allow more flexibility; interested students should consult the department's director of undergraduate studies for current information.

The program consists of the completion of a set of six courses, including MAT 491 Senior Seminar. The six courses in the honors program normally are MAT 314, 322, 335, 362, 365, and 491. Substitution of first-year graduate courses (within university limits, see p. 60) for the corresponding 300-level courses is permitted. Other variations must be approved by the department's director of undergraduate studies. Conferral of honors is contingent on:

1. Completion of the set of six designated courses with an average of 3.5.
2. Active participation in Senior Seminar, including at least two lectures on a topic chosen by the professor in charge of Senior Seminar.
3. Approval for honors by both the student's Senior Seminar professor and the director of undergraduate studies or a designee, both of whom will listen to and evaluate the two required lectures.

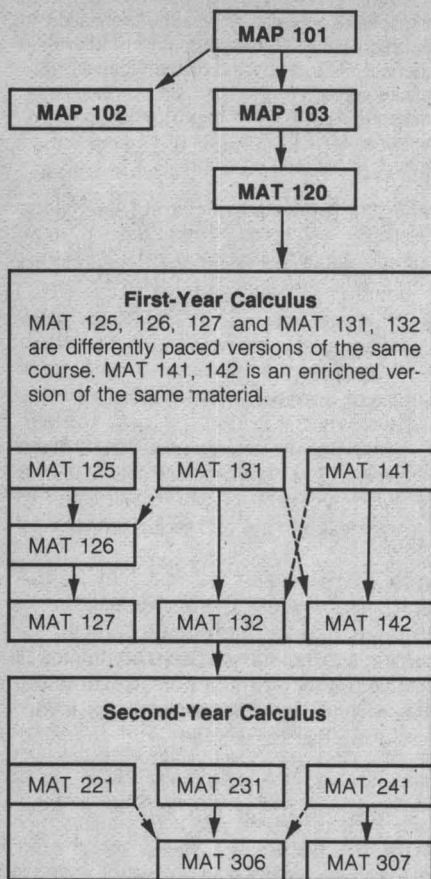
Note: Requirements 2 and 3 may be satisfied alternatively by participation in a graduate course or graduate seminar, including two lectures before a committee of at least two faculty members. Recommendation for honors is then subject to approval by this committee.

Requirements for the Minor in Mathematics

The minor in mathematics is available to all students not majoring in either mathematics or applied mathematics. The following courses are required:

1. MAT 221 or 231 or 241
2. MAT 306 or 307 or AMS 362
3. Four courses chosen from two of the following areas (two from each chosen area)
 - a. Advanced Calculus/Differential Equations: MAT 320, 322, 324, 335, 341, 342, 350, 353
 - b. Algebra/Number Theory: MAT 310, 311, 313, 314, 315
 - c. Geometry/Topology: MAT 322, 360, 361, 362, 365
 - d. Logic/Theory of Algorithms: MAT 371, 373
 - e. Mathematics of Computation: MAT 331, 332
4. One additional MAT course numbered 310 or above.

Basic Mathematics Sequences



Notes:

1. This is an outline—for more details, read the course descriptions.
2. *Caution:* Some majors require particular sequences.
3. Successful completion of any of the above courses except MAP 101 satisfies the entry-level mathematics proficiency requirement.
4. Incoming students usually begin at the first-year-calculus level. Students with a weak background in mathematics may begin with lower-level courses.
5. Either MAT 127 or 132 or 142 is an acceptable prerequisite for MAT 221 or 231 or 241. Either MAT 221 or 231 or 241 or AMS 210 and MAT 127 or 132 are acceptable prerequisites for MAT 306.

Examinations for Mathematics Placement and Proficiency

The Mathematics Placement Examination, which is divided into two parts, is used both for placement in mathematics courses and as a test for mathematics proficiency. The university entry-level mathematics proficiency requirement may be satisfied by a sufficiently high grade on Part I. One of the alternate prerequisites for MAT 125 or MAT 131 is a sufficiently high grade on Parts I

and II. Lower examination grades are the basis of advice about placement into MAP 101, 102, 103, and MAT 120.

The examination is offered during summer orientation and each day during the first week of both fall and spring semesters in the Mathematics Learning Center.

Courses

See p. 60, Course Credit and Prerequisites, and p. 61, Undergraduate Numbering System. All MAT courses numbered 120 and above satisfy the Quantitative Literacy Graduation Requirement.

Note: No mathematics course may be taken for credit after credit has been obtained in a course for which it is a prerequisite. Exceptions will be made only with written permission of the department's director of undergraduate studies.

MAP 101 Fundamentals of Arithmetic and Algebra

Arithmetic: fractions, decimals, and percent. Algebra: signed numbers, monomials, linear equations in one unknown, and word problems. This course is intended for students who have never studied algebra. Does not satisfy the entry-level mathematics proficiency requirement or the Quantitative Literacy Graduation Requirement. Students who have otherwise satisfied the quantitative literacy requirement may not register for this course. Overqualified students as determined by a placement test may be deregistered and directed to transfer to another course. Does not count toward graduation.

Fall and spring, 3 credits

MAP 102 Proficiency Mathematics

Intended to improve the ability of students to use basic mathematics encountered in university work. The formulation and solution of problems involving ratios, area, exponential notation, and properties of triangles. The use of elementary algebra and coordinate geometry to formulate and solve problems involving linear equations, quadratic equations, and logarithms. Making and interpreting simple data analyses. Restricted to students who have not met the entry-level mathematics proficiency requirement. Does not count toward graduation. A through C/Unsatisfactory grading only. May not be taken for Pass/No Credit.

Fall and spring, 3 credits

MAP 103 Proficiency Algebra

An intensive review of high school algebra. This remedial course will contain solving linear and quadratic equations, factoring, algebraic fractions, exponents, radicals, solving systems of equations, and graphing linear and quadratic functions. Does not count toward graduation. A through C/Unsatisfactory grading only. May not be taken for Pass/No Credit.

Fall and spring, 3 credits

MAT 120 Preparation for Calculus

An introduction to the skills and knowledge needed during the early stages of learning calculus, including work with polynomials, rational functions, and trigonometric functions. Intended for

students who have not completed 12th-year high school mathematics. May not be taken after any college calculus course has been passed with a grade of C or higher.

Prerequisite: MAP 103 or passing the Mathematics Placement Examination at the appropriate level. Prerequisite must be met within one year prior to beginning MAT 120
Fall and spring, 3 credits

MAT 125 Calculus A

Differentiation and integration of elementary algebraic and trigonometric functions, with emphasis on computations and applications. May not be taken for credit in addition to MAT 131 or 141.

Prerequisite: Passing the Mathematics Placement Examination at the appropriate level, or C or higher in MAT 120
Fall and spring, 3 credits

MAT 126 Calculus B

Integrals as area, volume, and curve length. Differentiation and integration of logarithmic and exponential functions. Techniques of integration. Polar coordinates. Parameterized curves. May not be taken for credit in addition to MAT 132 or 142.

Prerequisite: C or higher in MAT 125 or 131
Fall and spring, 3 credits

MAT 127 Calculus C

Infinite series and Taylor series. Derivatives of vector-valued functions: tangents and normals to curves. Vector algebra in two and three dimensions. Functions of several variables: partial derivatives, directional derivatives, the gradient; multiple integrals as volume. May not be taken for credit in addition to MAT 132 or 142.

Prerequisite: MAT 126
Fall, 3 credits

MAT 131 Calculus I

Differentiation and integration of elementary algebraic and trigonometric functions, with emphasis on computations and applications. Integrals as area, volume, and curve length. Differentiation and integration of logarithmic and exponential functions. May not be taken for credit in addition to MAT 125 or 141.

Prerequisite: Passing the Mathematics Placement Examination at the appropriate level, or C or higher in MAT 120
Fall and spring, 4 credits

MAT 132 Calculus II

Techniques of integration. Infinite series, Taylor series. Polar coordinates. Parameterized curves. Derivatives of vector-valued functions: tangents and normals to curves. Vector algebra in two and three dimensions. Functions of several variables: partial derivatives, directional derivatives, the gradient; multiple integrals as volume. May not be taken for credit in addition to MAT 126, 127, or 142.

Prerequisite: C or higher in MAT 131 or 141
Fall and spring, 4 credits

MAT 141 Calculus Alpha

The topics of MAT 131 treated with additional attention to the underlying theory as a means of understanding why the processes of calculus work. May not be taken for credit in addition to MAT 125 or 131.

Fall, 4 credits

MAT 142 Calculus Beta

A continuation of MAT 141 in the same spirit, covering the topics of MAT 132. May not be taken for credit in addition to MAT 126, 127, or 132.

Prerequisite: MAT 141, or MAT 131 with A- or higher
Spring, 4 credits

MAT 220 Elements of Linear Algebra

An introduction to linear algebra designed for transfer students who have studied differential equations but have not studied linear algebra. May not be taken for credit simultaneously with, or after credit is received for, MAT 221 or 231 or 241.

Prerequisites: A course in differential equations; permission of the Mathematics Department
Fall, 1 credit

MAT 221 Calculus III: Differential Equations

Techniques for the solution of elementary ordinary differential equations and some elements of linear algebra. Recommended for engineering students. May not be taken for credit in addition to MAT 231 or 241.

Prerequisite: MAT 127 or 132 or 142
Fall and spring, 3 credits

MAT 231 Calculus III: Linear Algebra

An introduction to linear algebra with applications to linear differential equations. Systems of linear equations, vector spaces, bases, linear transformations, and matrices. May not be taken for credit in addition to MAT 221 or 241.

Prerequisite: MAT 127 or 132 or 142
Fall and spring, 3 credits

MAT 241 Calculus Gamma: Linear Algebra

The topics of MAT 231 treated with additional attention to proofs of theorems comprising the underlying theory. May not be taken for credit in addition to MAT 221 or 231.

Prerequisite: MAT 142 or 132 or 127
Fall, 3 credits

MAT 251 Introduction to Mathematical Problem Solving by Computer

An introduction for mathematics majors to computer-assisted mathematical problem solving. Number representations and errors, numerical integration, algorithms for finding zeros of functions and for solving systems of linear equations, interpolation and approximation, data handling, simulation, graphics. The algorithms will be implemented in a high-level programming language (BASIC).

Pre- or corequisite: MAT 231 or 241
Fall and spring, 3 credits

MAT 257 Set Theory

A rigorous development of the foundations of set theory and arithmetic. Sets, functions, relations. Axiom of Choice and its equivalents. Transfinite induction. Ordinals and cardinals. Axiomatic development of arithmetic from the Peano Axioms.

Prerequisite: MAT 131 or 141 or 126
Fall, 3 credits

MAT 300 History of Mathematics

A study of the development of mathematics from the Greeks through the development of calculus. Special attention will be devoted to the origins

of calculus and to the contributions of 19th-century mathematicians who put it on a firm foundation.

Prerequisite: MAT 127 or 132 or 142
Alternate years, 3 credits (not offered in 1989-90)

MAT 306 Calculus IV: Multivariate Calculus

Differential and integral calculus in 2- and 3-space: directional derivatives, differentials, Jacobian matrix, chain rule, multiple integrals, line and surface integrals, applications.

Prerequisite: MAT 221 or 231 or 241; or AMS 210 and MAT 127 or 132
Fall and spring, 3 credits

MAT 307 Calculus Delta: Multivariate Calculus

The topics of MAT 306 treated from a more theoretical point of view. Students completing this course will be exceptionally well prepared for advanced work in mathematics and for the mathematical aspects of advanced courses in theoretical physics. May not be taken for credit in addition to MAT 306.

Prerequisite: MAT 241
Spring, 3 credits

MAT 310 Linear Algebra

Finite dimensional vector spaces, linear maps, dual spaces, bilinear functions, inner products. Additional topics such as canonical forms, multilinear algebra, numerical linear algebra.

Prerequisite: MAT 221 or 231 or 241
Fall and spring, 3 credits

MAT 311 Number Theory

Congruences, quadratic residues, quadratic forms, continued fractions, Diophantine equations, number-theoretical functions, and properties of prime numbers.

Prerequisite: MAT 221 or 231 or 241
Fall, 3 credits

MAT 312 Applied Algebra

Topics in algebra relating to computer science: sets and relations, groups, modular arithmetic, partial orderings, Boolean algebra, error-correcting codes, machine computation, finite-state machines. Crosslisted with AMS 302.

Prerequisites: MAT 221 or 231 or 241 or AMS 210
Fall and spring, 3 credits

MAT 313 Abstract Algebra

Groups and rings together with their homomorphisms and quotient structures. Unique factorization, polynomials, and fields.

Prerequisite: MAT 221 or 231 or 241
Fall and spring, 3 credits

MAT 314 Rings and Modules

Structure theory of rings and modules. Applications to canonical forms for matrices and to the structure of finitely generated Abelian groups. Additional topics such as the structure theory of groups and fields, homological algebra.

Prerequisite: MAT 313
Spring, 3 credits

MAT 315 Polynomials and Number Fields

The application of properties of groups, fields, and vector spaces to specific problems involving polynomials and algebraic numbers; e.g., Euclidean constructibility and the solution of cubic equations.

Prerequisite: MAT 313
Fall, 3 credits

MAT 320 Introduction to Analysis

A careful study of the theory underlying calculus. The real number system. Basic properties of functions of one real variable. Differentiation, integration, and the inverse theorem. Infinite sequences of functions and uniform convergence. Infinite series.

Prerequisite: MAT 221 or 231 or 241; or B or higher in MAT 127 or 132 or 142
Fall and spring, 3 credits

MAT 322 Analysis in Several Dimensions

Continuity, differentiation, and integration in Euclidean n -space. Differentiable maps. Implicit and inverse function theorems. Differential forms and the general Stokes's theorem.

Prerequisites: MAT 306 and 320, or MAT 307
Fall, 3 credits

MAT 324 Introduction to Functional Analysis

The topology of metric spaces: compactness, connectedness, completeness, and continuity. Normed vector spaces. Function spaces. Contraction mappings. Applications to differential equations.

Prerequisites: MAT 231 or 241 or 310; either MAT 320 or 307
Spring, 3 credits

MAT 331 Computer-Assisted Mathematical Problem Solving I

Utilization of the computer as a tool to gain insight into complex mathematical problems. Numerical integration, computation of special numbers (π , $\exp(-20)$, $\gamma(1/3)$, etc.), Euler-Maclaurin summation formula, interpolation and extrapolation, splines and least squares, nonlinear equations and systems, maxima and minima. Graphics: plotting of surfaces, level sets, orbits of dynamical systems.

Prerequisite: MAT 221 or 231 or 241
Fall, 3 credits

MAT 332 Computer-Assisted Mathematical Problem Solving II

Continuation of MAT 331. Topics selected from stability and error analysis for differential systems, numerical study of special functions, two-point boundary problems, random walks and Monte Carlo methods, extremal problems, numerical Fourier methods, wave propagation phenomena, energy levels, shock waves, interactions, turbulence, strange attractors, and models of chaos.

Prerequisite: MAT 331
Spring, 3 credits

MAT 335 Introduction to Complex Analysis

Holomorphic functions, Cauchy-Riemann equations, Cauchy theory, maximum modulus principle, Taylor series expansions, differential forms, meromorphic functions, Laurent series expansions, and evaluation of integrals by the method of residues. Topics are chosen from harmonic functions, Dirichlet problem for the disc, and Hilbert transforms.

Prerequisite: MAT 320
Fall, 3 credits

MAT 341 Advanced Calculus: Differential Equations

Ordinary differential equations; integration by power series; Bessel and Legendre functions;

expansion in series of orthogonal functions, including Fourier series; introduction to partial differential equations of mathematical physics; Laplace's equation; calculus of variations.

Prerequisite: MAT 306 or 307

Fall and spring, 3 credits

MAT 342 Advanced Calculus: Complex Functions

Functions of a complex variable, calculus of residues including evaluation of real integrals, power and Laurent series, conformal mappings and applications, Laplace and Cauchy-Riemann equations, the Dirichlet and Neumann problems, and the Laplace and Hilbert transforms and their applications to ordinary and partial differential equations.

Prerequisite: MAT 306 or 307

Spring, 3 credits

MAT 350 Differential Equations and Dynamical Systems

Qualitative study of first-order systems of ordinary differential equations: vector fields and flows, existence and uniqueness theorems, stability, asymptotic behavior, autonomous systems.

Prerequisite: MAT 221 or 231 or 241

Spring, 3 credits

MAT 353 Partial Differential Equations

Boundary value problems for partial differential equations from the point of view of modern mathematics, especially the wave, heat, and potential equations. Existence, uniqueness, and regularity of solutions. The functional analysis needed will be developed in the course and is not assumed.

Prerequisite: MAT 320 or 341

Fall or spring, 3 credits

MAT 360 Geometric Structures

Formal geometries and models. Topics selected from projective, affine, Euclidean, and non-Euclidean geometries.

Prerequisite: MAT 313

Spring, 3 credits

MAT 361 Differential Geometry of Curves

Differential geometry of curves in the plane and in n -space; winding number, Jordan curve theorem, Borsuk-Ulam theorem, 4-vertex theorem, isoperimetric inequality, curvature of a knot.

Prerequisite: MAT 306 or 307 or AMS 362

Fall, 3 credits

MAT 362 Differential Geometry of Surfaces

The local and global geometry of surfaces: geodesics, parallel transport, curvature, isometries, the Gauss map, the Gauss-Bonnet theorem.

Prerequisite: MAT 306 or 307 or AMS 362

Spring, 3 credits

MAT 365 Introduction to Topology

The properties and characterization of topological spaces. Continuous maps, homeomorphisms, and their invariants. Fundamental group and covering spaces.

Prerequisites: MAT 306 or 307; MAT 313

Fall, 3 credits

MAT 371 Logic

A survey of the logical foundations of mathematics: development of propositional calculus and

quantification theory, the notions of a proof and of a model, the completeness theorem. Cross-listed with CSE 371.

Corequisite: MAT 313

Fall, 3 credits

MAT 373 Analysis of Algorithms

Mathematical analysis of a variety of computer algorithms, including searching, sorting, matrix multiplication, fast Fourier transform, and graph algorithms. Time and space complexity. Upper bound, lower bound, and average case analysis. Introduction to NP completeness. Some machine computation will be required for the implementation and comparison of algorithms. Cross-listed with AMS 373 and CSE 373.

Prerequisites: MAT 221 or 231 or 241 or 251 or AMS 210; CSE 110 or 111 or 114

Spring, 3 credits

MAT 475 Undergraduate Teaching Practicum in Mathematics

Each student will assist in teaching a lower-division mathematics course or will work in the Mathematics Learning Center. The student's work will be regularly supervised by a faculty member. In addition, a weekly seminar will be conducted. Responsibilities may include preparation of materials for student use and discussions, helping students with problems, and involvement in 'alternative' teaching projects. Intended for upper-division students who have excelled in the calculus sequence. Not for major credit. Satisfactory/Unsatisfactory grading only.

Prerequisite: Permission of the director of undergraduate studies

Fall and spring, 3 credits

MAT 487 Independent Study in Special Topics

A reading course for juniors and seniors. The topics may be chosen by the student with the approval of a supervising member of the faculty, who will also take responsibility for evaluation. A topic that is covered in a course regularly offered by the department is not appropriate for independent study. May be repeated.

Prerequisite: Permission of the director of undergraduate studies

Fall and spring, 3 credits

MAT 491 Senior Seminar

A course designed for seniors who are majoring in mathematics and who have a serious interest in mathematical research. Each term a topic will be selected comprising material not presented in undergraduate courses. By the end of the term students will be acquainted with a limited area of current research interest. The material will be presented in seminar style with students giving the lectures. May be repeated.

Prerequisite: Permission of department

Fall or spring, 3 credits

Graduate Courses

Junior and senior mathematics students of above-average ability are encouraged to take appropriate graduate courses in mathematics, subject to university limits (see p. 60). See Graduate Bulletin for details. The graduate courses open to qualified undergraduates are:

MAT 530 Topology/Geometry I

MAT 531 Topology/Geometry II

MAT 534 Algebra I

MAT 535 Algebra II

MAT 539 Algebraic Topology

MAT 542 Complex Analysis I

MAT 543 Complex Analysis II

MAT 544 Analysis

MAT 546 Differential Equations

MAT 550 Real Analysis I

MAT 551 Real Analysis II

MAT 566 Differential Topology

MAT 568, 569 Differential Geometry

Mathematics Secondary Teacher Preparation Program

*Director: Eugene Vinegrad,
Mathematics*

This program prepares students for a career as a teacher of mathematics in the secondary schools. Students may enroll in either a four- or a five-year program. The four-year program leads to a Bachelor of Science degree in either mathematics or applied mathematics and statistics and to New York State provisional certification for teaching mathematics, grades 7-12. The five-year program leads to Bachelor of Science and Master of Arts degrees in mathematics and to New York State permanent certification for teaching mathematics, grades 7-12.

Students wishing to enroll in the program should register with the Mathematics Department's director of teacher preparation by the end of the freshman year, if possible, and at the latest before registering for the junior year. Students interested in the five-year program should also register with the Mathematics Department's associate director of the graduate program by the beginning of the junior year and, in the senior year, apply for admission to the Graduate School. The fifth year of the program may be taken part time in the evening and summers, spread over a period of two years. Full-time students will be eligible to apply for teaching assistantships for the fifth year.

Requirements for the Four-Year Program

1. Completion of either the MAT (mathematics) or the AMS (applied mathematics and statistics) major.
2. Credit for, or exemption from, the following courses:
MAT 313, 320, 360
AMS 310
MAE 301, 302, 311, 312, 450, 454
SSI 327, 350

- Nine credits in courses chosen from MAT 310, 311, 312, 315, 331, 342 (or 335), 350, 361, 371
AMS 301, 302, 311, 326, 331, 341, 342
CSE 201, 303

The program includes three semesters of practical work in the teaching of mathematics. In the fall of the junior year, students will observe classes in local secondary schools (MAE 311). In the spring, students will engage in a supervised program of limited classroom participation (MAE 312). In one semester of the senior year, students will carry out supervised student teaching (MAE 450) and participate in an associated student teaching seminar (MAE 454).

Students in the program are strongly encouraged to include AMS 301 and MAT 315 among their electives and to take a one-year sequence that uses mathematics in physics, chemistry, biology, engineering science, or economics. Other courses that are useful are the history of mathematics course, MAT 300, and the logic course, PHI 220.

Note: Courses taken for Pass/No Credit may not be used to satisfy the preparation in professional education component of the teacher preparation program.

Sample Program (required courses only)

Freshman: MAT 131, 132 (or 141, 142 or 125, 126, 127)

Sophomore: MAT 231 (or 241) and AMS 310 (Fall); MAT 306 (or 307) and MAT 313 (Spring)

Junior: MAE 301 and 311, MAT 320 (Fall); MAE 302 and 312, MAT 360 (Spring); SSI 327 and 350

Mathematics electives required for MAT or AMS major

Senior: MAE 450 and 454

Mathematics electives required for MAT or AMS major

Requirements for the Five-Year Program

- Completion of the requirements for the four-year program, with a major in mathematics (MAT). AMS 310 may be replaced in these requirements by MAT 516 or by any graduate course in statistics.
- Admission to the Graduate School, normally during, or at the end of, the fourth year of the program.
- AMS 301 and either MAT 315 or 512.
- Thirty (30) graduate credits in courses approved by the Department of Mathematics, which will ordinarily include MAT 511, 513, 514, 515, 518, 519, and a graduate course in computer science. At least 24 of these credits must be taken while matriculated as a graduate student.

- Passing the comprehensive examination, which will consist of the final examinations in four of the courses in the program, ordinarily MAT 513, 514, 515, and either 512 or 516.

Courses

See p. 60, Course Credit and Prerequisites, and p. 61, Undergraduate Numbering System.

The following courses are for students registered in the secondary teacher preparation program in mathematics and are open to others only by permission of the Mathematics Department's director of teacher preparation.

MAE 301 Foundations of Secondary School Mathematics

A reexamination of elements of school mathematics, including topics in algebra, geometry, and elementary functions. Competence in basic secondary-level ideas and techniques will be tested. Oral and written presentations will be required.

Prerequisite: MAT 221 or 231 or 241

Corequisite: MAE 311

Fall, 3 credits

MAE 302 Methods of Teaching Secondary School Mathematics

An introduction to the dynamics of the classroom for the student preparing to teach secondary school mathematics. Various aspects of teaching are considered: goals of mathematics education, learning theories, mathematics curricula, lesson planning, evaluation, teaching strategies. Reports are required on observations made in the schools. Lesson plans are drawn up and presented to the group.

Prerequisite: MAE 301

Pre- or corequisite: MAT 320

Spring, 3 credits

MAE 311 Classroom Observations

Individual weekly visits to local secondary schools to observe mathematics classes. All types and levels (7-12) of mathematics teaching will be included. Debriefing and analysis will follow each visit.

Prerequisite: MAT 221 or 231 or 241

Corequisite: MAE 301

Fall, 3 credits

MAE 312 Micro-Teaching

Twice-weekly supervised classroom experience, tutoring, or working with small groups of students as a teacher's aide.

Prerequisite: MAE 311

Pre- or corequisite: MAE 302

Spring, 2 credits

MAE 450 Student Teaching

Intensive supervised teaching in a secondary school. Students will work in the school under the supervision of an experienced teacher. Satisfactory/Unsatisfactory grading only.

Prerequisites: MAE 312; MAT 310 or 313, MAT 320; permission of Mathematics director of teacher preparation

Corequisite: MAE 454

Fall and spring, 12 credits

MAE 454 Student Teaching Seminar

Weekly discussions of teaching techniques and experiences, learning theory, curriculum content, and classroom problems.

Corequisite: MAE 450

Fall and spring, 3 credits

Media Arts

Minor Coordinator: Farley Richmond, Theatre Arts

The media arts minor (MDA) offers a student the opportunity to examine the entire field of media technology, thereby providing a general overview of theory and practice. The minor should prepare a student for specialized studies in any one of the media. Media skills will broaden career options for students majoring in any of the natural sciences, social sciences, or humanities. The media arts minor is also for students who simply want to develop critical standards in order to live intelligently in this media-saturated world.

Requirements for the Minor

	<i>Credits</i>
THR 117 Film and Video Narrative	3
THR 270 Introduction to Radio Broadcasting	3
THR 272 Introduction to Television	3
THR 325 Scriptwriting for Film and Television	3
THR 403 Media Theory and Criticism	3
Three of the following courses:	
AFS 463, 464 The Media and Black America I, II	
EST/CSE 100 The Societal Impact of Computers	
POL 367 Mass Media in American Politics	
SOC 372 Mass Communications	
THR 217 Introduction to Filmmaking	
THR 362 Acting for the Camera	
THR 370 Radio News	
THR 375 Television Studio Production	
THR 377 The Media Industry	9
Total	24

Note: All courses for the minor must be taken for a letter grade. No grade lower than C may be applied to the minor. At least 12 of the 24 credits must be taken at Stony Brook.

No more than six credits required for the media arts minor may be counted toward the theatre arts major.

Middle Eastern Studies

Minor Coordinator: Elizabeth C. Stone, Anthropology

The interdisciplinary minor in Middle Eastern Studies (MES) allows students interested in the Middle East to design an individual program of study centered around a particular area of concentration in consultation with an advisor.

Requirements for the Minor in Middle Eastern Studies

	Credits
A. SOC 264 Introduction to Middle Eastern Studies	3
B. 15 credits chosen from courses on the Middle East, of which at least nine credits must be upper division. Courses to be distributed as follows:	
1. 12 credits in courses on student's approved topic	12
2. Three credits in a related course from another minor topic area in Middle Eastern studies	3
Total	18

Notes: All courses must be taken for a letter grade. Failure to obtain prior approval of the program may result in lack of credit for the minor.

Besides the required courses, it is strongly recommended that students take a year of language related to their minor topic.

Sample Programs

The following programs are suggested as examples only. Consult an advisor for other possibilities, such as Islamic studies, Middle Eastern history, or Semitic languages and linguistics. The courses indicated in parentheses are recommended language courses but are not required.

Hebrew Civilization

SOC 264 Introduction to Middle Eastern Society
 JDS/HIS 225 The Formation of the Judaic Heritage
 JDS/HIS 226 The Shaping of Modern Judaism
 JDH/RLS 320 The Rabbinic Tradition
 ANT 310 Ethnography (appropriate topic only)
 RLS 380 Islamic Classics
 (HBW 111, 112 Elementary Hebrew)

Ancient Near East

SOC 264 Introduction to Middle Eastern Society
 HIS 230 The Ancient Near East
 JDS/HIS 225 The Formation of the Judaic Heritage
 ANT 318 Topics in Middle East Ethnography
 ANT 358 Ways to Civilization
 ANT 393 Topics in Archaeology (appropriate topic only)
 (ARB 111, 112 Elementary Arabic or HBW 111, 112 Elementary Hebrew)

Middle Eastern Culture and Politics

SOC 264 Introduction to Middle Eastern Society
 POL 210 Foreign Relations in the Middle East
 POL 308 Politics of Conflict: The Middle East
 ANT 310 Ethnography (appropriate topic only)
 RLS 280 Islam
 RLS 380 Islamic Classics
 (ARB 111, 112 Elementary Arabic or HBW 111, 112 Elementary Hebrew)

Department of Music

Chairperson: Richard Kramer
Director of Undergraduate Studies: Sheila Silver

Faculty

Bülent Arel, Professor and Director of Electronic Music Studio, Diploma, State Conservatory of Ankara: Composition; theory.

Samuel Baron, Professor, B.S., Juilliard School of Music; pupil of George Barrere and Arthur Lora: Flute; chamber music.

E. Antony Bonvalot, Associate Professor, Ph.D., Harvard University: Renaissance history.

Timothy Eddy, Professor, M.Mus., Manhattan School of Music: Cello; chamber music.

Sarah Fuller, Associate Professor, Ph.D., University of California, Berkeley: Medieval and Renaissance history. Recipient of the President's Award for Excellence in Teaching, 1984.

Lazar Gosman, Professor, Diploma, Moscow State Conservatory; pupil of David Oistrakh: Violin; chamber music.

Gilbert Kalish, Professor, B.A., Columbia University: Piano; chamber music.

Richard Kramer, Professor, Ph.D., Princeton University: 18th-century history; Beethoven; Schubert.

David Lawton, Professor, Director of Graduate Studies, and Director of the University Orchestra, Ph.D., University of California, Berkeley: Orchestral and opera conducting; 19th-century history.

Billy Jim Layton, Professor, Ph.D., Harvard University: Composition; theory.

John Lessard, Professor, Diploma, École Normale; Diploma, Longy School of Music: Composition; theory.

Julius Levine, Professor, Associate Director of Graduate Studies, B.S., Juilliard School of Music: String bass; chamber music.

Judith Lochhead, Assistant Professor, Ph.D., State University of New York at Stony Brook: 20th-century theory and history.

Timothy Mount, Assistant Professor and Director of Choral Music, D.M.A., University of Southern California: Choral conducting.

Charles Rosen, Distinguished Professor, Ph.D., Princeton University: History; interdisciplinary studies in music, literature, art, and philosophy.

Amy Rubin, Lecturer, M.Mus., Yale University: Musicianship.

Daria Semegen, Associate Professor, M.Mus., Yale University: Composition; theory; electronic music.

Sheila Silver, Associate Professor, Ph.D., Brandeis University: Composition; theory.

Russell Stinson, Assistant Professor, Ph.D., University of Chicago: History; Bach, baroque keyboard practice.

Peter Winkler, Associate Professor, M.F.A., Princeton University: Composition; theory; popular music. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1977.

Performing Artists in Residence

Ronald Anderson, M.S., Juilliard School of Music; Ed.D., Columbia University: Trumpet, chamber music.

Elaine Bonazzi, B. Mus., Eastman School of Music: Voice; opera workshop.

Ronald Borrer, D.M.A., Yale University: Trombone; chamber music.

Martin Canin, M.S., Juilliard School of Music: Piano; chamber music.

Raymond Des Roches, M.Mus., Manhattan School of Music: Percussion; chamber music.

Gary Glaze, M.Mus., University of Michigan, Ann Arbor: Voice; opera workshop.

John Graham, B.A., University of California, Berkeley: Viola; chamber music.

Arthur Haas, M.A., University of California, Los Angeles: Harpsichord; performance of early music.

Jack Kreiselman, Director of the University Wind Ensemble, Manhattan School of Music; pupil of Simeon Bellison and Simon Kovar: Clarinet; chamber music.

Charles Neidich, B.A., Yale University; Diploma, Moscow State Conservatory: Clarinet; chamber music.

William Purvis, M.Mus., Hunter College: Horn; chamber music.

Joyce Robbins, B.S., Juilliard School of Music: Violin; pedagogy; chamber music.

Ronald Roseman, B.S., Queens College: Oboe; chamber music.

Arthur Weisberg, Conductor of the University Chamber Orchestra, Juilliard School of Music; pupil of Simon Kovar: Bassoon; orchestral conducting.

Jerry Willard, Cleveland Institute of Music; study with John Williams and Misha Mishakoff: Guitar; chamber music.

Teaching Assistants
Estimated number: 55

The undergraduate major in music is designed as a balanced educational program that serves as preparation for professional careers and advanced training in performance, composition, scholarship, and teaching.

Requirements for the Major in Music

A. Admittance to the Major

Any student wishing to major in music must pass an audition in voice or instrument and a theory placement examination that tests aural skills and musical literacy (that is, the ability to read music and to hear the sound of a score from the written page alone). Students should consult the department office for dates of the theory placement examination and to make an appointment for an audition.

B. Study within the Area of the Major

	<i>Credits</i>
1. Theory:	
MUS 220 Musicianship II	2
MUS 221 Musicianship III	2
MUS 222 Modal Counterpoint I	3
MUS 321, 322 Tonal Harmony I, II	6
MUS 421 Analysis of Tonal Music	3
MUS 422 Analysis of 20th-Century Works	3

2. History and Literature:	
MUS 101 Introduction to Music	3
MUS 340 Western Music before 1600	3
MUS 341 Western Music from 1600 to the Early 19th Century	3
MUS 342 Western Music of the 19th and 20th Centuries	3
Two additional history courses numbered 455 to 463 to be chosen in consultation with the student's advisor. The courses should be distributed among a range of historical periods. MUS 432 or 434 may be substituted for one of the two required electives in the sequence 455-463	6
3. Performance:	
At least one course from the groups MUS 161-187 Performance Study or MUS 361-387 Advanced Performance Study for a minimum of four semesters	8-16
MUS 261 University Chorus or MUS 262 University Orchestra or MUS 263 University Wind Ensemble or MUS 393 Chamber Chorus for four semesters. (MUS 390 Collegium Musicum may count for two semesters of this requirement, and MUS 264 may count for one semester.)	4-8
Total	49-61

Note: No more than 30 credits of individual instruction in instrument or voice may be included in the 120 credits required for the B.A. degree.

C. Piano Proficiency

Each student will be expected to pass a piano proficiency test at the end of the first year as a music major.

D. Upper-Division Writing Requirement

As evidence of acceptable writing skills in the discipline, students majoring in music must submit to the director of undergraduate studies a portfolio of three papers no later than one month before the end of their junior year. Papers written for music history courses (MUS 340, 341, 342, or higher) or for MUS 421 or 422 are preferred, but in any case, at least one of the three papers must be from such a course. Up to two of the remaining papers may have been written for other courses in the Division of Humanities and Fine Arts. The papers should demonstrate a mastery of language sufficient to express clearly and accurately concepts

of sophistication commensurate with upper-division work. A special committee will read the papers and assess the quality of writing. The committee will communicate the results of its assessments by the end of the student's junior year. If writing skills are judged deficient, the committee will recommend a course of action for the improvement of such skills and will review examples of writing during the senior year. Students must demonstrate acceptable writing skills before they graduate.

E. Foreign Language

Students who intend to continue their studies beyond the B.A. degree are advised that most graduate music programs require a reading knowledge of French or German, often both. (For this purpose, but not for the college language proficiency requirement, language courses may be taken under the P/NC option.)

Note: All courses used to fulfill the requirements for the major in music must be taken for a letter grade.

Honors Program in Music

Candidates for honors in music must be nominated by a faculty member who will agree to act as sponsor for the honors project. An eligible student may submit a proposal for a project to the proposed sponsor, who will forward the proposal together with a letter of nomination to the Music Department's undergraduate studies committee. To be eligible, a student must have maintained at least a 3.0 grade point average overall, and a 3.0 average in music. After entering the honors program, a student must maintain at least a 3.5 average in music.

The project, which may be in performance, composition, history, or theory, must be carried out under the supervision of the sponsor. The completed project will be reviewed by an evaluating committee consisting of the sponsor, another member of the music faculty, and an outside evaluator.

Complete guidelines for the honors program are available in the department office.

Minor in Music

The music minor is designed to provide students interested in music with a foundation in the theory and history of music and experience in a performing ensemble. Less rigorous than the music major, the minor is not intended to prepare students for advanced study or professional work in music.

	<i>Credits</i>
1. Theory:	
MUS 119 Elements of Music	3
MUS 315, 316 Structural Principles of Music	6
2. History:	
Three courses chosen from the series MUS 301-310	9
3. Performance:	
Two semesters of one or more of the following:	
MUS 261 Stony Brook Chorale	
MUS 262 University Orchestra	
MUS 263 University Wind Ensemble	
MUS 264 Popular Music Ensemble	
MUS 390 Collegium Musicum	
MUS 393 Chamber Chorus	2-4
Total	20-22

Courses

See p. 60, Course Credit and Prerequisites, and p. 61, Undergraduate Numbering System.

MUS 101 Introduction to Music

The basic concepts of music such as melody, harmony, rhythm, counterpoint, and form will be studied through investigation of the historical and contemporary masterpieces of the Western classical tradition, of various non-Western musics, and of various "popular" traditions. The different styles and types of music will be considered not only in light of the cultural values that they embody, but also in relation to present-day cultural and musical values. No previous musical training is assumed. A Core Course satisfying Humanities and Fine Arts Category A.
Fall and spring, 3 credits

MUS 109 Rock Music

A study of rock music, including an investigation of its music constituents—rhythm, form, pitch structure, instrumental texture, and vocal style—and a historical survey beginning with the roots of rock in earlier folk and popular styles and tracing its development from the end of World War II to the present. Special attention is paid to various syntheses of African and European traditions. A Core Course satisfying Humanities and Fine Arts Category C. Not for major credit.
Fall, alternate years, 3 credits (not offered in 1990-91)

MUS 119 The Elements of Music

The notation of intervals, scales, chords, rhythms, and meters; practical exercises and ear training. Not for major credit.
Fall and spring, 3 credits

MUS 120 Elementary Sight-Singing and Dictation

Beginning ear-training, including rhythmic and melodic dictation and sight-singing. Intended for students who are not prepared to enter MUS 121. May be repeated, but credit counts toward graduation only once. Not for major credit.
Prerequisite: MUS 119 or placement by theory placement examination
Fall and spring, 2 credits

MUS 121 Musicianship I

Review of notation of pitch, rhythm, scales, intervals, and chords. Sight singing, dictation, and transcription of melodic, harmonic, and rhythmic material.
Prerequisite: Placement by theory placement examination (consult department as early as possible concerning dates)
Pre- or corequisite: MUS 160 or passing piano proficiency examination
Fall and spring, 2 credits

MUS 160 Basic Piano

Instruction in keyboard skills to prepare music majors for the piano proficiency examination. Students will meet twice weekly for 50-minute classes; individual practice of four hours per week is required. May be repeated.
Prerequisite: Music major; audition and permission of instructor
Fall and spring, 1 credit

MUS 161 to 187 Performance Study

MUS 161 Piano
MUS 163 Harpsichord
MUS 165 Violin
MUS 166 Viola
MUS 167 Cello
MUS 168 String Bass
MUS 169 Guitar
MUS 170 Flute
MUS 171 Oboe
MUS 172 Clarinet
MUS 173 Bassoon
MUS 175 Horn
MUS 176 Trumpet
MUS 177 Trombone
MUS 178 Tuba
MUS 180 Percussion
MUS 182 Voice
MUS 187 Other Instruments

A forty-five-minute individual lesson or one-hour group lesson each week, with five hours of practice required. At least half of the semester will be devoted to individual lessons, which may be taught by a graduate teaching assistant or a faculty instructor; group lessons will be given by faculty instructors only. Students are required to play for a jury at the end of each term. Open to music majors and, enrollment permitting, to other students with a serious interest in music. May be repeated.
Prerequisites: Audition; permission of instructor
Prerequisite to MUS 187: Approval of department undergraduate studies committee
Fall and spring, 2 credits

MUS 220 Musicianship II

Sight singing, dictation, and transcription of more complex melodic, harmonic, and rhythmic material, including music in two voices and simple chord progressions. Elementary analysis of a few basic forms.
Prerequisite: MUS 121 or placement by theory placement examination
Pre- or corequisites: MUS 101; MUS 160 or passing piano proficiency examination
Fall and spring, 2 credits

MUS 221 Musicianship III

Advanced sight singing and dictation, including modal, modulating, and chromatic melodies;

music in two, three, and four voices; chord progressions; and complex rhythms. Exercises in aural analysis.

Prerequisite: MUS 220 or placement by theory placement examination
Pre- or corequisite: MUS 160 or passing piano proficiency examination
Fall and spring, 2 credits

MUS 222 Modal Counterpoint I

An introduction to fundamental principles of musical structure through exercises in two-part species counterpoint in 16th-century style. A Core Course satisfying Humanities and Fine Arts Category B.
Pre- or corequisite: MUS 220
Fall and spring, 3 credits

MUS 237 Composition in Popular Styles

Individual projects in songwriting, jazz composition, and related work. Students will arrange for performance of their work in a concert at the end of the semester. Some previous composing experience and an adequate background in theory are required. Enrollment limited to eight. May be repeated once.
Prerequisite: Permission of instructor
Spring, 3 credits

MUS 239 Beginning Composition

Individual projects in composition discussed and criticized in class. Enrollment limited to eight. May be repeated once.
Prerequisite: Permission of instructor
Fall or spring, 3 credits

MUS 261 Stony Brook Chorale

Study and performance of a repertory from the Middle Ages to the present. Grading is based upon attendance. May be repeated.
Prerequisite: Audition
Fall and spring, 1 credit

MUS 262 University Orchestra

Study and performance of works from the repertory of the concert orchestra. Grading is based upon attendance. May be repeated.
Prerequisite: Audition
Fall and spring, 1 credit

MUS 263 University Wind Ensemble

Study and performance of works for ensembles of woodwinds, brass, and percussion in various combinations. Grading is based upon attendance. May be repeated.
Prerequisite: Audition
Fall and spring, 2 credits

MUS 264 Popular Music Ensemble

An instrumental ensemble focusing on popular music and jazz. The ensemble performs regularly at athletic events and other informal concert situations. Grading is based on attendance at rehearsals and performances. May be repeated.
Prerequisite: Audition
Fall and spring, 2 credits

Note: At least one course from the group MUS 301-310 will be offered every semester. Consult the class schedule for current offerings.

MUS 301 Music of the Baroque

The development during the late Renaissance of a new style in Italy and elsewhere will be traced through opera and oratorio, cantata and

chorale, concerto, suite, and trio sonata, to its ultimate expression in the works of Handel, Bach, and their contemporaries. Not for major credit.

Prerequisite: MUS 101 or 119
3 credits

MUS 302 The Music of J.S. Bach

The vocal and instrumental works of Johann Sebastian Bach and the cultural and musical traditions in which they were grounded. Not for major credit.

Prerequisite: MUS 101 or 119
3 credits

MUS 303 The Music of Beethoven

An exploration of the meaning and continuing relevance of one of the pivotal composers of the Western world by the study of his symphonies, string quartets, piano sonatas, and other works. Not for major credit.

Prerequisite: MUS 101 or 119
3 credits

MUS 305 Music in the Romantic Era

The expressive art of the century between the birth of Schubert and the death of Brahms is examined in selected works of these and other figures such as Berlioz, Mendelssohn, Chopin, Schumann, Liszt, Wagner, and Verdi. Not for major credit.

Prerequisite: MUS 101 or 119
3 credits

MUS 306 The Symphony

Study of important symphonic works from the 18th century to the present. The course will concentrate on the development of styles from Haydn, Mozart, and Beethoven through the romantics, Brahms, and Mahler, concluding with the transformation of the symphonic idea in works of Stravinsky and Webern. Not for major credit.

Prerequisite: MUS 101 or 119
3 credits

MUS 307 Music and Drama

The ritual and dramatic uses of music from antiquity to the modern lyric theatre, with emphasis on the operatic repertory from Mozart to Berg. A Core Course satisfying Humanities and Fine Arts Category B. Not for major credit.

Prerequisite: MUS 101 or 119
3 credits

MUS 309 Music of the 20th Century

An introduction to the variegated and rapidly changing trends of the present century, including impressionism, expressionism, neoclassicism, twelve-tone and other serialism, constructivism, chance music, electronic and computer music, as well as styles derived from folk music, jazz, and other forms of popular music. A Core Course satisfying Humanities and Fine Arts Category C. Not for major credit.

Prerequisite: MUS 101 or 119
3 credits

MUS 310 Music and Culture in the 1960s

The music of Bob Dylan, John Cage, the Beatles, Pauline Oliveros, Ornette Coleman, Milton Babbitt, Luciano Berio, and others will be studied in conjunction with texts from or criticism on the 1960s. Music and texts will be correlated by the topics of protest, chaos, mass culture, the women's movement, subcultures, superrationality, deconstruction, and others. A Core Course

satisfying Humanities and Fine Arts Category C. Not for major credit.

Prerequisite: MUS 101 or 119
Alternate years, 3 credits (not offered in 1990-91)

MUS 315, 316 The Structural Principles of Music I, II

An introduction to the language and basic structural concepts of the art through the study of such elements as melody, rhythm, harmony, counterpoint, and form; analysis, written exercises, and discussion of theoretical principles. MUS 315 is a Core Course satisfying Humanities and Fine Arts Category B. Not for major credit.

Prerequisite to MUS 315: MUS 119
Prerequisite to MUS 316: MUS 315
Fall (315) and spring (315, 316), 3 credits

MUS 321, 322 Tonal Harmony I, II

Practice in homophonic writing, including the harmonization of chorales.

Prerequisite to MUS 321: MUS 222
Prerequisite to MUS 322: MUS 321
Fall and spring, 3 credits each semester

MUS 331 Musicianship IV

Sight singing and dictation of complex tonal, modal, and atonal material. Special emphasis on melodic, harmonic, and rhythmic idioms characteristic of 20th-century music.

Prerequisite: MUS 221
Spring, 3 credits

MUS 340 Western Music before 1600

The history of western music from antiquity to the late 16th century.

Prerequisite: MUS 222
Fall, 3 credits

MUS 341 Western Music from 1600 to the Early 19th Century

A survey of style and form from early opera through the late quartets of Beethoven.

Prerequisites: MUS 321 and 340
Spring, 3 credits

MUS 342 Western Music of the 19th and 20th Centuries

A survey of music from the early 19th century until the present day, with emphasis on major currents of stylistic development.

Prerequisites: MUS 322 and 341
Fall, 3 credits

MUS 349 The Creative Process in the Fine Arts

An examination of the creative process and its philosophical foundations in Western culture. Students will explore highlights of the philosophical tradition since Plato; attend exhibits, rehearsals, and performances; and discuss with visiting artists their work and its sources. Cross-listed with THR 349 and ARH 349.

Prerequisites: One philosophy course; ARH 101 or 102 or MUS 101 or 119 or THR 101 or 104
Fall or spring, 3 credits

MUS 361 to 387 Advanced Performance Study

MUS 361 Piano
MUS 363 Harpsichord
MUS 365 Violin
MUS 366 Viola
MUS 367 Cello

MUS 368 String Bass
MUS 369 Guitar
MUS 370 Flute
MUS 371 Oboe
MUS 372 Clarinet
MUS 373 Bassoon
MUS 375 Horn
MUS 376 Trumpet
MUS 377 Trombone
MUS 378 Tuba
MUS 380 Percussion
MUS 382 Voice
MUS 387 Other Instruments

A one-hour individual lesson each week, with 15 hours of practice required. Open only to students with adequate preparation who demonstrate a professional commitment to the performance of music. Lessons will be taught either (a) by a member of the music faculty, (b) by a teaching assistant, or (c) by an approved off-campus teacher. Students are required to play for a jury at the end of each term. May be repeated.

Prerequisites: Audition; permission of instructor
Prerequisite to MUS 387: Approval of department undergraduate studies committee
Fall and spring, 4 credits

MUS 390 Collegium Musicum

A workshop in the performance of music scored for small vocal and instrumental ensembles, with emphasis on the repertory from the Middle Ages to 1750. May be repeated but will count toward fulfillment of major requirements only twice.

Prerequisite: Audition; permission of instructor
Fall and spring, 1 credit

MUS 391 Chamber Music

Ensembles formed by students enrolled in MUS 161 to 187 Performance Study who receive approval of a faculty instructor and assignment of a repertory. Two hours of rehearsal a week under the supervision of a graduate trainee. May be repeated.

Prerequisite: Permission of instructor
Fall and spring, 1 credit

MUS 393 Chamber Chorus

Performance of works for small chorus. Repertory to be chosen from all periods. May be repeated.

Prerequisites: Audition; permission of instructor
Fall and spring, 2 credits

MUS 394 Instrumental Master Class

Performance and coaching of solo works for a specified instrument under the instruction of a member of the performance faculty. May be repeated.

Prerequisites: Audition; permission of instructor
Corequisite: The appropriate course from MUS 161-180
Fall or spring, 2 credits

MUS 421 Analysis of Tonal Music

An examination, through the study of selected works, of the action and interaction of harmonic progression, rhythm, meter, motive, and line in defining and articulating tonal structures.

Prerequisite: MUS 322
Fall, 3 credits

MUS 422 Analysis of 20th-Century Works

Music to be studied will be selected from representative works by Debussy, Bartok, Schoenberg, Stravinsky, Webern, and others.

Prerequisite: MUS 421
Spring, 3 credits

MUS 432 Tonal Counterpoint

A study of the art of combining voices under the conditions of tonal harmony as observed in works from Bach through the romantic composers.

Prerequisite: MUS 322

Alternate years, 3 credits (not offered in 1989-90)

MUS 434 Orchestration

The possibilities and limitations of the commonly used instruments, conventions of notation, and practice in scoring for various ensembles.

Prerequisite: MUS 322

Spring, 3 credits

MUS 439 Composition

Open only to students demonstrating sufficient aptitude and capacity for original work. May be repeated.

Prerequisite: Permission of instructor

Fall and spring, 3 credits

Advanced Studies in Music History

MUS 455, 457, 459, 461, and 463 are designed primarily for majors. When offered, specific topics for each will be announced in the class schedule. Detailed information on course content will be available in the Music Department prior to registration each semester.

MUS 455 Major Composers

An examination of the achievement of composers who have had a major influence upon the Western classical tradition. Individual representative figures such as Monteverdi, J.S. Bach, Beethoven, Stravinsky, or groups of artists such as Chopin, Schumann, and Liszt will be studied. May be repeated for credit as the topic varies.

Prerequisite: At least one 300-level music course specified when the topic is announced
Schedule to be announced, 3 credits

MUS 457 Major Genres

Inquiry into the nature, development, and cultural context of an important musical genre, such as the classical string quartet, the romantic tone poem, the baroque concerto, or the Renaissance motet. May be repeated for credit as the topic varies.

Prerequisite: At least one 300-level music course specified when the topic is announced
Schedule to be announced, 3 credits

MUS 459 Dramatic Music

Studies in opera, oratorio, or other genres such as madrigal comedy, melodrama, or incidental music or program music inspired by plays. The course may focus on the work of a single composer (Alessandro Scarlatti, Mozart, Verdi, Berg), a national tradition (English masque, French *tragédie lyrique*, German romantic opera, Italian *verismo*), a genre (comic opera), or a problem (opera conventions and reforms). May be repeated for credit as the topic varies.

Prerequisite: At least one 300-level music course specified when the topic is announced
Schedule to be announced, 3 credits

MUS 461 Music and Poetry

Studies in the interaction of poetic language and music. Topics might include the songs of Debussy and Ives, the medieval lyric, the lied from the Enlightenment through Mahler and Schoenberg, the madrigal of the 16th century, the blues repertory of Bessie Smith, or new genres inspired by such works as *Le marteau*

sans maitre. May be repeated for credit as the topic varies.

Prerequisite: At least one 300-level music course specified when the topic is announced
Schedule to be announced, 3 credits

MUS 463 Studies in 20th-Century Music

Issues raised by music of the present century from historical and analytical perspectives. Topics may focus on music since 1945, electronic music, American popular music, recent trends in composition, or musical modernism.

Prerequisite: At least one 300-level music course specified when the topic is announced
Schedule to be announced, 3 credits

MUS 475 Undergraduate Teaching Practicum

Each student will receive regularly scheduled supervision from the instructor of the course specified as the forum for the practicum. Responsibilities may include conducting recitation sections of lower-division courses, preparing material for practice or discussion, initial correction of homework and tests, and helping students with course problems. Satisfactory/Unsatisfactory grading only.

Prerequisites: Upper-division music major; permission of instructor and department
Fall and spring, 3 credits

MUS 487 Independent Project

Individual study under the guidance of a staff member leading to a major essay or composition. May be repeated.

Prerequisites: Permission of instructor; approval of department's undergraduate studies committee
Fall and spring, 1 to 6 credits

MUS 490 Vocal Repertory

Performance and analysis of works from the vocal repertory. May be repeated.

Prerequisite: Permission of instructor
Corequisite: MUS 182 or 382
Fall and spring, 2 credits

MUS 491 Choral Conducting

Manual technique and the analysis and preparation of vocal scores for performance. May be repeated.

Prerequisites: MUS 322; permission of instructor
Corequisite: MUS 261 or 393
Fall or spring, 3 credits

Department of Philosophy

Chairperson: Donn Welton

Director of Undergraduate Studies: Michael Simon

Faculty

David B. Allison, Associate Professor, Ph.D., Pennsylvania State University: Phenomenology; existentialism; Nietzsche.

Kenneth Baynes, Assistant Professor, Ph.D., Boston University: Social and political philosophy; critical theory; moral theory; German philosophy.

Seyla Benhabib, Associate Professor, Ph.D., Yale University: Critical theory; feminist thought; 19th- and 20th-century philosophy.

Justus Buchler, Distinguished Professor Emeritus, Ph.D., Columbia University: Metaphysics; moral philosophies.

Edward S. Casey, Professor, Ph.D., Northwestern University: Philosophy of psychology; psychoanalysis; phenomenology.

Robert Crease, Assistant Professor, Ph.D., Columbia University: Philosophy of science; continental philosophy.

Antonio de Nicolas, Professor, Ph.D., Fordham University: Hermeneutics; Indian philosophy; comparative literature; philosophy of education.

David A. Dilworth, Associate Professor, Ph.D., Fordham University: Chinese and Japanese philosophy; philosophy of religion.

Sidney Gelber, Professor, Ph.D., Columbia University: Political philosophy.

Patrick Grim, Associate Professor, Ph.D., Boston University: Philosophy and anthropology; philosophy and social science. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1988, and the President's Award for Excellence in Teaching, 1988.

Patrick Aidan Heelan, Professor, Ph.D., University of Louvain; Ph.D., St. Louis University: Philosophy of science.

Dick Howard, Professor, Ph.D., University of Texas: Political and social philosophy; Marxism; continental philosophy; 19th-century philosophy.

Don Ihde, Professor, Ph.D., Boston University: Phenomenology; philosophy and technology; perception.

Eva Feder Kittay, Associate Professor, Ph.D., City University of New York: Philosophy of language; philosophy and feminism; modern philosophy.

Peter Ludlow, Assistant Professor, Ph.D., Columbia University: Philosophy of mind; philosophy of cognitive science; philosophy of language.

Gary Mar, Assistant Professor, Ph.D., University of California, Los Angeles: Logic; metaphysics; philosophy of language; philosophy of mathematics.

Clyde Lee Miller, Associate Professor, Ph.D., Yale University: Ancient and medieval philosophy; contemporary moral issues; history of philosophy. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1980.

Rita D. Nolan, Associate Professor, Ph.D., University of Pennsylvania: Theory of knowledge; philosophy of language; metaphysics.

Francois Raffoul, Assistant Professor, Ancien élève de l'École Normale Supérieure, Agrégé de Philosophie: Modern and contemporary continental philosophy; Kant; Heidegger.

Mary C. Rawlinson, Associate Professor and Doctoral Program Director, Ph.D., Northwestern University: Continental philosophy; 19th-century philosophy; psychoanalysis; philosophy of medicine; aesthetics.

Hugh J. Silverman, Professor, Ph.D., Stanford University: Continental philosophy; literary theory; philosophy and the arts. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1977.

Michael Simon, Professor, Ph.D., Harvard University: Philosophy of mind; philosophy of biology and of the social sciences; philosophy of law.

Marshall Spector, Professor and Master's Program Director, Ph.D., The Johns Hopkins University: Philosophy of science; philosophy of technology.

Robert Sternfeld, Professor Emeritus, Ph.D., University of Chicago: Metaphysics; epistemology; 20th-century philosophy.

Victorino Tejera, Professor, Ph.D., Columbia University: Greek philosophy, aesthetics; philosophy of history; philosophy of myth.

Walter Watson, Professor, Ph.D., University of Chicago: Metaphysics; history of philosophy.

Donn Welton, Associate Professor, Ph.D., Southern Illinois University: Phenomenology; philosophical anthropology; perception.

Anthony Weston, Assistant Professor, Ph.D., University of Michigan: Ethics and value theory; environmental ethics; social philosophy.

Peter Williams, Associate Professor, J.D., Ph.D., Harvard University: Philosophy of law; ethics; philosophy and medicine. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1978.

Harold Zyskind, Professor Emeritus, Ph.D., University of Chicago: Philosophy of rhetoric; history of philosophy. Recipient of the President's Award for Excellence in Teaching, 1984.

Adjunct Faculty
Estimated number: 1

Teaching Assistants
Estimated number: 23

Requirements for the Major in Philosophy

The major in philosophy leads to the Bachelor of Arts degree. Philosophy courses are distributed among three categories. A category number (I through III) appears in parentheses after the title of the course. The following courses are required:

	<i>Credits</i>
1. PHI 300 and 306	6
2. PHI 391 or 392 or 393	3

- Two courses in Category I, Styles and Systems of Philosophy in Historical Perspective, exclusive of those required for items 1 and 2 above 6
- Three courses in Category II, Basic Skills and Problem Areas of Philosophy 9
- Three courses in Category III, Philosophy in Relation to Other Arts and Sciences 9
- PHI 435 Senior Seminar 3
- Upper-Division Writing Requirement
Philosophy majors must achieve an evaluation of S (Satisfactory) on the written work for either PHI 300 or PHI 306, which, for this purpose, must be taken before the end of the junior year. Students who wish to satisfy this requirement must inform the instructor of their intention to do so no later than the third week of term so that the student's essays for the course may be given special appraisal for advanced writing skills appropriate to philosophy majors in addition to their appraisal for the course. A student must achieve an appraisal of S in advanced writing skills in order to register for PHI 435, Senior Seminar.

Total 36

Notes:

- Courses used to satisfy major requirements must be taken for a letter grade and must be passed with a grade of C or higher.
- No more than two 100-level philosophy courses may be used to satisfy major requirements.
- Students who expect to pursue graduate study should include PHI 220 in their programs.

Honors Program in Philosophy

To qualify for the honors program, a student must be a junior or a senior major with an overall average of at least 3.0 and an average in philosophy of 3.5. The student must maintain this average throughout participation in the honors program. To seek honors, a student must plan a program not later than the first semester of the senior year with a faculty advisor and the director of undergraduate studies. The program shall consist of three courses at the 300 level or higher, concentrated on related aspects of a central problem. At least one of the courses should be independent study under the direction of the advisor and

lead to a senior paper. This paper will be reviewed by the advisor and one other member of the philosophy faculty and by a faculty member from outside the department. The senior paper will then be the focus of an oral examination. Honors will be awarded on passage of the examination.

Minor in Philosophy

The minor in philosophy requires 18 credits including at least nine credits in upper-division courses. Emphases from which to choose are History of Philosophy; Language, Logic, and Science; Social, Moral, and Legal Issues; The Person and the Arts; or Eastern Philosophy. Interested students should consult with the department's director of undergraduate studies for details about specific courses contributing to each emphasis and for help in planning their schedules. Courses used to satisfy minor requirements must be taken for a letter grade and must be passed with a grade of C or higher.

Study Abroad

Philosophy majors and other interested students who would like to spend a semester or a year studying in France should consult the department's director of undergraduate studies about the philosophy and social sciences program in Paris. With the permission of the department, philosophy majors may also use credits from other study abroad programs to satisfy major requirements. See also Study Abroad, p. 54.

Courses

See p. 60, Course Credit and Prerequisites, and p. 61, Undergraduate Numbering System.

For details of staffing, specific content, and reading lists, the student should consult schedules posted by the Philosophy Department before registration each semester.

Lower-Division Courses

These courses offer the student various ways to become acquainted with the nature and variety of philosophical inquiries. There are no specific course prerequisites for any 100-level course.

PHI 100 Concepts of the Person (II)

A historical introduction to philosophy through readings and discussion on topics such as human identity, human understanding, and human values. A Core Course satisfying Humanities and Fine Arts Category A. Also satisfies Lower-Division Writing Requirement for students who score "Strong" on the English Placement Examination.

Fall and spring, 3 credits

PHI 103 Philosophic Problems (III)

An introduction to philosophy through the analysis of one or more aspects of contemporary life

such as technology, war, international relations, or families and friendships. Satisfies Lower-Division Writing Requirement for students who score "Strong" on the English Placement Examination.

Fall and spring, 3 credits

PHI 104 Moral Reasoning (II)

A historical introduction to philosophy through inquiry into the formation, justification, and evaluation of moral judgments. Students are introduced to the major theories and problems of ethics, such as utilitarianism, Kant's categorical imperative, ethical relativism, egoism, and classical conceptions of the good and virtue. Against this background students engage in discussions of contemporary moral issues such as discrimination, abortion, and euthanasia; responsibility in personal relations; war; or the protection and use of the environment. A Core Course satisfying Humanities and Fine Arts Category A. Also satisfies Lower-Division Writing Requirement for students who score "Strong" on the English Placement Examination.

Fall and spring, 3 credits

PHI 105 Politics and Society (III)

A historical introduction to philosophy through an analysis of political theories, theories of action, and styles of political life. Main themes will include the relation of the individual to the state, the scope of social responsibility, and the nature of human freedom. A Core Course satisfying Humanities and Fine Arts Category A. Also satisfies Lower-Division Writing Requirement for students who score "Strong" on the English Placement Examination.

Fall and spring, 3 credits

PHI 108 Logical and Critical Reasoning (II)

The principal aim of this course is to help a student acquire the skills of thinking, reading, and writing critically. The student will develop a sensitivity to language and argumentation that will be applicable to a wide range of situations and subject matters (newspaper editorials, advertisements, books, legal arguments, and puzzles). A Core Course satisfying Humanities and Fine Arts Category B. Also satisfies Lower-Division Writing Requirement for students who score "Strong" on the English Placement Examination.

Fall and spring, 3 credits

PHI 109 Literature and Human Life (III)

A survey in translation of major authors and works of Western culture, focused around such problems as the self and moral values.

Fall, 3 credits

PHI 110 Literature and Artistic Creation (III)

A survey in translation of major authors and works of Western culture, focused around the artist's perception of the world and his or her creative activity.

Spring, 3 credits

PHI 111 Introduction to Eastern Philosophy (I)

A study of different systems of Eastern philosophy and of the main classical texts drawn from Hinduism, Buddhism, Taoism, Confucianism, and Neo-Confucianism. Efforts will be made to recover the different modes of knowledge, language, identification, and liberation dealt with in these texts. A Core Course satisfying Humanities and Fine Arts Category A.

Fall or spring, 3 credits

PHI 150 Honors Introduction to Philosophy (I, II, III)

An introduction to philosophy through one of the following approaches: (1) the study of a basic philosophical problem, e.g., the mind-body problem or the limits of human knowledge; (2) the application of philosophical analysis to some phenomenon of contemporary life, e.g., technology; or (3) the study of philosophy's relation to other disciplines, e.g., science or history. May not be taken for credit in addition to PHI 103.

Prerequisite: Permission of department; priority given to Honors College students.

Fall or spring, 3 credits

PHI 200 Introduction to Ancient and Medieval Philosophy (I)

Readings and discussion of the major thinkers of the period, e.g., Plato, Aristotle, Plotinus, Augustine, and Aquinas. A Core Course satisfying Humanities and Fine Arts Category A.

Prerequisite: Sophomore standing or one course in philosophy

Fall and spring, 3 credits

PHI 206 Introduction to Modern and Contemporary Philosophy (I)

Readings and discussion of the major thinkers of the period, e.g., Descartes, Hume, Kant, Hegel, Nietzsche, Wittgenstein, and Sartre. A Core Course satisfying Humanities and Fine Arts Category A.

Prerequisite: Sophomore standing or one course in philosophy

Fall and spring, 3 credits

PHI 220 Introduction to Symbolic Logic (II)

This first course in logic emphasizes the development of systematic techniques for assessing the validity of arguments: truth tables and truth values analysis, Venn diagrams, elementary quantification theory, and deduction in both the propositional calculus and quantification theory.

Prerequisite: Sophomore standing or one course in philosophy

Fall and spring, 3 credits

PHI 223 Introduction to Metaphysics (II)

An introduction to philosophy through study of the methods by which philosophers construct systematic accounts of knowledge and reality. Topics such as mind and matter, appearance and reality, and freedom and determinism are discussed. The logical principles of system formation as well as the power of specific systems in resolving particular metaphysical problems are demonstrated. A Core Course satisfying Humanities and Fine Arts Category B.

Prerequisite: Sophomore standing or one course in philosophy

Fall or spring, 3 credits

PHI 247 Existentialism (I)

Readings in existential philosophy and literature with special emphasis on such themes as alienation, anxiety, nihilism, absurdity, the self, value, death, and immediacy. Existentialist categories will be used to interpret contemporary lifestyles and culture. A Core Course satisfying Humanities and Fine Arts Category C.

Prerequisites: Sophomore standing; one course in philosophy; PHI 100 recommended

Fall and spring, 3 credits

PHI 249 Marxism (I)

A study of Marxism as a philosophical system. Topics include the development of Marxism out of German idealism; the contributions of Marxism to political and social philosophy; and the influence of Marx on subsequent thinkers, e.g., Althusser, Habermas, Foucault, and Derrida. A Core Course satisfying Humanities and Fine Arts Category C.

Prerequisites: Sophomore standing; one course in philosophy; PHI 105 recommended

Fall or spring, 3 credits

PHI 264 Philosophy and the Arts (III)

A study of the arts focusing on the nature of the creative process, methods of interpretations, essential differences among the various arts, and the relation of performance to text. A Core Course satisfying Humanities and Fine Arts Category B.

Prerequisites: ARH 101 or 102; sophomore standing or one course in philosophy

Fall or spring, 3 credits

PHI 268 Philosophy of Myth and Religion (III)

A philosophical analysis of the principles of religious thought, the role of faith as a foundation for knowledge, the structure and function of myth, and the differences and similarities between myth and religion.

Prerequisite: Sophomore standing or one course in philosophy

Alternate years, 3 credits (not offered in 1989-90)

PHI 277 Political Philosophy (III)

An inquiry into the function of philosophic principles in political thought and action, with readings drawn from such authors as Plato, Aristotle, Machiavelli, Spinoza, Hobbes, Locke, Kant, Hegel, Mill, and Dewey.

Prerequisite: Sophomore standing or one course in philosophy; PHI 105 recommended

Fall or spring, 3 credits

PHI 285 The Uses of Philosophy (III)

Introductory study of the bearing of philosophic considerations on the special arts and sciences. May be repeated as subject matter differs.

Prerequisite: Sophomore standing or one course in philosophy

Fall or spring, 3 credits

Upper-Division Courses

PHI 300 Ancient Philosophy (I)

Advanced studies in selected thinkers from Thales to Aristotle. A Core Course satisfying Humanities and Fine Arts Category C.

Prerequisites: Two philosophy courses

Fall and spring, 3 credits

PHI 304 Medieval Philosophy (I)

Study of the writings of major thinkers from Augustine to William of Ockham.

Prerequisite: One philosophy course; PHI 200 or 300 recommended

Alternate years, 3 credits (not offered in 1990-91)

PHI 306 Modern Philosophy (I)

Advanced studies in selected thinkers such as Descartes, Vico, Spinoza, Locke, Berkeley, Hume, and Kant. A Core Course satisfying Humanities and Fine Arts Category C.

Prerequisites: Two philosophy courses

Fall and spring, 3 credits

PHI 308 19th-Century Philosophy (I)

Study of major representative figures of the 19th century such as Hegel, Schopenhauer, Marx, Mill, Nietzsche, Kierkegaard, Spencer, and Comte. A Core Course satisfying Humanities and Fine Arts Category C.

Prerequisite: One philosophy course; PHI 206 or 306 recommended

Alternate years, 3 credits (not offered in 1989-90)

PHI 310 American Philosophy (I)

A study of selected major figures in the American tradition, e.g., Jefferson, Emerson, Edwards, James, Peirce, Dewey, and Whitehead. Includes consideration of such issues as the global relevance of the ethical issues engaged, the effects of the science of the day on the philosophical perspectives of these thinkers, and the cross-cultural relevance of the philosophical problems addressed. A Core Course satisfying Humanities and Fine Arts Category C.

Prerequisite: One course in philosophy; PHI 206 or 306 recommended

Fall or spring, 3 credits

PHI 312 Topics in Contemporary European Thought (I)

Topics in major developments in contemporary European philosophy. Consult departmental brochure as topic changes. May be repeated for credit with permission of the undergraduate director in philosophy.

Prerequisite: One course in philosophy
Schedule to be announced, 3 credits

PHI 320 Metaphysics (II)

An inquiry into the first principles of all science, art, and action as these are treated by representative classical and modern authors.

Prerequisite: One philosophy course; PHI 206 or 223 recommended

Fall or spring, 3 credits

PHI 323 Philosophy of Perception (II)

An inquiry into the philosophical and methodological problems pertaining to sensing, perceiving, and observing the world with special attention to vision. Various scientific solutions will be examined, and a comparison will be made between psychological and physical methods for studying such phenomena as visual illusions and object recognition. Biological, psychophysical, neurophysiological, and computational methods are among those considered. A Core Course satisfying Natural Sciences Category B.

Prerequisite: One philosophy course; PSY 103 or 104; one Natural Sciences Category A course

Fall or spring, 3 credits

PHI 325 Contemporary Philosophies of Language (II)

A discussion of current topics in the philosophy of language.

Prerequisite: One philosophy course; PHI 108 or 220 recommended

Fall or spring, 3 credits

PHI 330 Advanced Symbolic Logic (II)

A study of such topics as a natural deduction system of quantification theory including consistency and completeness proofs; axiomatic formal systems and associated concepts of consistency, completeness, and decidability; elementary modal logic; and introductory set theory.

Prerequisite: PHI 220

Fall or spring, 3 credits

PHI 332 Theories of Knowledge (II)

A study of a variety of conceptions of the structure and content of knowledge as found in classical and contemporary epistemologies. Fundamental methods and principles of philosophical inquiry are applied to questions about the ways in which concepts and theories are generated in the physical and social sciences and to questions about knowledge of what is of value, knowledge in philosophy, and knowledge in the arts. A Core Course satisfying Humanities and Fine Arts Category B.

Prerequisite: One philosophy course or PSY 103 or 104; PHI 100 or 206 or 306 recommended

Fall or spring, 3 credits

PHI 340 Indian Buddhism: Its Essence and Development (I)

The relation between the Buddhist model of knowledge (with its historical variations) and its dependence on and variations from the previous Indian cultural idea of knowledge will be examined against the background of Western models of philosophical knowledge in their historical constitution. Materials studied will range from Buddha to Tantra. A Core Course satisfying Humanities and Fine Arts Category A and Study of Another Culture.

Prerequisite: One philosophy course; PHI 111 recommended

Fall or spring, 3 credits

PHI 342 Chinese and Japanese Buddhism (I)

The main philosophical and institutional stages of Chinese and Japanese Buddhism, with emphasis on the latter. Topics include the transmission of Indian Mahayana Buddhism to China; the formation of such Chinese schools as T'ien-t'ai, Hua-yen, Pure Land, and Ch'an (Zen); the further transmission of such schools to Japan, their assimilation within, and formative influence on, Japanese culture. Japanese schools treated include Teudai, Shingon, Pure Land, Nichiren (Lotus), and Zen. A Core Course satisfying Humanities and Fine Arts Category A and Study of Another Culture.

Prerequisite: One philosophy course

Alternate years, 3 credits (not offered in 1989-90)

PHI 353 Philosophy of Mind (II)

Analysis of the major problems in the philosophy of mind, e.g., the mind-body problem, the problem of identity through time, the relation between thoughts and sensations, the problem of the knowledge of other minds.

Prerequisite: One philosophy course; PHI 206 or 223 recommended

Fall or spring, 3 credits

PHI 360 Philosophy of Education (III)

An inquiry into the function of philosophic principles in educational theories and institutions. The inquiry centers on the purposes of knowledge and education, the relations among the sciences and their organization into curricula, and the ways knowledge is acquired and transmitted. A Core Course satisfying Humanities and Fine Arts Category A.

Prerequisite: One philosophy course or one course related to education; PHI 104 or 105 recommended

Fall and spring, 3 credits

PHI 362 Scientists on Science (III)

The study of the methods, goals, and achievements of science as well as the ethical and social

commitments of scientists through the writings of selected natural scientists from Galileo and Newton to Bohr, Einstein, and Feynman. Topics will include the criteria for choice among theories, e.g., simplicity, beauty, usefulness; the use of mathematics and the role of experiment in science; objectivity; reality of the scientific image; scientific images of the person and of society; social and ethical values in science; religion and science.

Prerequisites: Two semesters of science; one philosophy course

Fall, 3 credits

PHI 363 Philosophy of the Social Sciences (III)

A study of the philosophical foundations of the social sciences, applying principles and methods of philosophical analysis to questions concerning the structures of social reality, the methodological and epistemological status of the social sciences, and the criteria for evidence and theory formation in the social sciences. A Core Course satisfying Humanities and Fine Arts Category B.

Prerequisites: One philosophy course; one course in the social sciences

Fall or spring, 3 credits

PHI 364 Philosophy of Technology (III)

A systematic study of the interrelations of human beings and their social institutions with the surrounding world of nature and of technological artifacts. The impact of technological culture on human beliefs and perceptions of the world will be explored. This course will be interdisciplinary in scope, with readings from philosophy, anthropology, literature, history, environmental studies, and other areas where technology is of concern. A Core Course satisfying Natural Sciences Category B.

Prerequisites: One philosophy course; one Natural Sciences Category A course; PHI 104 or 105 recommended

Fall or spring, 3 credits

PHI 368 Philosophy of Science (III)

A course in the philosophy of science using both historical and contemporary materials. Methodological issues discussed include scientific explanation and prediction, the structure of theories, the nature of scientific revolutions, and the role of laws in science. Philosophic problems in understanding specific sciences and their relation to each other will also be considered, as will their relations to other areas of philosophic concern, such as metaphysics. A Core Course satisfying Natural Sciences Category B.

Prerequisites: Two philosophy courses; one Natural Sciences Category A course; PHI 220 recommended

Fall or spring, 3 credits

PHI 370 Philosophical Psychology (III)

An examination of traditional philosophic theories concerning the nature of a person and their connection to such theories in psychology as psychoanalysis, medical models of mental illness, and theories of behavior modification.

Prerequisites: Two philosophy courses; PSY 103 or 104

Fall or spring, 3 credits

PHI 372 Ethical Inquiry (II)

An intensive study of the methodological principles governing the formation of ethical theories

and ethical judgments through an investigation of selected ethical problems. A Core Course satisfying Humanities and Fine Arts Category B. *Prerequisite:* One philosophy course; PHI 104 recommended

Fall or spring, 3 credits

PHI 374 Philosophy in Relation to Other Disciplines (III)

The study of philosophy as it affects and is affected by other disciplines such as anthropology, science, sociology, the history of ideas, theology, and psychology.

Prerequisites: Upper-division standing; one philosophy course

Schedule to be announced, 3 credits

PHI 375 Philosophy of Law (III)

An examination of the concept of law and the nature of legal reasoning. The course will explore the relationship of law to other central philosophical and social ideas such as freedom, rights, morality, authority, welfare, property, justice, equality, and constitutionalism. A Core Course satisfying Humanities and Fine Arts Category C.

Prerequisite: One philosophy course; PHI 104 or 105 or 372 recommended

Fall or spring, 3 credits

PHI 376 Philosophy and Medicine (III)

An investigation of the role that philosophical concepts play in medical thinking and practice. The course will focus on the philosophical foundations of concepts of health and disease; concepts of right, responsibility, and justice relevant to medical practice; promise-keeping and truth-telling in the doctor-patient relationship; and specific moral problems that arise in medical practice. A Core Course satisfying Humanities and Fine Arts Category C.

Prerequisites: One philosophy course; PHI 104 recommended; HIS 135 or 316 or HMC 200 or 331 also recommended

Fall or spring, 3 credits

PHI 378 Philosophy of History (III)

A critical examination of theories about historical processes and developments and an evaluation of such concepts as progress, cause, purpose, and meaning in history. Pertinent materials will be drawn from historical and philosophic writings of such figures as Hegel, Nietzsche, Berdyaev, Collingwood, and Randall.

Prerequisites: One philosophy course; one history course

Fall or spring, 3 credits

PHI 380 Literature and Philosophy (III)

An intensive study of the methods and principles of the philosophical analysis of literature and the relations between literature and philosophy. Primary texts are selected to demonstrate the precise nature of the relationship. Topics will vary from term to term. A Core Course satisfying Humanities and Fine Arts Category B.

Prerequisites: One philosophy course; one literature course; PHI 109 or 110 recommended

Fall or spring, 3 credits

PHI 381 Aesthetics (II)

An intensive study of methods and principles specific to the philosophical analysis of art through selected classical texts in aesthetics (e.g., Plato's *Phaedrus*, Aristotle's *Poetics*, Kant's *Critique of Judgment*, or Nietzsche's *The Birth of Tragedy*). Discussions will focus on such problems as the ontology of the work of art, its

epistemological significance, the relation between fact and fiction, criteria of interpretation, or the political import of art. Readings in the classical texts may be supplemented by selections from contemporary authors. A Core Course satisfying Humanities and Fine Arts Category B.

Prerequisite: One philosophy course

Fall or spring, 3 credits

PHI 384 Philosophy and Feminism (III)

A course directed at isolating and critically analyzing conceptual issues of feminist concern such as "the other," "the feminine," patriarchy, the nature/culture dichotomy, as well as power, equality, oppression, and liberation. These will be related to such specific forms of human activity as work, sexuality, violence, marriage, family, education, love, language, art, myth, and religion. The course demands an active participation in class discussion. A Core Course satisfying Humanities and Fine Arts Category C.

Prerequisite: One philosophy course; PHI 100 or 104 or 105 recommended

Fall or spring, 3 credits

PHI 391, 392 Individual Systems of the Great Philosophers (I)

A detailed study of the works of a single great philosopher. May be repeated.

Prerequisite: One philosophy course

Fall (391) and spring (392), 3 credits each semester

PHI 393 Analysis of Philosophic Texts (I)

Detailed analysis of a major philosophic text. May be repeated.

Prerequisite: One philosophy course

Fall or spring, 3 credits

PHI 415 The Philosophical Methodology of the Rig Veda (I)

The philosophical methodology of this great Indian text is interpreted within the text's own cultural context but also with a view to discerning a universal meaning that enriches Western understanding of such topics as knowledge, expression, and the need to structure experience, as well as the different forms and insights generated by such structures. A Core Course satisfying Humanities and Fine Arts Category B and Study of Another Culture.

Prerequisites: PHI 111; one other philosophy course

Fall or spring, 3 credits

PHI 420 Advanced Topics in Philosophy (I, II, III)

An advanced course treating a specialized issue or topic in philosophy or in philosophy and another discipline. The content of the course will be announced before the start of the term. May be repeated as subject matter differs.

Prerequisites: Senior major standing or five courses in philosophy

Schedule to be announced, 3 credits

PHI 435 Senior Seminar

An intensive study of an issue, topic, figure, or historical period in philosophy intended to provide both a culminating experience and final integration for senior philosophy majors. This seminar will emphasize careful reading, rigorous discussion, and extensive writing at an advanced level. The content of the seminar will be announced before the start of the term, and stu-

dents will be consulted on the content as it proceeds.

Prerequisites: Senior major standing; six courses in philosophy; satisfaction of Upper-Division Writing Requirement

Fall and spring, 3 credits

PHI 487 Readings and Research in Methodology (II)

Advanced-level inquiry with individualized instruction in one particular philosophical style of reasoning. Consult undergraduate advisor for specific details. May be repeated.

Prerequisites: Senior major standing; permission of department

Fall and spring, 1 to 6 credits

PHI 488 Readings and Research in the Uses of Philosophy (III)

Advanced-level inquiry with individualized instruction in the application of philosophical tools to one of the special disciplines. Consult undergraduate advisor for specific details. May be repeated.

Prerequisites: Senior major standing; permission of department

Fall and spring, 1 to 6 credits

PHI 489 Readings and Research in the History of Philosophy (I)

Advanced-level inquiry with individualized instruction in the great philosophies of the past. Consult undergraduate advisor for specific details. May be repeated.

Prerequisites: Senior major standing; permission of department

Fall and spring, 1 to 6 credits

Graduate Courses

Qualified seniors may take 500-level courses with the permission of the directors of undergraduate and graduate studies, subject to university limits (see p. 60). Course descriptions and prerequisites are posted on the bulletin boards outside the departmental offices.

Division of Physical Education and Athletics

Director: John A. Reeves

Department of Physical Education

Chairperson: Colin A. Martindale

Faculty

Erin-Rohan Acampa, Lecturer, part time, B.A., Dowling College; Aerobic dance.

David B. Alexander, Instructor, part time, M.S., Adelphi University; Aquatics.

Peter G. Angelo, Assistant Professor, part time, Ph.D., State University of New York at Stony Brook; Aquatics.

Stephen Borbet, Lecturer, part time, M.A., Adelphi University; Track and field.

David Caldiero, Lecturer, part time, M.S., University of Bridgeport; Football; general physical education.

Joseph P. Castigle, Jr., Lecturer, part time, B.A., State University of New York at Stony Brook: Basketball.

Judith A. Christ, Adjunct Assistant Professor, M.A., State University of New York at Stony Brook: Softball.

John DeMarie, Assistant Professor, M.A., Adelphi University: Aquatics; general physical education.

Paul H. Dudzick, Associate Professor and Director of Men's Athletics, M.A., State University of New York at Stony Brook: General physical education.

John Espey, Assistant Professor, M.A., University of North Carolina at Chapel Hill: Lacrosse; general physical education.

James Felix, Instructor, B.S., State University College at Cortland: Soccer, general physical education.

Nobuyoshi Higashi, Assistant Professor, part time, M.A., New York University: Self-defense; judo.

Samuel B. Kornhauser, Assistant Professor, M.S., Southern Illinois University: Football, general physical education.

Kathryn Ann Koshansky, Instructor, M.S., University of Illinois: Athletic training; first aid and safety.

Ira S. Levine, Lecturer, part time, M.S., C.W. Post College: Athletic training.

George Lukemire, Assistant Professor, part time, B.S., Cornell University: Horsemanship.

Colin A. Martindale, Associate Professor and Director of Professional Studies, Ph.D., City University of New York: General physical education.

A. Henry von Mechow, Professor, M.S., State University College at Cortland: Social dance; general physical education.

Susan Moor, Assistant Professor, part time, M.S., Smith College: General physical education.

Masataka Mori, Assistant Professor, part time, B.A., Takushoku University: Karate.

Declan X. McMullen, Lecturer, part time, M.A., New York University: Basketball.

David Pia, Lecturer, part time, M.A., Adelphi University: Tennis.

John W. Ramsey, Associate Professor, M.S., Hofstra University: General physical education.

John A. Reeves, Professor, Ed.D., Columbia University: General physical education.

David S. Rothenberg, Assistant Professor, part time, M.S., Ithaca College: Athletic administration.

Susan Ryan, Lecturer, B.S., State University College at Cortland: Soccer; general physical education.

Robert B. Snider, Assistant Professor, B.S., College of William and Mary: Squash; general physical education.

Amy Yopp Sullivan, Assistant Professor, M.S., University of North Carolina at Greensboro: Dance.

Leslie F. Thompson, Associate Professor Emeritus, Ed.D., Columbia University: Tennis; general physical education.

Theresa Tiso, Assistant Professor, B.S., State University College at Cortland: Volleyball; general physical education.

Sandra Weeden, Associate Professor and Director of Women's Athletics, M.Ed., University of North Carolina at Greensboro: General physical education.

Physical education courses are devised to develop knowledge, understanding, and skills of a sport or dance activity selected by the student from a wide range of offerings.

Students in the College of Arts and Sciences may offer a maximum of ten PEC credits, including no more than four credits of 100-level courses, toward the 120 credits required for the baccalaureate degree. Only three credits of physical education may be counted toward degree requirements in the College of Engineering and Applied Sciences.

Facilities

Physical education facilities include 18 tennis courts, a 400-meter track, a baseball field, a soccer field, four softball and intramural football fields, and general activity areas. The gymnasium building contains a swimming pool, a large gym, a small gym, four squash courts, four handball courts, an exercise room, a Universal gym room, and a dance studio.

The fieldhouse under construction is scheduled for completion during the fall of 1990. It will provide a new arena seating 5,000 spectators for basketball and other sporting events, an indoor running track, and six official-size squash courts. Also included will be a fully equipped athletic training room complex, several team locker rooms, a large equipment room, and additional office space.

Most physical education facilities may be used for recreational purposes when they are not scheduled for classes, intramural or intercollegiate events, or special events. A schedule of information covering recreation hours may be obtained in the Physical Education Office.

Medical Clearance for Participants

Students having health problems that limit their participation in physical activities must inform the Department of Physical Education of these limitations in writing each

school year before participating in any activities. Those students who are unsure whether or not they can safely participate in a particular program should be evaluated at the University Health Service.

Areas of Activity

Individual and Team Sports, Self-Defense, Physical Conditioning

PEC 102, 105, 106, 107, 108, 109, 110, 112, 113, 145, 146, 147, 148, 151, 152, 154, 155, 159, 161, 164, 168, 240

Gymnastics

PEC 117, 118

Swimming and Water Safety

PEC 120, 121, 122, 123, 124, 125, 128, 129, 223, 226, 227, 228, 229

Dance

PEC 130, 131, 132, 133, 134, 136, 137, 138, 139, 140, 230; DAN 234, 334

Horsemanship

PEC 180, 181, 282

First Aid and Athletic Training

PEC 270, 310, 311, 312, 313, 314

Participation in Intercollegiate Athletics

PEC 188-199

Courses

See p. 60, Course Credit and Prerequisites, and p. 61, Undergraduate Numbering System.

PEC 102 Racquetball/Squash

A basic course covering skills, rules, safety, and court etiquette.

Fall and spring, 1 credit

PEC 105 Weight Control

A course designed for the overweight person to investigate various methods of weight and body control and figure improvement by way of such group activities as evaluation of current diet programs, group discussion, mild forms of physical exercise, and individual counseling.

Prerequisite: Written approval of student's family physician

Fall and spring, 1 credit

PEC 106 Basic Karate

Instruction in and practice of the fundamentals of karate.

Fall and spring, 1 credit

PEC 107 Intermediate Karate

A continuation of skills instruction in karate beyond the beginner's level with testing for the various degree levels.

Prerequisite: PEC 106

Fall and spring, 1 credit

PEC 108 Judo

Instruction in and practice of the fundamentals of judo (breakfalls, throws, and grappling techniques). Limited application of skills to competitive randori (sparring) and shiai (contest).

Fall and spring, 1 credit

PEC 109 Self-Defense

Instruction in the various methods of protecting oneself from attack by use of various parries and falls.

Fall and spring, 1 credit

PEC 110 Basic Aikido (Tomiki Style)

The concept of Aikido as the spirit that carries the mind and controls the body will be studied. Course material includes fundamentals of principal arts of attacking, bending and twisting the joints, escape and defense against multiple attacks, and use of minimum strength.

Fall and spring, 1 credit

PEC 112 Bowling

A basic course in bowling including rules, scoring, and basic techniques of the game. An extra-fee course.

Fall and spring, 1 credit

PEC 113 Basic Fencing

A beginning course in fencing including study of equipment, fitness, body position, and fencing skills. There will be an introduction to bouts.

Fall and spring, 1 credit

PEC 117 Basic Gymnastics

A survey experience for students with no background in gymnastics. It will include the fundamentals of conditioning exercise, tumbling and floor exercise, and gymnastic apparatus.

Fall and spring, 1 credit

PEC 118 Tumbling and Floor Exercise

The development of strength, agility, flexibility, and kinesthetic sense through the medium of tumbling and acrobatic movement. Moves (stunts) relating specifically to men's and women's floor exercise will be covered. At the conclusion of the course, students should be able to perform both an optional and beginner's compulsory floor routine.

Prerequisite: PEC 117

Fall, 1 credit

PEC 120 Basic Swimming

Designed to equip students at the beginner's level with basic swimming skills and knowledge. (See also PEC 128.)

Fall and spring, 1 credit

PEC 121 Intermediate Swimming

Designed to equip the deep-water swimmer with more advanced strokes and water skills.

Fall and spring, 1 credit

PEC 122 Advanced Swimming and Basic Rescue

Swimming strokes and related water skills at the level of Red Cross swimmers and advanced swimmers. Will also include instruction in basic rescue and water safety.

Prerequisites: PEC 121; skill proficiency test
Spring, 1 credit

PEC 123 Lifeguard Training I

The first in a two-semester sequence leading to certification as an American Red Cross lifeguard. Course content includes elementary rescue techniques, boating and equipment rescues, and swimming rescues.

Prerequisite: PEC 122

Fall and spring, 2 credits

PEC 124 Lifeguard Training II

Preparation for the Red Cross certification in lifeguard training. The material to be covered includes requirements and responsibilities of lifeguards, selection and training, preventive lifeguarding, emergency procedures, records and reports, equipment, health and sanitation, water rescues, search and recovery, and environmental conditions.

Prerequisite: PEC 123

Spring, 2 credits

PEC 125 Aerobic Swimming

The use of distance swimming and related activities to promote body conditioning with an emphasis on cardiovascular and muscular endurance. Attention to stroke technique will also be given in order to improve efficiency of movement.

Prerequisite: Intermediate-level swimming proficiency

Fall and spring, 1 credit

PEC 127 Hydro-Aerobics

A water exercise program appropriate for individuals at all fitness levels. Strong emphasis will be on cardiovascular conditioning; exercises that develop flexibility, muscular strength, and endurance are also included. The natural buoyancy and resistance of water make this activity well suited for individuals who are overweight or physically impaired and who wish to achieve and maintain fitness levels while avoiding the risk of injury. Swimming ability is not required.

Fall and spring, 1 credit

PEC 128 Basic Swimming for Non-Swimmers

Basic swimming course limited to non-swimmers. (See also PEC 120.)

Fall and spring, 1 credit

PEC 129 Fundamentals of Springboard Diving

An introduction to springboard diving with emphasis on approach, take-off, and water entry. The various categories of dives (forward, backward, inward, and twisting) will be covered.

Prerequisite: PEC 120

Fall and spring, 1 credit

PEC 130 Beginning Modern Dance

A study of the fundamentals of modern dance, including an analysis of movement, conditioning, and simple compositional forms.

Fall and spring, 1 credit

PEC 131 Intermediate Modern Dance

Development of modern dance techniques and movement awareness.

Prerequisite: PEC-130

Spring, 1 credit

PEC 132 Advanced Modern Dance

A technique class in modern dance. The advanced level will include strong technical demands as well as focus on the performance aspects of dance.

Prerequisites: PEC 131; permission of instructor
Spring, 1 credit

PEC 133 Aerobic Dancing I

A rigorous body conditioning course based on the use of energetic dance forms set to music coupled with a moderate amount of jogging. This activity is designed to strengthen the car-

diovascular system and increase flexibility, stamina, and muscle tone.

Fall and spring, 1 credit

PEC 134 Aerobic Dancing II

Advanced body conditioning to enhance cardiovascular fitness. Energetic dance forms will be combined with warm-ups, muscle-strengthening exercises, and cool-down.

Prerequisite: PEC 133

Fall and spring, 1 credit

PEC 136 Basic Social Dance

Fundamental steps in such ballroom dances as fox trot, waltz, rhumba, cha-cha, tango, and lindy.

Fall and spring, 1 credit

PEC 137 Intermediate Social Dance

The presentation of additional steps to those dances taught in PEC 136, as well as the introduction of several new dances. Emphasis will be placed on the following: good standards of leading and following; use of proper footwork, positioning, and styling; music recognition; and interchanging certain steps from one style of dance to another.

Prerequisite: PEC 136

Spring, 1 credit

PEC 138 Beginning Jazz Dance

The fundamental techniques of jazz dance. The course develops body awareness through limbering and strengthening exercises, stretches, and body alignment. Students will learn body isolations, followed by center floor combination and movement phrases through space to jazz and related music.

Fall and spring, 1 credit

PEC 139 Intermediate Jazz Dance

A technique class in jazz dance, which will focus on intermediate skills developing a synthesis of material. Students should have the fundamental knowledge of alignment, centering, placement, and basic terminology of jazz dance upon entering the class. The purpose of the class will be to combine this knowledge with more difficult technical demands in warm-up, floor combinations, and patterns across the floor. Elements of time (i.e., tempo and rhythmic structure) will also be investigated through movement.

Prerequisite: PEC 138

Fall and spring, 1 credit

PEC 140 Advanced Jazz Dance

A technique class in jazz dance. The course will move at a rapid pace, combining skills and knowledge with development of time, quality, and space.

Prerequisite: PEC 139

Spring, 1 credit

PEC 145 Basic Physical Conditioning

The acquisition of appropriate skills in and appreciation of physical conditioning. Instruction will be primarily devoted to improvement of muscular strength, flexibility, and endurance with some effort given to weight control. Activities will include weight training with the Universal gym machine and free weights, stretching, calisthenics, and other activities known for their physical conditioning benefits.

Fall and spring, 1 credit

PEC 146 Advanced Physical Conditioning

The maintenance and improvement of advanced levels of fitness. Instruction will be primarily devoted to improvement of muscular strength, flexibility, and endurance. Activities will include weight training with the Universal gym machine and free weights, stretching, calisthenics, and other activities known for their physical conditioning benefits.

Prerequisite: PEC 145

Fall and spring, 1 credit

PEC 147 Aerobic Running

A fundamental course in body conditioning with stress on cardiovascular endurance, muscular endurance, and flexibility. Students will develop an ability to maintain a high degree of aerobic fitness through long-distance running.

Fall and spring, 1 credit

PEC 148 Introduction to Road Racing

The improvement of the intermediate-level runner to a higher level of fitness. The course will provide an in-depth study and practice of running. The physiological, emotional, and nutritional aspects of aerobic fitness will be emphasized to prepare the student for road racing. Students will be required to serve as volunteer workers for one road race and as participants in at least three 5-to-15 kilometer races.

Prerequisite: PEC 147

Fall and spring, 1 credit

PEC 151 Tennis/Badminton

Introduction to the sports of tennis and badminton, including selection of equipment, basic skills, rules, safety, and courtesy. Class matches and tournaments will be included.

Fall and spring, 1 credit

PEC 152 Tennis/Volleyball

A beginning course covering the selection of equipment, basic skills, rules, safety, and etiquette of tennis and power volleyball. Skills practice and intraclass tournament play will be included.

Fall and spring, 1 credit

PEC 154 Archery/Volleyball

Basic skills, strategies, and rules in archery target shooting and in volleyball, with each activity culminating in a class tournament.

Fall and spring, 1 credit

PEC 155 Soccer

A course designed to develop the basic skills of soccer. An understanding of the sport is provided by examination of its history, rules, boundaries, formation, and strategies. Students will be given an opportunity for intraclass play. May not be taken for credit after PEC 194.

Fall and spring, 1 credit

PEC 159 Badminton

A comprehensive course designed to develop basic and intermediate-level skill in badminton. Rules, strategies, and court courtesy will also be covered.

Fall and spring, 1 credit

PEC 161 Beginning Tennis

Complete introduction to tennis for the beginning player. Introductory approach to the game of tennis involving the description and selection of rackets, utilization of various grips, development of footwork, ground strokes, and singles and doubles play. Knowledge of court areas, tennis

terminology, proper tennis etiquette, rules, and scoring procedures. Special emphasis on the fundamentals of the four major strokes (service, forehand, backhand, and volley).

Fall, 1 credit

PEC 164 Volleyball

A comprehensive course embodying all aspects of volleyball. Emphasis is placed on the development of the basic skills of the underhand pass, overhand pass, spike, serve, block, and offensive and defensive strategy. Skill development is accomplished through drills and regular team play.

Fall and spring, 1 credit

PEC 168 Introduction to Yoga (Hatha)

Instruction in various postures that are designed to enhance the physical condition of the individual through the use of breathing, relaxation, and meditation techniques.

Fall and spring, 1 credit

PEC 180 Beginning Horsemanship

Designed for the student with little or no experience in English riding. Covers basic controls and techniques employed in Hunter seat equitation. The theory program will begin the study of the environmental needs of the horse. An extra-fee course.

Fall and spring, 1 credit

PEC 181 Advanced Beginning Horsemanship

Designed for the student who has acquired the basic skills in Hunter seat equitation. Techniques will be refined and cross-country and beginning jumping will be covered. Theory will include breeds, colors, and sports. An extra-fee course.

Prerequisite: PEC 180

Fall and spring, 1 credit

PEC 188-199 Participation in Intercollegiate Sports

PEC 188 Softball

PEC 189 Basketball

PEC 190 Baseball

PEC 191 Cross Country

PEC 192 Football

PEC 193 Lacrosse

PEC 194 Soccer

PEC 195 Squash

PEC 196 Swimming

PEC 197 Tennis

PEC 198 Volleyball

PEC 199 Track and Field

Participation in a sport at the intercollegiate level including all the instruction, practice, and competition associated with such an activity. Advanced skills and strategies will be covered. Each course may be repeated once for credit. Satisfactory/Unsatisfactory grading only.

Prerequisite: Permission of instructor

Fall or spring, 1 credit each

PEC 223 Water Safety Instructor

A course designed to help the student meet the requirements for certification as a Red Cross water safety instructor.

Prerequisites: PEC 123; skill proficiency test

Fall and spring, 2 credits

PEC 226 Instructor of Adapted Aquatics

A course designed to help the student meet the requirements for certification as a Red Cross

instructor of adapted aquatics. The work includes practical experience in teaching swimming to disabled persons.

Prerequisite: PEC 223

Fall, 2 credits

PEC 227, 228 Instructor of Lifeguard Training I, II

A two-course sequence designed to meet the American Red Cross certification in Instructor of Lifeguard Training. The course will include teaching methods for physical skills in advanced life-saving and general rescue.

Prerequisites to PEC 227: PEC 124 and 223

Prerequisite to PEC 228: PEC 227

Fall (227) and spring (228), 2 credits each semester

PEC 229 Fieldwork in Adapted Aquatics Instruction

Provides currently certified instructors of adapted aquatics with additional knowledge and practical experience in teaching swimming to disabled persons. The course may also be used by experienced instructors who wish to update or renew Red Cross certification in aquatics.

Prerequisite: PEC 226

Fall and spring, 1 credit

PEC 230 Dance Performance Techniques I

The development of dance techniques as well as the theory and practice of creativity through choreography and movement improvisation. Specific performance tools (i.e., focus, energy, quality, and projection) will be discussed and applied.

Prerequisite: PEC 131

Spring, 2 credits

PEC 240 Introduction to Wellness

An introduction to healthy living in the areas of fitness, nutrition, and stress reduction. By understanding the interactive influences of the dimensions of wellness, the individual will learn about self-responsibility when making lifestyle choices.

Fall and spring, 2 credits

PEC 270 First Aid and Safety

An American Red Cross certification course designed to develop skills and knowledge of first aid and cardiopulmonary resuscitation for the immediate care given to an individual who has been injured or taken ill. An extra-fee course.

Fall and spring, 2 credits

PEC 282 Intermediate Horsemanship

A stable management course: the care of the horse and the control of his environment; first aid and training of the young horse. Riding will cover sophisticated jumping techniques in the ring and in the hunt course. An extra-fee course.

Prerequisite: PEC 181

Fall and spring, 2 credits

PEC 310 Basic Athletic Training

Basic instruction for students interested in athletic training or the health care of athletes in the prevention, protection, and first aid care of injuries occurring in athletics. The nature and evaluation of injuries, their mechanisms, protective devices utilized, and rehabilitation will be discussed. Consists of lecture and laboratory experience.

Prerequisites: BIO 232; permission of instructor

Fall, 3 credits

PEC 311 Advanced Athletic Training

Advanced instruction in athletic training for selected students interested in national certification as athletic trainers. Muscle testing, methods of conditioning, remedial exercises, dietary concerns, modality application, clinical procedures, and legal aspects of athletic training will be emphasized. Consists of lecture and laboratory experience.

Prerequisites: PEC 310; Red Cross first aid and CPR certification
Spring, 3 credits

PEC 312, 313, 314 Athletic Training Practicum

Advanced practical experience under professional supervision in athletic training. The student is assigned to a sport-related activity (such as an intercollegiate sport or an intramural season) and assumes the responsibility for injury prevention, recognition, emergency care, and rehabilitation.

Prerequisite: PEC 311
Fall (312, 313) and spring (314), 2 credits each

PEC 475 Undergraduate Teaching Practicum I

Selected undergraduates will assist faculty members teaching physical education activity classes. In addition to working as tutors during instructional periods, students will have regular conferences with a faculty supervisor. Student effort will concentrate on teaching motor skills, class safety, principles of sportsmanship, and basic coaching strategies. Satisfactory/Unsatisfactory grading only.

Prerequisites: Advanced skill level; permission of instructor and department
Fall and spring, 2 credits

PEC 476 Undergraduate Teaching Practicum II

Advanced training in the methods of planning for physical education classes, administration of sports skills, testing, and advanced coaching strategies. Students will be expected to assume greater responsibility in small unit coaching in team sports and concentrated individual coaching in lifetime sports. Satisfactory/Unsatisfactory grading only.

Prerequisites: PEC 475; permission of instructor and department
Fall and spring, 2 credits

Advanced Dance

DAN 234 Movement Awareness and Analysis

The fundamentals of movement based on knowledge of the skeleton and muscles. Students will be guided toward correct body alignment and movement on the basis of theories of Laban, Bartentieff, Alexander, Feldenkrais, and Todd and Sweigard. Analysis of movement will enable the student to correct improper use of the body and allow for efficiency of movement. Crosslisted with THR 234.

Fall, alternate years, 3 credits (not offered in 1990-91)

DAN 334 Choreography

Training in the craft of choreography, the creation of dance, using applied dance techniques, improvisational tools, and perceptual skills and investigations. Students will create studies and original dance compositions and critique the various developmental stages in order to modify

and expand their creations. The theory presented will contain basic aesthetic concepts that contribute to the structure and form of dance. Crosslisted with THR 334.

Prerequisite: PEC 131

Spring, alternate years, 3 credits (not offered in 1990-91)

Department of Physics

Chairperson: Peter Paul

Director of Undergraduate Studies:

Robert L. McCarthy

Faculty

Philip B. Allen, Professor, Ph.D., University of California, Berkeley: Theoretical solid state physics; superconductors and superconductivity.

Nandor L. Balazs, Professor, Ph.D., University of Amsterdam: Theoretical physics; statistical mechanics; general relativity.

Peter Braun-Munzinger, Professor, Ph.D., University of Heidelberg: Experimental nuclear physics.

Gerald E. Brown, Professor, Ph.D., Yale University; D.Sc., University of Birmingham: Theoretical nuclear physics. Member, Institute for Theoretical Physics.

Sudip Chakravarty, Professor, Ph.D., Northwestern University: Theoretical solid state physics. Member, Institute for Theoretical Physics.

Ernest D. Courant, Professor Emeritus, Ph.D., University of Rochester: Theory of high-energy accelerator design. Member, Institute for Theoretical Physics.

Robert L. deZafra, Professor, Ph.D., University of Maryland: Experimental atomic physics; optical pumping and double resonance quantum electronics.

Max Dresden, Professor Emeritus, Ph.D., University of Michigan: Theoretical physics: field theory, statistical mechanics, particle physics. Member, Institute for Theoretical Physics. Recipient of the President's Award for Excellence in Teaching, 1988.

Leonard Eisenbud, Professor Emeritus, Ph.D., Princeton University: Theoretical physics; nuclear theory; foundations of quantum theory.

Roderich Engelmann, Professor, Ph.D., University of Heidelberg: Experimental elementary particle physics.

Arnold M. Feingold, Professor Emeritus, Ph.D., Princeton University: Theoretical physics; nuclear structure; beta decay.

Guido Finocchiaro, Professor, Ph.D., Catania University: Experimental particle physics.

David B. Fossan, Professor, Ph.D., University of Wisconsin: Experimental nuclear physics; nuclear structure and reactions.

David Fox, Professor, Ph.D., University of California, Berkeley: Theoretical physics; solid state theory; properties of molecular crystals.

Alfred S. Goldhaber, Professor, Ph.D., Princeton University: Theoretical physics; nuclear theory; particle physics. Member, Institute for Theoretical Physics.

Maurice Goldhaber, Adjunct Professor Emeritus, Ph.D., Cambridge University: Nuclear and particle physics. Member, Institute for Theoretical Physics.

Vladimir Goldman, Assistant Professor, Ph.D., University of Maryland: Experimental low-temperature physics.

Myron L. Good, Professor, Ph.D., Duke University: Experimental elementary particle physics.

Erlend H. Graf, Associate Professor, Ph.D., Cornell University: Experimental low-temperature physics.

Paul D. Grannis, Professor, Ph.D., University of California, Berkeley: Experimental high-energy physics; elementary particle reactions.

Norbert Herrmann, Research Assistant Professor, Ph.D., University of Heidelberg: Experimental nuclear physics; relativistic heavy ions.

Andrew D. Jackson, Professor, Ph.D., Princeton University: Nuclear theory.

Peter B. Kahn, Professor, Ph.D., Northwestern University: Theoretical physics; the many-body problem; statistical properties of spectra; curriculum development.

Yi-Han Kao, Professor, Ph.D., Columbia University: Experimental solid-state physics; electronic structure of metals and semi-metals; superconductivity.

Janos Kirz, Professor, Ph.D., University of California, Berkeley: Experimental particle physics. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1976.

Steven A. Kivelson, Professor, Ph.D., Harvard University: Theoretical solid state physics. Member, Institute for Theoretical Physics.

Peter M. Koch, Associate Professor, Ph.D., Yale University: Experimental atomic physics; synchrotron radiation.

T.T.S. Kuo, Professor, Ph.D., University of Pittsburgh: Nuclear theory.

Edward D. Lambe, Professor Emeritus, Ph.D., Princeton University: Experimental atomic and nuclear physics; beta and gamma decay; curriculum development.

Linwood L. Lee, Jr., Professor, Ph.D., Yale University: Experimental nuclear structure.

Juliet Lee-Franzini, Professor, Ph.D., Columbia University: Experimental particle physics.

James Lukens, Professor, Ph.D., University of California, San Diego: Experimental solid-state physics.

Robert L. McCarthy, Professor, Ph.D., University of California, Berkeley: Experimental elementary particle physics.

Barry M. McCoy, Professor, Ph.D., Harvard University: Statistical mechanics. Member, Institute for Theoretical Physics.

Robert L. McGrath, Professor, Ph.D., University of Iowa: Experimental physics; nuclear structure.

John H. Marburger, Professor, Ph.D., Stanford University: Theoretical laser physics.

Michael Marx, Professor, Ph.D., Massachusetts Institute of Technology: Experimental high-energy physics.

Harold J. Metcalf, Professor and Director of Graduate Studies, Ph.D., Brown University: Atomic physics; level crossing techniques. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1974.

Laszlo Mihaly, Professor, Ph.D., University of Budapest: Experimental low-temperature physics.

Richard A. Mould, Associate Professor, Ph.D., Yale University: Theoretical physics; general relativity; quantum theory of measurements.

Herbert R. Muether, Professor, Ph.D., Princeton University: Experimental nuclear physics; neutron physics. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1978.

Robert Nathans, Professor, Ph.D., University of Pennsylvania: Experimental solid-state physics.

Hwa-Tung Nieh, Professor, Ph.D., Harvard University: Theoretical physics; elementary particles. Member, Institute for Theoretical Physics.

Peter Paul, Professor, Ph.D., University of Freiburg: Experimental nuclear physics.

Claudio Pellegrini, Adjunct Professor, Ph.D., University of Rome: Accelerator physics. Member, Institute for Theoretical Physics.

T. Alexander Pond, Professor Emeritus, Ph.D., Princeton University: Positron processes; beta and gamma decay.

Madappa Prakash, Research Assistant Professor, Ph.D., University of Bombay: Theoretical nuclear physics.

Michael Rijssenbeek, Assistant Professor, Ph.D., University of Amsterdam: Experimental high-energy physics.

Martin Rocek, Associate Professor, Ph.D., Harvard University: Theoretical physics. Member, Institute for Theoretical Physics.

Robert Shrock, Associate Professor, Ph.D., Princeton University: Theoretical physics; gauge theories. Member, Institute for Theoretical Physics.

Warren Siegel, Professor, Ph.D., University of California, Berkeley: Theoretical physics; strings. Member, Institute for Theoretical Physics.

Henry B. Silsbee, Professor, Ph.D., Harvard University: Experimental physics; molecular and atomic beams; magnetic resonance.

John Smith, Professor, Ph.D., University of Edinburgh: Elementary particle physics. Member, Institute for Theoretical Physics.

Gene D. Sprouse, Professor, Ph.D., Stanford University: Experimental nuclear structure.

Johanna Stachel, Assistant Professor, Ph.D., University of Mainz: Experimental nuclear structure.

Peter W. Stephens, Associate Professor, Ph.D., Massachusetts Institute of Technology: Experimental solid-state physics.

George Sterman, Associate Professor, Ph.D., University of Maryland: Theoretical physics; elementary particles. Member, Institute for Theoretical Physics.

Arnold A. Strassenburg, Professor, Ph.D., California Institute of Technology: Experimental particle physics; high-energy instrumentation; curriculum development.

Clifford E. Swartz, Professor, Ph.D., University of Rochester: Experimental high-energy physics; school curriculum revision.

John S. Toll, Professor Emeritus, Ph.D., Princeton University: Scattering; elementary particle theory.

Peter van Nieuwenhuizen, Professor, Ph.D., Utrecht University: Theoretical physics. Member, Institute for Theoretical Physics.

Jac ver Baarschot, Visiting Assistant Professor, Ph.D., Utrecht University: Theoretical nuclear physics.

William I. Weisberger, Professor, Ph.D., Massachusetts Institute of Technology: Theoretical physics. Member, Institute for Theoretical Physics.

Lee R. Wilcox, Professor, Ph.D., Stanford University: Quantum electronics.

Hideyoshi Yamagishi, Assistant Professor, Ph.D., Princeton University: Theoretical high-energy and nuclear physics.

Chen Ning Yang, Einstein Professor and Director of Institute for Theoretical Physics, D.Sc., Princeton University; Ph.D., University of Chicago: Theoretical physics; field theory; statistical mechanics; particle physics.

Ismail Zahed, Assistant Professor, Ph.D., Massachusetts Institute of Technology: Theoretical nuclear physics.

Teaching Assistants

Estimated number: 49

Students wishing to major in physics may select a sequence of courses that prepares them for graduate study in physics or for

employment in industry or research. Alternatively, they may select a sequence designed to provide considerable knowledge of the subject but not intended as preparation for a research-oriented career in physics. This latter group of students might include those who will someday work in the areas of science teaching, administration relating to science or technology, the history of science, technical writing, patent law, science and public policy, etc.

Physical Facilities

Physics laboratories for undergraduate experiments contain equipment specifically designed to elucidate the principles of physics under discussion in both the lectures and recitation sections. Students perform air track experiments as well as some elementary work using oscilloscopes, etc. At the advanced level, facilities are available for laboratory work in the basic elements of circuit theory, modern electronic logic circuitry, and the role of microcomputers. Advanced research laboratories permit students to gain expertise in nuclear, high-energy, low-temperature, solid-state, and surface physics, and in quantum electronics. Students work closely with faculty doing research in these areas, and are given the opportunity to work with an ongoing research group using specifically designed research equipment.

Minimum Requirements for the B.S. in Physics

Credits

1. Ten courses in the department including the following upper-division courses: PHY 301, 303, 306, 308, 335, 445. Each upper-division course must be completed with a grade of C- or higher, and at least four upper-division courses must be taken at Stony Brook. 34
2. Four semesters of mathematics: MAT 131, 132 or 141, 142, (MAT 125, 126, 127, may be substituted), MAT 231 or 241, 306 or 307 14
3. Twelve credits of other science, mathematics, or science-related courses (e.g., history of science, science and public policy) chosen with the approval of the departmental advisor. 12
4. Upper-Division Writing Requirement
Students satisfy this requirement in conjunction with their laboratory work in PHY 252, 335, 336, or 445. The student's proficiency in writing according to standards of acceptable scientific com-

munication will be judged by examination of the student's laboratory reports by the faculty member in charge of the course. Each student must attempt to pass this requirement before the end of the junior year. If the first attempt is judged unsatisfactory, the student must repeat the writing effort until a satisfactory level is achieved. Students must notify the instructor at the beginning of the semester when they intend to use the course's laboratory reports for this requirement. The satisfaction of the writing requirement will be certified independently of the course grade.

Total 60

Notes:

All courses used to satisfy these minimum requirements must be taken for a letter grade.

Students wishing to major in physics must, at the end of their sophomore year, consult with their departmental advisor in order to draw up preliminary plans of study that will then be submitted to the department. The plan may be revised at any time with the advisor's approval.

Honors

To receive the Bachelor of Science in physics with honors, a student must take ten courses in the department numbered 300 or above, receiving an overall grade point average in these courses of at least 3.3. Two of the ten courses must be chosen from among the following: PHY 445, 446 Senior Laboratory and PHY 487, 488 Research.

The Research Program

A student desiring to prepare for graduate study in physics or for a research-oriented career in physics has considerable flexibility in the choice of courses. The following sample program is suggested:

Freshman Year

PHY 101 Classical Physics I or 105 Classical Physics I: Honors
 PHY 102 Classical Physics II or 106 Classical Physics II: Honors
 MAT 131 Calculus I or 141 Calculus Alpha
 MAT 132 Calculus II or 142 Calculus Beta

Sophomore Year

PHY 251 Modern Physics
 PHY 252 Optics and Waves
 MAT 231 Calculus III: Linear Algebra or 241 Calculus Gamma: Linear Algebra
 MAT 306 Calculus IV: Multivariate Calculus

or 307 Calculus Delta: Multivariate Calculus
 CHE 131, 132 or 141, 142 General Chemistry or Honors Chemistry
 CHE 133, 134 or 143, 144 General Chemistry Laboratory or Honors Chemistry Laboratory

Junior Year

PHY 301, 302 Electromagnetic Theory
 PHY 303 Mechanics
 PHY 306 Thermodynamics, Kinetic Theory, and Statistical Mechanics
 PHY 308 Quantum Physics
 At least one semester of PHY 335, 336 Junior Laboratory
 MAT 341 Advanced Calculus: Differential Equations
 MAT 342 Advanced Calculus: Complex Functions

Senior Year

PHY 445 Senior Laboratory I
 Three courses selected from:
 PHY 403 Nonlinear Dynamics
 PHY 405 Advanced Quantum Physics
 PHY 408 Relativity
 PHY 431 Nuclear and Particle Physics
 PHY 446 Senior Laboratory II
 PHY 447, 448 Tutorial in Advanced Topics
 PHY 472 Solid State Physics
 PHY 487, 488 Research

The Astrophysics Program

A student wishing to pursue a career in astrophysics must take a program of study that satisfies the minimum requirements for a B.S. in physics. In addition, the student should take a concentration in those courses offered by the Earth and Space Sciences or Physics Department that satisfy his or her educational goals.

The Physics of Materials Program

A student wishing to pursue a career in engineering physics with emphasis on materials science and engineering would, in addition to completing the requirements for the B.S. in physics, take courses during the junior and senior years in the Department of Materials Science and Engineering. After the successful completion of a minimum of five courses in the Department of Materials Science and Engineering (the student should consult with the directors of undergraduate studies in both the Department of Physics and the Department of Materials Science and Engineering), the student would be eligible for admission to the master's degree program in materials science and engineering.

Teacher Preparation Program in Physics

This program is designed for the student who is preparing to teach physics in secondary schools. Professional courses are provided through the Center for Science,

Mathematics, and Technology Education, whose courses are described on p. 169. Consult the director of undergraduate studies for further details.

Courses

See p. 60, Course Credit and Prerequisites, and p. 61, Undergraduate Numbering System.

Any course above the 100 level that is to be used as a prerequisite for a physics course must be completed with a grade of C- or higher.

The courses PHY 101, 102 (or 105, 106) and 251 present an intensive introduction to classical and modern physics for those who may major in physics, some other physical science, or engineering.

PHY 100 Introductory Physics

A quantitative introduction to basic ideas of physics: space and time, static force and pressure, temperature, velocity, acceleration, force and motion, and energy. Strong emphasis is laid on the handling of numbers, treatment of experimental data, graphing functions, vector algebra, the slope of a curve and the area underneath it. Three lecture hours, one recitation, and two laboratory hours per week. A Core Course satisfying Natural Sciences Category A-2. Also satisfies Quantitative Literacy Graduation Requirement.

Fall and spring, 4 credits

PHY 101 Classical Physics I

An introductory survey of mechanics, wave motion, kinetic theory, and thermodynamics. Calculus is used concurrently with its development in MAT 131 or 141. Three lecture hours, one recitation, and two laboratory hours per week. Not for credit in addition to PHY 103 or 105. A Core Course satisfying Natural Sciences Category A-2.

Prerequisite: PHY 100 with a grade of C- or higher or permission of department

Corequisite: MAT 131 or 141 or 126
 Fall and spring, 4 credits

PHY 102 Classical Physics II

An introductory survey of electromagnetism, electric circuit theory, and optics. Calculus is used concurrently with its development in MAT 132 or 142. Three lecture hours, one recitation, and two laboratory hours per week. Not for credit in addition to PHY 104 or 106. A Core Course satisfying Natural Sciences Category A-2.

Prerequisite: PHY 101 or 105

Corequisite: MAT 132 or 142 or 127
 Fall and spring, 4 credits

PHY 103, 104 Physics for the Life Sciences

Primarily for students majoring in biological sciences or in preclinical programs. A general introduction to physics, with applications to biological systems. Topics include mechanics, fluid mechanics, electromagnetism, optics, acoustics, and radiation phenomena. Three lecture hours, one recitation, and two laboratory hours per week. Credit cannot be received for PHY 103 and either PHY 101 or 105, or for PHY 104 and either PHY 102 or 106. Core Courses satisfying Natural Sciences Category A-2.

Prerequisites for PHY 103: MAT 125 or 131 or 141; CHE 132 or 142

Prerequisite for PHY 104: PHY 103

Fall (103) and spring (104), 4 credits each semester

PHY 105, 106 Classical Physics I, II: Honors

A sequence intended for students with strong interests and abilities in science and mathematics. The topics covered are similar to those in PHY 101, 102, but are treated in more depth in a small class setting. Students will be able to transfer to PHY 101, 102 at any time during the first half of each semester without penalty. Three lecture hours, one recitation hour, and one two-hour laboratory per week. Credit cannot be received for PHY 105 and either PHY 101 or 103, or for PHY 106 and either PHY 102 or 104. Core Courses satisfying Natural Sciences Category A-2.

Prerequisite to PHY 105: Permission of department

Corequisite to PHY 105: MAT 131 or 141 or 126
Prerequisite to PHY 106: PHY 105 or permission of department

Corequisite to PHY 106: MAT 132 or 142 or 127
Fall (105) and spring (106), 4 credits each semester

PHY 117, 118 Physics and Biological Systems

A one-year sequence in introductory physics for students entering undergraduate health science professional programs. Topics studied will include the mechanics of particles, properties of solids, fluids and gases, thermodynamics, electricity and magnetism, electrical circuits, wave motion and sound, optics, elementary atomic structure, X-rays, nuclear physics, and applications to biological systems such as the eye, ear, and heart. Radiation phenomena will be studied with reference to their therapeutic use. Three lecture hours and one three-hour laboratory period per week. Core Courses satisfying Natural Sciences Category A-2.

Prerequisite for PHY 117: High school algebra and trigonometry

Prerequisite for PHY 118: PHY 117

Fall (117) and spring (118), 4 credits each semester

PHY 137, 138 The Nature and Use of Physical Science

An introductory physics course using a minimum amount of mathematics to provide scientific background for the educated citizen in an increasingly technological society. The course will be given as a sequence of six relatively independent modules, three per semester. The first module, which introduces scientific methods, is required for all subsequent modules, where these methods are applied. A student receives three credits for PHY 137 after successful completion of the first module and any other two. Each additional module successfully completed earns one credit for PHY 138. Each module will be devoted to a topic of current interest such as physics of flight, lasers, or sound and hearing. PHY 137 is a Core Course satisfying Natural Sciences Category A-2; PHY 138 (if taken for three credits) satisfies Natural Sciences Category B. *Fall and spring, PHY 137: 3 credits; PHY 138: 1, 2, or 3 credits*

PHY 251 Modern Physics

An introductory survey of modern physics, which completes a three-semester general physics sequence. The elements of the special theory of relativity are discussed. Wave-particle duality, the concept of wave function, and other fundamentals of the quantum theory are introduced and

related to atomic structure, nuclear structure, and the physics of the solid state. In the laboratory students perform some of the pivotal experiments of the 20th century. Three lecture hours, one recitation hour, and one two-hour laboratory per week.

Prerequisite: PHY 102 or 106

Pre- or corequisite: MAT 221 or 231 or 241

Fall and spring, 4 credits

PHY 252 Optics and Waves

A survey of geometrical and physical optics with associated laboratory. Ideas important to the development of contemporary physics are stressed. Three lecture hours and one three-hour laboratory per week.

Prerequisite: PHY 102 or 106

Pre- or corequisite: MAT 221 or 231 or 241

Fall and spring, 4 credits

PHY 301, 302 Electromagnetic Theory

Review of elementary electromagnetic phenomena and their unification in Maxwell's equations, applications of the theory to static and changing electric and magnetic fields, interaction of the fields with bulk matter, circuit theory, interaction of charged particles with electromagnetic fields, propagation of electromagnetic waves, and radiation.

Prerequisites to PHY 301: PHY 252; MAT 306 or 307

Corequisite to PHY 301: MAT 341

Prerequisite to PHY 302: PHY 301

Fall and spring, 3 credits each semester

PHY 303 Mechanics

The Newtonian formulation of classical mechanics is reviewed and applied to more advanced problems than those considered in PHY 101 and 102. The Lagrangian and Hamiltonian methods are then derived from the Newtonian treatment and applied to various problems.

Prerequisites: PHY 252; MAT 306 or 307

Fall and spring, 3 credits

PHY 306 Thermodynamics, Kinetic Theory, and Statistical Mechanics

The course is in two parts. Those relations among the properties of systems at thermal equilibrium, which are independent of a detailed microscopic understanding, are developed by use of the first and second laws of thermodynamics. The concepts of temperature, internal energy, and entropy are analyzed. The thermodynamic potentials are introduced. Applications to a wide variety of systems are made. The second portion of the course, beginning with the kinetic theory of gases, develops elementary statistical mechanics, relates entropy and probability, and treats simple examples in classical and quantum statistics.

Prerequisites: PHY 251; MAT 221 or 231 or 241

Pre- or corequisite: PHY 252

Fall and spring, 3 credits

PHY 308 Quantum Physics

An introduction to the concepts and mathematical methods of quantum mechanics. Some stress will be placed on historical development. Topics will include early quantum theory; Schrödinger's equation in time-dependent and time-independent forms; one- and three-dimensional solutions, including the treatment of angular momentum and spin; and perturbation

theory. Applications to simple systems, especially the hydrogen atom, will be stressed.

Prerequisites: PHY 251, 301, and 303

Fall and spring, 3 credits

PHY 335, 336 Junior Laboratory I, II

An introduction to modern analog and digital electronics (integrated circuits and transistors). PHY 335 introduces the oscilloscope, function generator, digital multimeter, power supplies, frequency counter, operational amplifier circuits, basic logic gates, flip-flop switches, and amplifiers. PHY 336 treats these topics in more depth and involves programming and interfacing a 6502 microprocessor-based microcomputer. A microcomputer interfacing project is required of all students.

Prerequisite to PHY 335: PHY 252

Prerequisite to PHY 336: PHY 335

Fall (335) and spring (336), 3 credits each semester

PHY 403 Nonlinear Dynamics

One-dimensional dynamical systems with an emphasis on the development of perturbative sections that are valid for long times. An introduction to bifurcations and chaos is included through a study of the logistic map and Lorenz equations.

Prerequisite: PHY 303

Spring, 3 credits

PHY 405 Advanced Quantum Physics

Further development and extension of the principles introduced in PHY 308. Topics will include the quantum mechanical description of identical particles, symmetry principles, the structure of multi-electron atoms, the application of perturbation theory to radiative transitions, external perturbations (Zeeman and Stark splitting), an introduction to the matrix formulation of quantum theory, and the quantum mechanical description of scattering.

Prerequisites: PHY 303 and 308; MAT 341

Fall and spring, 3 credits

PHY 407 Physics of Continuous Media

Topics to be covered include the response of non-ideal solids to stress, the properties of compressible fluids, viscosity, momentum transfer in fluid motion, irrotational flow, wave motion in gases, acoustics, conducting fluids, magneto-hydrodynamics waves, the physics of fully ionized gases, dynamics of degenerate fluids, application to magnetic plasmas, etc. This course is of interest to, among others, potential astrophysicists, plasma physicists, low-temperature physicists, and geophysicists.

Prerequisites: PHY 303 and 306

Fall, 3 credits

PHY 408 Relativity

A review and development of the special theory of relativity and an introduction to general relativity with applications to cosmology.

Prerequisites: PHY 302 and 303; MAT 342

Spring, 3 credits

PHY 431 Nuclear and Particle Physics

The topics will include the interaction of radiation with matter, radiation detectors, nuclear structure, nuclear reactions, nuclear forces, accelerators, the properties of elementary particles and resonances. Applications of quantum mechanics and the role of symmetry principles will be stressed.

Prerequisite: PHY 308

Spring, 3 credits

PHY 445, 446 Senior Laboratory I, II

A number of historically important experiments are studied and performed with the aid of modern instrumentation. As students progress, they are encouraged to pursue independent projects in which there are no rigidly fixed formats or procedures. Primary emphasis is on the development of experimental skills and on professionally acceptable analysis and presentation of results, both in written and oral form. Projects are typically chosen from such fields as atomic and nuclear spectroscopy, particle physics, solid-state and low-temperature physics, optics, and electromagnetism. Two three-hour laboratory sessions per week.

Prerequisites: PHY 308 and 335

Fall and spring, 3 credits each semester

PHY 447, 448 Tutorial in Advanced Topics

For upper-division students of unusual ability and substantial accomplishments, reading courses in advanced topics may be arranged. Prior to the beginning of the semester, the topic to be studied is selected by the supervising member of the faculty and a reading assignment is planned. Weekly conferences with this faculty member are devoted to discussion of material, resolution of problems encountered, and assessment of the student's progress. May be repeated.

Prerequisite: Permission of the director of undergraduate studies

Fall and spring, 2 to 4 credits each semester at discretion of instructor

PHY 472 Solid-State Physics

Introduction to the principal types of solids with emphasis on their electrical and magnetic properties, elementary theory of electrons in metals, and energy bands. Applications to semiconductors, superconductors, para- and ferromagnetism, magnetic resonance.

Prerequisites: PHY 306 and 308

Fall, 3 credits

PHY 475 Undergraduate Teaching Practicum

Selected undergraduates collaborate with the faculty in teaching at the introductory level. In addition to working as tutors and as laboratory assistants, students will meet once a week with a faculty supervisor to discuss problems that have been encountered and to plan future activities. Students will generally be assigned to assist in courses they have completed and in which they have excelled. Not for major credit and not repeatable. Satisfactory/Unsatisfactory grading only.

Prerequisites: PHY 102 or 104 or 106; interview; permission of director of undergraduate studies
Fall and spring, 2 credits

PHY 487, 488 Research

With the approval of the faculty, a student may conduct research for academic credit. Research proposals must be prepared by the student and submitted for approval by the faculty before the beginning of the credit period. The work is performed under the supervision of a member of the faculty. An account of the work and the results achieved is submitted to the faculty before the end of the credit period. May be repeated.

Prerequisite: Permission of director of undergraduate studies
Fall and spring, 2 to 4 credits each semester at discretion of instructor

Graduate Courses

Qualified students may take 500-level courses (subject to university limits, see p. 60) with the permission of the department chairperson. See Graduate Bulletin for details.

Quantum Mechanics
Statistical Mechanics
Nuclear Physics
Classical Physics
Astrophysics
Solid-State Physics
Elementary Particle Physics

Department of Political Science

Chairperson: Mark Schneider

Director of Undergraduate Studies:

Albert D. Cover

Faculty

Phillip R. Baumann, Assistant Professor, Ph.D., Michigan State University: International and comparative politics.

John C. Bierworth, Stony Brook Professor, J.D., Columbia University: Foreign affairs; management; ethics; environment.

Charles M. Cameron, Assistant Professor, Ph.D., Princeton University: Policy analysis; American politics and policy; political economy.

Jeff T. Casey, Assistant Professor, Ph.D., University of Wisconsin: Organizational behavior; experimental methods.

Albert D. Cover, Associate Professor, Ph.D., Yale University: American politics and institutions; legislative politics.

Yassin El-Ayouty, Professor, part time, Ph.D., New York University: International relations.

James Enelow, Professor, Ph.D., University of Rochester: Voting and social choice theory; political behavior.

Wendy Hansen, Assistant Professor, Ph.D., California Institute of Technology: Political economy; public policy; microeconomics.

Leonie Huddy, Assistant Professor, Ph.D., University of California, Los Angeles: Political psychology; public opinion.

Elliot Kleinman, Professor, part time, J.D., Brooklyn Law School: Business law.

Lee E. Koppelman, Professor, D.P.A., New York University: Regional planning; resource management.

Milton Lodge, Professor, Ph.D., University of Michigan: Political psychology; political behavior.

Kathleen McGraw, Assistant Professor, Ph.D., Northwestern University: Social psychology and cognition; research methods; psychology and the law.

Frank Myers, Professor, Ph.D., Columbia University: Comparative politics; political theory.

Helmut Norpoth, Professor, Ph.D., University of Michigan: Political behavior; legislative process; research process; research methods.

Victor C. Ottati, Assistant Professor, Ph.D., University of Illinois, Urbana-Champaign: Political psychology; experimental social psychology.

Merton Reichler, Adjunct Professor, M.A., Columbia University: Constitutional law.

Howard A. Scarrow, Professor, Ph.D., Duke University: Comparative politics; American government; political parties. Recipient of the Chancellor's Award for Excellence in Teaching, 1987, and the President's Award for Excellence in Teaching, 1987.

Mark Schneider, Professor, Ph.D., University of North Carolina at Chapel Hill: Public policy; urban politics.

John Scholz, Associate Professor and Director of Graduate Studies, Ph.D., University of California, Berkeley: Public policy; public administration.

Jeffrey A. Segal, Associate Professor, Ph.D., Michigan State University: American institutions; constitutional and public law.

Piotr Swistak, Assistant Professor, Ph.D., University of Chicago: Mathematical models; decision theory; statistics.

Paul Teske, Assistant Professor, Ph.D., Princeton University: Political economy; urban politics; regulatory policy.

Martin B. Travis, Professor Emeritus, Ph.D., University of Chicago: International law; comparative foreign policy.

Adjunct Faculty

Estimated number: 2

Teaching Assistants

Estimated number: 4

Requirements for the Major in Political Science

The major in political science leads to the Bachelor of Arts degree. The following courses are required.

A. Study Within the Area of the Major

Credits

- Three of the following courses:
 - POL 101 World Politics
 - POL 102 American Government or POL 105 Honors American Government
 - POL 103 Comparative Politics
 - POL 106 Introduction to Statistical Methods in Political Science
 - POL 107 Voting Behavior

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2. Political Science electives:
- All must be selected from courses numbered 200 or above, and at least 12 credits must be from courses numbered 300 or above. At least 12 of these 24 credits must be selected from courses in one of the programs of study listed below. No more than six credits from courses with Satisfactory/Unsatisfactory grading may be applied.
 - No grade less than C in courses numbered 200 and above may be used to fulfill major requirements.
 - No more than nine political science credits may be taken at another institution (with exceptions made in the case of planned foreign study). Of the nine credits no more than six may be used toward fulfilling the requirement of 24 credits from courses at the 200 level or above. Only transfer courses with grade of C or higher will be accepted.

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B. Study in Related Areas

Two courses numbered 300 or above, offered by another department (and not crosslisted with a political science course) in subjects directly related to the chosen program of study. Courses taken at another institution may be used to satisfy this requirement if they were passed with a grade of C or higher.

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Total	39

C. Methodology Requirement

Majors must demonstrate competence in appropriate social science methodology by passing with a grade of C or higher any one of the following courses: AMS 102, ECO 320, POL 106, PSY 201, SOC 312. The department suggests that students fulfill this requirement no later than the beginning of their junior year. A course taken to fulfill the methodology requirement may also be counted toward fulfilling any other major requirement that it would otherwise meet.

D. Upper-Division Writing Requirement

Political science majors are expected to fulfill the university's Upper-Division Writing Requirement by the end of their junior year. The requirement may be met in either of two ways:

Method I: Students may submit to the department's director of undergraduate studies a portfolio of papers on subjects relevant to political science. These papers may include term papers or shorter pieces written for political science courses at Stony Brook or elsewhere. There is no requirement concerning the number of papers submitted, but the portfolio must consist of at least 20 pages of material.

Method II: Students may seek to have their writing evaluated in certain upper-division political science courses (list available in the department). Students who have indicated that they wish their writing evaluated will receive a separate report on writing proficiency in addition to their regular course grade.

Students whose writing is not judged adequate should consult with the director of undergraduate studies on further steps to fulfill the writing requirement.

Note: With the exception of POL 287, 488, and 489, all courses in the major must be taken for a letter grade.

Programs of Study

Comparative Politics and International Relations

POL 210, 211, 214, 216, 305, 306, 307, 308, 311, 312, 313, 335, 337, 339, 361, 369, 370, 372, 373, 382. Also 287, 401, 402, 403, 447, 487, and 495 when the topic is applicable.

American Government and Public Policy

POL 220, 260, 261, 317, 320, 321, 322, 323, 324, 325, 327, 328, 347, 360, 362, 366, 367, 369, 374, 375. Also 287, 401, 402, 403, 447, 487, and 495 when the topic is applicable.

Political Behavior and Political Psychology

POL 238, 317, 323, 343, 346, 347, 348, 349, 367. Also 287, 401, 402, 403, 447, 487, and 495 when the topic is applicable.

Note: POL 250, 350, 354, 355, and 356 may be applied to any of the programs of study. No more than three of these courses may be used to satisfy the requirement that majors and minors complete a minimum number of credits in one program.

Requirements for the Minor in Political Science

The minor in political science, which requires 24 credits, is organized around one of the three programs of study listed for the major and must be approved by the

department's director of undergraduate studies. The minor will include the two 100-level courses that are appropriate for the program of study selected, and 18 credits of courses in the program of study, of which at least nine credits must be at the 300 level or above.

No more than six credits of courses with Satisfactory/Unsatisfactory grading may be applied to the minor. All courses except POL 287, 488, and 489 must be taken for a letter grade. No grade less than C in courses numbered 200 and above may be used to fulfill minor requirements. No more than nine credits may be taken at another institution, and of these no more than six credits may be used toward the requirement of 18 credits from courses numbered 200 and above. Only transfer courses graded C or higher will be accepted for minor credit.

B.A./M.A. Program in Public Affairs

The five-year program in public affairs combines advanced training in a student's senior year with a focused program of study in an additional year of graduate work to prepare students for careers in government, not-for-profit institutions, or consulting firms dealing with state and local governments.

In the senior year a student in this program will take four graduate courses: a two-course statistics sequence and a two-course administration/policy analysis sequence. These 12 credits are applied toward the B.A. degree. After admission to the Graduate School, the student will take a variety of advanced electives in policy analysis, management, and the investigation of a substantive area of the student's choice. The student is awarded the M.A. degree after 30 credits of graduate work.

Honors Program

The honors program is open to juniors majoring in political science. To be admitted, students must have achieved a 3.0 G.P.A. overall. Prior to admission students must have completed 12 credits in the major, of which three are at the 300 level or above. Normally students will begin the honors program as second-term juniors, but qualified students may be admitted at the beginning of their junior year. Students who are interested in the program should contact the director of undergraduate studies at the end of the sophomore year or at the beginning of their junior year.

Students in the honors program will begin by enrolling in the honors seminar, POL 495. The topics covered in the seminar will vary from term to term. Students will repeat POL 495 during their second term in the program. After completing two of the seminars, each student will enroll in POL 487 Directed Research to prepare an

honors paper. A faculty sponsor, chosen in consultation with the director of undergraduate studies, will supervise each student's paper. The paper will be evaluated by a committee consisting of the sponsor, one other faculty member from Political Science, and a faculty member from another department. Conferral of honors will be contingent on satisfactory completion of the honors seminars and the paper, on achieving a 3.5 grade point average in political science courses taken after admission to the program, and on maintaining a 3.0 G.P.A. overall.

Courses

See p. 60, Course Credit and Prerequisites, and p. 61, Undergraduate Numbering System.

POL 101 World Politics

Analysis of the basic concepts and issues of international relations in the contemporary international system. The behaviors of states and their decision makers will be considered according to various models of national and international conflict. The relationship between the characteristics of nations and their foreign policies will be studied on a comparative basis. A Core Course satisfying Social and Behavioral Sciences Category A, Group 3.

Fall and spring, 3 credits

POL 102 Introduction to American Government

What the informed citizen and specialist should know about the organization of American government, including the Constitution and what it means today, the Congress, political parties, pressure groups, growth of the Presidency, the Supreme Court, judicial review, federalism, separation of powers, and the Bill of Rights. May not be taken for credit in addition to POL 105.

Fall and spring, 3 credits

POL 103 Introduction to Comparative Politics

Analysis of political institutions and processes in the contemporary world, emphasizing the interaction of political structures and processes in a variety of political settings. A Core Course satisfying Social and Behavioral Sciences Category A, Group 3.

Fall and spring, 3 credits

POL 105 Honors Introduction to American Government

An enriched introduction to American government. Topics covered include political participation, public opinion, voting and elections, parties, interest groups, federalism, Congress, the Presidency, the bureaucracy, the judiciary, and public policy formation. This course requires more reading and more written work than does POL 102. May not be taken for credit in addition to POL 102. Satisfies Lower-Division Writing Requirement for students who score "Strong" on English Placement Examination.

Prerequisites: Permission of department. Priority given to Honors College students

Fall or spring, 3 credits

POL 106 Introduction to Statistical Methods in Political Science

An introduction to the methods and statistics used by political scientists in their analysis of the opinions and voting behavior of the average American voter. These basic skills are examined in the context of major substantive literature on electoral behavior and public opinion in the United States and in selected other democracies. A Core Course satisfying Social and Behavioral Sciences Category B.

Fall and spring, 3 credits

POL 107 Voting Behavior

An examination of both historical and contemporary models of voting choices. This will include a survey of economic, sociological, and social-psychological models of the voting decision-making process. Applications of recent work in cognitive psychology to the area of political decision making will also be considered.

Spring, 3 credits

POL 121 Library Skills for Research in American Politics

A self-paced workbook approach is used to teach library skills and bibliographic resources. Workshops throughout the semester provide adequate contact between students and librarians. Reference and other library materials of special interest to political science students are covered. Skills such as the use of catalogues, bibliographies, and special indexes are also treated. Not for credit in addition to PSY 121 or SOC 121.

Fall, 1 credit

POL 210 Foreign Policy in the Middle East

Survey of problems involved in the formulation of foreign policy of selected Middle East countries including Israel and Egypt. Cultural, economic, psychological, and political components of policy making will be examined together with the role of legislative and executive institutions. A Core Course satisfying Social and Behavioral Sciences Category A, Group 4, and Study of Another Culture.

Prerequisite: POL 101

Spring, 3 credits

POL 211 American Foreign Policy

Survey of problems involved in formulation of United States foreign policy. Whenever appropriate the American system is compared with procedures in other countries. Components of policy are analyzed: conditions abroad, traditional policy, public opinion, and international law. Major constitutional provisions as they relate to foreign policy are reviewed. Executive and legislative institutions are studied from standpoints of role and personality, with emphasis given to contemporary situations.

Prerequisite: POL 101

Fall, 3 credits

POL 214 Modern Latin America

From independence to the present: the evolution of 19th- and 20th-century Latin America. Emphasis on current social, economic, and political issues. A Core Course satisfying Social and Behavioral Sciences Category A, Group 4, and Study of Another Culture. Crosslisted with HIS 214.

Spring, 3 credits

POL 216 History of U.S.-Latin American Relations

An examination of the impact of U.S. economic and political relations with Latin America from the mid-19th century to the present. The course will consider changes in American policy toward Latin America, as well as the varying responses of Latin American nations to U.S. intervention and influence. A Core Course satisfying Social and Behavioral Sciences Category A, Group 4, and Study of Another Culture. Crosslisted with HIS 216.

Spring, alternate years, 3 credits (not offered in 1989-90)

POL 220 Law and Politics

The major institutional structures of the civil and criminal law systems in the United States: the adversary proceeding, the legal profession, the judiciary, juries, and patterns of fault and punishment. Each aspect will be placed in the setting of American politics, i.e., in the context of legislative, executive, party, and community behavior.

Prerequisite: POL 102 or 105

Fall, 3 credits

POL 238 Political Propaganda

Examination of devices used to manipulate political attitudes and beliefs in both print and visual media. Course topics include politics of the mass media, political satire, political rhetoric, psychology of persuasion, etc.

Alternate years, 3 credits (not offered in 1990-91)

POL 250 Classical Political Theory:

Plato to Mill

Plato, Aristotle, St. Thomas, Machiavelli, Hobbes, Locke, Montesquieu, Hume, Mill, and Rousseau are read and discussed to the end of discovering their relevance to the understanding of political behavior. A Core Course satisfying Social and Behavioral Sciences Category B. May not be taken for credit in addition to POL 355 or 356.

Prerequisite: Sophomore standing

Fall or spring, 3 credits

POL 260 Introduction to Public Policy

Discussion and analysis of the processes of agenda setting, formulation, implementation, and evaluation of public policies regarding selected issues such as housing, land use, education, etc. The public policy-making processes of the United States will be compared with those of selected other countries.

Prerequisite: POL 102 or 105

Fall or spring, 3 credits

POL 261 Business Law

A study of the legal environment of business operations, covering such topics as the principle of contracts, commercial papers, partnerships, corporations, real property, estates, bankruptcy, antitrust laws, and environmental and civil rights regulations.

Prerequisite: POL 102 or 105

Fall and spring, 3 credits

POL 287 Introductory Research in Political Science

Supervised research experience open to all undergraduates as part of the university's URECA Program. Students will assist faculty members in various aspects of research on

political science topics. Assignments will vary depending on background and interests of students. Satisfactory/Unsatisfactory grading only. May be repeated up to a limit of 12 credits, but only six credits may count toward major or minor requirements in political science.

Prerequisite: Permission of departmental URECA coordinator

Fall and spring, 1 to 6 credits

POL 305 British Parliamentary Democracy

Examination of the working of parliamentary democracy in Britain and in selected dominions with emphasis upon the nature of the societies in question and the relationship of society to the working of political institutions, ideologies, and governmental policies.

Prerequisites: POL 103; one other social science course

Fall or spring, 3 credits

POL 306 Politics of International Organization

Analysis of the structures and functions of international organizations with particular emphasis on the United Nations and regional organizations such as the League of Arab States, the Organization of American States, and the Organization of African Unity. Examination of the roles of international organization in peace and security, economic and social development, human rights, and disarmament.

Prerequisite: POL 101 or 103

Alternate years, 3 credits (not offered in 1989-90)

POL 307 Politics in West Germany

An examination of the German Federal Republic, with special emphasis on the country's twisted path toward democracy; the international constraints of domestic politics; the role of political parties in government; coalition building; and the electoral process.

Prerequisite: POL 103

Alternate years, 3 credits (not offered in 1990-91)

POL 308 Politics of Conflict: The Middle East

The genesis and development of one of the most important international regional conflicts, the Arab-Israeli conflict. Issues of the conflict, role of external powers, and process of conflict resolution will be discussed.

Prerequisite: POL 101

Fall, 3 credits

POL 311 Introduction to International Law

Casebook approach to standard introductory course in international law, including the following topics: state jurisdiction and responsibility, individuals, international organization, and use of force.

Prerequisite: POL 101

Fall and spring, 3 credits

POL 312 National Security Policy

Analysis of the strategy, structure, and processes of U.S. national security policy, including the political use of force, limited war, nuclear strategy, arms control, and selected regional security problems. Special attention will be directed to the decision-making process.

Prerequisite: POL 211 and 260

Fall or spring, 3 credits

POL 313 Problems of International Relations

Analysis of the international system, its characteristic forms, and the principal forces making

for conflict and adjustment. Examination of some prevalent analytical concepts, of major current problems and developments, and of prospects and alternatives for the future.

Prerequisite: POL 101

Fall or spring, 3 credits

POL 317 American Election Campaigns

The politics of presidential nominations through primaries, caucuses, and conventions; the conduct of presidential general election campaigns; mass media coverage and opinion polling; the citizen's involvement in campaign politics; voter attitudes toward parties, candidates, and issues; and the interpretation of electoral outcomes.

Prerequisite: POL 102 or 105

Fall or spring, 3 credits

POL 320 Constitutional Law and Politics: United States

A study of the role of the modern Supreme Court within the political and governmental process; its relation with Congress, the Presidency, state and local governments, parties, and interest groups; and the Court's contemporary policy-making role in several areas—economic regulation, representation, race relations, censorship, religion in government, and defendants' rights.

Prerequisite: POL 102 or 105

Fall and spring, 3 credits

POL 321 American Federalism and Intergovernmental Regulations

A survey of the constitutional, institutional, and political interrelationships among federal, state, and local governments, covering grants-in-aid and interstate compacts.

Prerequisite: POL 102 or 105

Fall or spring, 3 credits

POL 322 The Presidency in the American Political System

How presidential power developed historically; from what sources the powers of the modern Presidency emanate; how decisions are made in the presidential institution; how and to what degree presidential power may or ought to be controlled.

Prerequisite: POL 102 or 105

Fall or spring, 3 credits

POL 323 The Legislative Process

An examination of American legislative institutions—Congress, state governments, local legislatures—in light of recent research. How legislatures actually operate and how American legislatures contribute to the "democratic culture."

Prerequisite: POL 102 or 105

Fall or spring, 3 credits

POL 324 American Political Parties and Pressure Groups

An examination of political party organization, political leadership, finance, campaign techniques, and legal controls over parties; the functions and methods of pressure groups and their interaction with policy makers; the historical origins and development of the American party system; the significance of parties and pressure groups for democratic ideology and the problems of political leadership in a democracy.

Prerequisite: POL 102 or 105

Fall or spring, 3 credits

POL 325 Civil Liberties and Civil Rights

A systematic treatment of leading Supreme Court decisions in such areas as freedom of speech, the press, and religion; the rights of criminal defendants; voting rights; and discrimination on grounds of race, sex, poverty, illegitimacy, and alienage.

Prerequisite: POL 320

Fall or spring, 3 credits

POL 326 Politics of New York State

Analysis of parties, pressure groups, and the political process in New York State. Particular attention paid to the legislative process in Albany.

Prerequisite: POL 102 or 105

Fall or spring, 3 credits

POL 327 Urban Politics

Emphasizes both the formal and informal political institutions and processes in American cities, including governmental structures, political parties, interest groups, and service systems. Special attention will be given to community "power structures," political participation, and a comparative approach to the study of urban politics.

Prerequisite: POL 102 or 105

Fall or spring, 3 credits

POL 328 Legal and Political Foundations of the Civil Rights Movement

Examination of the civil rights movement through the framework of legal analysis. Course topics will include the political origins and developments of the modern civil rights movement. The civil rights movement for blacks in the United States will be studied, reviewing the case law, constitutional law, and states' rights as expressed in the Constitution. The legal benefits in the areas of education, public accommodations, transportation, voting, and employment will be examined.

Prerequisite: POL 102 or 105

Spring, 3 credits

POL 335 Contemporary African Problems

An investigation of the nature of African societies by studying the variety of African political, social, and traditional forms necessary to understanding developments in the 19th and 20th centuries. Emphasis will be upon some of the long-standing problems essential to understanding the diversity of ideas and people in the African scene. Crosslisted with AFS 335.

Prerequisites: Two AFS or POL courses

Fall, 3 credits

POL 337 Politics in Africa

A study of nationalism, political thought, and political institutions in Africa. Consideration is given to the quest for unity, the problems of liberation, and the political implications of social change. Crosslisted with AFS 337.

Prerequisites: Two AFS or POL courses

Spring, 3 credits

POL 343 Behavioral Assumptions of the Law

Evidence from social science research is used to examine some of the behavioral assumptions underlying the law and to assess their validity. The primary focus will be on those aspects of the criminal justice system where social psychological factors, although formally extraneous to the legal process, can and do consistently influence legal outcomes and decisions.

Prerequisite: PSY 103 or 104

Fall or spring, 3 credits

POL 346 Political Psychology

Focus on the application of psychological concepts and measures to political behavior. Course topics include attitude measurement, stability and change, obedience to authority, learning theory, attention and problem solving, personality correlates of political activity, and stress and aggression.

Prerequisite: POL 106
Fall or spring, 3 credits

POL 347 Women and Politics

Analysis of the role of women in current American politics from a social psychological perspective. The focus is on changing trends in women's electoral participation, political interest, and office seeking over the last several decades, and recent gender differences in political involvement, candidate support, support for women's issues, and support for other public policies. Crosslisted with WNS 347.

Prerequisites: POL 102 or 105; POL 106
Spring, 3 credits

POL 348 Political Beliefs and Judgments

Following a review of the literature on political attitudes, the course applies psychological concepts and experimental approaches to the study of the content and structure of political beliefs and judgments.

Prerequisite: POL 102 or 105 or 106
Fall or spring, 3 credits

POL 349 Social Psychology of Politics

A survey of social-psychological theory and research pertinent to political behavior. The course will look at how scientific psychology views socialization, attitude formation and change, conformity, power, decision-making in groups, and leadership. These topics are applied to such problems as politicization, party identification, candidate preference, voting behavior, campaign strategies, and submission to political authority.

Prerequisite: POL 106
Fall or spring, 3 credits

POL 350 Contemporary Political Theory

An examination of how political theory has assimilated the advances and discoveries in the other social sciences, developments in the analysis of language, and reversals in Hegelianism and anarchism. Original writing from Mosca to Marcuse.

Fall or spring, 3 credits

POL 354 Marxist Political Theory

Analysis of the political theories of Karl Marx and of major 19th- and 20th-century Marxist theorists, relying mainly on the study of primary sources. *Alternate years, 3 credits (not offered in 1990-91)*

POL 355 Ancient and Medieval Political Philosophy

Power, authority, social conflict, justice, and the goals of government as seen by such thinkers as Plato, Aristotle, Augustine, Thomas Aquinas, John of Salisbury, Marsilio of Padua, Machiavelli, Bodin, More, and Hooker. May not be taken for credit in addition to POL 250.

Prerequisites: Two political science courses; upper-division standing
Fall, 3 credits

POL 356 Modern Political Philosophy

Power, authority, social conflict, justice, and the goals of government as seen by such thinkers

as Hobbes, Locke, Rousseau, Hume, Burke, Hegel, Bentham, Mill, and Marx. May not be taken for credit in addition to POL 250.

Prerequisites: Two political science courses; upper-division standing
Spring, 3 credits

POL 360 Political Decision Making

Exploration of economic models of political choice. Topics include decision theory, game theory, and social choice theory. Substantive problem areas include voting in small groups, candidate competition in mass elections, and the normative study of democratic decision making.

Prerequisites: POL 102 or 105 or 106; one of the policy or behavior courses listed on p. 157; satisfaction of entry-level mathematics proficiency requirement
Fall or spring, 3 credits

POL 361 Science, Technology, and Arms Control

A study of the application of scientific technology to national defense, covering nuclear weapons and delivery systems, chemical and biological weapons, conventional weapons systems, defense research and development, arms control and disarmament negotiations, and international technology transfer. A Core Course satisfying Natural Sciences Category B. Crosslisted with EST 360.

Prerequisites: Upper-division standing; one Natural Sciences Category A course
Fall, 3 credits

POL 362 Special Topics in Governmental Planning

Topics to be considered include the economic and environmental planning process at the federal, state, regional, and local government levels, and its relationship to government decision making. May be repeated once as the topic varies.

Prerequisite: POL 260
Schedule to be announced, 3 credits

POL 364 Organizational Decision Making

Decision processes are examined in public and private organizations to understand common problems arising from limited decision-making capabilities, conflicts among organizational members, and uncertainty and ambiguity in the organization's environment. Several concepts are introduced to analyze normative and behavioral issues arising from the organizational context of political life.

Prerequisites: Upper-division standing; POL 260 or ECO 251
Fall, alternate years, 3 credits (not offered in 1990-91)

POL 366 Government Regulation of Business

An examination of the scope of government regulation of business in the United States today—regulation at both the federal and state levels, regulation by both economic and social agencies. The course will also compare alternative explanations for regulatory agency failures as well as possible explanations for why some regulatory agencies perform better than others. Finally, the course will consider proposed reforms, such as clearer legislative standards, curbs on "revolving door" practices, greater

citizen participation in agency proceedings, and deregulation.

Prerequisites: POL 102 or 105; one of the policy courses listed on p. 157
Fall or spring, 3 credits

POL 367 Mass Media in American Politics

Competing theories of the power of the press will be tested by examining the literature on mass media effects—on what the public thinks and what the public thinks about. Various explanations of why news organizations behave as they do will also be assessed. Conflicts between freedom of the press and such values as privacy, national security, and the right to fair trial will be discussed. The relationships between freedom of the press and the public's right to know will also be explored.

Fall or spring, 3 credits

POL 368 Collective Choice and Democratic Values

A logical analysis of collective choice. The course examines such questions as: How should society make collective choices? What problems arise in the attempt to relate collective choices to individual preferences? What solutions are there to overcome the difficulties posed by the famous "cyclical majorities" problem?

Prerequisites: Satisfaction of entry-level mathematics proficiency requirement; PHI 108; POL 102 or 105; POL 360 or 364
Fall or spring, 3 credits

POL 369 Political Economy of U.S Trade Policy

An examination of the history and present developments of U.S. trade policy, the economic effects of trade regulations on U.S. markets and the world, the role of multinationals in world trade, the role of political institutions, and the goals of American policy makers.

Prerequisites: POL 102 or 105; ECO 101 or 104
Spring, 3 credits

POL 370 Nuclear Proliferation: Technology and Politics

The proliferation of nuclear technology employable for both peaceful and military purposes, the threat it poses to world political and military stability, and the responses made by governments and international organizations. The topic requires the ability to read a diverse array of technical material for which students will need background in both physical and social sciences. Crosslisted with EST 370. A Core Course satisfying Natural Sciences Category B.

Prerequisites: One year of physical science, including at least one Natural Sciences Category A course; upper-division standing
Spring, 3 credits

POL 372 Politics in the Third World

Analysis of problems and prospects of non-industrialized nations that are experiencing political and economic development. Particular attention will be paid to the impact of colonialism, social problems, economic modernization, and foreign policy orientations of Third World nations.

Prerequisite: POL 103
Alternate years, 3 credits (not offered in 1989-90)

POL 373 Politics in South Asia

Analysis of the political systems of India, Pakistan, and other major nations of South Asia. The course will explore the relationships between

political cultures, economic structures, party systems, and institutions for formulating public policy.

Prerequisite: POL 103

Alternate years, 3 credits (not offered in 1989-90)

POL 374 Health Politics and Policymaking

An intensive examination of the formulation and implementation of public policy in the United States through in-depth scrutiny of one policy area—health care. Topics include the politics of smoking, health care financing, restructuring federal programs, “pro-competitive” reforms of the health care system, the aging.

Prerequisite: POL 102 or 105; POL 260 recommended

Spring, alternate years, 3 credits (not offered in 1990-91)

POL 375 American Politics and Social Change

An examination of the dynamics of social change from theoretical and historical perspectives. The course focuses on competing models of the American political process and questions how well they explain the origins of movements seeking social change and the state’s responsiveness to political demands of disadvantaged groups.

Prerequisites: POL 102 or 105; POL 106

Fall, alternate years, 3 credits (not offered in 1990-91)

POL 382 Politics and Political Change in Latin America

An examination of revolutionary and reformist movements that have shaped the political, social, and economic contours of 20th-century Latin America. Topics include the Mexican and Cuban revolutions, populism, urban squatter movements, and guerilla warfare. A Core Course satisfying Social and Behavioral Sciences Category A, Group 2, and Study of Another Culture. Crosslisted with HIS 382.

Prerequisite: One course in history, preferably Latin American history

Fall, alternate years, 3 credits (not offered in 1989-90)

POL 401, 402, 403 Seminars in Advanced Topics

Special projects and research papers on a topic of political interest, which will be announced before the start of the term.

Prerequisite: Permission of instructor

Schedule to be announced, 3 credits each semester

POL 447 Directed Readings in Political Science

Individually supervised readings in selected topics of the discipline. May be repeated, but total credit may not exceed six credits.

Prerequisites: Political science major; 15 credits in political science; permission of instructor and department

Fall and spring, 1 to 3 credits

POL 475 Undergraduate Teaching Practicum

Each student will conduct a periodic recitation that will supplement a lecture course. The student will receive regularly scheduled supervision from the instructor. Responsibilities may include preparing material for discussion and helping

students with research papers. Satisfactory/Unsatisfactory grading only.

Prerequisites: Political science major; senior standing; interview; permission of instructor
Fall and spring, 3 credits

POL 487 Directed Research

Qualified advanced undergraduates in political science may carry out individual research projects under the direct supervision of a faculty member. May be repeated but total credit may not exceed six credits.

Prerequisites: Political science major; 15 credits in political science; permission of instructor and department. Permission of departmental URECA coordinator may be substituted.

Fall and spring, 1 to 3 credits

POL 488 Internship

Participation in a local, state, or federal governmental agency or community organization. Students will be required to submit progress reports to their department sponsor and a final report on their experience to the department faculty. Satisfactory/Unsatisfactory grading only. May be repeated up to a limit of 12 credits.

Prerequisites: Political science major or minor with 3.0 G.P.A.; 15 credits in political science; permission of instructor, department, and Office of Undergraduate Studies

Fall and spring, 3 to 12 credits

POL 489 Washington or Albany Internship

Designed so that students can participate in Washington, D.C. at the Washington Center as interns in private or public sector organizations and agencies or in Albany as interns in the New York State Assembly or Senate Program. Students will be supervised by selected practitioners within the organization or agency. Students will be required to submit journals of experience and observation which, together with the supervisors’ report, become the basis for a Satisfactory/Unsatisfactory grade. Only three credits for this course may be applied toward major requirements. Crosslisted with SSI 489.

Prerequisites: Admission to Washington Center or New York State Assembly or Senate Program; political science major or minor with 3.0 G.P.A.; 15 credits in political science; sponsorship of a political science faculty member

Corequisite: POL 490

Fall and spring, 12 credits

POL 490 Washington or Albany Seminar

Seminar offered in Washington, D.C. as part of the internship program of the Washington Center or in Albany as part of the New York State Assembly or Senate Internship Program. The seminars are taught by people with experience in public and private agencies, public policy formulation, and relevant academic and professional experience. Students are offered work in several program areas designed to complement their internships, such as law and justice, congressional studies, policy studies, community-urban service, and studies in government. Crosslisted with SSI 490.

Prerequisites: Admission to Washington Center or New York State Assembly or Senate Program; political science major or minor with 3.0 G.P.A.; 15 credits in political science; sponsorship of a political science faculty member

Corequisite: POL 489

Fall and spring, 3 credits

POL 495 Honors Seminar in Political Science

A seminar on various topics concerning American government, public policy, political psychology, comparative politics, and international relations. Topics covered will depend on interests of faculty and students. May be repeated once.

Prerequisites: Admission to honors program; permission of instructor and department
Fall and spring, 3 credits

Department of Psychology

Chairperson: Edward S. Katkin

Director of Undergraduate Studies:

Alan O. Ross

Faculty

Beverly Birns, Professor, Ph.D., Columbia University: Child development; psychology of women.

Dana Bramel, Professor, Ph.D., Stanford University: Interpersonal perception; social psychology.

Jasper Brener, Professor, Ph.D., University of London: Cardiovascular psychophysiology; behavioral energetics; autonomic learning.

Edward G. Carr, Professor, Ph.D., University of California, San Diego: Behavior modification; developmental disabilities; language and communication.

David Cross, Associate Professor, Ph.D., University of Michigan: Psychophysics; mathematical models.

Thomas J. D’Zurilla, Associate Professor, Ph.D., University of Illinois: Cognitive-behavior therapy; social problem solving; problem-solving therapy.

Edward Eisenstein, Adjunct Professor, Ph.D., University of California, Los Angeles; M.D., Michigan State University: Learning and memory mechanisms in lower animals; learning and memory pathology in humans.

David S. Emmerich, Associate Professor, Ph.D., Indiana University: Sensory processing; perception.

Richard Friedman, Associate Professor, Ph.D., State University of New York at Stony Brook: Psychophysiological disorders; behavioral medicine.

Ronald Friend, Associate Professor, Ph.D., University of Toronto: Social psychology; health psychology.

John H. Gagnon, Professor, Ph.D., University of Chicago: Sexual behavior; marriage and the family; social change; deviance.

David C. Glass, Professor, Ph.D., New York University: Behavior patterns; stress and coronary disease.

Marvin R. Goldfried, Professor, Ph.D., State University of New York at Buffalo: Behavioral assessment; cognitive behavior therapy.

Andrew Harver, Research Assistant Professor, Ph.D., Ohio State University: Psychosomatic medicine; respiratory disease.

Harry I. Kalish, Professor Emeritus, Ph.D., University of Iowa: Applied learning; biofeedback; animal learning.

Edward S. Katkin, Professor, Ph.D., Duke University: Psychophysiological disorders; assessment of emotions.

Herbert Kaye, Associate Professor, Ph.D., Brown University: Developmental; learning disabilities.

Daniel N. Klein, Associate Professor, Ph.D., State University of New York at Buffalo: Mood disorders; psychopathology.

Fredric Levine, Associate Professor, Ph.D., Northwestern University: Behavior modification; motivation; schizophrenia.

Marvin Levine, Professor, Ph.D., University of Wisconsin: Human learning with emphasis on cognitive functions.

Robert M. Liebert, Professor, Ph.D., Stanford University: Observational learning; laboratory methodology; statistics.

Alexandra W. Logue, Associate Professor, Ph.D., Harvard University: Choice; self-control; food preferences and aversions; history of psychology.

Jan Loney, Professor, Ph.D., University of Illinois: Childhood behavior disorders.

Jack G. May, III, Assistant Professor, Ph.D., Brown University: Biological psychology; control of the visual system.

Emil Menzel, Professor, Ph.D., Vanderbilt University: Primate behavior; social behavior.

Lawrence P. Morin, Associate Professor, Ph.D., Rutgers University: Biological rhythms; environment and reproduction; endocrine system and behavior.

H. William Morrison, Associate Professor, Ph.D., University of Michigan: Perception of abstract relations; instructional techniques.

John Neale, Professor, Ph.D., Vanderbilt University: Behavior deviations; schizophrenia.

K. Daniel O'Leary, Distinguished Professor, Ph.D., University of Illinois: Marital discord; hyperactivity in children.

Susan G. O'Leary, Associate Professor and Director of Clinical Training, Ph.D., State University of New York at Stony Brook: Child and family problems; hyperactivity in children.

Kathie L. Olsen, Assistant Professor, Ph.D., University of California, Irvine: Developmental neurobiology; mechanisms underlying the expression of sexually dimorphic behaviors.

Heywood M. Petry, Assistant Professor, Ph.D., Brown University: Neural mechanisms of vision.

Edward Podolnick, Adjunct Assistant Professor, Ph.D., New York University: Psychodynamic therapies; problems of student adjustment.

David M. Pomeranz, Associate Professor, Associate Chairperson, Ph.D., University of Rochester: Environmental psychology; behavior modification.

Howard C. Rachlin, Professor, Ph.D., Harvard University: Punishment; avoidance; choice; self-control.

Alan O. Ross, Professor, Ph.D., Yale University: Psychological disorders of children; child abuse. Recipient of the President's Award for Excellence in Teaching, 1988.

Joyce Sprafkin, Associate Professor, Ph.D., State University of New York at Stony Brook: The effects of television on children; psychiatric disorders in children.

Nancy K. Squires, Associate Professor and Director of Graduate Studies, Ph.D., University of California, San Diego: Human neurophysiology.

John Stamm, Professor, Ph.D., University of Southern California: Experimental neuropsychology; higher cortical functions in monkeys and humans.

Sarah Hall Sternglanz, Adjunct Assistant Professor, Ph.D., Stanford University: Development; gender roles.

Arthur A. Stone, Associate Professor, Ph.D., State University of New York at Stony Brook: Stress and coping; depression; behavioral medicine.

Stuart Valins, Professor, Ph.D., Columbia University: Group dynamics; environmental psychology.

Everett Waters, Associate Professor, Ph.D., University of Minnesota: Social and personality development.

Harriet S. Waters, Associate Professor, Ph.D., University of Minnesota: Memory and cognitive development.

Gerdi Weidner, Assistant Professor, Ph.D., Kansas State University: Health psychology; personality.

Sheldon Weintraub, Adjunct Associate Professor, Ph.D., University of Minnesota: Children at high risk.

Grover J. Whitehurst, Professor, Ph.D., University of Illinois: Basic learning processes; operant learning.

Gerrit Wolf, Professor, Ph.D., Cornell University: Modern manufacturing and entrepreneurship; cooperation, competition, and leadership.

Joanne V. Wood, Assistant Professor, Ph.D., University of California, Los Angeles: Health psychology; social cognition.

Everett J. Wyers, Professor, Ph.D., University of California, Berkeley: Comparative psychology; evolution of behavior; animal learning.

Teaching Assistants

Estimated number: 13

Physical Facilities

The Psychology Department has several laboratories used exclusively for undergraduate instruction. A number of the department's research facilities are also exclusively for undergraduates. In addition, laboratories maintained by individual faculty members can be used by undergraduates working with them. These include research facilities on campus for the study of operant conditioning, information processing, memory and perception, animal behavior, psychophysiology, and small group behavior. Certain off-campus facilities are available for qualified undergraduates. Several child development facilities on campus that are available to the community at large also provide opportunities for undergraduate participation. For example, the *Point of Woods University Laboratory School* is a research facility studying hyperactivity and conduct disorders in children; the *Suffolk Developmental Center* works with autistic children; and the Psychology Department *Preschool* is a nursery school for pre-kindergartners. Support facilities for the laboratories include several computers, an electronics workshop, and a machine shop.

Programs in Psychology

The Department of Psychology offers undergraduate majors leading to either a Bachelor of Arts or Bachelor of Science degree. Both programs provide a similar broad overview of psychology, and both require extensive exposure to areas other than psychology as context for study in the major. The two programs differ primarily in the content of the outside requirements. Thus, the B.A. program emphasizes related study in the social sciences or humanities, whereas the B.S. program concentrates on the natural sciences and mathematics. Both programs provide equally good preparation for graduate school, given that students do well in their coursework both within and outside the major.

The Undergraduate Office in Psychology is open daily to assist students interested in psychology, to advise psychology majors, and to provide information about programs, courses, colloquia, and other events in the department.

Requirements for the Majors in Psychology

All courses required for either the B.S. or B.A. degree must be taken for a letter grade. A grade of C- or higher must be obtained in all courses (within and outside the Psychology Department) required for the major. No transferred psychology course with a grade lower than C- will be accepted for credit toward the major.

A. Study within Psychology

34 credits in psychology to be distributed as follows for both degree programs:

	Credits
1. Core Program:	
PSY 103 or 104 A Survey of Psychology	3
PSY 201 Statistical Methods in Psychology or another allowed statistics course	3
PSY 300 Research Methodology	3
PSY 303 Research Methodology Laboratory	4
2. Distribution Requirements within Psychology:	
Two courses from each group (a and b below):	
a. PSY 208 Theories of Personality	
PSY 209 Social Psychology	
PSY 211 Developmental Psychology	
PSY 215 Abnormal Psychology	6
b. PSY 241 Brain and Behavior	
PSY 318 Animal Learning	
PSY 321 Sensation and Perception	
PSY 343 Comparative Psychology	
PSY 350 Cognitive Psychology	6
3. Three additional courses of which two must be upper division. PSY 273, 283, 399, 447, 475, 476, 487, 488, and 495-496 may not be used	9
a. For the B.A. student the upper-division courses may include only one seminar;	
b. For the B.S. student one of the upper-division courses must be PSY 322 or 372	
Subtotal	34

Note: The department strongly recommends that students, especially those planning to attend graduate school, take one of the advanced laboratory courses, PSY 304-307.

4. Upper-Division Writing Requirement
The Department of Psychology requires that majors demonstrate competence in writing for the discipline by taking PSY 303 at least one semester before the expected date of graduation (but preferably by the end of the junior year). In PSY 303 every major will be required to achieve an evaluation of "satisfactory" for the quality of written work in the laboratory reports in addition to the normal course grade.

B. Courses outside the Psychology Department

For the B.A. Student:

	Credits
1. Mathematics (one course from among the following): AMS 101, CSE 110, MAT 120, or any higher AMS, CSE or MAT course, except AMS 102	3
2. Biology: Any one-semester BIO course	3
3. Philosophy: Any one-semester PHI course	3
4. Social Sciences: Any one-semester SOC, ANT, or POL course	3
5. One of the following four- or five-course options (see the Psychology Department for the specific acceptable courses):	12-15
a. Africana Studies	
b. Anthropology/Sociology	
c. Biology	
d. Computer Science	
e. Economics	
f. History of Science	
g. Linguistics	
h. Mathematical Sciences	
i. Political Science	
Subtotal	24-27

The following may be substituted for the required option (see the Psychology Department for details):

aa. Certain minor programs	
bb. A second major	
cc. Completion of the joint bachelor's/master's program in government, nonprofit, and enterprise management (Harriman School)	
dd. Student-designed options if approved by the departmental undergraduate committee	
Total for the B.A.	58-61

For the B.S. Student:

1. Mathematics: MAT 131, 132 (MAT 125, 126, 127, nine credits, or MAT 141, 142 may be substituted)	8
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2. Biology: BIO 151, 152	8
3. Other sciences (two of the following groups of courses): 12-17	
a. Biology: Two BIO or biology-related courses approved by the Psychology Department	
b. Chemistry: CHE 131, 132, and 133, 134 or 141, 142, and 143, 144.	
c. Mathematics: two courses approved by the Psychology Department	
d. Physics: PHY 101, 102 or 103, 104 or 105, 106 or 117, 118	
e. Computer Science: CSE 113, 114.	

Subtotal 28-34

Total for the B.S. 62-67

Notes:

- No more than six credits from among PSY 273, 283, 447, and 487 may be taken in one semester. See also Course Credit and Prerequisites, p. 60, for further limits on directed readings and research courses, and Undergraduate Teaching Assistantships, p. 59.
- Transfer students must take at least nine credits of psychology in residence at Stony Brook.
- The list of approved courses that B.S. program students may use to satisfy requirement B.3.a or c may be obtained from the Psychology Undergraduate Office.

Honors Program in Psychology

Students apply for admission to the Psychology Honors Program in the fall of their junior year. Minimum academic requirements include a 3.0 grade point average overall and a 3.5 grade point average in psychology courses. At the time of application, students must have completed PSY 103 or PSY 104 A Survey of Psychology, PSY 201 Statistical Methods in Psychology (or approved substitute), and one course from the psychology distribution requirements (either a or b). The department will announce the procedures and deadline for application early in the fall semester.

The program is followed for three semesters. During the spring of their junior year, students enroll in a three-credit Honors Seminar (PSY 399) designed to review research topics currently studied by the psychology faculty. In their senior year, students register for three to six credits of PSY 495 and 496 while they work on an honors thesis. The honors project is proposed to a departmental honors committee after

consultation with an appropriate faculty advisor. The thesis will be judged by three faculty members, one of whom will be from outside the department. Favorable judgment of the thesis and continued high academic performance will provide the basis for conferring honors in psychology.

Courses

See p. 60, Course Credit and Prerequisites, and p. 61, Undergraduate Numbering System.

PSY 103 A Survey of Psychology

An introduction to research and theory in psychology in such areas as learning, perception, cognition, psychobiology, development, personality, and abnormal and social psychology. As part of the course, students must participate in experiments and/or a library research project. May not be taken for credit in addition to PSY 104. A Core Course satisfying Social and Behavioral Sciences Category A, Group 3.
Fall and spring, 3 credits

PSY 104 Survey of Psychology: Honors

An enriched introduction to research and theory in psychology, requiring extensive reading and writing as well as coverage of topics more difficult than normally covered in PSY 103. Because class size is small, the course will provide students with an opportunity for close interaction with the instructor and with classmates. As part of the course students must participate in experiments and/or a library research project. May not be taken for credit in addition to PSY 103. A Core Course satisfying Social and Behavioral Sciences Category A, Group 3.
Prerequisites: Permission of department; priority given to Honors College students; "Strong" on English Placement Examination; satisfaction of entry-level mathematics proficiency requirement
Fall, 3 credits

PSY 121 Library Skills for Psychological Research

An introduction to basic library skills and bibliographic resources for psychological research, using a self-paced workbook approach. Reference and other library materials of special interest to psychology students are covered. Such skills as the efficient use of card catalogues, bibliographies, and specialized indexes are also treated. No class sessions are held, but opportunity for adequate contact between students and librarian is provided. Not for credit in addition to POL 121 or SOC 121.
Prerequisite: PSY 103 or 104
Fall and spring, 1 credit

PSY 201 Statistical Methods in Psychology

The use and interpretation of elementary statistical techniques in research, emphasizing descriptive statistics, correlational analysis, and inferential statistics, including chi-square, critical ratio, *t*, *F*, and certain selected nonparametric techniques. May not be taken for credit in addition to AMS 102. Satisfies Quantitative Literacy Graduation Requirement.
Prerequisites: PSY 103 or 104; satisfaction of entry-level mathematics proficiency requirement
Fall and spring, 3 credits

PSY 208 Theories of Personality

Contemporary theories of personality with emphasis on the experimental literature pertaining to personality development and current methods of personality assessment in the applied areas.
Prerequisite: PSY 103 or 104
Fall and spring, 3 credits

PSY 209 Social Psychology

A presentation of various topics in social psychology including interpersonal processes, obedience to authority, social perception, attitude change, attraction and liking, aggression and violence, and social change. These topics will be discussed in the context of American social structure. A Core Course satisfying Social and Behavioral Sciences Category A, Group 2.
Prerequisite: PSY 103 or 104
Fall and spring, 3 credits

PSY 211 Developmental Psychology

A study of the growth processes from fetal development to late childhood. Perceptual and learning characteristics are explained as they relate to increases in cognitive and social competence in the total community. Biological factors are examined as they relate to inheritance of behavior patterns. A Core Course satisfying Social and Behavioral Sciences Category A, Group 2.
Prerequisite: PSY 103 or 104
Fall and spring, 3 credits

PSY 215 Abnormal Psychology

Psychopathology, including the neuroses and functional and organic psychoses, will be examined. Analysis of current research in psychopathology and its relationship to the theories of abnormal behavior.
Prerequisite: PSY 103 or 104
Fall and spring, 3 credits

PSY 241 Brain and Behavior

Introduction to the neural basis of sensory processes, motor control, attention, emotion, and learning.
Prerequisite: PSY 103 or 104 or BIO 101 or 151
Fall, 3 credits

PSY 273 Supervised Research in Psychology

Initial training and participation in techniques or duties related to a specific laboratory or field research experience under the direct supervision of a faculty member or advanced graduate student in the Department of Psychology. Students who wish to seek information about the opportunities available may do so through the Undergraduate Office of the Department of Psychology. Satisfactory/Unsatisfactory grading only. Students may take two sections in a single semester, but no more than three credits may be applied to a section. May not be taken for more than six credits per faculty advisor during the student's career.
Prerequisite: Permission of instructor
Fall and spring, 1 to 6 credits

PSY 283 Applications and Community Service

Designed to provide opportunities for students to study and apply psychological principles outside the classroom (e.g., in settings such as hospitals and schools). Specific programs will vary from semester to semester. General information is available in the Undergraduate Office in the Psychology Department. Satisfactory/Unsatisfactory

grading only. May be repeated up to a limit of six credits. May not be counted toward the distribution requirement in the social and behavioral sciences.

Prerequisite: Permission of instructor
Fall and spring, 1 to 3 credits

PSY 300 Research Methodology

Basic principles in the design and execution of research in psychology. A Core Course satisfying Social and Behavioral Sciences Category B.
Prerequisites: PSY 103 or 104; PSY 201 or AMS 102
Fall and spring, 3 credits

PSY 303 Research Methodology Laboratory

An intensive course in which students learn scientific methodology through laboratory experience and quantitative analysis, and learn to communicate empirical results in written form. Four hours of laboratory and two hours of lecture per week. This course must be completed at least one semester before the student's expected date of graduation.
Prerequisites: PSY 300; satisfaction of university Lower-Division Writing Requirement
Fall and spring, 4 credits

PSY 304 Research Methodology in Social Psychology

Techniques and experimental problems in social psychology, including natural observation, surveys, and experimental design. Three hours of lecture and two hours of field or laboratory research per week.
Prerequisites: PSY 303; permission of instructor
Fall or spring, 4 credits

PSY 305 Research Methodology in Perception

Techniques and experimental problems in perception and sensation on the visual, auditory, and tactile modalities. Topics may include detection, recognition, illusions, selective attention, and set effects. Two hours of lecture and four hours of laboratory per week.
Prerequisites: PSY 303; permission of instructor
Fall or spring, 4 credits

PSY 306 Research Methodology in Learning and Performance

Experimental analysis of human performance. Topics include learning, cognitive processes, and motor skills. Two hours of lecture and four hours of laboratory per week.
Prerequisites: PSY 303; permission of instructor.
Fall or spring, 4 credits

PSY 307 Research Methodology in Physiological Psychology

Techniques of studying brain mechanisms of behavior in different species, including recording of action potentials from single nerve fibers and single cells in the central nervous system, gross potential recording from the retina, mammalian brain dissection, and topographic mapping of sensory or motor areas in the cortex. One hour of lecture and four hours of laboratory per week.
Prerequisites: PSY 241 or 340; permission of instructor
Fall or spring, 3 credits

PSY 309 Psychology of Work

A presentation of psychological research and applications in industry as well as in other

organizations. Topics include theories of work motivation, productivity, and job satisfaction; work, stress, and mental health; unionization, conflict, and discrimination; psychological consequences of unemployment; psychology of advertising; issues in personnel selection; group processes; worker-management relationships; international perspectives on democracy and authority in the workplace.

Prerequisite: PSY 209 or SOC 380
Spring, 3 credits

PSY 310 Studies of Social Conflict

Students will formulate and carry out team research projects focusing on issues involving conflict within the university or in the surrounding communities.

Prerequisites: PSY 103 or 104; PSY 201 or AMS 102; permission of instructor
Fall, 3 credits

PSY 311 Topics in Advanced Developmental Psychology

Selected topics in child development: (1) social development, (2) cognitive development, (3) children's learning, (4) the biological basis of development, and (5) infancy. One of these five topics will be explored in depth in a given semester, with another topic offered the following semester. The topic for a given semester will be announced prior to advance registration. May be repeated once.

Prerequisite: PSY 211
Fall or spring, 3 credits

PSY 312 Behavior Deviation in Children

Development and modification of behavioral deviations in children; application of principles derived from experimental analysis of behavior to problems of children.

Prerequisite: PSY 211
Fall and spring, 3 credits

PSY 313 Organizational Behavior Management

A survey of the applications of behavior modification principles to the study and modification of problem behaviors within organizational settings. Coverage will include theoretical issues, ethical concerns, program evaluation methodology, and specific applications.

Prerequisite: PSY 208 or 209 or 211 or 215
Fall, 3 credits

PSY 315 Behavior Modification

Philosophical and experimental foundations of behavior modification. Not designed for specific training in clinical techniques, but issues related to clinical application will be considered.

Prerequisite: PSY 215
Spring, 3 credits

PSY 318 Animal Learning

Principles of adaptation and behavioral change with emphasis on techniques of reward and punishment and of stimulus control.

Prerequisites: PSY 103 or 104; PSY 201 or AMS 102
Fall and spring, 3 credits

PSY 321 Sensation and Perception

An examination of both the basic mechanisms and the organizational processes of perception including the perception of color, depth, movement, pitch, loudness, speech, touch, temperature, and pain. Particular emphasis is given to visual and auditory perception.

Prerequisites: PSY 103 or 104; PSY 201 or AMS 102
Fall and spring, 3 credits

PSY 322 Advanced Statistics

Survey of probability and sampling theory, descriptive and inferential statistics, and introduction to experimental design.

Prerequisites: PSY 103 or 104; PSY 201 or AMS 102
Fall or spring, 3 credits

PSY 330 The Psychology of Eating and Drinking

This course will survey theories of eating and drinking as well as cover various methods of treating drinking and eating disorders. Material from many areas of psychology will be included, for example, learning and motivation, physiological psychology, sensation and perception, and personality.

Prerequisites: PSY 103 or 104; a 200-level psychology course (except 273 or 283); one semester of biology
Fall or spring, 3 credits

PSY 340 Physiological Psychology

An in-depth coverage of the experimental literature concerning the neural basis of behavior. Topics include neuroanatomy, cellular neurophysiology, motor control, sensory processing, homeostatic processes, learning, memory, and the neural basis of pain and pleasure.

Prerequisite: PSY 241
Spring, 3 credits

PSY 342 Human Brain Function

The functional organization of the human brain, including dysfunctions resulting from various types of brain pathology. Neuroanatomical, neuropsychological, neurophysiological, and experimental psychological approaches will be described.

Prerequisite: PSY 241
Spring, 3 credits

PSY 343 Comparative Psychology

A consideration of observed patterns and underlying mechanisms of animal and human behavior in ecological and evolutionary perspective. Crosslisted with BIO 359.

Prerequisites: PSY 103 or 104; BIO 101 or 151
Fall, 3 credits

PSY 345 The Neuropsychology of Developmental Disabilities

Psychological dysfunctions in childhood disorders such as autism, mental retardation, reading disabilities, and hyperkinesis. The course considers anatomical, physiological, and developmental characteristics of the human brain, and specific deficits in such processes as attention, perception, memory, and language.

Prerequisite: PSY 340 or 342
Fall, 3 credits

PSY 350 Cognitive Psychology

An examination of theoretical and empirical work on human cognition including pattern recognition, memory, attention, language comprehension, decision making, and problem solving.

Prerequisites: PSY 103 or 104; PSY 201 or AMS 102
Fall and spring, 3 credits

PSY 351 Topics in Cognition

An in-depth study of a selected topic from among (1) problem solving, (2) memory, (3) attention, and (4) imaginal processes. The topic will be announced and described in detail prior to advance registration. May be repeated once as the subject matter varies.

Prerequisite: PSY 350
Spring, 3 credits

PSY 352 History and Systems of Psychology

History of psychology presented either as a development and testing of theories that emerge from a long philosophical tradition, or as a set of practices that serve particular social functions and respond to pressures from the socio-economic context.

Prerequisite: Nine credits of psychology
Fall or spring, 3 credits

PSY 353 Human Learning and Instruction

The application of basic principles of cognition to the acquisition of knowledge (concepts, cognitive strategies, verbal information), with an emphasis on instructional design.

Prerequisite: PSY 350
Fall, 3 credits

PSY 370 The Psychology of Language

Examination of language acquisition and a consideration of its implication for cognitive psychology.

Prerequisite: PSY 350
Fall or spring, 3 credits

PSY 372 Tests and Measurements in Personality

A study of principles of psychological assessment of personality with emphasis on theory and practice and principles of measurement theory and correlational techniques. Students will have the opportunity to develop a personality test and put these principles and techniques into practice.

Prerequisites: PSY 103 or 104; PSY 201 or AMS 102; permission of instructor
Fall or spring, 3 credits

PSY 377 Psychology of Women

The psychological impact of important physiological and sociological events and epochs in the lives of women; menstruation, female sexuality, marriage, childbirth, and menopause; women and mental health, mental illness, and psychotherapy; the role of women in the field of psychology. Crosslisted with WNS 307.

Prerequisites: WNS/SSI 102; ANT 367 or PSY 103 or 104 or SOC 247
Fall or spring, 3 credits

PSY 390-398 Special Topics in Psychology

Lecture courses on current topics in psychology, which will be announced and described before the start of each term. May be repeated for different topics.

Prerequisites: PSY 103 or 104; at least one other course specified when the topic is announced
Schedule to be announced, 3 credits

PSY 399 Contemporary Topics in Psychology

Research topics and issues currently under investigation by members of the department will be reviewed. Each week a different faculty member will assign readings and will lecture on the theories, problems, and methods related to his or her research.

Prerequisite: Admission to Psychology Honors Program
Spring, 3 credits

PSY 447 Readings in Psychology

Directed readings under the guidance of a faculty member. May be repeated once.

Prerequisite: Permission of department
Fall and spring, 1 to 3 credits

PSY 475 Undergraduate Teaching Practicum I

Each student will conduct a weekly recitation or laboratory section that will supplement a lecture course. The student will receive regularly scheduled supervision from a faculty member. Responsibilities may include preparing material for discussion and helping students with research papers. Satisfactory/Unsatisfactory grading only.

Prerequisites: Senior psychology major; permission of instructor and department
Fall and spring, 3 credits

PSY 476 Undergraduate Teaching Practicum II

The continuation on a more advanced level of training in the techniques of organization and management in the teaching of psychology courses. Students will be expected to assume greater responsibility in such areas as leading discussions, analyzing and evaluating test results and papers, observing teaching methods, and assisting students and other teaching assistants to develop new teaching techniques. It is expected that the course in which a student is permitted to work as a teaching assistant will be of at least equal difficulty as the course in which he or she previously served; it will not be the same course. Satisfactory/Unsatisfactory grading only.

Prerequisites: PSY 475; permission of instructor and department
Fall and spring, 3 credits

PSY 487 Independent Research in Psychology

Upper-division students interested in carrying out independent research projects under the auspices of a faculty member in the Department of Psychology may do so in this course. The student must propose and carry out the research project and must analyze and write up the results in a form acceptable to the sponsor. Written agreement by the faculty sponsor to undertake this responsibility and an outline of the project goals are filed with the Undergraduate Office in Psychology. These become a formal part of the student's departmental file. May be repeated up to a limit of 12 credits.

Prerequisite: Permission of department
Fall and spring, 3 to 6 credits

PSY 488 Internship

Participation in public and private agencies and organizations. Students will be required to submit written progress reports and a final written report on their experience to the faculty sponsor and the department. Satisfactory/Unsatisfactory grading only. May be repeated up to a limit of 12 credits.

Prerequisites: 12 credits in psychology; permission of instructor, director of undergraduate studies, and Office of Undergraduate Studies
Corequisite: PSY 447 or 491 or 492
Fall and spring, 3 to 12 credits

PSY 491, 492 Advanced Seminars in Psychology

Special seminars covering current research and theory. Topics will be announced prior to the beginning of each semester. May be repeated up to a limit of 18 credits. Students may take two sections in a single semester. May not be taken for more than six credits per faculty member during the student's career.

Prerequisites: PSY 303; written permission of instructor
Fall (491) and spring (492), 3 credits each semester.

PSY 495-496 Senior Honors Thesis in Psychology

A two-semester research project for seniors in the honors program. The student will design, execute, analyze, and write up a study under the supervision of an appropriate instructor.

Prerequisite: PSY 399
Fall and spring, 3 to 6 credits each semester

Religious Studies

Director of Undergraduate Studies:
Peter B. Manchester

Faculty

Thomas J.J. Altizer, Professor, Ph.D., University of Chicago: Religion and literature; theology.

William Chittick, Assistant Professor, part time, Ph.D., Teheran University: Islamic studies; Sufism; comparative mysticism.

Robert Goldenberg, Associate Professor, Ph.D., Brown University: Jewish thought; history of Judaism; talmudic literature.

Patrick A. Heelan, Professor, Ph.D., University of Louvain; Ph.D., St. Louis University: Science and religion.

Peter B. Manchester, Associate Professor, Ph.D., Graduate Theological Union: Christian origins; philosophical theology.

Sachiko Murata, Assistant Professor, part time, Ph.D., Teheran University: Islamic studies; Japanese religions.

Sung Bae Park, Associate Professor, Ph.D., University of California, Berkeley: Buddhist studies; Indian, Chinese, Japanese, and Korean religious thought.

Teaching Assistants

Estimated Number: 1

The Program in Religious Studies offers an interdisciplinary approach to the analysis of religion in its many forms and aspects. To the variety of religious traditions, both living and historical, it brings the techniques and questions of philosophy, history, literature, and the human sciences. Designed for flexibility in meeting student interests and needs, the religious studies faculty offers a major, a minor, an honors program, and a variety of strong electives useful for broadening one's knowledge of religious phenomena, for supplementing the major program in many related fields of humanities and social science, and for meeting humanities distribution requirements. Further information and advising in regard to any of the program's services are available through the program office.

Requirements for the Major in Religious Studies

The major in religious studies leads to the Bachelor of Arts degree. It requires ten courses (30 credits), all to be taken for a letter grade, distributed as follows:

Credits

- I. RLS 301 (ordinarily taken in the fall of the junior year; may be taken in senior year by those who do not meet the prerequisites as juniors) and RLS 400. 6
- II. Depth requirement: Four courses at the 200, 300, and 400 levels in one of the following areas of emphasis:
 - A. Buddhism
 - B. East Asian religions (Chinese, Japanese, and Korean religions)
 - C. Christianity (to include at least one Judaic studies course; JDH/RLS 230 or JDS/HIS 225, 226 recommended)
 - D. Judaism (in coordination with Judaic studies; ordinarily all four courses in this area emphasis will be JDS and JDH, but one may be replaced with a relevant RLS or other course with advisor's approval)
 - E. Theology, philosophy, and method in religion
 - F. Other areas, as available; these must be approved by the program director before the first semester of the senior year. 12
- III. Breadth requirement: Four RLS courses in areas outside the area emphasis. 12

IV. Upper-Division Writing Requirement:

Majors are required to demonstrate a capability for expressing themselves effectively in writing. They must meet this requirement by taking RLS 301 before the end of their junior year and achieving a special overall rating of "satisfactory" on the written work in that course apart from the course grade. An overall rating of "unsatisfactory" will necessitate remedial action. More detailed information about this requirement is available from the program.

Total 30

Note: The planning of a sound and coherent curriculum is an important dimension of the religious studies major. Academic advising is available for all majors through the program office and the director of undergraduate studies; by their junior year all majors will have an assigned advisor who should be consulted at each registration period. Final approval of courses selected for major requirements should be obtained prior to registration for the senior year. Requirements for the major may be satisfied with RLS courses and, with advisor's approval, with courses from other departments listed below. Students wishing to satisfy the requirements with yet other courses may do so with the approval of the director of undergraduate studies.

Related Courses in Other Departments

Detailed course descriptions appear under appropriate departmental listings and should be examined there.

- ANT 351 Comparative Religion
- ANT 358 Ways to Civilization
- ARH 303 The Art and Architecture of the Early Middle Ages, ca. 400-1050
- ARH 304 The Art and Architecture of the High and Late Middle Ages, ca. 1050-1400
- CLS 215 Classical Mythology
- EGL 261, 262 The Bible as Literature
- EGL 342 Milton
- HIS 233 Medieval History, 300-1100
- HIS 234 The High Middle Ages, 1100-1400
- HIS 235 Humanism and Renaissance
- HIS 236 The Age of the Reformation
- JDS/HIS 225 The Formation of the Judaic Heritage

JDS/HIS 226 The Shaping of Modern

- Judaism
- JDH 261 Biblical Narrative
- JDH 447 Readings in Judaic Studies
- KRH 335 Korean Folk Religions
- KRH 346 Moral Education in Korea and Japan
- PHI 268 Philosophy of Myth and Religion
- PHI 304 Medieval Philosophy
- PHI 340 Indian Buddhism: Its Essence and Development
- PHI 342 Chinese and Japanese Buddhism
- PHI 415 The Philosophical Methodology of the Rig Veda
- SOC 264 Introduction to Middle Eastern Society
- SOC 352 Sociology of Religion

Appropriate special topics from these or other departments may also be offered to fulfill major requirements with permission of the program director.

The Honors Program in Religious Studies

Religious studies majors who have maintained a grade point average of 3.5 in the major and 3.0 overall through their junior year may be invited to attempt the degree in religious studies with honors.

The honors major requires a total of 36 credits, consisting of the 30 credits required for the major and six additional credits in a special research project pursued through both semesters of the senior year under the supervision of a member of the faculty (RLS 495-496).

When the supervising faculty member judges the student ready, an honors essay based on this special project is presented and defended at a meeting of the Religious Studies Seminar, which consists of the religious studies faculty and participating faculty from related disciplines. Thereafter, the religious studies faculty, together with at least one faculty member from another discipline who attended the seminar, will meet to decide whether to recommend conferring the degree with honors. The decision will be based on the student's overall record, the recommendation of the special project supervisor, the student's performance in presenting the honors essay, and the judgment of the faculty concerning its intrinsic worth.

Students who believe they are qualified to become candidates for honors should consult with the director of undergraduate studies during their junior year. Faculty supervision of the senior honors project must be agreed upon and arranged before the end of the junior year.

The Minor in Religious Studies

The minor in religious studies consists of six courses (18 credits), at least three of which (nine credits) are at the upper-division level. At least 12 credits, including RLS 301, must be taken for a letter grade.

In addition to these general requirements, the program is designed to ensure (a) an encounter with the variety of world religions, (b) a grasp of problems of method and the critical use of sources in the study of religion, and (c) sufficient depth in a single area emphasis to read advanced work in the area with experience and judgment. Requirements to meet these goals are:

	Credits
I. RLS 101 or 150; a 200-level RLS course	6
II. RLS 301	3
III. At least three courses in one of the area emphases listed for the major	9
Total	18

Students desiring to minor in religious studies should consult with the director of undergraduate studies by the semester in which they register for RLS 301 for academic advising on coordinating the religious studies minor with the student's major program. Final approval of courses selected to meet the minor requirements should be obtained prior to registration for the senior year.

Courses

See p. 60, Course Credit and Prerequisites, and p. 61, Undergraduate Numbering System.

SKT 111, 112 Elementary Sanskrit I, II

An introduction to Sanskrit, the classical language of Indian religion and philosophy, including grammar, translation, and readings from selected texts of Hinduism and Buddhism.

Fall (111) and spring (112), 3 credits each semester

RLS 101 Great Religions of the Contemporary World

An introduction to the history, doctrine, and religious practices of Hinduism, Judaism, Buddhism, Confucianism, Taoism, Christianity, and Islam. A Core Course satisfying Humanities and Fine Arts Category A.

Fall and spring, 3 credits

RLS 110 The Bible: A Critical Introduction

An introduction to a modern critical understanding of the Bible, emphasizing both a study of the major Biblical books and the history of Biblical Israel and the early Christian community. The Biblical books will be studied in their original historical and religious context apart from any ecclesiastical or theological tradition.

Fall, 3 credits

RLS 122 Religion and Ethics Today

An introduction to problems of method in the study of religion. This course analyzes the role

of religion in the formation of moral, social, and political values, through a study in depth of selected contemporary areas of religious concern such as political economy, medicine, human rights, science and technology, and war and peace. A Core Course satisfying Humanities and Fine Arts Category B.

Fall or spring, 3 credits

RLS 150 The Religious Dimension

An introduction to the nature and experience of religion as a universal dimension of human reality. Drawing from religion in all its worldwide variety, the course will explore a particular topic as an introduction to the nature of religious reality and a focus of comparative study. Topics include religious symbol and myth, death and afterlife, angels and demons, mystical experience, and religion and knowledge of the future. A Core Course satisfying Humanities and Fine Arts Category B. Also satisfies Lower-Division Writing Requirement for students who score "Strong" on the English Placement Examination.

Fall or spring, 3 credits

RLS 220 Studies in Religion

A lower-division study within the area of expertise of distinguished visiting faculty. The topic of the course varies from semester to semester. Students should consult the description of course offerings available from the Religious Studies Office. The course may be repeated with permission of the director of undergraduate studies. *Schedule to be announced, 3 credits*

RLS 230 Judaism

A survey of the great texts of the Judaic heritage, with the aim of learning the contribution of each to the Jewish tradition. The course will include an examination of characteristic Jewish beliefs, practices, and attitudes. Crosslisted with JDH 230. A Core Course satisfying Humanities and Fine Arts Category A. Also satisfies Lower-Division Writing Requirement for students who score "Strong" on the English Placement Examination.

Fall, alternate years, 3 credits (not offered in 1989-90)

RLS 240 Confucianism and Taoism

An introduction to the basic philosophies and doctrines of Confucianism and Taoism, such as the concept of Tao, non-action, benevolence, and propriety. The course will explore both the similarities and the differences between these two traditions. A Core Course satisfying Humanities and Fine Arts Category A and Study of Another Culture.

Fall or spring, 3 credits

RLS 246 Korean and Japanese Religions

An introduction to the main developments in Korean and Japanese religious history from earliest times to the 19th century, with emphasis on Buddhism, Confucianism, and Taoism, as well as shamanism in Korea and Shintoism in Japan. The relationship between the Korean form of religious traditions and those found in China and Japan will also be stressed. Crosslisted with KRH 246. A Core Course satisfying Humanities and Fine Arts Category A.

Fall, alternate years, 3 credits (not offered in 1989-90)

RLS 260 Buddhism

An introduction to the basic philosophy and doctrines of Buddhism, beginning with a survey of

lives and works of major historical figures of Buddhism. The principal issues of Buddhist thought, drawing from Indian, East Asian, and Western sources, will be treated. Particular attention will be paid to the meaning of faith, practice, and enlightenment in Buddhism. A Core Course satisfying Humanities and Fine Arts Category C and Study of Another Culture.

Fall, 3 credits

RLS 270 Christianity

A critical introduction to the scripture, tradition, history, and religious practices and beliefs of Christianity. A Core Course satisfying Humanities and Fine Arts Category A.

Spring, 3 credits

RLS 280 Islam

An introduction to the main features of Islamic revelation as contained in the Qur'an; its impact on the major intellectual, legal, and social institutions of the world it subsequently shaped; schism in the form of the Shi'ite sects; Sufism. The course will conclude with an examination of Islam in the modern world. A Core Course satisfying Humanities and Fine Arts Category A and Study of Another Culture.

Fall or spring, 3 credits

RLS 301 Sources and Methods

An in-depth inquiry into the application of critical, historical, and philosophical methods to religious texts and experiences. An introduction to the resources and limitations of academic study of religion. A Core Course satisfying Humanities and Fine Arts Category B.

Prerequisites: RLS 101 or 150, and one 200-level RLS course; or two 200-level RLS courses

Fall, 3 credits

RLS 302 Contemporary Theology

An intensive study of influential recent work in theology, with primary emphasis on contemporary Christian and radical theology, including such themes as the death of God, the impact of historical criticism of scripture, and the emerging dialogue among the world religions.

Prerequisite: One 200-level RLS course

Alternate years, 3 credits (not offered in 1990-91)

RLS 310 Biblical Theology

Intensive introduction to the theological tendencies and implications of selected major texts from the Christian and Jewish scriptures. The course will survey historical and critical work on the selected texts, but will focus on the religious thinking reflected in them and their influence on later traditions. May be repeated once for credit as subject matter differs.

Prerequisites: RLS 230 or 270; or RLS 101 or 110 and one 200-level RLS course

Fall, alternate years, 3 credits (not offered in 1989-90)

RLS 320 The Rabbinic Tradition

The origins and development of the rabbinic tradition; examination of the chief elements of rabbinic teaching at various times; and analysis of major types of rabbinic literature. Crosslisted with JDH 320. A Core Course satisfying Humanities and Fine Arts Category C.

Prerequisite: JDS/HIS 225 or 226 or JDH/RLS 230

Fall, alternate years, 3 credits (not offered in 1989-90)

RLS 321 Christian Classics

Intensive study of a particular influential classic Christian text or genre, orthodox or heterodox, selected from early Christian, medieval, Reformation, or modern works. May be repeated as subject matter differs. A Core Course satisfying Humanities and Fine Arts Category C.

Prerequisites: RLS 270 or EGL 262; permission of instructor

Alternate years, 3 credits (not offered in 1990-91)

RLS 330 Special Topics

An investigation of a particular area or dimension of religious studies which will vary from semester to semester. May be repeated with permission of the director of undergraduate studies. *Schedule to be announced, 3 credits*

RLS 341 Meditation and Enlightenment

A critical analysis of the traditions, practices, and literature of Zen and other traditions of Buddhism, with particular attention paid to the meaning of enlightenment and the practice of meditation.

Prerequisite: One 200-level religious studies course

Spring, 3 credits

RLS 345 Religion and Science

Origins and development of the conflict between religion and modern science, along with contemporary efforts to reconcile their methods and goals. Topics include the Galileo case, the Enlightenment critique of dogmatic religion, and anti-religious theories such as Darwinism, psychoanalysis, sociobiology, and artificial intelligence. Recent efforts toward a new intellectual synthesis of religion and science will be discussed, with attention to its East-West dimension. A Core Course satisfying Humanities and Fine Arts Category B.

Prerequisites: Upper-division standing; two semesters of science and one 200-level RLS or PHI course

Fall or spring, 3 credits

RLS 350 Philosophical Theology

A study of selected theological problems that integrates religious concerns with rigorous philosophical reflection, West and East, including the nature of the religious object, knowledge of the transcendent, the experiential basis of faith, the meaning of historical process, and resources and dangers in selfhood.

Prerequisite: One 200-level RLS or PHI course

Alternate years, 3 credits (not offered in 1990-91)

RLS 366 Feminine Spirituality

The role and destiny of woman as envisaged by the world's great religions. The course discusses both the concepts of femininity as a principle in theology, metaphysics, and cosmology, and the theoretical and practical place of woman in society. Topics include woman's responsibilities and rights; woman and religious law; her relation to man and to the masculine principle; her role in symbolism, mythology, and literature; and her path of spiritual development.

Prerequisite: One 200-level RLS course

Spring, alternate years, 3 credits (not offered in 1990-91)

RLS 370 Tibetan Buddhism

The dynamics of Tibetan Buddhism from traditional texts and living sources; tantric practices, mandalas, meditation.

Prerequisite: One 200-level religious studies course or PHI 111

Spring, alternate years, 3 credits (not offered in 1989-90)

RLS 380 Islamic Classics

A study in depth of Islamic texts in translation. Selections may be made from the Qur'an, the Hadith, the Law, and from one or more of the major intellectual schools, such as Kalam (scholastic theology), Peripatetic philosophy, illuminationist theosophy, Sufism, and the "transcendent theosophy" of the School of Isfahan. May be repeated for credit as subject matter varies.

Prerequisite: RLS 280

Spring, alternate years, 3 credits (not offered in 1990-91)

RLS 400 Religious Studies Seminar

A proseminar for senior majors in religious studies, focusing on the problem of the relation between phenomenology, hermeneutics, and history of religions on the one hand and their theological and philosophic interpretation on the other.

Prerequisite: Permission of director of undergraduate studies

Spring, 3 credits

RLS 447 Readings in Religious Studies

Directed study with religious studies faculty, limited to religious studies majors or upper-division students working on advanced problems in religious studies. May be repeated.

Prerequisites: Permission of instructor and director of undergraduate studies

Fall and spring, 1 to 6 credits

RLS 465 Judaic Responses to Catastrophe

The responses of Judaic thinkers from the Bible to the Second World War to the problem of historical disaster and the need to understand and respond to it. Particular attention will be given to the question of long-term continuity and the appearance of innovation in such responses. Crosslisted with JDH 465. A Core Course satisfying Humanities and Fine Arts Category C.

Prerequisite: JDS/HIS 225 or 226 or JDH/RLS 230

Spring, alternate years, 3 credits (not offered in 1990-91)

RLS 495-496 Senior Honors Project

A two-semester project for RLS majors who are candidates for the degree with honors. Arranged during the junior year with the program, the project involves independent study and the writing of a paper under close supervision of an appropriate faculty member, on a topic chosen by the student.

Prerequisites: Permission of instructor and director of undergraduate studies

Fall and spring, 3 credits each semester

Science, Mathematics and Technology Education

Director: Lester G. Paldy

Faculty

Susan Kains-Ahearn, Assistant Professor, Ed.D., Columbia University: Environmental education; peace studies.

Albert D. Carlson, Professor, Ph.D., University of Iowa: Neurophysiology; pharmacology; behavior of fireflies. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1983.

George J. Hechtel, Associate Professor, Ph.D., Yale University: Systematics and zoogeography of marine demospongiae. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1982.

Robert C. Kerber, Professor, Ph.D., Purdue University: Organo-transition metal chemistry. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1986, and the President's Award for Excellence in Teaching, 1986.

Paul G. Kumpel, Professor, Ph.D., Brown University: Algebraic topology.

Thomas T. Liao, Professor, Ed.D., Columbia University: Science education; educational technology; curriculum development.

Rosalyn R. McKeown-Ice, Assistant Professor, Ph.D., University of Oregon: Geography; science teacher preparation; geography education and curriculum development.

Lester G. Paldy, Professor, M.S., Hofstra University: Science education policy; arms control policy.

Margaret C. Squicciarini, Adjunct Assistant Professor, M.S., State University College at New Paltz: Elementary school science; teacher preparation.

Clifford E. Swartz, Professor, Ph.D., University of Rochester: Experimental high-energy physics; school curriculum revision.

Alan C. Tucker, Professor, Ph.D., Stanford University: Combinatorics and applied models; mathematics curriculum development.

Bernard D. Tunik, Associate Professor, Ph.D., Columbia University: Physiology and mechanics of muscle contraction; student research participation.

The Center for Science, Mathematics, and Technology Education offers undergraduate science education courses satisfying New York State requirements for provisional certification as a secondary school teacher of biology, chemistry, earth science, physics, and general science.

Students who wish to enter this program are expected to consult with a Center advisor and establish an advisement program prior to the beginning of the junior year. Failure to do so may result in a delay in meeting the certification requirements.

Requirements for the Science Teacher Preparation Program

In addition to completing major requirements in biology, chemistry, earth and space sciences, geology, astronomy, atmospheric sciences, or physics, prospective science teachers are required to take the following courses in order to satisfy all requirements for State provisional certification:

	<i>Credits</i>
SCI 200 Introduction to Science Teaching	3
SCI 300 Science Instructional Strategies and Techniques	3
SCI 450 Supervised Teaching—Science	6
SCI 454 Student Teaching Seminar	3
SSI 327 Adolescent Growth and Development	3
SSI 350 Foundations of Education	3
Total	21

Note: Courses taken for Pass/No Credit may not be used to satisfy the preparation in professional education component of the teacher preparation program.

Courses

See p. 60, Course Credit and Prerequisites, and p. 61, Undergraduate Numbering System.

SCI 200 Introduction to Science Teaching

Materials used in teaching secondary school sciences, approaches to teaching strategies, lesson planning, and student testing and evaluation. Observation of classroom activities in selected junior and senior high school science classrooms. Two hours of lecture and three hours of laboratory per week. Students will be expected to spend five half-days in a secondary school during the semester.

Prerequisites: BIO 151 or GEO 122 or CHE 131 or PHY 101; permission of instructor

Fall, 3 credits

SCI 300 Science Instructional Strategies and Techniques

One of the courses in a series for prospective secondary school teachers of science, including biology, chemistry, physics, and earth science. It emphasizes instructional strategies and techniques necessary to create and implement in-

quiry and discovery activities within a science curriculum. Curriculum development and independent science projects will be part of the course. The laboratories will include experiences in local public schools and campus laboratory courses. Students will be expected to spend five half-days in a secondary school during the semester.

Prerequisite: Permission of instructor

Pre- or corequisite: SCI 200

Spring, 3 credits

SCI 447 Readings in Science Education

Tutorial studies on recent advances in science education.

Prerequisite: Permission of Center for Science, Mathematics, and Technology Education

Fall and spring, 1 credit

SCI 450 Supervised Teaching—Science

Extensive practice under selected cooperating teachers for prospective secondary school science teachers. Student teachers work with one or two certified science teachers in one school each regular school day for the entire semester. Frequent consultations with university faculty members assist the student. Applications must be filed with the Center for Science, Mathematics, and Technology Education one semester prior to student teaching. Satisfactory/Unsatisfactory grading only.

Prerequisite: Senior standing with 2.7 G.P.A. in major

Corequisite: SCI 454

Fall and spring, 6 credits

SCI 454 Student Teaching Seminar

Seminar on problems encountered by student teachers and public school teachers at the secondary level. Study and analysis of many aspects of science teaching such as legal responsibilities and professional ethics.

Corequisite: SCI 450

Fall and spring, 3 credits

SCI 475 Teaching Practicum

Study of the literature, resources, and teaching strategies in science education with a supervised clinical experience in undergraduate instruction. Satisfactory/Unsatisfactory grading only.

Prerequisites: Senior standing; permission of instructor

Fall and spring, 3 credits

Interdisciplinary Program in Social Sciences

Program Director: Eli Seifman

Director of Undergraduate Studies:

Shi Ming Hu

Faculty

Barbara Baskin, Associate Professor, Ed.D., Wayne State University: Special education.

Beverly Birns, Professor, Ph.D., Columbia University: Child and family studies; child development; psychology of women; social policy.

Betsy Feuerstein, Lecturer, part time, M.A./L.S., State University of New York at Stony Brook: Child development.

Georges Fouron, Assistant Professor, Ed.D., Columbia University: Social studies education; bilingual education.

Kenneth D. Gadow, Professor, Ph.D., University of Illinois: Special education.

Joan F. Kuchner, Lecturer, Ph.D., University of Chicago: Child and family studies; child development; social policy.

Shi Ming Hu, Professor, Ed.D., Columbia University: Chinese; Asian studies; social science education.

Denise Masone, Lecturer, part time, B.A., State University of New York at Stony Brook: Early childhood.

Constance Nostrand, Lecturer, part time, B.A., Dowling College: Early childhood.

Joel T. Rosenthal, Professor, Ph.D., University of Chicago: Social history.

Eli Seifman, Professor, Ph.D., New York University: Social science education; Asian studies.

Sarah Hall Sternglanz, Lecturer, part time, Ph.D., Stanford University: Psychology of women.

Judith Wishnia, Associate Professor, Ph.D., State University of New York at Stony Brook: Women's history; labor history; European history.

Teaching Assistants

Estimated number: 3

This interdisciplinary degree program (SSI) is designed for students with broad interests in the findings, questions, and methods of the social and behavioral sciences. Individual plans of study are created by combining courses from among the offerings of Africana studies, anthropology, economics, history, linguistics, political science, psychology, sociology, women's studies, and the social sciences program courses (e.g., SSI 102). The student must complete work in at least four of these fields.

The Social Sciences Interdisciplinary Program is the administrative home of three minors: Asian studies, child and family studies, and women's studies. Social sciences majors who wish to follow one of these areas of concentration may choose courses in that minor so as to simultaneously fulfill a large number of their social sciences requirements. (Requirements for the three minors appear under each program title elsewhere in the alphabetical listings of Arts and Sciences programs. Further information on the minors is available at the Social Sciences Interdisciplinary Program Office.)

Requirements for the Major in Social Sciences

The interdisciplinary major in social sciences leads to the Bachelor of Arts degree. The following courses are required:

Courses with at least four of the social science designators (AFS, ANT, ECO, HIS, LIN, POL, PSY, SOC, SSI, WNS) distributed as follows:

	<i>Credits</i>
A. Two courses with each of any two social science designators	12
B. Four courses with each of any two other social science designators (at least two of the courses with each designator must be numbered 300 or above)	24
C. Four additional courses with any social science designator(s) numbered 300 or above	12
Total	48

D. Upper-Division Writing Requirement
Option 1: Successful completion of the Upper-Division Writing Requirement of any one of the following departments or interdisciplinary programs: Africana Studies, Anthropology, Economics, History, Linguistics, Political Science, Psychology, or Sociology.

Option 2: SSI majors must achieve an evaluation of S (Satisfactory) on the written work for one of the following SSI or WNS courses: SSI 308, 339, 405, 407, 417, 447, 461, 487; WNS 307, 333, 334, or 407, which must be taken before the end of the junior year. Students who wish to satisfy this requirement with one of these courses must inform the instructor of their intention to do so no later than the third week of the term so that the student's essays may be given special appraisal for advanced writing skills appropriate to SSI majors in addition to their appraisal for the course.

- E. Other requirements:
1. At least 36 credits of the 48 must be earned by letter grade.
 2. No more than nine credits of independent work (273, 445-449, 481-489) and no more than six credits of such work from any single department or program may be used toward fulfillment of major requirements. Only three credits of SSI 488 or 489 may count toward the major.
 3. Up to six credits of related courses numbered 300 or above may be substituted for two of the four courses needed for requirement C. An up-to-date list of allowed related courses is available from the Social Sciences

Interdisciplinary Program Office. Social sciences majors who have elected the Asian studies, child and family studies, or women's studies minor may use upper-division humanities courses listed for their minor as related courses.

4. The following may not be used to satisfy requirements A and B, but they may be used as related courses in requirement C: SSI 397, 398, 490, upper-division Africana studies courses with the AFH designator, and upper-division women's studies courses with the WNH designator.
5. AFS 283, PSY 283, SSI 283, 450, 454, the lower-division language courses taught by the Linguistics Department, and lower-division AFH and WNH courses may not be used to fulfill major requirements. Only one teaching practicum (475) may be counted.

Courses

See p. 60, Course Credit and Prerequisites, and p. 61, Undergraduate Numbering System.

SSI 102 Introduction to Women's Studies

A general introduction to women's studies and to the feminist movement. The course looks at the way a number of different academic disciplines have dealt with the female component of society, and examines the contributions women have made and the roles they have played in a variety of areas. A Core Course satisfying Social and Behavioral Sciences Category A, Group 2. Crosslisted with WNS 102.

Fall or spring, 3 credits

SSI 110 Human Development: The Family Context

Theories and research pertaining to stages in the life cycle from infancy to old age. Traditional theories of Freud, Erikson, and Piaget as well as contemporary interaction and ecological models will be explored. Each stage will be considered from the perspective of developmental tasks and its familial and social implications. Ethnicity, social class, and sex roles will be examined with special attention to their effects on the family. May not be taken for credit after PSY 211.

Fall, 3 credits

SSI 210 Images and Realities of Childhood

Contemporary views of childhood as reflected in societal values and attitudes. Emphasis will be placed upon present-day society whose books, films, television, music, and child-rearing customs will be analyzed to determine contemporary social roles and expectations.

Prerequisite: SSI 110

Fall or spring, 3 credits

SSI 220 The Infant and Young Child

Growth and development during the earliest stages of life. The role of individual differences, parents, other caretakers, social class, and ethnicity will be explored. Other topics will include play, optimal caretaking, and attachment behavior. Students will be required to make

observations of children in various settings.

Prerequisite: SSI 110 or PSY 211

Spring, 3 credits

SSI 221 Early Childhood Environments

Comparative study of traditional, current, and innovative programs for children from birth to six years of age. Infant day care, early intervention programs, nursery schools, Head Start and pre-kindergarten programs, and other community programs will be examined.

Prerequisite: SSI 110 or PSY 211

Fall, alternate years, 3 credits (not offered in 1989-90)

SSI 281 Seminar in Child Development

Students will meet weekly to discuss their experience in the child-care center and to learn basic principles of early childhood education and development relevant to the day care situation. Lectures and demonstrations of early childhood activities will emphasize language and cognition, social and motor behavior, play, "arts and crafts," and various techniques for organizing group and individual energies.

Prerequisites: SSI 110 or PSY 211; permission of instructor

Corequisite: SSI 283

Fall and spring, 3 credits

SSI 283 Practicum in Child Development

Students will work nine hours a week in a full-day child-care center to gain practical experience in teaching, making materials, and observing pre-school children. Daybook records will be kept and will be one of the bases for discussion in SSI 281. This course will require students to use the knowledge gained in SSI 281 in a closely supervised situation. May not be counted toward the College social and behavioral sciences elective requirement. Satisfactory/Unsatisfactory grading only.

Prerequisites: SSI 110 or PSY 211; permission of instructor

Corequisite: SSI 281

Fall and spring, 3 credits

SSI 287 Supervised Research in Social Science

Participation in laboratory and field research in social science under the direct supervision of a faculty member in the Social Sciences Interdisciplinary Program. Satisfactory/Unsatisfactory grading only. May be repeated up to a limit of six credits.

Prerequisite: Permission of instructor

Fall and spring, 1 to 3 credits

SSI 308 Battered Women, Endangered Children

Theories and research about physical and sexual abuse of women and children. Among the topics to be discussed are rape, incest, and spouse abuse. The approach will include sociological, psychological, and feminist perspectives. Solutions involving the medical and legal systems and the establishment of shelters will also be explored.

Prerequisites: 18 credits in the social and behavioral sciences

Fall or spring, 3 credits

SSI 311 Interdisciplinary Problems in the Social Sciences

This course treats a problem that has been tackled by a number of the social sciences. It

illustrates the different natures of approach, method, and findings. The actual problem chosen will vary from semester to semester. May be repeated.

Prerequisites: 18 credits in the social and behavioral sciences

Schedule to be announced, 3 credits

SSI 320 The Special Child

Social, political, philosophical, and educational issues related to the habilitation and integration of children. The course focuses on the interaction between children who have developmental, sensory, communication, behavioral, orthopedic, or other health disorders, as well as those who are gifted, and on community response to their exceptional needs.

Prerequisite: SSI 110 or PSY 211

Fall or spring, 3 credits

SSI 327 Adolescent Growth and Development

The biological and psychological development of adolescents that affects teaching and curriculum development. Additional topics include adolescent psychiatric disorders, secondary special education programs, drug and alcohol use and abuse, and societal issues.

Prerequisites: Upper-division standing; enrollment in a teacher preparation program

Fall and spring, 3 credits

SSI 339 Children's Play

An investigation of the significance of play in human development, familiarizing the student with the psychological and sociological theories of play and considering the application of these theories in educational and clinical settings. The course will be especially useful to students who are contemplating professional work with children.

Prerequisite: SSI 110 or PSY 211

Fall or spring, 3 credits

SSI 350 Foundations of Education

An interdisciplinary study of the foundations of education focusing on the findings of the social and behavioral sciences as related to education and teaching. The course is designed to meet the needs of students enrolled in the secondary teacher preparation programs.

Prerequisite: Upper-division standing

Fall and spring, 3 credits

SSI 369 Women of the Developed Economies: A Comparative Perspective

A comparative study of women in selected industrialized societies. Legal, political, employment, and family issues will be analyzed with the aim of explaining both the universalities of women's roles and conditions as determined by the international market economy and their national differences determined by each country's unique culture and history. A Core Course satisfying Social and Behavioral Sciences Category A, Group 2. Crosslisted with WNS 369.

Prerequisite: SSI/WNS 102 or WNS/HIS 333 or WNS/SOC 371

Fall, alternate years, 3 credits (not offered in 1989-90)

SSI 397 Teaching Social Studies

A study of social studies as taught in the secondary schools: the nature of the social studies, curricula models, scope and sequence of topics

offered, new programs of social studies instruction, etc. Designed for prospective teachers of social studies in secondary schools.

Prerequisite: Registration in the Social Studies Secondary Teacher Preparation Program (see below)

Fall, 3 credits

SSI 398 Social Studies Teaching Strategies

An examination of the instructional methods and materials for teaching social studies at the secondary school level. Designed for prospective teachers of social studies in secondary schools.

Prerequisite: SSI 397

Spring, 3 credits

SSI 405 Seminar in Children and Social Policy

An examination of the social and political factors that determine the legislation affecting children and the evaluation of program effectiveness. The history of programs, beginning with the New Deal, will be explored. The major focus will be on current legislation. The following issues will be analyzed: child health, AFDC, nutrition, education of the handicapped, adoption and foster care, Head Start, day care, and child abuse.

Prerequisites: Upper-division standing; permission of instructor

Spring, 3 credits

SSI 407 Senior Seminar in Women's Studies

An exploration of significant feminist scholarship in various disciplines. Seminar participants will present and discuss reports on reading and research. Crosslisted with WNS 407.

Prerequisite: Completion of 15 credits of the women's studies minor

Fall or spring, 3 credits

SSI 417 Senior Seminar in Child and Family Studies

A seminar for advanced students in the minor in child and family studies. A selected topic, chosen from among the following, will be explored in depth: motherhood, parent education, families with disabled members, family and individual development in the later years, and cross-cultural perspectives on child care and the parent-child relationship. The topic will be announced at the time of registration.

Prerequisites: Senior standing; SSI 281 and 283

Fall or spring, 3 credits

SSI 447 Directed Readings in Social Science

Individually supervised reading in selected topics of the social sciences. May be repeated, but total credit may not exceed six credits.

Prerequisites: Permission of instructor and program

Fall and spring, 1 to 3 credits

SSI 450 Supervised Student Teaching

Prospective secondary school social studies teachers will receive supervised practice teaching by arrangements with selected Long Island secondary schools. The student teacher reports to the school to which he or she is assigned each full school day for the entire semester. Frequent consultation with the supervising teacher helps the student to interpret and evaluate the student teaching experience. Applications must be filed

in the semester preceding that in which the student plans to student teach. The dates by which applications must be completed will be announced. Satisfactory/Unsatisfactory grading only.

Prerequisites: SSI 397 and 398; 3.0 grade point average in the major; 2.75 grade point average overall; enrollment in the Social Studies Secondary Teacher Preparation Program; approval of social studies director

Corequisite: SSI 454

Fall and spring, 12 credits

SSI 454 Student Teaching Seminar

Seminar on problems and issues of teaching social studies at the secondary school level. Analysis of actual problems and issues encountered by the student in his or her student teaching experience.

Corequisite: SSI 450

Fall and spring, 3 credits

SSI 461 Senior Seminar in Asian Studies

An interdisciplinary seminar in which faculty members and students discuss and do research on various problems of current interest in the field of Asian studies, including such topics as agrarian unrest; nationalism; regional economic integration; problems of modernization, industrialization, and historical continuity and discontinuity; and comparative aesthetics. A seminar director will be responsible for the selection of the topic and the faculty participants. May be repeated.

Prerequisites: 18 credits in Asian studies

Fall or spring, 3 credits

SSI 475 Undergraduate Teaching Practicum

Each student will conduct a weekly recitation section that will supplement a lecture course. The student will receive regularly scheduled supervision from the instructor. Responsibilities may include preparing material for discussion and helping students with research papers. Satisfactory/Unsatisfactory grading only.

Prerequisites: Social Science Interdisciplinary major; senior standing; interview; permission of instructor

Fall and spring, 3 credits

SSI 487 Independent Project in the Social Sciences

Interdisciplinary independent projects in the social sciences designed to enable students to combine academic and field work on a practical or community problem. There will be an emphasis on team projects under special supervision. May be repeated.

Prerequisites: 18 credits in the social and behavioral sciences; permission of program

Fall and spring, 1 to 6 credits

SSI 488 Internship

Participation in local, state, or federal government public and private agencies and organizations. Students will be required to submit written progress reports and a final report on their experience to the faculty sponsor and the program. Satisfactory/Unsatisfactory grading only. May be repeated up to a limit of 12 credits.

Prerequisites: 15 credits in the social and behavioral sciences; permission of instructor, program, and Office of Undergraduate Studies

Fall and spring, 3 to 12 credits

SSI 489 Washington or Albany Internship

Designed so that students can participate in Washington, D.C. at the Washington Center as

interns in private or public sector organizations and agencies or in Albany as interns in the New York State Assembly or Senate Program. Students will be supervised by selected practitioners within the organization or agency. Students will be required to submit journals of experience and observation which, together with the supervisors' report, become the basis for a Satisfactory/Unsatisfactory grade. Only three credits for this course may be applied toward major requirements. Crosslisted with POL 489.

Prerequisites: Admission to Washington Center or New York State Assembly or Senate Program; 15 credits from at least three social and behavioral sciences departments

Corequisite: SSI 490

Fall and spring, 12 credits

SSI 490 Washington or Albany Seminar

Seminar offered in Washington, D.C. as part of the internship program of the Washington Center or in Albany as part of the New York State Assembly or Senate Internship Program. The seminars are taught by people with experience in public and private agencies, public policy formulation, and relevant academic and professional experience. Students are offered work in several program areas designed to complement their internships, such as law and justice, congressional studies, policy studies, community-urban service, and studies in government. Crosslisted with POL 490.

Prerequisites: Admission to Washington Center or New York State Assembly or Senate Program; 15 credits from at least three social and behavioral sciences departments

Corequisite: SSI 489

Fall and spring, 3 credits

Social Studies Secondary Teacher Preparation Program

Director: Eli Seifman

This program offers the student the opportunity to prepare for a teaching career and to complete the requirements for a New York State Provisional Certificate as a teacher of secondary school social studies.

Students who wish to enter this program are expected to consult the program director and establish an advisement folder prior to the beginning of the junior year. Failure to do so may result in a delay in meeting the certification requirements.

Requirements

A. Preparation in Social Science

A minimum of 48 credits in social science departments or interdisciplinary programs, excluding psychology and linguistics.

Credits

48

- Included in the social science credits must be at least 18 credits distributed as follows:
 - three credits in economics
 - three credits in Asian history
 - three credits in African history
 - three credits in Latin American history
 - three credits in U.S. history
 - three credits in European history
 - The major requirements of one of the following departments or interdisciplinary programs: African Studies, Anthropology, Economics, History, Political Science, Social Sciences Interdisciplinary Program, Sociology. *These are the only majors acceptable for the Social Studies Secondary Teacher Preparation Program.*
- | | |
|----------|----|
| Subtotal | 48 |
|----------|----|

B. Preparation in Professional Education

SSI 327 Adolescent Growth and Development	3
SSI 350 Foundations of Education	3
SSI 397 Teaching Social Studies	3
SSI 398 Social Studies Teaching Strategies	3
SSI 450 Supervised Student Teaching	12
SSI 454 Student Teaching Seminar	3
Subtotal	27
Total	75

Note: Courses taken for Pass/No Credit may not be used to satisfy the preparation in professional education component of the teacher preparation program.

Socio-Legal Studies

Director: June Starr, Anthropology

Affiliated Faculty

Patrick Grim, Philosophy
Merton Reichler, Political Science
Jeffrey Segal, Political Science
Michael Simon, Philosophy
Mary Vogel, Sociology
Peter Williams, Community and Preventive Medicine

The interdisciplinary minor in socio-legal studies (SLS) is intended for students who have an interest in law and social control and a major in one of the social and behavioral science departments, interdisciplinary programs, or humanities depart-

ments. It emphasizes the interrelationships among social values, social control processes, bureaucracies, and legal institutions. It will be useful to students planning a career in public policy, law, legal services, rural development studies, and urban affairs.

Requirements for the Minor in Socio-Legal Studies

	Credits
1. POL 220	3
2. Ethnic Diversity and Legal Pluralism: POL 325 or ANT 215 or AFS 490 or SOC 310 or another designated course. (Consult minor director for allowed alternatives.)	3
3. 12 credits chosen from the list of allowed courses. (A maximum of six credits may be applied from research or internship options to this requirement. See note 5.)	12
4. ANT 411	3
Total	21

Notes:

- No course for the minor may be taken Pass/No Credit.
- No more than nine credits, excluding ANT 411, may be taken in any one department.
- ANT 411 will normally be taken in the senior year after completing at least three other courses in the minor, including POL 220.
- At least nine credits among those used for the minor must be in upper-division courses.
- Up to six credits of directed research or internship may be applied to the third requirement of the minor if the specific research project or internship is approved in advance by the student's minor advisor.

Declaration of the Minor

Students must declare the socio-legal studies minor no later than the middle of their junior year, at which time they will consult a minor advisor and plan the courses they will take for fulfillment of the minor.

Allowed Courses

The following courses are allowed for the minor:

AFS 490	Legal Process and Social Structure
ANT 215	Anthropology of Law
ANT 310	Ethnography (appropriate topic only)
ECO 317	Marxist Political Economy
HIS 379	American Legal History

PHI 375	Philosophy of Law
POL 220	Law and Politics
POL 311	Introduction to International Law
POL 320	Constitutional Law and Politics: United States
POL 323	The Legislative Process
POL 325	Civil Liberties and Civil Rights
POL 343	Behavioral Assumptions of the Law
POL 350	Contemporary Political Theory
POL 366	Government Regulation of Business
POL 367*	Mass Media in American Politics
PSY 310	Studies of Social Conflict
SOC 309	Social Conflicts and Movements
SOC 310	Ethnic Relations
SOC 337,	Sociology of Deviance and
338	Crime I, II
SOC 354	Sociology of Law
SOC 356	Political Sociology
SOC 372*	Mass Communications
SSI 308	Battered Women, Endangered Children
SSI 405	Seminar in Children and Social Policy

Other courses may be added as appropriate. Check with the minor director.

*Either POL 367 or SOC 372 may satisfy minor requirements, but not both.

Department of Sociology

Chairperson: Norman Goodman
Director of Undergraduate Studies: Diane Barthel-Bouchier

Faculty

Said Amir Arjomand, Professor, Ph.D., University of Chicago: Comparative; historical; political religion.

Paul Attewell, Associate Professor, Ph.D., University of California, San Diego: Complex organizations; theory; technology.

Diane Barthel-Bouchier, Associate Professor, Ph.D., Harvard University: Culture; sex roles; historical.

Karen Cerulo, Assistant Professor, Ph.D., Princeton University: Culture; mass communications; social control.

Ivan D. Chase, Associate Professor, Ph.D., Harvard University: Social inequality; social structure; resource allocation; cross-species comparisons.

Stephen Cole, Professor, Ph.D., Columbia University: Science; theory; culture.

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

Lewis A. Coser, Distinguished Professor Emeritus, Ph.D., Columbia University: Theory; sociology of knowledge and intellectuals; conflict and violence; political sociology.

Rose Laub Coser, Professor Emerita, Ph.D., Columbia University: Medical; family; organizations; socialization; women's roles.

Scott L. Feld, Associate Professor, Ph.D., The Johns Hopkins University: Social networks; collective decisions; methodology; mathematical theory.

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

John H. Gagnon, Professor, Ph.D., University of Chicago: Deviance; family simulations; sexual conduct; social change.

Erich Goode, Professor, Ph.D., Columbia University: Deviance; criminology.

Norman Goodman, Distinguished Teaching Professor, Ph.D., New York University: Social psychology; family; socialization. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1976.

Mark Granovetter, Professor and Director of Graduate Studies, Ph.D., Harvard University: Economic and political sociology; stratification; theory.

David Halle, Assistant Professor, Ph.D., Columbia University: Work; political; theory; social change.

Bruce R. Hare, Associate Professor, Ph.D., University of Chicago: Sociology of education; social psychology; life cycles.

Dick Howard, Professor, Ph.D., University of Texas at Austin: Philosophy of social sciences; history and development of sociological theory; philosophy.

Michael Kimmel, Assistant Professor, Ph.D., University of California, Berkeley: Comparative and historical development; social movements; gender and sexuality.

Frank Romo, Assistant Professor, Ph.D., Yale University: Statistics; methodology; social organizations; economic.

James B. Rule, Professor, Ph.D., Harvard University: Theory; political sociology; technology.

Michael Schwartz, Professor, Ph.D., Harvard University: Methodology; historical; political economy; business structure; social movements. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1975.

Hanan C. Selvin, Professor Emeritus, Ph.D., Columbia University: Research methods; statistics; marriage and the family.

Judith Tanur, Professor, Ph.D., State University of New York at Stony Brook: Statistics; methodology; social psychology.

Andrea Tyree, Professor, Ph.D., University of Chicago: Demography; social stratification; statistics; ethnicity.

Mary Vogel, Assistant Professor, Ph.D., Harvard University: Law and politics; historical; theory.

H. Barry Waldman, Professor, D.D.S., New York University; Ph.D., University of Michigan: Health care delivery.

Richard Williams, Associate Professor, Ph.D., State University of New York at Binghamton: Race; ethnic development; small business.

Robert Zussman, Assistant Professor, Ph.D., Columbia University: Work; medical; political.

Adjunct Faculty
Estimated number: 1

Teaching Assistants
Estimated number: 9

Requirements for the Major in Sociology

The major in sociology leads to the Bachelor of Arts degree. The following courses are required:

A. Study within the Area of the Major	Credits
1. Required courses: One introductory course selected from among the following: SOC 105 Structure and Methods in Sociology or 106 Introduction to Sociology: Honors or 305 Modernity and Identity	3
SOC 121 Library Skills for Sociological Research	1
SOC 311, 312 Methods and Statistics I, II	8
SOC 300 Sociological Writing (a grade of C or higher will meet the university's Upper-Division Writing Requirement for sociology majors)	3
SOC 361 Historical Development of Contemporary Sociology	3
SOC 362 Introduction to Sociological Theory (SOC 361 and 362 should be taken consecutively during the junior or senior year)	3
2. Sociology electives Free selection of courses from among all sociology course offerings.	15
Subtotal	36

Notes on Group A:

1. SOC 106 is recommended for majors considering graduate study.
2. If any of the required courses is waived for any reason, it must be replaced with an additional elective, so that the required total of 36 credits in sociology is maintained.
3. Majors are expected to take SOC 300 in their junior year.

B. Study in Related Areas

At least three courses (9 credits) chosen from one of the following related social sciences: Africana studies (only those courses with designator AFS), anthropology, economics, history, linguistics, political science, psychology, social sciences (SSI only), and women's studies (WNS only). Credits from applied social science professions like social work, police science, education, and management science are not applicable.

Total	9 45
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Grading Policy

1. No more than two courses from the requirements of the department, including sociology electives (A, 2 above) and related social science courses (B, above), but excluding required sociology courses (A, 1 above), may be taken for Pass/No Credit. None of the required sociology courses may be taken for Pass/No Credit.
2. Each of the seven courses named under A, above, must be passed with a grade of C- or higher.
3. For transfer students who are sociology majors, special regulations apply:
 - a. No transferred sociology course with a grade lower than C- will be accepted for credit in the major.
 - b. For the requirement of three courses in a related social science (B, above), any passing grade will be sufficient to transfer for credit.

Note: The Sociology Department requires that transfer students take at least 12 credits in sociology in residence at Stony Brook to complete the sociology major.

Honors Program

The honors program is open to seniors majoring in sociology who have maintained a G.P.A. of 3.5 in the major and 3.0 overall, and who have completed or are in the process of completing SOC 121, 300, 311, and 312. Students should apply for the honors program before the beginning of their senior year. With the approval of the sponsoring faculty member, the student must submit a written proposal for a

major paper or research project to be completed during the senior year. Acceptance into the honors program depends on the approval of the proposal by the department.

During the senior year, the student will enroll in SOC 447 during the first semester and SOC 487 during the second semester, for a total of six credits. The student's major paper or research project must be completed no later than four weeks prior to the end of the second semester, to allow for possible revisions. It will be read and evaluated by a committee consisting of the student's sponsor, one other sociology faculty member, and one faculty member from another department.

If the honors program is completed with distinction and the student has achieved a 3.5 G.P.A. in all sociology courses taken in the senior year, honors will be conferred.

Courses

See, p. 60, Course Credit and Prerequisites, and p. 61, Undergraduate Numbering System.

SOC 105 Structure and Methods in Sociology

A general introduction to the science of sociology. This course emphasizes sociological theory and methods. Students will be taught what is unique about the way in which sociologists analyze human behavior and society. Differences between the sociological perspective and perspectives of other social sciences are emphasized. There will also be a heavy emphasis on the types of methods and data that sociologists use to test the validity of their ideas. May not be taken for credit in addition to SOC 106, 301, 305, or the discontinued 103. A Core Course satisfying Social and Behavioral Sciences Category B. *Fall and spring, 3 credits*

SOC 106 Introduction to Sociology: Honors

An enriched introduction to the sociological perspective with an emphasis on how sociologists develop and test their hypotheses about human behavior. This course will require more reading and cover more difficult topics than SOC 105, providing an introduction to sociology in greater depth. May not be taken for credit in addition to SOC 105, 301, 305, or the discontinued 103. A Core Course satisfying Social and Behavioral Sciences Category B. *Fall and spring, 3 credits*

SOC 121 Library Skills for Sociological Research

An introduction to basic library skills and bibliographic resources for sociological research, using a self-paced workbook approach. Reference and other library materials of special interest to sociology students are covered. Such skills as the efficient use of card catalogues, bibliographies, and specialized indexes are also treated. No class sessions are held, but opportunity for adequate contact between students and librarian is provided. Not for credit in addition to POL 121 or PSY 121.

Prerequisite: SOC 105 or 106 or 301 or 305
Fall and spring, 1 credit

SOC 201 Research Methods in Sociology

Methods of collecting and analyzing empirical data to test sociological hypotheses. Emphasis will be on multivariate analysis of tabular and statistical data. Not for credit in addition to SOC 311, 312.

Prerequisite: SOC 105 or 106 or 301 or 305
Fall and spring, 3 credits

SOC 204 Intimate Relationships

Social factors affecting courtship, mate selection, and engagement; dynamics of marital adjustment and parenthood.

Fall and spring, 3 credits

SOC 243 Sociology of Youth

Adolescent socialization; age structures and intergenerational conflict; peer groups and youth subcultures.

Fall and spring, 3 credits

SOC 247 Sociology of Gender

The roles of women and men in modern society; changing relations between the sexes; women's liberation and related movements. A Core Course satisfying Social and Behavioral Sciences Category A, Group 2.

Fall and spring, 3 credits

SOC 264 Introduction to Middle Eastern Society

A broad survey of society, politics, and culture in the Islamic Middle East and North Africa. The course will include an examination of Middle Eastern social structure, culture, and religion. Social stratification and the relationship between the pastoral/nomadic, agrarian, and urban sectors of Middle Eastern societies will be analyzed. The major patterns of social change, modernization of states, and political revolutions in the 20th century will also be studied. A Core Course satisfying Social and Behavioral Sciences Category A, Group 4, and Study of Another Culture.

Fall, 3 credits

SOC 287 URECA Research in Sociology

Supervised research under the sponsorship of a sociology faculty member as part of the university's URECA program. Students will assist faculty in various aspects of ongoing research. Assignments will depend on the nature of the project. Satisfactory/Unsatisfactory grading only. May be repeated up to a limit of 12 credits, but only six credits may count toward the major.

Prerequisite: Permission of departmental URECA coordinator

Fall and spring, 1 to 6 credits

SOC 300 Sociological Writing

A practicum in writing on sociological topics. Each semester the course will concentrate on different sociological topics to be selected by the instructor. The students will read books and papers on this topic, discuss them in class, and then complete a series of writing assignments on the material discussed in class.

Prerequisites: SOC 105 or 106 or 301 or 305; junior standing

Pre- or corequisite: SOC 311

Fall and spring, 3 credits

SOC 301 Principles of Sociology

An introduction for upper-division students committed to a major in a different field who want to find out how the sociologist looks at the world.

The course will illustrate the use of a sociological perspective in the analysis of the social world, rather than focus on sociological concept development. Topics to be included will be chosen from among the following: ethnic relations, deviance and delinquency, socialization, organizational analysis, the family as a social institution, population analysis, and urban life. Not for credit in addition to SOC 105, 106, 305, or the discontinued 103, nor for major credit. May be used as a prerequisite for higher-level sociology courses in place of SOC 105, 106, or 305.

Prerequisites: Upper-division standing; a major other than sociology
Fall, 3 credits

SOC 302 American Society

Intended for students who wish to look at American society through the eyes of the sociologist. Included in the course is the sociological view of American social structure in terms of power and patterns of inequality, the legal system, ethnic relations, social mobility, and urban problems.

Prerequisite: Upper-division standing

Spring, 3 credits

SOC 303 Social Stratification

Theories of social stratification; patterns of differentiation in wealth, prestige, and power; social mobility; power structures and elites.

Prerequisites: SOC 105 or 106 or 301 or 305; two other courses in the social sciences

Fall, 3 credits

SOC 304 Sociology of the Family

Analysis of the family as a major social institution; examination of the structure and functions of the family in various societies.

Prerequisites: SOC 105 or 106 or 301 or 305; two other courses in the social sciences

Spring, 3 credits

SOC 305 Modernity and Identity

A sociological perspective applied to the emergence of modern society. Special attention is focused on the impact of the industrial revolution, urbanism, and the rise of modern democracies. The course will consider how new social structures, such as bureaucracies, lead to new definitions of personal identity, and how social order and culture become increasingly problematic as new social groups are formed and demands made. May not be taken for credit in addition to SOC 105, 106, 301, or the discontinued 103. A Core Course satisfying Social and Behavioral Sciences Category A, Group 3.

Prerequisite: Upper-division standing

Fall, 3 credits

SOC 307 Social Planning

Deliberate attempts to introduce change in society; methods of evaluating the success of social change programs; conditions affecting the success of such programs.

Prerequisites: SOC 105 or 106 or 301 or 305; two other courses in the social sciences

Fall, 3 credits

SOC 308 Social Welfare: Policies and Programs

Consideration of the historical and contemporary social definitions, distribution, and status of the

poor in the United States; analysis of alternative explanations for their situation; and study of the effects of social welfare institutions upon the poor.

Prerequisites: SOC 105 or 106 or 301 or 305; two other courses in the social sciences
Fall and spring, 3 credits

SOC 309 Social Conflicts and Movements

An examination of aggregate phenomena; revolutionary and counter-revolutionary programs and organizations. Historical and cross-cultural examples will be emphasized.

Prerequisites: SOC 105 or 106 or 301 or 305; two other courses in the social sciences
Spring, 3 credits

SOC 310 Ethnic Relations

The formation, migrations, and conflicts of ethnic and other minority groups; prejudice, discrimination, and minority self-hatred.

Prerequisites: SOC 105 or 106 or 301 or 305; two other courses in the social sciences
Fall and spring, 3 credits

SOC 311, 312 Methods and Statistics I, II *(Formerly SOC 211, 212)*

An integrated view of sociological methodology and the place of statistical techniques. Students will learn descriptive and inferential statistics in the course of designing and carrying out either individual or group research projects; the students will consider the interrelations between theory and research as well as the mechanics of carrying out the research process. Every student will be required to analyze a set of data and to write a research report. May not be taken for credit in addition to SOC 201. Satisfies Quantitative Literacy Graduation Requirement.

Prerequisites to SOC 311: SOC 105 or 106 or 301 or 305; satisfaction of entry-level mathematics proficiency requirement
Prerequisites to SOC 312: SOC 311; permission of instructor
Fall (311) and spring (312), 4 credits each semester

SOC 315 Sociology of Technology

Social systems and the various "tools" they develop to shape their environment. Concentration on technologies of highly developed, modern societies and on ethical issues involved in attempts to guide the development and effects of these technologies. Consideration will be given to the role of technology in all societies, from the simplest to the most developed.

Prerequisites: SOC 105 or 106 or 301 or 305; two other courses in the social sciences
Spring, 3 credits

SOC 320 Demography

Sources and consequences of changes in population size and composition; the "demographic explosion."

Prerequisites: SOC 105 or 106 or 301 or 305; two other courses in the social sciences
Fall, 3 credits

SOC 323 Urban Society

The emergence of cities and the process of urbanization; an examination of urban structure; the consequences of the urban milieu for interpersonal relations and institutions.

Prerequisites: SOC 105 or 106 or 301 or 305; two other courses in the social sciences
Fall and spring, 3 credits

SOC 335 Sociology of the American Labor Movement

An analysis of the rise and present state of the American labor movement with emphasis on the growth of large corporations; the role of the state in American industry; imperialism; and the influence of class, race, and gender in American society.

Prerequisites: SOC 105 or 106 or 301 or 305; two other courses in the social sciences
Spring, alternate years, 3 credits (not offered in 1990-91)

SOC 336 Social Change

The impact of technological, generational, and cultural forces on social organization from a historical and comparative perspective.

Prerequisites: SOC 105 or 106 or 301 or 305; two other courses in the social sciences
Fall, 3 credits

SOC 337, 338 Sociology of Deviance and Crime I, II

An integrated consideration of deviance, crime, and delinquency from a sociological perspective. The first semester will focus on competing theories of the nature and etiology of deviant and criminal behavior, problems of research in these areas (and the related technical, legal, and ethical issues), and substantive findings for "non-victim" crimes and legal but morally stigmatized behavior. The second semester will include topics on the substantive findings about juvenile crime, adult victim crime, and a sociological view of the control of deviant and criminal behavior.

Prerequisites to SOC 337: SOC 105 or 106 or 301 or 305; two other courses in the social sciences
Prerequisite to SOC 338: SOC 337

Fall and spring, 3 credits each semester

SOC 339 Sociology of Alcoholism and Drug Abuse

An examination of the sociological literature on alcoholism and drug abuse. Topics include addictive careers, the epidemiology (spread) of abuse, history of attempts to control alcohol and drugs, treatment approaches, and policy alternatives.

Prerequisites: SOC 105 or 106 or 301 or 305; two other courses in the social sciences
Fall, 3 credits

SOC 341 Historical Sociology

Sociological theories and methods applied to the study of historical phenomena such as revolutions, migration, and industrialization. A Core Course satisfying Social and Behavioral Sciences Category A, Group 2.

Prerequisites: SOC 105 or 106 or 301 or 305; two other courses in the social sciences; a history course is also recommended
Fall, alternate years, 3 credits (not offered in 1989-90)

SOC 342 The Use of Computers in Sociology

A general introduction to operating systems, storage media, and data management; statistical computing from demand mode using SPSS and BMDP; and introduction to programming languages. The course, which combines classroom

work and a supervised laboratory, is designed to teach students how to use the computer to do sociological analysis.

Prerequisites: SOC 105 or 106 or 301 or 305; SOC 312
Spring, 4 credits

SOC 344 Social Ecology

Analysis of how populations gain sustenance from their environments through organization, information, and technology. Evolution of technology and its ecological consequences for population growth, urbanization, social stratification, environmental destruction, and the quality of life. Problems in managing the human environment and communities.

Prerequisites: SOC 105 or 106 or 301 or 305; two other courses in the social sciences
Spring, 3 credits

SOC 351 Sociology of Literature

Literature as a symbolic expression of social structure; the relations between literary movements and other forms of social activity.

Prerequisites: SOC 105 or 106 or 301 or 305; two other courses in the social sciences
Spring, alternate years, 3 credits (not offered in 1990-91)

SOC 352 Sociology of Religion

The ways in which sociocultural processes affect and are influenced by religious belief systems and organizations; changing structures and functions of religious institutions. A Core Course satisfying Social and Behavioral Sciences Category A, Group 2.

Prerequisites: SOC 105 or 106 or 301 or 305; two other courses in the social sciences
Spring, 3 credits

SOC 353 Sociology of Science

Social influences on the choice of research problems and on the behavior of scientists; the social organization of scientific enterprises. A Core Course satisfying Natural Sciences Category B.

Prerequisites: SOC 105 or 106 or 301 or 305; a Natural Sciences Category A course
Fall, alternate years, 3 credits (not offered in 1989-90)

SOC 354 Sociology of Law

Law as an institution of social control; the legal profession, court systems, and bureaucratization of the legal process; the relation of law to social change.

Prerequisites: SOC 105 or 106 or 301 or 305; two other courses in the social sciences
Spring, 3 credits

SOC 356 Political Sociology

Social structure and processes as affecting, and affected by, political behavior and organizations; the sociology of power, authority, and legitimacy.

Prerequisites: SOC 105 or 106 or 301 or 305; two other courses in the social sciences
Fall and spring, 3 credits

SOC 360 Comparative Social Structures

The principal complex societies and their central institutions, with emphasis on industrialization and economic development.

Prerequisites: SOC 105 or 106 or 301 or 305; two other courses in the social sciences
Spring, 3 credits

SOC 361 Historical Development of Contemporary Sociology

Main currents in the development of theories and empirical studies of society, culture, and personality.

Prerequisites: SOC 105 or 106 or 301 or 305; two other courses in the social sciences
Fall and spring, 3 credits

SOC 362 Introduction to Sociological Theory

A systematic treatment of the dominant general orientations in sociology including structural-functional analysis and symbolic interactionism.

Prerequisite: SOC 361
Fall and spring, 3 credits

SOC 370 Work and the Professions

The social patterning of work situations and careers; relations of work organizations to each other and to larger social structures.

Prerequisites: SOC 105 or 106 or 301 or 305; two other courses in the social sciences
Fall, 3 credits

SOC 371 Gender and Work

Gender differences in work force participation and occupational attainment. Will cover such topics as historical changes in work force participation; economic, legal, and social factors affecting employment; career options; and pay equity. Crosslisted with WNS 371.

Prerequisites: WNS/SSI 102 or SOC 105 or 106 or 301 or 305; two other courses in the social sciences
Spring, 3 credits

SOC 372 Mass Communications

Social influences on the content and effects of mass communications; communication systems; the public functions of mass communication.

Prerequisites: SOC 105 or 106 or 301 or 305; two other courses in the social sciences
Fall, 3 credits.

SOC 373 Collective Behavior

Major unstructured social phenomena—such as mob violence, panics, fads and fashions, and public opinion—as the outcome of collective problem-solving activity.

Prerequisites: SOC 105 or 106 or 301 or 305; two other courses in the social sciences
Spring, 3 credits

SOC 375 Biosociology

Comparison of basic social processes in human and animal groups. Topics covered include dominance, hierarchies, the distribution of scarce resources, cooperation, and the division of labor. A Core Course satisfying Social and Behavioral Sciences Category A, Group 2.

Prerequisites: SOC 105 or 106 or 301 or 305; two other courses in the social sciences or two courses in biology
Spring, 3 credits

SOC 380 Social Psychology

Individual and social factors in human behavior; the structure of personality; identity development; communication processes; and attitudes. A Core Course satisfying Social and Behavioral Sciences Category A, Group 2.

Prerequisites: SOC 105 or 106 or 301 or 305 or PSY 103 or 104; two other courses in the social sciences
Fall and spring, 3 credits

SOC 381 Sociology of Organizations

Bureaucracy as a form of organization; the structure of relations between and within organizations.

Prerequisites: SOC 105 or 106 or 301 or 305; two other courses in the social sciences
Fall and spring, 3 credits

SOC 382 Small Groups

The structure and functioning of face-to-face groups in field and laboratory settings.

Prerequisites: SOC 105 or 106 or 301 or 305; two other courses in the social sciences
Spring, alternate years, 3 credits (not offered in 1990-91)

SOC 383 Sociology of Business

Sociological material on the role of business organizations in American life. Among the topics to be considered are the internal social organization of large companies, the relationship between management and labor, the interaction between business organizations and the government, and the role of multinational businesses in world affairs.

Prerequisite: SOC 381
Spring, 3 credits

SOC 384 Sociology of the Life Course

Change and stability of individuals through the life course (from childhood to old age) in the context of social structure and interactional processes. Will cover such topics as socially structured periods and transitions in the life course; identity formation; continuity and change; life crises; changing roles and transitions.

Prerequisites: SOC 105 or 106 or 301 or 305; two other courses in the social sciences
Spring, 3 credits

SOC 385 The Sociology of Economic Life

The sociological approach to markets, production, distribution, and consumption. Special attention to the differences between sociological and economic theories of the same phenomena and to the embeddedness of economic action in social structure. Topics include the historical emergence of sociology and economics as separate disciplines; labor markets and the labor process; discrimination; vertical integration and industrial organization; the organization of professions such as law and medicine; fertility and population changes; and comparisons of tribal and non-Western economic systems to those familiar in modern industrial society. A Core Course satisfying Social and Behavioral Sciences Category A, Group 2.

Prerequisites: SOC 105 or 106 or 301 or 305; two other courses in the social sciences
Spring, alternate years, 3 credits (not offered in 1990-91)

SOC 387 Sociology of Education

Educational institutions as social systems; social patterns in the life cycles of students and teachers; class and ethnic factors in educational development.

Prerequisites: SOC 105 or 106 or 301 or 305; two other courses in the social sciences
Fall, 3 credits

SOC 390, 391, 392 Special Topics

Lectures on topics of current sociological interest, which will be announced before the start of the term. May be repeated as the subject matter differs.

Prerequisites: SOC 105 or 106 or 301 or 305; two other courses in the social sciences
Schedule to be announced, 3 credits each

SOC 401 Senior Seminar in Sociology

Special projects and research papers on a topic of sociological interest, which will be announced before the start of the term. May be repeated once.

Prerequisite: Permission of instructor
Fall or spring, 3 credits

SOC 406 Practicum in Applied Sociological Research

Participation in several simulated and, where possible, actual ongoing research projects. The following skills will be emphasized: translating a client's problem into a manageable research project, study design, questionnaire construction, pretesting questionnaires, sample construction, field work administration, tabulation and analysis of data, report writing, and the economics and professional standards of the research industry.

Prerequisites: SOC 312; permission of instructor
Spring, 3 credits

SOC 447 Independent Readings

Selected readings, usually in a special area, to be arranged by the student and the instructor. May be repeated. A total of no more than six credits of SOC 287, 447, and 487 may be counted toward the major. A maximum of three credits may be taken with any one faculty member in any one semester.

Prerequisites: Written permission of instructor and of director of undergraduate studies
Fall and spring, 1 to 6 credits

SOC 475 Undergraduate Teaching Practicum I

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student will be required to attend all the classes, do all the regularly assigned work, and meet with the faculty member at regularly scheduled times to discuss the intellectual and pedagogical matters relating to the course. Satisfactory/Unsatisfactory grading only.

Prerequisites: Upper-division standing; 12 credits of sociology; permission of instructor and director of undergraduate studies
Fall and spring, 3 credits

SOC 476 Undergraduate Teaching Practicum II

The continuation on a more advanced level of training in the techniques of organization and management in the teaching of sociology courses. Students will assume greater responsibility in such areas as leading discussions, analyzing and evaluating test results, and observing teaching methods. The course in which a student is permitted to work as a teaching assistant will be of at least equal difficulty and not the same as the course in which he or she previously served. Satisfactory/Unsatisfactory grading only.

Prerequisites: SOC 475; permission of instructor and director of undergraduate studies
Fall and spring, 3 credits

SOC 487 Independent Research

Designing and carrying out a research project selected by the student and arranged by the student and the instructor. May be used for URECA projects associated with faculty research. May be repeated. A total of no more than six credits of SOC 287, 447, and 487 may be counted toward the major.

Prerequisites: Written permission of instructor and director of undergraduate studies. For URECA projects, permission of URECA coordinator required instead of that of the director of undergraduate studies

Fall and spring, 1 to 6 credits

SOC 488 Internship

Participation in local, state, and national public and private agencies and organizations. Students will be required to submit written progress reports and a final written report on their experience to the faculty sponsor and the department. Satisfactory/Unsatisfactory grading only. May be repeated up to a limit of 12 credits.

Prerequisites: Twelve credits in sociology; permission of instructor, department, and Office of Undergraduate Studies

Fall and spring, 3 to 12 credits

Department of Theatre Arts

Chairperson: Farley Richmond

Director of Undergraduate Studies: Thomas Neumiller

Faculty

Leonard Auerbach, Associate Professor Emeritus: Acting; directing; stage management.

William J. Bruehl, Professor, Ph.D., University of Pennsylvania: Directing; modern drama; improvisation; acting.

John Cameron, Assistant Professor, Ph.D., Kent State University: Acting; directing; American theatre.

Glenda Dickerson, Assistant Professor, M.A., Adelphi University: Voice; acting; directing.

Richard Finkelstein, Assistant Professor, M.F.A., Carnegie Mellon University: Scene design; lighting.

Yukihiko Goto, Assistant Professor, Ph.D., University of Hawaii at Manoa: Asian theatre; directing; acting.

Sigrd Insull, Associate Professor, M.A., Indiana University: Costume design; acting.

Jonathan Levy, Professor, Ph.D., Columbia University: Criticism; playwriting.

Lewis Lusardi, Adjunct Assistant Professor, B.A., University of London: Television production and programming.

Thomas Neumiller, Professor, M.F.A., Yale University: Acting; directing.

Louis Peterson, Associate Professor, M.F.A., New York University: Playwriting; acting.

Maria Ley Piscator, Adjunct Professor, Ph.D., Sorbonne: Acting.

Norman Prusslin, Adjunct Instructor, B.A., State University of New York at Stony Brook: Radio broadcasting; media leadership.

Michael Quinn, Assistant Professor and Director of Graduate Studies, Ph.D., Stanford University: Dramatic literature; criticism; dramaturgy.

Farley Richmond, Professor, Ph.D., Michigan State University: Asian theatre; directing.

Carol Rosen, Associate Professor, Ph.D., Columbia University: Theory; criticism; modern drama.

Edward Rugino, Adjunct Instructor, B.S., State University of New York at Stony Brook: Television production.

Adjunct Faculty

Estimated number: 3

Teaching Assistants

Estimated number: 6

The theatre arts major leads students to an understanding of the traditions and practice of the theatre arts. A student who has completed this major will know what kind of training will be necessary to compete in the profession of theatre or its related fields. Graduates will also be prepared for training in such fields as law, business, publishing, advertising, and other forms of communication. The theatre arts major emphasizes the complementarity of theory and practice. It requires that students read widely into the traditions of theatre, dramatic literature, criticism, and aesthetics. At the same time the major ensures that students become familiar with the actual doing of theatre by studying design, management, technical theatre, and performance in the context of productions mounted by a professional production staff.

Requirements for the Major in Theatre Arts*

The major in theatre arts leads to the Bachelor of Arts degree. The following courses are required:

*At press time the requirements were under review. For current information about major requirements for continuing students with fewer than 45 credits at the end of the fall 1988 semester and new students matriculating in August 1989 or later, see the *Undergraduate Bulletin Supplement*.

A. Study within the Area of the Major

	Credits
1. Level One (15 credits)	
THR 101 Understanding Theatre	3
THR 104 Play Analysis	3
THR 116 Stagecraft	3
THR 117 Film, Video, and Audio Narrative	3
THR 105 Acting I	3
2. Level Two (15 credits)	
THR 205 Acting II	3
THR 230 Voice for the Actor	3
THR 281, 282 Theatre History I, II	6
One of the following courses:	
THR 223 Stage Costume	
THR 246 Stage Lighting	
THR 256 Stage Design	3
3. Level Three (24 credits)	
12 credits from the following two-credit courses (any of which may be offered for the major twice):	
THR 301 Stage Management Laboratory	
THR 302 Theatre Management Laboratory	
THR 303 Costume Crafts Laboratory	
THR 304 Marketing Laboratory	
THR 305 Lighting and Sound Laboratory	
THR 306 Stagecraft Laboratory	12
THR 314 Modern Drama on Stage	3
THR 344 The Shakespearean Tradition	3
THR 401 Senior Seminar	3
4. Upper-Division Writing Requirement	
In the second semester of the junior year all theatre arts majors will be required to write a paper of 750 to 1,250 words developing a thesis (assigned by the department) based on the department's required reading list.	
Subtotal	51

B. Study in Related Areas

12 upper-division credits from any department, including three credits in history, subject to prior written approval by advisor	12
Total	63

Note: All courses for the major in theatre arts must be taken for a letter grade. No grade lower than C may be applied toward the major.

Honors Program in Theatre Arts

The honors program is open to seniors majoring in theatre arts who have maintained a grade point average of 3.0 overall and 3.25 in the major.

Students should apply for the honors program at the end of their junior year. The student must find a faculty member of the department to act as sponsor and, with the approval of the sponsor, submit a written proposal of a project to the department. Acceptance into the honors program depends upon the approval of the proposal by the department. The project may be in history, criticism, directing, media, performing, design, or management. The honors project will be reviewed by at least two members of the Department of Theatre Arts and one outside evaluator. If the honors project is carried out with distinction and the student has achieved a 3.5 G.P.A. in all theatre arts courses taken during the senior year, honors will be conferred.

Course credit for the honors project is given under THR 481-487 or 489. Guidelines are available in the department office.

Minors in Theatre Arts

The several theatre minors, which require 24 credits each, provide an opportunity for a student who wishes to explore new knowledge to sample the standards and practices of *one* of the theatre arts. The minor should lead the student to an understanding of necessary next steps should his or her interest be sharpened by the experiences.

	<i>Credits</i>
Performance Minor in Theatre Arts (TAP)	
THR 105 Acting I	3
THR 205 Acting II	3
THR 230 Voice and the Actor	3
THR 281, 282 Theatre History I, II	6
THR 322 Acting III	3
THR 352 Acting IV	3
THR 332 Improvisation <i>or</i>	
THR 362 Acting for the Camera	3
Total	24
Design Minor in Theatre Arts (TAD)	
THR 104 Play Analysis	3
THR 116 Stagecraft	3
THR 223 Stage Costume	3
THR 246 Stage Lighting	3
THR 256 Stage Design	3
THR 316 Advanced Technical Theatre	3
Two of the following courses:	
THR 323 Costume Design	
THR 346 Advanced Stage Lighting	
THR 356 Scene Design	6
Total	24

Playwrighting Minor in Theatre Arts (TAW)

THR 104 Play Analysis	3
THR 105 Acting I	3
THR 281, 282 Theatre History I, II	6
THR 314 Modern Drama on Stage	3
THR 325 Scriptwriting for Film and Television	3
THR 326 Playwrighting	3
THR 485 Projects in Script Writing	3
Total	24

Note: All courses for the minors in theatre arts must be taken for a letter grade. No grade lower than C may be applied to the minors. At least 12 of the 24 credits must be taken at Stony Brook.

Courses

See p. 60, Course Credit and Prerequisites, and p. 61, Undergraduate Numbering System. The following performance courses do not count toward the 90 liberal arts credits required for the B.A. degree: THR 222, 244, 295, 296, 301 through 307.

THR 101 Understanding Theatre

An overview of performance, design, and production in the theatre. Specific texts will be explored through lectures, demonstrations, and a close examination of the rehearsal process. Professionals working in the theatre will be invited to speak on such topics as stage management, technical production, and direction. A Core Course satisfying Humanities and Fine Arts Category B.

Fall and spring, 3 credits

THR 104 Play Analysis

A close reading of several plays of different periods and styles and a general examination of the elements out of which all plays are made—dialogue, character, plot. A Core Course satisfying Humanities and Fine Arts Category B.

Fall and spring, 3 credits

THR 105 Acting I

The vocabulary and skills of the actor's craft. Lecture and workshop sessions explore the uses of basic acting techniques. Designed for students seriously interested in performing.

Fall and spring, 3 credits

THR 110 Public Speaking

An introduction to public speaking techniques that includes increased awareness of physical and vocal expression and speech content.

Fall and spring, 3 credits

THR 116 Stagecraft

Basic technical theatre practice and stagecraft, incorporating elements of drafting, construction, lighting, painting, sound, and the handling of stage scenery and properties.

Fall and spring, 3 credits

THR 117 Film, Video, and Audio Narrative

Principal techniques of dramatic narrative are studied in relation to film, video, and audio. Analysis of the work of major artists in each of these media.

Fall, 3 credits

THR 205 Acting II

The exploration of realistic character analysis and development through scenes and monologues.

Prerequisites: C or higher in THR 105

Fall and spring, 3 credits

THR 222 Stage Makeup

An investigation into the theory, techniques, and materials of stage makeup and its relation to character analysis. Students will explore aspects of facial anatomy, color theory, and graphic representation of three-dimensional form.

Prerequisite: THR 105

Fall or spring, 3 credits

THR 223 Stage Costume

An introduction to stage costume design and technology, combining theory and practice. Students study the tradition and history of costume design, do exercises in conceiving and rendering designs, and learn how to use costume shop equipment and materials. A Core Course satisfying Humanities and Fine Arts Category B.

Prerequisite: THR 101 or 116

Fall, 3 credits

THR 230 Voice for the Actor

A practical course in voice production for the actor. Students will participate in exercises for developing the speaking voice with an emphasis on the involvement of the body. Increasing resonance, range, and articulation and their link to acting and improvisation will be explored. The International Phonetic Alphabet will be studied.

Prerequisite: THR 105

Fall or spring, 3 credits

THR 234 Movement Awareness and Analysis

The fundamentals of movement based on knowledge of the skeleton and muscles. Students will be guided toward correct body alignment and movement based on theories of Laban, Bartentieff, Alexander, Feldenkrais, and Todd and Sweigard. Analysis of movement will enable the student to correct improper use of the body and allow for efficiency of movement. Crosslisted with DAN 234.

Fall, alternate years, 3 credits (not offered in 1990-91)

THR 244 Summer Theatre Workshop I

Service as apprentices working on the planning, preparation, and execution of a summer theatre series. May be repeated for a maximum of six credits. May count toward the major with THR 340 for a combined total of six credits.

Prerequisite: Permission of instructor

Summer, 1 to 6 credits

THR 246 Stage Lighting

Basic elements of lighting design, including the use of color, intensity, and control through classroom and laboratory projects involving use of instruments and computer boards of the Staller Center for the Arts.

Prerequisite: THR 101 or 116

Fall, 3 credits

THR 256 Stage Design

An introduction to the aesthetics and traditions of stage design. The study will include exercises in design rendering with opportunities for students to conceive and work through design ideas. A Core Course satisfying Humanities and Fine Arts Category B.

Prerequisite: THR 101 or 116
Fall, 3 credits

THR 270 Introduction to Radio Broadcasting

An introduction to the tools and techniques of radio production. The course will provide a broad theoretical and practical foundation in the techniques and aesthetics of sound as they apply to the particular demands of radio and recording.

Prerequisite: THR 117
Fall or spring, 3 credits

THR 272 Introduction to Television

An examination of how television works and the skills and techniques of the professionals and artisans who make it work. Equipment and technique will be demonstrated, but this is not a hands-on course. Broadcast television, cablevision, instructional TV, industrial training, and experiments in community communication will be examined.

Prerequisite: THR 117
Fall or spring, 3 credits

THR 281, 282 Theatre History I, II

Evolving architectural concepts, scenic conventions, technology, and production techniques will be studied with reference to corresponding literary, social, and cultural trends. I: Ritual to 1660. II: 1660 to 1932.

Prerequisite: THR 105 or 104
Fall (281) and spring (282), 3 credits each semester

THR 285 Black Theatre Workshop

A performance workshop and scene study exploring Third World theatre and the relationship of myth and legend to folk drama. May lead to a production in the following semester.

Prerequisites: Audition; permission of instructor
Fall or spring, 3 credits

THR 295 Special Workshop

(Formerly THR 299)

Intensive workshops in a specific skill from the disciplines of arts management, directing, performance, playwriting, film and television, criticism, etc. Among possible workshops are mask making, jazz dance, and Shakespearean diction. May be repeated. Satisfactory/Unsatisfactory grading only.

Prerequisite: Permission of instructor
Schedule to be announced, 1 to 3 credits, at the discretion of the department

THR 296 Special Workshop in Design and Technical Theatre

An intensive workshop in a specific skill, including but not limited to the following: pattern drafting for costume; special sewing and dyeing techniques; mask making; wig making; use of computers for design purposes; molding and making plastic properties, scenery, or costume pieces. May be repeated as topic varies. Satisfactory/Unsatisfactory grading only.

Prerequisite: Permission of instructor
Schedule to be announced, 1 to 3 credits, at the discretion of the department

THR 298 Student Media Leadership

A review of the decision-making processes involved in campus media organizations and an investigation of the similarities and differences between the obligations of student and professional media managers. Class meetings are devoted to the discussion of problems related to media production and management, to talks by professionals about their specialties, and to the development of critical skills useful to practitioners and managers. Satisfactory/Unsatisfactory grading only.

Prerequisite: Permission of instructor
Fall and spring, 1 credit

Note: Students may enroll in only one of the following laboratory courses in a semester: THR 301, 303, 305, 306, 307.

THR 301 Stage Management Laboratory

Development of skills needed to accomplish the functions of the stage manager. May be repeated once.

Prerequisites: THR 101, 105, 116
Fall and spring, 2 credits

THR 302 Theatre Management Laboratory

Development of practical skills in the business and managerial problems of theatre. May be repeated once.

Prerequisites: THR 101, 104, 116
Fall and spring, 2 credits

THR 303 Costume Crafts Laboratory

Development of skills needed for costume and accessory construction. May be repeated once.

Prerequisites: THR 101, 116
Fall and spring, 2 credits

THR 304 Marketing Laboratory

Development of skills needed in marketing theatre. May be repeated once.

Prerequisites: THR 101, 104
Fall and spring, 2 credits

THR 305 Lighting and Sound Laboratory

Development of skills needed in installation and control of lighting and sound equipment. May be repeated once.

Prerequisites: THR 101, 104, 116
Fall and spring, 2 credits

THR 306 Stagecraft Laboratory

Development of skills needed in theatre construction. May be repeated once.

Prerequisites: THR 101, 104, 116
Fall and spring, 2 credits

THR 307 Performance Laboratory

Development of skills in performance through the preparation and rehearsal of a production. Student must audition, be cast in a role in a major department production, and engage in the entire rehearsal process.

Prerequisites: Permission of instructor
Fall and spring, 1 credit

THR 314 Modern Drama on Stage

A seminar examining the forms of modern drama in the context of production from 1860 to the present.

Prerequisites: THR 281 or 282 or EGL 193
Fall or spring, 3 credits

THR 316 Advanced Technical Theatre

Advanced study of materials and techniques of problem solving in stagecraft, including theatre sound, technical direction, advanced drafting, budgeting, crew organization, and planning.

Prerequisites: THR 116; permission of instructor
Spring, 3 credits

THR 322 Acting III

Advanced work in scene study limited to one or two major playwrights.

Prerequisites: THR 205; permission of instructor
Fall or spring, 3 credits

THR 323 Costume Design

Advanced study in costume design involving play analysis, design, and presentation techniques with special emphasis on historical research.

Prerequisites: THR 223; permission of instructor
Spring, 3 credits

THR 325 Scriptwriting for Film and Television

Preparation and construction of materials for use in media: radio, television, and motion pictures.

Prerequisites: THR 217 or 270 or 272
Fall and spring, 3 credits

THR 326 Playwriting

A workshop devoted to planning and writing finished scripts for the stage.

Prerequisites: EGL 202 or 285 or THR 104
Fall and spring, 3 credits

THR 332 Improvisation

Drill in both verbal and nonverbal exercises and assorted theatre games leading to the development of improvisational skills.

Prerequisites: THR 205; permission of instructor
Fall or spring, 3 credits

THR 333 Directing I

The work of the director including selection of a play for production; problems of style, interpretation, and execution; and the director's approach to the actor.

Prerequisites: THR 104, 105, 116, 281, 282
Fall, 3 credits

THR 334 Choreography

Training in the craft of choreography, the creation of dance, using applied dance techniques, improvisational tools, perceptual skills, and investigations. Students will create studies and original dance compositions and critique the various developmental stages in order to modify and expand their creations. The theory presented will contain basic aesthetic concepts that contribute to the structure and form of dance. Crosslisted with DAN 334.

Prerequisite: PEC 131
Spring, alternate years, 3 credits (not offered in 1990-91)

THR 336 Stage Management

Various aspects of stage management, including analysis of scripts and reading of blueprints and light plots.

Prerequisites: THR 105 and 116
Fall or spring, 3 credits

THR 339 Directing II

Advanced work in interpretation and handling of production complexities. Students will mount a production.

Prerequisites: THR 205 and 333

Spring, 3 credits

THR 340 Summer Theatre Workshop II

Advanced students will be assigned to positions of responsibility for the running of the summer theatre. May count toward the major with THR 244 for a combined total of six credits.

Prerequisites: THR 244; permission of instructor

Summer, 1 to 6 credits

THR 344 The Shakespearean Tradition

Shakespeare's plays in the context of theatre production from his time to the present. Special attention is given to Elizabethan stage conditions, to the task of the actor in contemporary productions, and to problems of design. Plays by Shakespeare's contemporaries will also be considered.

Prerequisites: THR 281, 282

Fall or spring, 3 credits

THR 346 Lighting Design

Advanced topics in lighting design intended to acquaint the student with highly specialized lighting genres. Subjects will include lighting for repertory theatres, the dance, and musical theatre. This is strictly a studio design course.

Prerequisites: THR 246; permission of instructor

Spring, 3 credits

THR 349 The Creative Process in the Fine Arts

An examination of the creative process and its philosophical foundations in Western culture. Students will explore highlights of the philosophical tradition since Plato, attend exhibits, rehearsals, and performances, and discuss with visiting artists their work and its sources. Crosslisted with ARH 349 and MUS 349.

Prerequisites: One philosophy course; ARH 101 or 102 or MUS 101 or 119 or THR 101 or 104

Fall or spring, 3 credits

THR 352 Acting IV

Advanced scene study. Scenes that represent different acting styles will be chosen from the repertoire. Work will involve exploration of the manners, costume, movement, and attitudes of the time; and techniques for effective staging and acting.

Prerequisites: THR 322; permission of instructor

Fall or spring, 3 credits

THR 354 Special Topics

In-depth study of a specific subject in the history, theory, aesthetics, criticism, dramaturgy, or the dramatic tradition of the theatre, such as the epic theatre tradition, medieval and Renaissance criticism, methods of reading plays, analyses of dramatic texts, and notions of the absurd from Aristophanes to Brecht. May be repeated.

Prerequisite: THR 281 or 282

Schedule to be announced, 3 credits

THR 356 Scene Design

Principles of design for the theatre including color composition and rendering techniques. These techniques are related to the aesthetics of dramatic composition and the flexibility of modern staging.

Prerequisites: THR 256; permission of instructor

Spring, 3 credits

THR 362 Acting for the Camera

An exploration of the theory and technique of film and video performance. For advanced acting students who have had both classroom and on-stage production experience.

Prerequisites: THR 117, 322; permission of instructor

Fall or spring, 3 credits

THR 370 Radio News

Principles of radio news, including writing and announcing, conceiving and producing features, field recording, legal concepts for the audio producer, and the role of radio news as an information resource. Students will research, script, produce, and review such audio assignments as newscasts, public service announcements, features, interviews, field recordings, and mini-documentaries.

Prerequisite: THR 270

Fall or spring, 2 credits

THR 375 Television Studio Production

Planning, writing, analysis, rehearsal, production, recording, and critique of television programs. Students will practice studio lighting, camera operation, switching, audio production, electronic editing, and television directing. Films and tapes of professional productions will be studied.

Prerequisites: THR 272; permission of instructor

Fall or spring, 3 credits

THR 376 Video Production Workshop

Creation of one or more television productions (single or multi-camera) with the aim of meeting broadcast standards. Students will script, produce, direct, engineer, and edit these productions.

Prerequisites: THR 375; permission of instructor

Fall and spring, 3 credits

THR 377 The Media Industry

A seminar in which the interlocking structure of media production firms, advertising agencies, sponsors, broadcasters, and cable and satellite operators is examined. Among the many political and social issues arising from the making and distribution of media that will be considered is the effect of this structure on a democratic society's need for a free exchange of opinion and information.

Prerequisites: Upper-division standing; 9 credits in media arts minor

Fall and spring, 3 credits

THR 401 Senior Seminar

A seminar in current theatrical theory and practice. Major classical, Renaissance, and contemporary theorists may be examined, such as Aristotle, Tillyard, Artaud, Brook, and Grotowski.

Prerequisites: Senior standing in theatre arts major or history and theory minor in theatre arts

Fall, 3 credits

THR 403 Media Theory and Criticism

Seminal essays in film theory from Eisenstein to Metz as well as recent developments in video aesthetics. Critical approaches to both film and video are compared and evaluated.

Prerequisites: Upper-division standing; 12 credits in media arts minor

Spring, 3 credits

THR 475 Undergraduate Teaching Practicum I

Each student will be responsible for some aspect of a course, depending on his or her particular skills. The student will receive regularly scheduled supervision from the instructor. Responsibilities may include preparing material for discussion, keeping records, helping students with their projects, and holding regular office hours. Satisfactory/Unsatisfactory grading only. May not be used to fulfill requirements for the major.

Prerequisites: Theatre arts major; senior standing; permission of instructor and department

Fall and spring, 3 credits

THR 476 Undergraduate Teaching Practicum II

Further training in the teaching of theatre courses. Either increased or different responsibilities will be assigned, adding to the quality of academic experience already gained in THR 475. Satisfactory/Unsatisfactory grading only. May not be used to fulfill requirements for the major.

Prerequisites: THR 475; permission of instructor and department

Fall and spring, 3 credits

Projects Courses and Internship

Applications for projects courses must be submitted by the end of the advance registration period. Students may take *no more than six credits* of projects courses (481-487 and 489). Applications and guidelines are available in the department office.

THR 481 Projects in Production Management

Advanced work on a particular problem in the theatre management under close faculty supervision. May be repeated up to a maximum of six credits.

Prerequisites: THR 336; permission of department

Fall and spring, 1 to 3 credits

THR 482 Projects in Performance

Advanced work on a particular problem in performance under faculty supervision. May be the preparation of a major role to be presented before an audience either on or off campus. May be repeated up to a maximum of six credits.

Prerequisites: THR 352; permission of department

Fall and spring, 1 to 3 credits

THR 483 Projects in Theatrical Design

Advanced work in theatrical design: costumes, sets, or lights. May be repeated up to a maximum of six credits.

Prerequisites: THR 323 or 346 or 356; permission of department

Fall and spring, 1 to 3 credits

THR 484 Projects in Theatre History, Theory, Literature, and Criticism

Advanced work on a specific problem related to theatre history, dramatic literature, dramatic theory, or criticism. May be repeated up to a maximum of six credits.

Prerequisites: THR 354; permission of department

Fall and spring, 1 to 3 credits

THR 485 Projects in Script Writing

Advanced work resulting in a script for stage, screen, or television. May be repeated up to a maximum of six credits.

Prerequisites: THR 325 or 326; permission of department

Fall and spring, 1 to 3 credits

THR 486 Projects in Technical Theatre

Advanced work on some phase of technical theatre, for example the design and execution of a lighting plot or the design for a new theatre, including floor plans and elevations. May be repeated up to a maximum of six credits.

Prerequisites: THR 316 or 346; permission of department

Fall and spring, 1 to 3 credits

THR 487 Projects in Media

Advanced work in film, television, or radio resulting in either a scholarly paper, film footage, or the production of a broadcast program, a tape of which must be supplied. May be repeated up to a maximum of six credits.

Prerequisites: THR 372 or 375; permission of department

Fall and spring, 1 to 6 credits

THR 488 Internship

Participation in a professional organization that creates and presents public performances, creates and presents to the public works in the media arts, or concerns itself with the management or funding of arts organizations. Students will be required to submit written progress reports to their department sponsors and a final written report to the department faculty. Supplementary reading may be assigned. Satisfactory/Unsatisfactory grading only. May be repeated up to a limit of 12 credits.

Prerequisites: Permission of instructor, department, and Office of Undergraduate Studies

Fall and spring, 3 to 12 credits

THR 489 Projects in Directing

Advanced work on a comprehensive directorial problem involving actual production performance before an audience on or off campus. May be repeated up to a maximum of six credits.

Prerequisites: THR 339; permission of department

Fall and spring, 1 to 3 credits

Women's Studies

Director: Judith Wishnia, Social Sciences Interdisciplinary

Affiliated Faculty

Beverly Birns, Social Sciences Interdisciplinary

Ruth Schwartz Cowan, History

Carole Kessner, Comparative Studies

María Luisa Nunes, Hispanic Languages and Literature

Sarah Hall Sternglanz, Social Sciences Interdisciplinary

The women's studies minor (WNS) is designed for students interested in the interdisciplinary study of women's roles and achievements. The minor consists of

courses offered by the Women's Studies Program as well as courses in the social and behavioral sciences, the humanities, and the health sciences. Students wishing to elect this minor may major in any discipline; they should consult the director of Women's Studies and establish an advisement folder by the beginning of the junior year.

Requirements for the Minor in Women's Studies

	<i>Credits</i>
1. WNS 102 Introduction to Women's Studies	3
2. WNS 407 Senior Seminar in Women's Studies	3
3. Five courses chosen from among WNS and WNH offerings and the list below. At least two of these courses must be numbered 300 or above.	15
Total	21

Note: No more than one course may be taken for Pass/No Credit.

AFS 275	Black Women and Social Change: A Cross-Cultural Perspective
AFS 370	The Black Family
ANT 354	Family, Kinship, and Marriage
EGL 276	Women and Literature
HIS 316	The Healer and the Witch in History
HIS 360	Women in Premodern Europe
HIS 369	American Social History to 1860
HIS 370	U.S. Social History, 1860-1929
HIS 387	Women, Development, and Revolution in Latin America
HUM 122	Images of Women in Literature
PHI 384	Philosophy and Feminism
PSY 209	Social Psychology
RLS 366	Feminine Spirituality
SOC 204	Intimate Relationships
SOC 247	Sociology of Gender
SOC 304	Sociology of the Family
SOC 370	Work and the Professions
SOC 380	Social Psychology
SSI 110	Human Development: The Family Context
SSI 308	Battered Women, Endangered Children
SSI 405	Seminar in Children and Social Policy

Related special topics courses given in various departments are acceptable for the women's studies minor with the approval of the director of Women's Studies.

Courses

See p. 60, Course Credit and Prerequisites, and p. 61, Undergraduate Numbering System.

WNS 102 Introduction to Women's Studies

A general introduction to women's studies and to the feminist movement. The course looks at the way a number of different academic disciplines have dealt with the female component of society, and examines the contributions women have made and the roles they have played in a variety of areas. Crosslisted with SSI 102. A Core Course satisfying Social and Behavioral Sciences Category A, Group 2.

Fall or spring, 3 credits

WNH 250 Women in the Third World

The problems of women in Third World societies, as illustrated through narratives by and about women. Oppression, madness, the quests for freedom, love, identity, and fulfillment are themes to be approached through the texts of this course. The interrelationships between women and men, underlining the basic human need for personal fulfillment, will be studied.

Spring, alternate years, 3 credits (not offered in 1990-91)

WNS 307 Psychology of Women

The psychological impact of important physiological and sociological events and epochs in the lives of women: menstruation, female sexuality, marriage, childbirth, and menopause; women and mental health, mental illness, and psychotherapy; the role of women in the field of psychology. Crosslisted with PSY 377.

Prerequisites: WNS 102; ANT 367 or PSY 103 or 104 or SOC 247

Fall or spring, 3 credits

WNS 320 Women in Judaism

A survey of women in Judaism and in Jewish life from the Biblical period to the present, focusing on such topics as the representation of women in the Bible; Jewish law concerning women; the role of women in the Enlightenment in Germany and America; immigrant women in America; women in the Holocaust; and women in Israel. Crosslisted with JDS 327.

Prerequisite: One JDS or WNH or WNS course
Fall, alternate years, 3 credits (not offered in 1989-90)

WNS 333 Women in U.S. History

An interpretation of the history of women in relation to the major themes in American history such as industrialization and urbanization. Emphasis will be placed on topics of special interest to women, i.e., the cult of domesticity, the birth control movement, feminism, women and reform, and changing attitudes toward female sexuality. Crosslisted with HIS 333.

Fall or spring, 3 credits

WNS 334 Women, Work, and Family in Modern European History

An analysis of the effect of urbanization and industrialization on women and the family in Europe from 1750 to the present. Special emphasis will be placed on the development of the ideology of the "angel in the house" and the growth of female participation in the work force. Among

the topics covered will be domestic work, prostitution, sexual attitudes and mores, child-rearing practices, women and revolutionary movements, and the growth of feminism. A Core Course satisfying Social and Behavioral Sciences Category A, Group 2. Crosslisted with HIS 336. *Prerequisite:* WNS 102 or one history course. *Fall, alternate years, 3 credits (not offered in 1989-90)*

WNS 347 Women and Politics

Analysis of the role of women in current American politics from a social-psychological perspective. The focus is on changing trends in women's electoral participation, political interest, and office seeking over the last several decades, and on recent gender differences in political involvement, candidate support, support for women's issues, and support for other public policies. Crosslisted with POL 347.

Prerequisites: POL 102 or 105; POL 106
Spring, 3 credits

WNS 369 Women of the Developed Economies: A Comparative Perspective

A comparative study of women in selected industrialized societies. Legal, political, employment, and family issues will be analyzed with the aim of explaining both the universalities of women's roles and conditions as determined by

the international market economy and their national differences determined by each country's unique culture and history. A Core Course satisfying Social and Behavioral Sciences Category A, Group 2. Crosslisted with SSI 369.

Prerequisite: WNS/SSI 102 or WNS/HIS 333 or WNS/SOC 371

Fall, alternate years, 3 credits (not offered in 1989-90)

WNS 371 Gender and Work

Gender differences in work force participation and occupational attainment. Will cover such topics as historical changes in work force participation; economic, legal, and social factors affecting employment; career options; and pay equity. Crosslisted with SOC 371.

Prerequisites: WNS/SSI 102 or SOC 105 or 106 or 301 or 305; two other courses in the social sciences

Spring, 3 credits

WNS 407 Senior Seminar in Women's Studies

An exploration of significant feminist scholarship in various disciplines. Seminar participants will present and discuss reports on reading and research. Crosslisted with SSI 407.

Prerequisite: Completion of 15 credits of the women's studies minor

Fall or spring, 3 credits

WNS, WNH 447 Directed Readings in Women's Studies

Intensive readings in women's studies for qualified juniors and seniors under the close supervision of a faculty instructor. Topic to be chosen in consultation with the faculty member.

The designator WNH will be assigned to topics in the humanities area; WNS will be assigned to topics in the social sciences area. May be repeated once.

Prerequisites: Permission of instructor and program director

Fall and spring, 1 to 3 credits

WNS 475 Undergraduate Teaching Practicum

Students will aid instructors and students in women's studies courses in one or several of the following ways: leading discussion sections, helping students improve writing and research skills, and library research. Students will meet regularly with the supervising instructor. Satisfactory/Unsatisfactory grading only.

Prerequisites: Minor in women's studies; upper-division standing; permission of instructor

Fall and spring, 3 credits

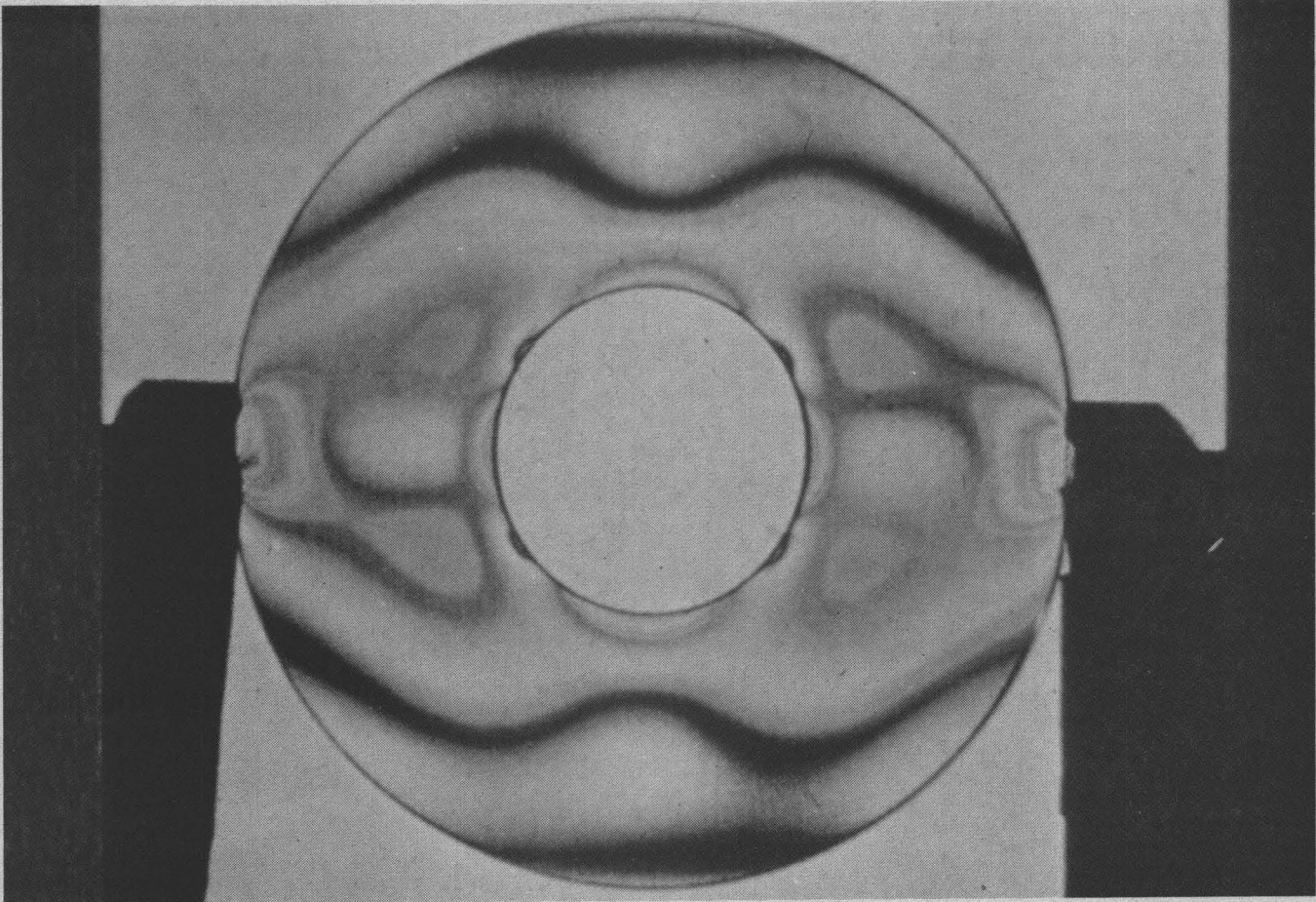
WNS, WNH 487 Independent Project in Women's Studies

The design and conduct of a research project selected by the student and arranged by the student and the instructor. The designator WNH will be assigned to topics in the humanities area; WNS will be assigned to topics in the social sciences area. May be repeated once.

Prerequisite: Permission of instructor and program director

Fall and spring, 3 credits

College of Engineering and Applied Sciences



Programs in Engineering and Applied Sciences

Engineers and applied scientists are concerned with complex practical problems that can be approached only by those with a broad knowledge of mathematics and the physical sciences, supplemented by deeper training in a specific technical discipline. These problems often have social, political, economic, and legal aspects that must be considered in arriving at workable solutions. The understanding and judgment required to balance often conflicting technical and societal needs is acquired in part through study of the humanities and social and behavioral sciences. Consequently, the engineering and applied sciences curricula promote educational development not only in the technical areas, but in the social and behavioral sciences and humanities as well. They also provide the strong emphasis on general principles that enables professional engineers and applied scientists to adapt to shifts in technological emphasis. The curricula include courses that examine contemporary technology and problems and courses that examine the technology and problems likely to be contemporary in the future. Graduates are well prepared for successful careers in large part because they are educated to develop with technology.

In order to realize these objectives, the engineering and applied sciences curricula are more flexible than at many other schools. The student who specializes in a particular field such as electrical, mechanical, or materials engineering, as well as applied mathematics and computer science, may plan an interdisciplinary program specifically adapted to his or her career goals involving other departments or divisions of the university; he or she may choose a broad program as preparation for later specialization in architecture, business, law, or medicine. In all of these paths there is strong emphasis on individual projects in the junior and senior years when students are encouraged to work closely with members of the faculty on projects of interest to the students.

The College of Engineering and Applied Sciences (CEAS) offers five different majors, listed below.

Bachelor of Science in:

Applied Mathematics and Statistics
Computer Science

Bachelor of Engineering in:

Engineering Science
Electrical Engineering
Mechanical Engineering

Each student is enrolled in one of these majors. There is, in addition, great flexibility for specialization toward desired careers because of the freedom provided by elec-

tives within the majors. For example, the student may decide to emphasize *computer engineering* within electrical engineering, *materials science* within engineering science, or *structural analysis and design* within mechanical engineering. The College of Engineering and Applied Sciences also cooperates with the College of Arts and Sciences in interdisciplinary programs in engineering chemistry and physics of materials, both of which lead to the Bachelor of Science degree.

Accreditation

All three undergraduate engineering (B.E.) degree programs offered by the College are accredited by the Accreditation Board for Engineering and Technology, Inc.

Physical Facilities

In addition to the computing facilities in the departments of Computer Science and Technology and Society described below, the College of Engineering and Applied Sciences houses several specialized laboratories for undergraduate engineering students. The engineering laboratory contains many small-scale, table-top experiments that provide students with experience in planning and designing more advanced engineering experiments. The mechanical engineering laboratory is a unique departmental facility used for basic mechanical engineering practice and includes equipment for the measurement of stress and strain, fluid flow rates, static and dynamic pressures, and temperature and heat transfer rates. Several electrical engineering laboratories are used for undergraduate courses in the areas of electrical circuits and electronics, microprocessors and programmed logic, and digital systems. A machine shop is also available for students who have completed a course in machine shop practice and safety.

The Technical Writing Center

The Technical Writing Center is a service offered by the College's Department of Technology and Society. It provides students with individual tutoring in all stages of writing with particular attention to the organization and execution of technical reports, research papers, and professional correspondence.

Acceptance into College of Engineering and Applied Sciences Programs

All programs in the College of Engineering and Applied Sciences currently find it necessary to limit the number of students accepted, in accordance with the university policy outlined on p. 37, "Limitation of

Acceptance into Majors." While acceptance criteria are based mainly on demonstrated scholastic ability, extraordinary personal circumstances, experiences, and academic background may also be considered in the evaluation process. A new student desiring acceptance into an engineering or applied sciences major should clearly indicate the particular major desired on his or her application to Stony Brook. However, admission to the university *does not* guarantee either immediate or future acceptance into the major for which the student applied.

Applied Mathematics and Statistics:

Freshman and transfer applicants to the university may be accepted directly into the major in applied mathematics and statistics. Those who did not apply for the major and those who were not accepted into the major when they entered the university may apply only after completion of a prescribed set of courses (see p. 188).

Computer Science:

A limited number of high-achieving freshman applicants will be accepted into the computer science major upon admission to the university. Other students must complete a prescribed set of courses before acceptance (see p. 191). Transfer students may apply only after completing at least one semester.

Engineering:

Freshman and transfer applicants to the university may be accepted directly into the electrical engineering, mechanical engineering, or engineering science major. Applicants admitted to the university but not immediately accepted into an engineering major may apply for acceptance twice a year, beginning in the fall and spring semester Prime Time periods until the end of the semester's final examination week. Those seeking admission to the engineering science or the mechanical engineering major may apply for acceptance after their first semester. Electrical engineering applicants will be considered after two semesters at Stony Brook. For further details about acceptance into the electrical engineering major, see p. 195.

Two Baccalaureate Degrees

Qualified students whose special interests and career plans make such study appropriate may be granted permission to earn two degrees at the undergraduate level by planning a program that leads to a Bachelor of Engineering degree and either a Bachelor of Arts or a Bachelor of Science degree in the College of Arts and Sciences. For details see p. 39.

Bachelor's/Master's Degree Program

An engineering student may apply at the end of the junior year for admission to enter

this special program, which will lead to a Bachelor of Engineering degree at the end of the fourth year and a Master of Science degree at the end of the fifth year. For the requirements, see the individual department sections.

An applied mathematics and statistics student may apply at the end of the junior year for admission to a special program that will lead to a Bachelor of Science degree at the end of the fourth year and a Master of Science degree at the end of the fifth year. For the requirements see p. 189.

Regulations of the Bachelor's/ Master's Degree Program

1. Students must apply and be admitted to the combined degree program. Applicants must have completed a minimum of 60 credits of college work with an overall G.P.A. of 3.0 or higher in all college work. The application must include approval by both the chairperson of the department offering the bachelor's degree and the director of graduate studies the program offering the master's degree.
2. Students must formally apply and be accepted into the Graduate School. This application and admission process is independent of admission to the combined degree program. Admission to graduate study will be provisional upon the awarding of the undergraduate degree.
3. Students must take a minimum of 30 graduate credits, 24 of which must be taken after the student has been enrolled in the graduate program. The remaining six credits may be taken while the student is formally an undergraduate but after his or her admission to the combined degree program. All graduate coursework taken after the student has been accepted into the combined degree program is subject to Graduate School regulations.
4. A course used for undergraduate credit may not be used for graduate credit.

Degree Requirements

All candidates for the Bachelor of Engineering or the Bachelor of Science degree must satisfy the requirements of a particular major, the Core Curriculum, and other university degree requirements. See pp. 48-51. Candidates for the Bachelor of Engineering degree must also satisfy the College residence requirements.

College Core Distribution Requirements

The Core Distribution Requirements of the College of Engineering and Applied Sciences provide for broad exposure to the liberal arts and sciences, enabling the engineering or applied science student to bet

ter understand the context in which his or her technical discipline has been founded. The student will also learn to integrate the historical, social, and humanistic aspects of technical problems and developments.

The College Core Distribution Requirements are the same as the University Core Curriculum with slight modifications as described below. Lists of courses satisfying each requirement appear in the University Studies chapter, pp. 49-51.

Humanities and Fine Arts

One course from each category:

Category A: Basic Concepts and History

Category B: Methods of Interpretation and Analysis

Category C: Focused Studies

Natural Sciences and Mathematics

Two courses with two different designators from Category A and one course from Category B. One course from Category A must be completed before taking a Category B course.

Category A: Introduction to the Sciences

Category B: Science and Society (Students enrolled in majors leading to the Bachelor of Engineering must complete *either* the Natural Sciences Category B requirement with an ANT, HIS, POL, or SOC designator *or* the Social and Behavioral Sciences Category B requirement, but not both.)

Social and Behavioral Sciences

Two courses from Category A and one course from Category B. At least one course must be numbered 200 or higher.

Category A: Introduction to the Social and Behavioral Sciences (Two courses must be chosen from two of the four groups.)

Category B: Methods and Theory (See Natural Sciences and Mathematics Category B above.)

Study of Another Culture

One course. (The same course may be used to satisfy this requirement and a distribution requirement in Humanities and Fine Arts or Social and Behavioral Sciences.)

Writing Requirements

See p. 50 for details. The specific form of the Upper-Division Writing Requirement for each Engineering and Applied Sciences departmental major appears in the appropriate alphabetical listing.

Additional Requirements for the B.E. Degree

Credit Hour Requirement

At least 128 credits must have been completed. Restrictions on credits that may be

counted appear below ("Restrictions on Credits"), and on p. 60 ("Course Credit and Prerequisites").

Residence Requirement

At least seven ESG courses and/or approved technical elective courses offered by the College must have been completed. Of these seven, at least five must be courses offered by the department of the student's major and included in its section of technical elective course descriptions. ESG 211, 312, 313-318, and ESC, ESE, ESG 440 and 441 may not be used to meet this requirement. ESC, ESE, ESG 440 and 441 must be taken at Stony Brook.

Technical Electives

Technical electives are courses offered by the College of Engineering and Applied Sciences and either listed as technical electives, or approved by a student's departmental major advisor as appropriate to his or her academic program.

Open Electives

Open electives are courses offered for credit at this university and any credits accepted as transfer credits that are not approved to meet specific requirements.

Grading

All courses used to meet Core Distribution Requirements and requirements of a particular major, including engineering technical electives (see "Requirements for the Major" in each department's alphabetical listing), must be taken for a letter grade. Pass/No Credit grading is not permitted except for open electives.

Restrictions on Credits

Only courses stating in the description that they may be repeated may be taken more than once for credit. Only three credits of physical education may be counted toward degree requirements.

Restrictions on Transfer Credits

Courses taken at other universities and colleges and graded below C (2.00) will not be transferred as meeting major requirements.

Courses taken at other universities and colleges in a technology curriculum will normally not be transferred as equivalents to engineering or applied sciences courses.

Course Prerequisites

Certain courses may be taken only with the permission of the instructor or of the department; this is listed as a prerequisite for the course. For courses with specific course prerequisites, "or permission of instructor" is always understood. That is, a student who thinks he or she has acquired the knowledge necessary for the course

through means other than taking the listed prerequisites may ask the instructor's permission to take the course. Instructors have the option of deregistering students who have enrolled without proper prerequisites or permission.

Course Numbers

The three-letter designator for each course offered by the College of Engineering and Applied Sciences indicates its departmental affiliation as follows:

- AMS offered by the Department of Applied Mathematics and Statistics
- CSE offered by the Department of Computer Science
- ESC offered by the Department of Mechanical Engineering
- ESE offered by the Department of Electrical Engineering
- ESG engineering interdisciplinary; offered by Electrical Engineering, Mechanical Engineering, or Materials Science and Engineering
- ESM offered by the Department of Materials Science and Engineering
- EST offered by the Department of Technology and Society

Courses are numbered in accordance with the following general pattern:

- 100-199 Introductory courses; appropriate for and generally taken by freshmen.
- 200-299 Intermediate courses; appropriate for and generally taken by sophomores.
- 300-399 Upper-division courses; appropriate for and generally taken by juniors and seniors.
- 400-499 Special upper-division courses such as seminars, directed readings and research, and teaching practica; appropriate for and generally taken by juniors and seniors. Certain 400-level courses for seniors only are so specified.

Permission to Take Graduate Courses

Upper-division students with superior academic records may take graduate courses in meeting requirements for their major with the permission of the Vice Provost for Research and Graduate Studies and the approval of the course instructor and of their department's undergraduate program director. Forms are available from the Graduate School for the vice provost's approval and in the Engineering Undergraduate Student Office for departmental major approval.

Graduate courses taken while a student is an undergraduate remain part of the undergraduate record. The student cannot subsequently receive graduate credit for such courses, except in the case of approved five-year programs leading to both a baccalaureate and a master's degree.

Course Load: 12 to 19 Credits

College of Engineering and Applied Sciences majors who are full-time students cannot register for fewer than 12 credits or more than 19 credits without the approval of the Committee on Academic Standing and Appeals.

College Time Limits for B.E. and B.S. Degrees

All degree requirements for either the Bachelor of Engineering degree or the Bachelor of Science degree must be met in 11 semesters by students classified as full time. Full-time transfer students must meet all degree requirements in the number of semesters remaining according to the following formula: the number of transferred degree-related credits is divided by 12 (which is the minimum number of credits a full-time student may take in a semester) to determine the number of semesters already completed. The result is subtracted from 11 (semesters) to indicate the number of remaining semesters permitted for completion of degree requirements.

Department of Applied Mathematics and Statistics

Chairperson: James Glimm
Undergraduate Program Director: Nancy Mendell

Faculty

Rabah Amir, Assistant Professor, Ph.D., University of Illinois: Mathematical economics; control theory; game theory.

Michel L. Balinski, Professor, Ph.D., Princeton University: Operations research.

Laurence Baxter, Associate Professor, Ph.D., University of London: Reliability theory and statistics.

Edward J. Beltrami, Professor, Ph.D., Adelphi University: Optimization and stochastic models.

Hung Chen, Assistant Professor, Ph.D., University of California, Berkeley: Statistics and robust methods.

Yung Ming Chen, Professor, Ph.D., New York University: Partial differential equations and inverse problems.

Daniel Dicker, Professor, Sc.D., Columbia University: Boundary value problems of solid and fluid mechanics.

Vaclav Dolezal, Professor, Sc.D., Czechoslovak Academy of Science: Distribution theory; systems theory.

Pradeep Dubey, Professor, Ph.D., Cornell University: Game theory and mathematical economics.

Stephen Finch, Associate Professor, Ph.D., Princeton University: Applied statistics.

Irving Gerst, Professor Emeritus, Ph.D., Columbia University: Applied algebra and number theory.

James Glimm, Professor, Ph.D., Columbia University: Mathematical physics; nonlinear physics.

Thomas Hagstrom, Assistant Professor, Ph.D., California Institute of Technology: Numerical analysis.

Woo Jong Kim, Professor, Ph.D., Carnegie-Mellon University: Ordinary differential equations.

Hung Kung Liu, Assistant Professor, Ph.D., Cornell University: Statistics and decision theory.

Nancy Mendell, Associate Professor, Ph.D., University of North Carolina at Chapel Hill: Biostatistics; statistical genetics.

Abraham Neyman, Professor, Ph.D., Hebrew University: Game theory and mathematical economics.

Svetlozar T. Rachev, Associate Professor, Ph.D., Lomonosov University: Applied probability.

Matthew Sobel, Professor, Ph.D., Stanford University: Stochastic models and optimization.

Ram P. Srivastav, Professor and Graduate Program Director, D.Sc., University of Glasgow; Ph.D., University of Lucknow: Integral equations and numerical solutions.

Michael Taksar, Professor, Ph.D., Cornell University: Stochastic processes.

Reginald P. Tewarson, Professor, Ph.D., Boston University: Numerical analysis and biomathematics.

Alan C. Tucker, Professor, Ph.D., Stanford University: Combinatorics and applied models. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1974.

Cunhui Zhang, Assistant Professor, Ph.D., Columbia University: Statistics.

Teaching Assistants

Estimated number: 22

The undergraduate program in applied mathematics and statistics (AMS) aims to give mathematically oriented students a liberal education in quantitative problem solving. The courses in this program survey a wide variety of mathematical theories and techniques that are currently employed by analysts and researchers in government, industry, and science. Many of the applied mathematics courses give students the opportunity to develop problem-solving techniques using campus computing facilities.

About half of the applied mathematics majors go on to graduate or professional schools, largely in statistics, operations research, computer science, and business management. Others go directly into professional careers as actuaries, programmer-analysts, management trainees, and secondary school teachers.

While some career-oriented course sequences are listed below, students are strongly encouraged to seek faculty advice in coordinating their career plans with their academic programs. In the spring of their junior year, all students contemplating graduate studies, upon graduation or at a later date, should consult with the department's graduate placement advisor, who will assist them in choice of schools and provide information about Graduate Record Examinations, etc. Students considering secondary school mathematics teaching can major in applied mathematics and statistics or in mathematics.

Requirements for the Major in Applied Mathematics and Statistics

The major in Applied Mathematics and Statistics leads to the Bachelor of Science degree. The following courses are required:

	<i>Credits</i>
1. MAT 131, 132 (or 125, 126, 127 or 141, 142); AMS 210 or MAT 221 or 231 or 241, and MAT 306 or 307	14-15
2. CSE 110 or 111 or AMS/CSE 113 and CSE 114	3-6
3. 24 credits of 300-level and above AMS courses including AMS 301 and either AMS 310 or AMS 311 and 312. A student who has taken ECO 320 may substitute that as an exact equivalent to AMS 310 in the above requirements. (A minimum of 18 of these 24 credits must be designated AMS courses. The remaining six credits may be replaced by an equal number of credits taken from approved junior-level or more advanced mathematically oriented courses. Typically approved	

substitutions are ECO 321, ECO 348, and all courses designated CSE or MAT and numbered 301 and above, but not MAT 306 or 307.) 24

4. To gain a background in fields that generate mathematical applications, a minimum of 14 additional credits shall be chosen from among the course offerings in appropriate social sciences, the natural sciences, and engineering. Courses taken to satisfy item 3 above may not be used to satisfy this requirement. No more than eight of these credits may come from any one department. 14

5. Upper-Division Writing Requirement
All degree candidates must demonstrate skill in written English at a level acceptable for applied mathematics and statistics majors. The AMS student must register for the writing course AMS 300, and submit a portfolio containing at least four papers on four different topics selected from a list provided by the department. If the standard of writing is judged acceptable, and if the papers are technically correct, the student will pass the course, thereby satisfying this requirement. The requirement may also be met by earning a grade of C or higher in a writing course approved by the department or, if the student has a double major, by satisfying the requirement for the other major. 1

Total 56-60

Grading

All courses taken to satisfy requirements 1, 2, and 3 above must be taken for a letter grade.

Acceptance into the Major

Freshman and transfer applicants to the university may be accepted directly into the major in applied mathematics and statistics. Those who did not apply for the major and those who were not accepted into the major when they entered the university may apply only after completion of MAT 131, 132 (or 125, 126, 127 or 141, 142); AMS 210 or MAT 221 or 231 or 241; and CSE 110 or 111 or 114.

Minors and Double Majors

The department urges students in other majors who are considering a double major with AMS first to select individual AMS courses on the basis of their academic interests or vocational needs. Only after a student has taken several AMS courses should he or she decide on this as a second major.

On the other hand, AMS students are strongly encouraged to minor or double major in another discipline. The most frequent choices of AMS double majors are computer science and economics. A student majoring in both AMS and CSE must satisfy the AMS and CSE major requirements, respectively. In addition, the number of 300-level courses in CSE and the number of courses listed in item 3 of the AMS major requirements must total at least 36 credits, excluding MAT 306 or 307. At least 18 of the 36 credits must be designated AMS.

Recommendations for Students Majoring in Applied Mathematics and Statistics

The department encourages students to have a broad exposure to many types of mathematical reasoning and to its diverse roles in the social and natural sciences. During their first two years, students considering an AMS major are encouraged to take, besides the required calculus sequence, some physics (either PHY 101, 102 or 103, 104 or 105, 106), CSE 110 or 111 or AMS/CSE 113 and CSE 114; one other computer course (competence in computer programming is essential for many professional careers); and some economics. At the end of the sophomore year or the beginning of the junior year, students begin taking upper-division AMS courses, usually starting with AMS 301 and 310. At the same time, they are strongly encouraged to continue taking MAT and CSE courses and mathematically oriented courses in other departments, such as ECO 251. The following list of course sequences for certain professions is given as a preliminary guide to students with interests in these professions. Students should talk with faculty members specializing in these areas as early as possible for more specific information.

Statistics: AMS 301, 310, 311, 312, another CSE course beyond 110 or 111 or 114; students considering graduate statistics programs should take MAT 310 and 320 or 324.

Actuarial Science: Preparation for second actuarial examination—AMS 301, 310, 311, 312, and 315; third actuarial examination—AMS 326, 341, and 342.

Operations Research or Management Science: AMS 301, 310, 311, 331, 341, and 342; students considering graduate

operations research programs should take MAT 310 and 320 or 324.

Analyst-Programmer: AMS 301, 310, 311, 320, 326, 341, and CSE 120, 201, and 301.

Secondary Teaching: Students may enroll in either a four-year program (leading to the B.S. degree) or a five-year program (B.S. and M.A. degrees) to prepare for a career as a teacher of mathematics in the secondary schools. See p. 138, Mathematics Teacher Preparation Program for details.

B.S./M.S. Program

An applied mathematics and statistics major may apply at the end of the junior year for admission to a special program that leads to the Bachelor of Science degree at the end of the fourth year and the Master of Science degree at the end of the fifth year. In the fourth and fifth years, in addition to completing the 120 credits for the B.S. degree requirements, the student takes 30 graduate credits to fulfill the master's requirements in one of the department's three areas of study: applied mathematics, operations research, or statistics. It is recommended that a five-year master's student take MAT 324. This course provides the necessary background in analysis.

The advantage of the combined program is that the M.S. degree can be earned in less time than that required by the traditional course of study. The M.S. degree in applied mathematics and statistics normally requires three to four semesters of study after completion of a bachelor's degree. The in-depth training of a master's degree is required by many employers for professional positions in applied mathematics and statistics (beyond beginning analyst/programmer jobs).

For more details about the B.S./M.S. program, see the undergraduate or graduate program director in the Department of Applied Mathematics and Statistics.

Courses

See p. 186, Restrictions on Credits and Course Prerequisites, and p. 187, Course Numbers. All AMS courses except 101 and 475 satisfy the Quantitative Literacy Graduation Requirement.

AMS 101 Introduction to Finite Mathematics

Mathematical concepts and techniques needed for the mathematical models currently being used in such fields as anthropology, biology, economics, linguistics, psychology, and sociology. Topics to be covered include set theory, combinatorics, finite probability, matrix algebra, Markov chains, game theory, and interest theory. May not be taken by students with credit for MAT 127 or 132 or 142.

Prerequisite: Satisfaction of entry-level mathematics proficiency requirement
Fall and spring, 3 credits

AMS 102 Elements of Statistics

The use and misuse of statistics in real-life situations; basic statistical measures of central tendency and of dispersion, frequency distributions, elements of probability, binomial and normal distributions, small- and large-sample hypothesis testing, confidence intervals, chi-square test, and regression. May not be taken by students with credit for AMS 110, 310, 311, 312; ECO 320; PSY 201; or SOC 311, 312.

Prerequisite: Satisfaction of entry-level mathematics proficiency requirement
Fall and spring, 3 credits

AMS 110 Probability and Statistics in the Life Sciences

A survey of probability theory and statistical techniques with applications to biological and biomedical situations. Topics covered include Markov chain models; binomial, Poisson, normal, exponential, and chi-square random variables; tests of hypotheses; confidence intervals; t-tests; and analysis of variance, regression, and contingency tables. Credit cannot be given for both AMS 102 and 110.

Prerequisite: MAT 126 or 131 or 141
Fall and spring, 3 credits

AMS 113 Foundations of Computer Science

Rigorous introduction to the foundations of computer science. Problem-solving techniques and mathematical concepts are stressed. Concentrates on general and algorithmic problem-solving principles and discrete mathematics concepts (sets, Boolean logic, relations, graphs, counting principles, functions, sequences, induction proof, algorithms, complexity, verification, recursion). Prepares the student for further computer science courses and is primarily oriented toward computer science and applied mathematics and statistics majors and intended majors. Crosslisted with CSE 113.

Prerequisite: MAT 120 or passing the Mathematics Placement Examination at entry level for MAT 125 or 131
Fall and spring, 3 credits

AMS 194 Patterns of Problem Solving

A survey of techniques and methods of problem solving as developed by the engineer and applied scientist. Applications drawn from a broad range of fields. Primarily intended for non-engineering majors. Crosslisted with EST 194.
Spring, 3 credits

AMS 201 Matrix Methods and Models

Basic properties of matrix algebra, matrix norms, eigenvalues, solving systems of equations; applications to economics, growth models, Markov chains, regression, linear programming. Computer software packages used. May not be taken for credit by students with credit for MAT 231 or 241 or AMS 210.

Prerequisite: MAT 125 or 131 or 141
Fall and spring, 3 credits

AMS 210 Applied Linear Algebra

An introduction to linear models and associate matrix theory, which simultaneously serves as an introduction to applied mathematics. Models include Markov chains and related probability models, regression, economic input-output and

ecological growth models, computer graphics, and finite difference methods. Applications drawn from diverse areas of social and natural sciences. Efficient matrix computation and numerical analysis.

Prerequisite: MAT 126 or 131 or 141
Spring, 3 credits

AMS 300 Writing in Applied Mathematics

See "Requirements for the Major in Applied Mathematics and Statistics, Upper-Division Writing Requirement." Satisfactory/Unsatisfactory grading only.

Prerequisites: AMS major; upper-division standing
Fall and spring, 1 credit

AMS 301 Finite Mathematical Structures

An introduction to graph theory and combinatorial analysis. The emphasis is on solving applied problems rather than on theorems and proofs. Techniques used in problem solving will include generating functions, recurrence relations, and network flows. This course develops the type of mathematical thinking that is fundamental to computer science and operations research.

Prerequisite: AMS 210 or MAT 221 or 231 or 241
Fall, 3 credits

AMS 302 Applied Algebra

Topics in algebra relating to computer science: sets and relations, groups, modular arithmetic, partial orderings, Boolean algebra, error-correcting codes, machine computation, and finite state machines. Crosslisted with MAT 312.

Prerequisites: AMS 210 or MAT 221 or 231 or 241
Fall and spring, 3 credits

AMS 310 Survey of Probability and Statistics

A survey of data analysis, probability theory, and statistics. Stem-and-leaf displays, box plots, schematic plots, fitting straight line relationships, discrete and continuous probability distributions, conditional distributions, binomial distribution, normal and t distributions, confidence intervals, and significance tests. May not be taken for credit in addition to ECO 320.

Prerequisite: AMS 210 or MAT 221 or 231 or 241
Fall and spring, 3 credits

AMS 311 Probability Theory

Probability spaces, random variables, moment generating functions, algebra of expectations, conditional and marginal distributions, multivariate distributions, order statistics, law of large numbers.
Corequisite: MAT 306
Fall, 3 credits

AMS 312 Mathematical Statistics

Estimation, confidence intervals, Neyman-Pearson lemma, likelihood ratio test, hypothesis testing, chi-square test, regression, analysis of variance, nonparametric methods.

Prerequisite: AMS 311
Spring, 3 credits

AMS 315 Data Analysis

Statistical analysis of data. Exploratory data analysis. Estimation. Parametric and nonparametric hypothesis tests. Power. Robust techniques. Use and interpretation of statistical computer packages, such as SPSS.

Prerequisite: AMS 310
Spring, 3 credits

AMS 320 Applied Differential Systems

Properties of ordinary differential equations with diverse applications to problems in the natural and social sciences. (No background in areas of application is required.) The course is designed for students in the mathematical sciences who are interested in basic uses of calculus. *Prerequisite:* AMS 210 or MAT 221 or 231 or 241
Fall, 3 credits

AMS 326 Numerical Analysis

Direct and indirect methods for the solution of linear and nonlinear equations. Computation of eigenvalues and eigenvectors of matrices. Quadrature, differentiation and curve fitting. Numerical solution of ordinary and partial differential equations. *Prerequisites:* CSE 110 or 111 or 114; AMS 210 or MAT 221 or 231 or 241
Fall and spring, 3 credits

AMS 331 Mathematical Modeling

This course investigates the process of translating real-world problems into mathematical models. Six to eight unconnected problems will be studied in detail. These will be chosen to illustrate various methods of formulation and solution, and will generally find their origins in the social and biological sciences. *Prerequisites:* AMS 210 or MAT 221 or 231 or 241; AMS 310 or 311
Spring, alternate years, 3 credits (not offered in 1990-91)

AMS 335 Game Theory

Introduction to game theory fundamentals with special emphasis on problems from economics and political science. Topics include strategic games and Nash equilibrium, games in coalitional form and the core, bargaining theory, measuring power in voting systems, problems of fair division, and optimal and stable matching. *Prerequisite:* MAT 126 or 131 or 141
Fall, 3 credits

AMS 341 Operations Research I: Deterministic Models

Linear programming with a view toward its uses in economics and systems analysis. Linear-algebra and geometric foundations of linear programming; simplex method and its variations; primal-dual programs; formulation and interpretation of linear programming models, including practical problems in transportation and production control. Optional computer projects. AMS 341 and 342 may be taken in either order, though it is recommended that AMS 341 be taken first. *Prerequisite:* AMS 210 or MAT 221 or 231 or 241
Spring, 3 credits

AMS 342 Operations Research II: Stochastic Models

Methods and techniques for stochastic modeling and optimization, with applications to queueing theory, Markov chains, inventory theory, games, and decisions. AMS 341 and 342 may be taken in either order, though it is recommended that AMS 341 be taken first. *Prerequisites:* AMS 210 or MAT 221 or 231 or 241; AMS 310 or 311 or ECO 320
Fall, 3 credits

AMS 350 Graph Theory

Paths and circuits, trees and tree-based algorithms, graph coloring, digraphs, network flows,

matching theory, matroids, and games with graphs. *Prerequisite:* AMS 301
Spring, 3 credits

AMS 361 Engineering Mathematics A

Introduction to partial differential equations of engineering; methods of solution including separation of variables, Fourier series, and integrals; elements of numerical analysis. *Prerequisites:* C or higher in MAT 221 or 231 and AMS 320; CSE 110 or 111 or 114
Fall and spring, 4 credits

AMS 362 Engineering Mathematics B

Vector and related techniques used in fluid dynamics and electromagnetic fields; methods of complex variables in engineering applications. *Prerequisite:* MAT 221 or 231 or 241
Fall and spring, 4 credits

AMS 373 Analysis of Algorithms

Mathematical analysis of a variety of computer algorithms including searching, sorting, matrix multiplication, fast Fourier transform, and graph algorithms. Time and space complexity. Upper-bound, lower-bound, and average case analysis. Introduction to NP completeness. Some machine computation will be required for the implementation and comparison of algorithms. Crosslisted with CSE 373 and MAT 373. *Prerequisites:* AMS 210 or MAT 221 or 231 or 241 or 251; CSE 110 or 111 or 114; permission of Applied Mathematics and Statistics Department
Spring, 3 credits

AMS 475 Undergraduate Teaching Practicum

Students assist the faculty in teaching by conducting recitation or laboratory sections that will supplement a lecture course. The student will receive regularly scheduled supervision from the faculty advisor. May be used as an open elective only and repeated once. *Prerequisites:* Senior standing as an undergraduate major within the College; a minimum grade point average of 3.0 in all Stony Brook courses and the grade of B in the course in which the student is to assist; permission of department
Fall and spring, 3 credits

AMS 487 Research in Applied Mathematics

An independent research project with faculty supervision. Permission to register requires a B average and the agreement of a faculty member to supervise the research. May be repeated once. Only 3 credits of research electives (AMS 487, CSE 487, ESC 499, ESE 499, ESM 499, EST 499) may be counted toward technical elective requirements. *Prerequisite:* Permission of instructor and department
Fall and spring, 3 credits

AMS 492 Topics in Applied Mathematics

Treatment of an area of applied mathematics that expands upon the undergraduate curriculum. Topics may include applied mathematics, statistics, or operations research and will change from semester to semester. May be repeated once. *Prerequisite:* Permission of instructor
Schedule to be announced, 3 credits

Applied Mathematics and Statistics Courses Approved as Engineering Technical Electives

- AMS 301 Finite Mathematical Structures
- AMS 302 Applied Algebra
- AMS 310 Survey of Probability and Statistics
- AMS 311 Probability Theory
- AMS 312 Mathematical Statistics
- AMS 315 Data Analysis
- AMS 320 Applied Differential Systems
- AMS 326 Numerical Analysis
- AMS 331 Mathematical Modeling
- AMS 341, 342 Operations Research I, II
- AMS 350 Graph Theory
- AMS 373 Analysis of Algorithms
- AMS 487 Research in Applied Mathematics (no more than three credits)
- AMS 492 Topics in Applied Mathematics

Department of Computer Science

Chairperson: Philip M. Lewis
Undergraduate Program Director: Peter B. Henderson

Faculty

Leo Bachmair, Assistant Professor, Ph.D., University of Illinois: Logic in computer science; automated deduction; symbolic computation.

Hussein G. Badr, Assistant Professor, Ph.D., Pennsylvania State University: Operating systems design; computer systems; performance evaluation.

Amit Bandopadhyay, Assistant Professor, Ph.D., University of Rochester: Computer vision; artificial intelligence.

Arthur J. Bernstein, Professor, Ph.D., Columbia University: Distributed algorithms; design and correctness of operating systems; concurrent programming.

Herbert L. Gelernter, Professor and Graduate Program Director, Ph.D., University of Rochester: Artificial intelligence; scientific applications; knowledge-based heuristic problem-solving systems.

Alessandro Giacalone, Assistant Professor, Ph.D., Brown University: Design and verification of concurrent systems; interactive systems; graphics.

Jack Heller, Professor, Ph.D., Polytechnic Institute of Brooklyn: Database systems; office automation; programming environments.

Peter B. Henderson, Associate Professor, Ph.D., Princeton University: Software engineering; programming environments; computer science education.

Jieh Hsiang, Associate Professor, Ph.D., University of Illinois: Automated deduction; program correctness; programming logics.

Arie Kaufman, Associate Professor, Ph.D., Ben-Gurion University: Computer graphics; computer architecture; algorithms; computer vision.

Michael Kifer, Assistant Professor, Ph.D., Hebrew University of Jerusalem: Database systems; deductive databases; artificial intelligence.

Ker-I Ko, Associate Professor, Ph.D., Ohio State University: Computational complexity; theory of computation.

Philip M. Lewis, Professor, Ph.D., Massachusetts Institute of Technology: Computational complexity; automata theory; compiler design; concurrent systems.

Prateek Mishra, Assistant Professor, Ph.D., University of Utah: Programming language semantics; functional programming; type inference.

Theo Pavlidis, Professor, Ph.D., University of California, Berkeley: Image processing; machine vision; computer graphics.

Shaunak Pawagi, Assistant Professor, Ph.D., University of Maryland: Analysis of algorithms; parallel computing; VLSI architectures.

I.V. Ramakrishnan, Associate Professor, Ph.D., University of Texas at Austin: Computer architecture; algorithms; rewrite systems.

Glenn Richard, Lecturer, M.A., Brooklyn College: Computer science education.

Steven Skiena, Assistant Professor, Ph.D., University of Illinois, Urbana-Champaign: Geometric probing; data structures and algorithms; implementation of algorithms; computational and combinatorial geometry; data compression.

David R. Smith, Professor, Ph.D., University of Wisconsin: VLSI design; computer architecture; digital systems design.

Scott A. Smolka, Associate Professor, Ph.D., Brown University: Semantics and complexity of communicating processes; design of distributed languages and algorithms.

Mandayam K. Srivas, Assistant Professor, Ph.D., Massachusetts Institute of Technology: Programming languages; formal specification and verification; declarative and logic-based programming.

Eugene W. Stark, Assistant Professor, Ph.D., Massachusetts Institute of Technology: Programming language semantics; distributed algorithms; formal specifications; verification; theory of concurrency.

Philip M. Tromovitch, Lecturer, M.S., State University of New York at Stony Brook: Computer science education.

David S. Warren, Associate Professor, Ph.D., University of Michigan: Natural language and logic; logic programming; database systems; artificial intelligence.

Anita Wasilewska, Assistant Professor, Ph.D., University of Warsaw: Knowledge representation; logic; artificial intelligence.

Larry D. Wittie, Professor, Ph.D., University of Wisconsin: Distributed operating systems; computer networks and interconnection topologies; computer architecture; massively parallel vision algorithms; neural networks.

Teaching Assistants

Estimated number: 30

The undergraduate major in computer science is designed to combine a liberal arts program with sufficient pre-professional education in computer science to prepare the student for graduate study or for a career in the computing field. The intent is to offer the breadth of education that will enable students to place computing in the perspective of an extension of man's intellectual power, while offering the depth of education required to understand how to utilize the power of computing.

Students will learn concepts and skills needed for designing, programming, and applying computer systems while learning the theoretical foundation of computer science. They will also have sufficient freedom in the program to pursue other academic interests in the liberal arts, sciences, and engineering to complement their study of computer science. Many students will be able to utilize the flexibility of the program to satisfy the requirements of a second major for the baccalaureate degree.

Physical Facilities

Computing facilities for undergraduates are maintained by both the University Computing Center and the Computer Science Department. The Computing Center operates IBM 3083, VAX 8600, and VAX 8350 systems with approximately 250 terminals available to students. In addition, there are numerous general personal computer sites available campus wide.

The department facilities include 90 SUN 3 workstations, a 24 MIPS shared-memory Sequent S27 multiprocessor, a DEC VAX-11/780, seven VAX-11/750s, three microVAX-11s, three Symbolics Lisp machines, and many Macintosh, Intel, and IBM personal computers. Almost all run Unix and are connected via ethernet and a 50 Mbps fiber-optics ring for general departmental educational and research use. A fiber-optics network provides links to other campus computing facilities. Stony Brook is an ARPANET host and has connections to CSNET, NYSERNET, and the MOSIS VLSI foundry.

The Computer Science Library houses a 5,000-volume collection of books, journals, and technical reports. The full range of library services, including database searches and study areas, are available to all undergraduates.

Acceptance into the Major

A limited number of qualified freshman applicants are accepted into the major upon admission to the university. Currently enrolled students may be accepted into the major in one of three ways:

1. After completing CSE 113, 114, and MAT 131 (or MAT 125, 126), students are guaranteed admission with a grade of B or higher in both CSE 113 and 114, a C or higher in MAT 131 (or MAT 125 and 126), and a G.P.A. of 3.0 or higher over all these courses. No course repetitions are allowed.
2. Students not meeting condition 1 are required to complete CSE 113, 114, 120, and 201; and MAT 131, 132 (or MAT 125, 126, 127); and MAT 231 or 241 (or approved equivalents). Admission is guaranteed to those who earn a G.P.A. of 2.8 or higher in these courses with no grade in any of them lower than a C (2.0). No more than one repeated course may be used to satisfy these requirements.
3. Students not meeting conditions 1 or 2 may still be admitted by petitioning the department. Acceptance will then depend on the student's individual performance.

Transfer Credits

Students wishing to transfer credits for courses equivalent to CSE 111, 113, 114, 120, or 201 in order to use them as prerequisites for other CSE courses or toward meeting the requirements for acceptance into the major must demonstrate proficiency in the course material by passing a proficiency examination with a grade of C or higher. (Proficiency examinations covering the syllabi of CSE 111, 113, 114, 120, or 201 are given during the first week of each semester and may be given at the beginning of the first summer session.) The transferred course grade will be used to compute the G.P.A. for acceptance into the major, as well as for certification of the major at graduation.

Challenge Examination Credits

Challenge examinations are offered covering the syllabi of CSE 111, 113, 114, 120, or 201 for students who feel they have mastered the material on their own. (See also p. 39, Challenge Program for Credit by Examination.) More detailed information regarding the computer science undergraduate program, acceptance into the major, transfer credits, and proficiency and Challenge examinations is available from the Department of Computer Science, undergraduate program secretary.

Requirements for the Major in Computer Science

The major in computer science leads to the Bachelor of Science degree. The following

courses are required. At least three upper-division courses from items 2, 3, 4, and 5 below must be completed at Stony Brook.

	<i>Credits</i>
1. CSE 113, 114, 120, and 201	12
2. CSE 303 or AMS/CSE/MAT 373	3
3. Two courses from CSE 304, 306, either CSE/ESE 345 or 380 but not both	6
4. One course from CSE 302, 305, 307	3
5. One additional upper-division CSE course (excluding 475)	3
6. MAT 131, 132 or MAT 125, 126, 127 or 141, 142	8-9
7. MAT 231 or 241 (CSE/ESE majors may take 221)	3
8. MAT 313	3
9. AMS 301 and 310	6
10. One course from AMS 210, AMS 326, CSE/MAT 371	3
11. ESE 318	4
12. One of the following natural science sequences: BIO 151 and 152 CHE 131 and 132 GEO 122 and 226 GEO 122 and 309 PHY 101 and 102 or 105 and 106 PHY 101 or 105 and AST 203	8
13. Upper-Division Writing Requirement All degree candidates must demonstrate skill in written English at a level acceptable for computer science majors. To satisfy the requirement, the CSE student must register for the writing course CSE 300 (one credit) and submit either a technical paper based on work done in one of CSE 302, 304, 306, or 487, or a "user's manual" from a departmental list of topics centering on the department's hardware and software systems facilities. Students whose writing does not meet the required standard will be directed to seek remedial help and to resubmit their work. Detailed guidelines are provided by the department. The requirement may also be met by registering concurrently for CSE 300 (zero credits) and EST 390 and earning a grade of C or higher in EST 390.	0-1
Total	62-64

Grading

All courses taken to satisfy requirements 1 through 12 *must* be taken for a letter grade and completed with a grade of C or higher.

A grade of C or higher is required in prerequisite courses listed for all 300-level computer science courses.

Suggestions for Elective Courses

Students are encouraged to pursue a program that will provide depth in some area of computer science. The following table lists some typical areas of specialization and relevant electives:

Artificial Intelligence: CSE 304, 307, 352
Database Systems: CSE 301, 305, 306
Hardware: CSE 306, 345, 346, 380
Operating Systems: CSE 306, 307, 345
Programming Languages and Software Engineering: CSE 302, 304, 307
Theory: CSE 303, 373, CSE/MAT 371
Graphics: CSE 328

Other courses in the departments of Mathematics, Applied Mathematics and Statistics, and Electrical Engineering may also be relevant and can be taken as open electives. Also, a large selection of graduate courses in the department's Master of Science program are available to qualified seniors (see p. 60, "Permission to Take Graduate Courses"). Students should consult early with faculty members of the Department of Computer Science to plan their programs.

Sample Program (Courses Required for the Major Only)

<i>Fall</i>	<i>Freshman</i>	<i>Spring</i>
CSE 113		CSE 114
MAT 131		MAT 132
Natural science course		Natural science course
	<i>Sophomore</i>	
CSE 201		CSE 120
MAT 231		AMS 310
	<i>Junior</i>	
CSE elective		CSE elective
MAT 313		AMS 301
ESE 318		AMS 210 or 326 or CSE/MAT 371
	<i>Senior</i>	
CSE 300		CSE elective
CSE elective		CSE elective

Students with weak mathematical preparation should take MAT 125, 126, 127 instead of MAT 131, 132 and should delay taking CSE 113 until successfully completing MAT 125. All students are encouraged to discuss their program with a department undergraduate advisor.

Admittance to Undergraduate CSE Courses

The criteria for admittance to undergraduate computer science courses are as follows:

A. For all CSE courses:

1. Students registered, or seeking to register, for a course must attend the first two class meetings, unless they have made a previous arrangement with the course instructor.
2. Students must have successfully completed the necessary prerequisite courses, if any, with the required grade (usually C or higher).

B. For CSE 111:

All students who wish to take CSE 111 must advance register for the course and go to the first class lecture, at which time permission for final registration will be given to approved students. Preference will be given to CEAS majors and students who have declared a pre-engineering area of interest.

C. For CSE 301-487:

Students admitted to the computer science major will have priority over all other students.

Courses

See p. 186, Restrictions on Credits and Course Prerequisites, and p. 187, Course Numbers.

CSE 100 Societal Impact of Computers

A critical assessment of the role that computing and data processing play in contemporary society. Following an introduction to the information management capabilities that automation can provide, a study will be made of economic, legal, and moral issues involved in the utilization of these capabilities. Crosslisted with EST 100.
Fall and spring, 3 credits

CSE 110 Introduction to Computer Science

An introduction to fundamentals of computer science for non-majors. Topics covered include algorithms, problem-solving techniques, computer applications, data structures, and machine principles. Students will gain experience using a modern higher-level computer programming language (currently Pascal) to solve a variety of numeric and non-numeric problems. May not be taken simultaneously with CSE 111 or 114. Students who have a C or higher in CSE 111 or 114 may not take CSE 110.
Prerequisite: MAT 120 or passing the Mathematics Placement Examination at entry level for MAT 125 or 131
Fall and spring, 3 credits

CSE 111 Computer Science for Engineers

An introduction to computer science and the use of the computer for solving scientific and engineering-related problems. Students will gain experience using the FORTRAN programming

language. Primarily for engineering students *not* planning to take advanced computer science courses. May not be taken simultaneously with CSE 110. Students who have a C or higher in CSE 114 may not take CSE 111.

Pre- or corequisites: MAT 125 or 131 or 141; PHY 101 or 105 or CEAS major
Fall and spring, 3 credits

CSE 113 Foundations of Computer Science
Rigorous introduction to the foundations of computer science. Problem-solving techniques and mathematical concepts will be stressed. Concentrates on general and algorithmic problem-solving principles and discrete mathematics concepts (sets, Boolean logic, relations, graphs, counting principles, functions, sequences, induction proof, algorithms, complexity, verification, and recursion). Prepares the student for further computer science courses and is primarily oriented toward computer science and applied mathematics and statistics majors and intended majors. Crosslisted with AMS 113.

Prerequisite: MAT 120 or passing the Mathematics Placement Examination at entry level for MAT 125 or 131
Fall and spring, 3 credits

CSE 114 Computer Science I

Introduces fundamental computer science concepts and applies the foundations of computer science built in CSE 113 to the analysis and development of software in the programming language Pascal. Important concepts introduced include software documentation, design, verification and validation, data abstraction, operating systems, language translation, artificial intelligence, data processing, recursive programming, and basic machine architecture. Students will develop software systems for a variety of numeric and symbolic applications. May not be taken simultaneously with CSE 110 or 111.

Prerequisite: Grade of C or higher in CSE 113 or passing the proficiency examination for CSE 113

Fall and spring, 3 credits

CSE 120 Computer Organization and Systems Programming

Explores the physical structure of a computer, machine representation of information, architecture and organization of various mainframe, mini- and microcomputers, primary and secondary storage, and input and output communication. Introduces machine and assembly language programming, and systems programming techniques in the programming language C.

Prerequisite: Grade of C or higher in CSE 110 or 111 or 114 or passing the proficiency examination for CSE 111 or 114

Fall and spring, 3 credits

CSE 201 Computer Science II

Development of advanced software techniques with particular emphasis on data representation. Rigorous treatment of abstract data types (e.g., stacks and queues), tree structures, recursive data structures, and algorithms for searching, sorting, and translation. Reinforces the concepts of top-down modular software design and testing strategies. During weekly recitation sessions, students will develop applications software using the Pascal programming language.

Prerequisite: Grade of C or higher in CSE 114 or passing the proficiency examination for CSE 114

Fall and spring, 3 credits

CSE 300 Writing in Computer Science

See Requirements for the Major in Computer Science, Upper-Division Writing Requirement. Satisfactory/Unsatisfactory grading only.

Prerequisites: CSE major; upper-division standing

Fall and spring, 0 or 1 credit

CSE 301 File Processing

The use of sequential, direct, and indexed files. Application to business data processing. Use of PL/1 and COBOL to illustrate the algorithms. Principles of I/O systems. File control languages. Strategies for sorting, merging, hashing, and indexing.

Prerequisite: CSE 201

Fall, 3 credits

CSE 302 Software Engineering

Introduces students to the software life cycle and to modern techniques and tools for the proper engineering of software systems. Stresses the development of reliable and maintainable software via system requirements and specifications, software design methodologies, detailed design, and implementation, integration, and testing. Topics include software project management, life-cycle documentation, software maintenance, and human factors issues. Students participate in the development of a large applications software system applying these techniques.

Prerequisite: CSE 201

Fall or spring, 3 credits

CSE 303 Introduction to the Theory of Computation

An introduction to the abstract notions encountered in machine computation. Topics include finite automata, regular expressions, and formal languages, with emphasis on regular and context-free grammars. Questions relating to what can and cannot be done by machines are covered by considering various models of computation, including Turing machines, recursive functions, and universal machines.

Prerequisite: CSE 201

Pre- or corequisite: MAT 313

Fall and spring, 3 credits

CSE 304 Compiler Design

Topics studied include formal description of programming languages, lexical analysis, syntax analysis, symbol tables and memory allocation, code generation, and interpreters.

Prerequisites: CSE 120, 201, and 303

Fall and spring, 3 credits

CSE 305 Introduction to Database Systems

The design of database management systems to obtain consistency, integrity, and availability of data. Conceptual models and schemas of data: hierarchical, network, relational, and graph theoretic. The role of the database administrator in the organization and use of data.

Prerequisite: CSE 301

Spring, 3 credits

CSE 306 Operating Systems

Students are introduced to the structure of modern operating systems. Topics include virtual memory, resource allocation strategies, concurrency, and protection. The design and implementation of a simple system are performed.

Prerequisites: CSE 120 and 201; AMS 310

Fall and spring, 3 credits

CSE 307 Principles of Programming Languages

Presents examples of programming languages (PL) other than Pascal, such as SNOBOL, APL, LISP, ALGOL, PL/1, ADA. Students write sample programs in some of the languages studied. The languages are used to illustrate PL constructs such as binding, binding times, data types and implementation, operations (assignment data-type creation, pattern matching), data control, storage management, parameter passing, and operating environment. The suitability of these various languages for particular programming tasks is also covered.

Prerequisite: CSE 201

Spring, 3 credits

CSE 327 Computer Vision

Crosslisted with ESE 358. (For course description, see alphabetical listing, Electrical Engineering.)

Prerequisites: CSE 111 or 114; ESE 318

Fall, 3 credits

CSE 328 Fundamentals of Computer Graphics

An introduction to computer graphics including graphics application programming; data structures for graphics; representing and specifying color; fundamental hardware and software concepts for calligraphic and raster displays; two-dimensional, geometric transformations; introduction to three-dimensional graphics; graphics standards; and input devices, interaction handling, and user-computer interface.

Prerequisites: CSE 120 and 201; permission of instructor

Fall or spring, 3 credits

CSE 345 Computer Architecture

Starts with functional components at the level of registers, busses, arithmetic, and memory chips, and then uses a register transfer language to manipulate these in the design of hardware systems up to the level of complete computers. Specific topics also included are microprogrammed control, user level instruction sets, I/O systems and device interfaces, control of memory hierarchies, and parallel processing organizations. Crosslisted with ESE 345.

Prerequisites: CSE 120; ESE 318

Spring, 3 credits

CSE 346 Computer Communications

Crosslisted with ESE 346. (For course description, see alphabetical listing, Electrical Engineering.)

Prerequisites: CSE 111 or 114; MAT 221 or 231 or 241

Spring, 3 credits

CSE 352 Artificial Intelligence

Topics covered include critique of artificial intelligence research; state-space problem representations and search algorithms; game-playing programs; theorem-proving programs; programs for the study and simulation of cognitive processes and pattern recognition. Further topics in current research as time permits.

Prerequisites: CSE 201 and 303

Fall, 3 credits

CSE 370 Digital Simulation and Modeling

Pseudorandom number and variate generation. Discrete-event simulator design and construction. Model design, structuring, scaling, verification, and parameter identification. Model control

using introductory statistical concepts (sampling, confidence interval calculation, etc.). Regenerative simulation. Efficient statistical simulation techniques. Pascal or FORTRAN, as well as GPSS, will be used to implement models of computer and engineering systems, deterministic and random signal processing, etc. Crosslisted with ESE 370.

Prerequisites: Upper-division standing; CSE 111 or 114; MAT 221 or 231 or 241 or AMS 210
Fall, 3 credits

CSE 371 Logic

A survey of the logical foundations of mathematics: development of propositional calculus and quantification theory, the notions of a proof and of a model, the completeness theorem. Crosslisted with MAT 371.

Pre- or corequisite: MAT 313
Fall, 3 credits

CSE 373 Analysis of Algorithms

Mathematical analysis of a variety of computer algorithms including searching, sorting, matrix multiplication, fast Fourier transform, and graph algorithms. Time and space complexity. Upper-bound, lower-bound, and average-case analysis. Introduction to NP completeness. Some machine computation will be required for the implementation and comparison of algorithms. Crosslisted with AMS 373 and MAT 373.

Prerequisites: MAT 221 or 231 or 241 or 251 or AMS 210; CSE 110 or 111 or 114; permission of Computer Science Department
Spring, 3 credits

CSE 380 Microprocessors and Programmed Logic I

Crosslisted with ESE 380. (For course description, see alphabetical listing, Electrical Engineering. Note: in addition to the prerequisites listed there, CSE majors also need CSE 120.)

Fall and spring, 4 credits

CSE 381 Microprocessors and Programmed Logic II

Crosslisted with ESE 381. (For course description, see alphabetical listing, Electrical Engineering.)

Spring, 3 credits

CSE 475 Undergraduate Teaching Practicum

Students assist the faculty in teaching by conducting recitation or laboratory sections that will supplement a lecture course. The student will receive regularly scheduled supervision from the faculty instructor. May be used as an open elective only and repeated once.

Prerequisites: Senior standing as an undergraduate major within the College; a minimum grade point average of 3.0 in all Stony Brook courses and the grade of B in the course in which the student is to assist; or permission of department
Fall and spring, 3 credits

CSE 487 Research in Computer Science

An independent research project with faculty supervision. Only three credits of research electives (AMS 487, CSE 487, ESC 499, ESE 499, ESM 499, EST 499) may be counted toward technical elective requirements. May not be

taken for more than six credits. When registration is for four credits or more in a semester, CASA approval must be received.

Prerequisite: Permission of instructor and department

Fall and spring, 1 to 6 credits

CSE 491 Honors Seminar

Designed for upper-division CSE majors who have demonstrated excellence in computer science courses or a special interest in the topic being offered. Each time the course is offered, a topic will be selected comprising material not otherwise presented in undergraduate courses. May be repeated.

Prerequisites: Computer science major; upper-division standing; permission of department
Fall or spring, 3 credits

Computer Science Courses Approved as Engineering Technical Electives

CSE 120 Computer Organization and Systems Programming

CSE 201 Computer Science II

CSE 301 File Processing

CSE 302 Software Engineering

CSE 303 Introduction to the Theory of Computation

CSE 304 Compiler Design

CSE 305 Introduction to Database Systems

CSE 306 Operating Systems

CSE 327 Computer Vision

CSE 328 Fundamentals of Computer Graphics

CSE 345 Computer Architecture

CSE 346 Computer Communications

CSE 370 Digital Simulation and Modeling

CSE 373 Analysis of Algorithms

CSE 380 Microprocessors and Programmed Logic I

CSE 381 Microprocessors and Programmed Logic II

CSE 487 Research in Computer Science (no more than three credits)

Department of Electrical Engineering

Chairperson: Kenneth L. Short
Undergraduate Program Director: Hang-Sheng Tuan

Faculty

Shyam Narayan Bajpai, Assistant Professor, Ph.D., Indian Institute of Technology: Microwave acoustics and magnetics.

Mourad Barkat, Assistant Professor, Ph.D., Syracuse University: Statistical communications; decentralized detection; signal processing; spread spectrum.

H.R. Carleton, Professor, Ph.D., Cornell University: Optical materials; electro-optics; ultrasonics; optical instrumentation.

Sheldon S.L. Chang, Professor, Ph.D., Purdue University: Optimal control; computer architecture; artificial intelligence; information theory; robotics; economic theory.

Chi-Tsong Chen, Professor, Ph.D., University of California, Berkeley: Systems and control theory; digital signal processing.

Harbans Singh Dhadwal, Assistant Professor, Ph.D., University of London: Lasers and spectroscopy; fiber optics; signal processing.

Hon-Son Don, Assistant Professor, Ph.D., Purdue University: Image processing and pattern recognition.

John H. Marburger, Professor, Ph.D., Stanford University: Theoretical laser physics.

Vello A. Marsocci, Professor, Eng.Sc.D., New York University: Solid-state electronics; integrated electronics; biomedical engineering.

John Murray, Associate Professor and Graduate Program Director, Ph.D., University of Notre Dame: Systems, controls, and instrumentation.

Jayantkumar P. Parekh, Professor, Ph.D., Polytechnic Institute of Brooklyn: Microwave acoustics and magnetics; microwave electronics.

Stephen S. Rappaport, Professor, Ph.D., New York University: Communication theory; systems.

Thomas G. Robertazzi, Assistant Professor, Ph.D., Princeton University: Computer networks; local area networks.

Stephen D. Shapiro, Professor, Ph.D., Columbia University: Computing systems; artificial intelligence; picture processing and pattern recognition.

Kenneth L. Short, Professor, Ph.D., State University of New York at Stony Brook: Digital system design; microprocessors and instrumentation. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1985, and the President's Award for Excellence in Teaching, 1985.

David R. Smith, Professor, Ph.D., University of Wisconsin: Logic design; computer architecture.

Muralidhara Subbarao, Assistant Professor, Ph.D., University of Maryland: Computer vision; artificial intelligence; computer architecture; computer graphics.

Stephen Sussman-Fort, Associate Professor, Ph.D., University of California, Los Angeles: Electronic circuits; CAD; solid-state electronics; electromagnetics.

Dali Tao, Assistant Professor, Ph.D., Syracuse University: Computer engineering; microprocessing; VLSI; computer vision; robotics; artificial intelligence.

John G. Truxal, Distinguished Teaching Professor, Sc.D., Massachusetts Institute of Technology: Control and systems engineering; science education.

Hang-Sheng Tuan, Professor, Ph.D., Harvard University: Electromagnetic theory; integrated and fiber optics; microwave acoustics; physical electronics.

Armen H. Zemanian, Professor, Eng.Sc.D., New York University: Network theory; mathematical models in economic geography.

Adjunct Faculty

Estimated number: 3

Teaching Assistants

Estimated number: 36

The Department of Electrical Engineering offers a major leading to the Bachelor of Engineering degree in electrical engineering with course offerings that span the subject matter of contemporary electrical engineering. Through the department's offerings, a student can develop the requisite background and skills suited to his or her own interests and career goals. The department's research and teaching areas include computers, computer engineering, communications, microprocessors, computer networks, solid-state electronics, electronic circuits, networks, controls and systems, robotics, computer graphics, pattern recognition, optical signal processing, artificial intelligence, biomedical instrumentation, and computer-aided design.

While most electrical engineering students go into industry after graduation, many go directly to graduate school for further study in engineering, business, or other professions. Many continue their education on a part-time basis. The programs described below have sufficient flexibility to meet a large variety of individual objectives.

Acceptance into the Major

Prospective Stony Brook Students

Prospective Stony Brook students (entering freshmen and transfer students) wishing to enroll in the electrical engineering program must specify their interest at the time they apply to the university. Highly qualified students will be accepted into the electrical engineering program simultaneously with their admission to the university.

Currently Enrolled Stony Brook Students

The Department of Electrical Engineering's enrollment committee meets twice a year to consider the acceptance of Stony Brook students into the electrical engineering major. Students may apply for fall acceptance during the preceding spring Prime Time until the end of final examination week, and, for spring acceptance, in the preceding fall semester during Prime Time until the end of final examination week.

A student's application will be considered only if he or she has completed at least one year of courses (28 credits) at Stony Brook, including a year of mathematics and a year of physics, and under the following conditions:

1. The mathematics and physics must be at a minimum level of MAT 131, 132 (or MAT 125, 126, 127) and PHY 101, 102 (or PHY 105, 106). These one-year sequences must be at a level more advanced than the level at which the student entered Stony Brook.
2. In all mathematics and physics courses the student must earn a G.P.A. of 3.00 or higher and have received no more than one grade in the C range.
3. No mathematics or physics courses may be repeated.
4. All transferred courses must have been evaluated before the application deadline.

Students who have transferred to Stony Brook after completing two years (60 credits) at another institution including the equivalent of MAT 132 and PHY 102 may apply for acceptance into the department after one semester at Stony Brook.

Applications must be submitted to the Engineering Undergraduate Student Office.

Requirements for the Major in Electrical Engineering

The major in electrical engineering leads to the Bachelor of Engineering degree. It requires a minimum core of six technical electives to be taken in the Electrical Engineering Department. The core sequence, along with additional courses and technical electives, may be chosen in consultation with a faculty advisor, taking into consideration the particular interest of the student. This will provide a thorough foundation fitted to individual goals. The following courses are required:

	<i>Credits</i>
1. Mathematics: MAT 131, 132, (or 141, 142, or 125, 126, 127), 221, and any two of the following courses with at least one chosen from the first group: AMS 361*, 362* AMS 301, 311	18
2. Natural Sciences: PHY 101, 102 or PHY 105, 106; CHE 131 and 133 or CHE 141 and 143; and one of the following: ESG 281, PHY 251, CSE 120	17

*Recommended unless a more suitable course is chosen in consultation with a faculty advisor.

3. Computer Science: CSE 111 or CSE 113, 114	3-6
4. Engineering Sciences: ESE 318, ESG 211, 259, 271, 372, and one of the following: ESG 302, 332, 333*	22
5. Engineering Synthesis and Design: ESG 312, 315, ESE 440, 441 (ESE 440, 441 project must be carried out at Stony Brook under the supervision of an Electrical Engineering faculty member	11
6. Engineering Specialization and Technical Electives: Nine technical elective courses. Of these nine, at least six must be chosen from the technical elective courses offered by the department, except for ESE 318, 499, and no more than three credits of ESE 390	27
7. Upper-Division Writing Requirement: All degree candidates must demonstrate skill in written English at a level acceptable for electrical engineering majors. The ESE student must register for the writing course ESE 300 concurrently with ESG 315 and submit approximately three long reports on the experiments performed in ESG 315. Students whose writing does not meet the required standard will be referred for remedial help. Detailed guidelines are provided by the department. If the standard of writing is judged acceptable, the student will receive an S grade for ESE 300, thereby satisfying this requirement.	1
<hr style="width: 100%; border: 0.5px solid black;"/> Total 99-102	

Grading

All courses taken to satisfy requirements 1 through 6 must be taken for a letter grade. A grade of C or higher is required in the following courses: ESG 211, 271, 372; MAT 131, 132; PHY 101, 102; ESE 318; and six ESE technical electives.

*Recommended unless a more suitable course is chosen in consultation with a faculty advisor.

Sample Course Sequence in the Electrical Engineering Major

The following is a sample course sequence for students interested in electrical engineering and undecided about specialization in a particular area. This sequence ensures that prerequisite and corequisite courses are taken in proper order.

Freshman

	Credits
<i>Fall</i>	
MAT 131	4
PHY 101	4
EGC 101	3
CSE 111* or CSE 113*	3
H/FA or S/BS Core Course	3
Total	17

Spring

MAT 132	4
PHY 102	4
CSE 114*	3
CHE 131	4
CHE 133	1
Total	16

Sophomore

<i>Fall</i>	
MAT 221	3
ESE 318	4
H/FA or S/BS Core Course	3
PHY 251 or ESG 281	4
ESG 259	4
Total	18

Spring

AMS 361	4
ESG 211	2
ESG 271	4
H/FA or S/BS Core Course	3
ESG 333	4
Total	17

Junior

<i>Fall</i>	
ESE 305	3
ESG 312	3
ESG 372	4
ESE 340	3
ESE 380	4
Total	17

Spring

ESG 315	2
ESE 300	1
AMS 362	4
ESE 315	3
ESE 311	3
H/FA or S/BS Core Course	3
Total	16

*Program requirements for an ESE major include completion of either CSE 111 or CSE 113 and 114. Students interested in pursuing more advanced computer science courses should complete CSE 113 and 114, the Pascal sequence.

Senior

<i>Fall</i>	
ESE 319	3
ESE 440	3
ESE 331	3
ESE 316	3
H/FA or S/BS Core Course that satisfies Study of Another Culture	3
Total	15

Spring

ESE 441	3
ESE 350	3
NS or S/BS Category B Course	3
Technical elective	3
Open elective	3
Total	15

Specialized Areas in Electrical Engineering

Some of the major areas of specialization are listed below. This list is not meant to be exhaustive. For more detailed information concerning additional areas and specific course recommendations students should consult the *Undergraduate Guide to Electrical Engineering*, which is available from the office of the Department of Electrical Engineering.

- Biomedical Engineering
- Communications and Information Sciences
- Control and System Theory
- Computer Engineering (details below)
- Electrical Power Systems
- Electronic Networks and Circuits
- Solid State Electronics
- Electromagnetics and Optics

Computer Engineering

More and more frequently the solutions to current system design problems lie in the area between strictly hardware or software solutions. It is important for students who wish to specialize in computer hardware to be fluent in modern software techniques and to be familiar with digital electronics and the application of large-scale integrated devices.

The following course sequence shows a program appropriate to computer engineering, which at the same time meets the requirements of the Bachelor of Engineering degree in electrical engineering.

Sample Course Sequence for Specialization in Computer Engineering

Freshman

	Credits
<i>Fall</i>	
EGC 101	3
PHY 101	4
MAT 131	4
CSE 113	3
H/FA or S/BS Core Course	3
Total	17

Spring

PHY 102	4
MAT 132	4
CSE 114	3
CHE 131	4
CHE 133	1
Total	16

Sophomore

<i>Fall</i>	
ESE 318	4
H/FA or S/BS Core Course	3
ESG 259	4
MAT 221	3
CSE 120	4
Total	18

Spring

ESG 211	2
ESG 271	4
H/FA or S/BS Core Course	3
CSE 201	3
AMS 361	4
Total	16

Junior

<i>Fall</i>	
ESG 312	3
ESG 372	4
AMS 301	3
ESE 380	4
ESE 305	3
Total	17

Spring

AMS 302	3
ESG 315	2
ESE 381	3
ESG 302	4
ESE 345	3
Total	15

Senior

<i>Fall</i>	
ESE 440	3
CSE 306	3
ESE 315	3
ESE 316	3
H/FA or S/BS Core Course that satisfies Study of Another Culture	3
Total	15

Spring	
ESE 441	3
ESE 311	3
ESE 346	3
H/FA or S/BS Core Course	3
NS or S/BS Category B Course	3
Total	15

Courses

See p. 186, Restrictions on Credits and Course Prerequisites, and p. 187, Course Numbers.

ESE 290 Transitional Study

A vehicle used for transfer students to remedy discrepancies between a Stony Brook course and a course taken at another institution. For example, it allows the student to take the laboratory portion of a course for which he or she has had the theoretical portion elsewhere. Open elective credit only.

Prerequisite: Permission of department
Fall and spring, 1 to 3 credits

ESE 300 Writing in Electrical Engineering

See Requirements for the Major in Electrical Engineering, Upper-Division Writing Requirement. Satisfactory/Unsatisfactory grading only.

Prerequisites: ESE major; upper-division standing
Corequisite: ESG 315
Spring, 1 credit

ESE 304 Electronic Instrumentation and Operational Amplifiers

The design of electronic instrumentation: structure of basic measurement systems, transducers, analysis and characteristics of operational amplifiers, analog signal conditioning with operational amplifiers, sampling, multiplexing, A/D and D/A conversion; digital signal conditioning, data input and display, and automated measurement systems. Application of measurement systems to pollution and to biomedical and industrial monitoring will be considered.

Prerequisite: ESG 372
Fall, 3 credits

ESE 305 Systems and Signals

Concepts of linearity and time-invariance. Convolution and transfer function, Laplace transforms, z-transform, Fourier transforms, and their relationships. Stability and its implications. Routh's test and Jury's test. Analog and digital computer simulation. Provides common background for control, communication, and digital signal processing.

Prerequisite: ESG 271
Fall, 3 credits

ESE 306 Modern Filter Design

Design of electrical wave filters for communication and control. Topics include basic theorems on time and frequency response, physical realizability, minimum phase and attenuation characteristics; frequency transformation, transfer function synthesis based on insertion loss, optimum transmission, and maximum signal-to-noise ratio; and realization with L, C elements, active circuits, and surface wave filters.

Prerequisite: ESG 271
Fall, 3 credits

ESE 310 Modern Circuit Theory

Circuit elements and n-ports. Linearity, time invariance, causality, passivity, and stability. Graph

theory and its algebraic descriptions. Tellegen's theorem. State-variable representation and time-domain solutions. Small-signal and global analysis of nonlinear networks. Stability analysis.

Prerequisite: ESG 271
Spring, 3 credits

ESE 311 Electronics Circuits Design I

Engineering design concepts applied to electronic circuits. Basic network concepts, computational analysis and design techniques; models of electronic devices; biasing and compensation methods; amplifiers and filters designed by conventional and computer-aided techniques.

Prerequisite: ESG 372
Spring, 3 credits

ESE 312 Electronic Circuits Design II

Material covered will be a continuation of that introduced in ESE 311 with special emphasis placed on computer-aided design of electronic circuits.

Prerequisite: ESE 311
Spring, 3 credits

ESE 315 Introduction to Feedback Control Theory

A first course in the analysis and design of linear control systems. Control components and their mathematical descriptions are first introduced. A systematic procedure is then introduced to analyze any linear control system. Both analog and digital computer simulations are discussed. Four design techniques—optimal design, root-locus method, frequency domain technique, and parameter optimization—are discussed and compared.

Prerequisite: ESG 271
Fall and spring, 3 credits

ESE 316 Digital Devices and Circuits

Switching characteristics of devices: bipolar transistors, MOSFETs, C.C.D.s. Circuit analysis of leading IC gate technologies: TTL, ECL, MOS, CMOS, dynamic MOS. Interfacing logic families. Application of small-scale ICs in control and timing circuits. Large-scale integrated circuits: organization and characteristics of RAMs, ROMs, and PLAs. Optoelectrical devices. A small number of laboratory sessions included.

Prerequisite: ESG 372
Fall, 3 credits

ESE 318 Digital Systems Design

The physical and logical basis of digital circuitry is covered in depth. Electronic characteristics of gates and their consequences are discussed, including an introduction to circuit theory. Gate structure minimization is explained. The design of basic digital devices (counters, multiplexers, arithmetic circuits) is stressed. (Required for electrical engineering and computer science majors.)

Prerequisites: PHY 102 or 106 and CSE 111 or 114 for engineering majors; CSE 120 for computer science majors
Fall and spring, 4 credits

ESE 319 Introduction to Electromagnetic Fields and Waves

Fundamental experimental results of electromagnetism. Topics include mathematical formulation of integral laws and derivation and physical interpretation of differential Maxwell

equations in free space; interaction of electromagnetic sources and fields, engineering applications; electromagnetic energy and power; generation of electromagnetic fields and waves in unbounded media by known sources; and transmission-line theory.

Prerequisite: ESG 271
Fall, 3 credits

ESE 321 Electromagnetic Waves and Fiber Optics

Propagation of electromagnetic waves in free space and dielectrics; wave propagation in anisotropic media and crystals; guided electromagnetic waves and surface waves; microwave waveguides, thin film planar optical waveguides, and optical fibers; introduction to the fundamentals of optical fiber communication components and systems.

Prerequisite: ESE 319
Spring, 3 credits

ESE 330 Integrated Electronics

An introduction to semiconductor electronics leading to the characterization of various passive and active devices, with emphasis on integrated electronic structures: theory of pn junction transistors; device design techniques; the applications of these devices in active networks; operation principles of analog circuits.

Prerequisite: ESG 372
Fall, 3 credits

ESE 331 Physical Electronics

A study of the physical principles involved in the operation of electronic devices such as bipolar transistors, field effect transistors, lasers, and superconducting and magnetic devices.

Prerequisites: ESG 281 (or PHY 251) and 271
Spring, 3 credits

ESE 332 Lasers and Optical Electronics

Basic radiation theory, Gaussian beams, optical resonators; interaction of radiation and atomic systems, theory of laser oscillation; investigation of specific solid, gas, and semiconductor lasers; parametrics and second harmonic generation; modulation and detection of optical radiation; noise processes in optical generation and detection.

Prerequisite: ESG 372
Spring, 3 credits

ESE 340 Basic Communication Theory

Basic concepts in both analog and digital data communications: signals, spectra, and linear networks; Fourier transforms, energy and power spectra, and filtering; AM, FM, and PM; time and frequency multiplexing; discussion of problems encountered in practice; noise and bandwidth considerations; and pulse modulation schemes.

Prerequisite: ESG 271
Fall, 3 credits

ESE 341 Information Theory and Coding

Statistical characteristics of languages, information sources as random processes, measurement of information, noiseless coding; the binary symmetric channel and other digital channels; channel capacity; introduction to algebraic coding, theory for noisy channels, communication with feedback.

Prerequisite: ESG 271
Spring, 3 credits

ESE 342 Data Communications Systems

Pulse modulation and sampling. All-digital networks. Pulse code modulation. Digital modulation techniques including ASK, FSK, PSK, DPSK. Error control coding. Exchange of reliability for rate. Synchronous and asynchronous systems. Line control. Equalization. Message and circuit switching. Packet radio channels.

Prerequisite: ESE 340

Spring, 3 credits

ESE 344 Software Tools for Engineering

Trains students to use computer systems to solve engineering problems. Includes the UNIX (TM) programming environment, the C programming language, basic data structures and algorithms, and familiarization with graphic displays.

Prerequisites: MAT 221; CSE 110 or 111 or 114
Fall and spring, 4 credits

ESE 345 Computer Architecture

Starts with functional components at the level of registers, busses, arithmetic, and memory chips, and then uses a register transfer language to manipulate these in the design of hardware systems up to the level of complete computers. Specific topics also included are microprogrammed control, user-level instruction sets, I/O systems and device interfaces, control of memory hierarchies, and parallel processing organizations. Crosslisted with CSE 345.

Prerequisites: CSE 120; ESE 318

Spring, 3 credits

ESE 346 Computer Communications

Basic principles of computer communication design and analysis. Technologies covered include packet networks, circuit switched networks, packet radio, local area networks, Aloha channels, and protocols. Techniques covered include algorithms for network design and routing as well as statistical models of network links. Crosslisted with CSE 346.

Prerequisites: CSE 111 or 114; MAT 221 or 231 or 241

Spring, 3 credits

ESE 347 Digital Signal Processing

Topics covered include systems analysis, matrices, discrete time systems, difference equations, convolution and deconvolution, state space techniques, frequency domain techniques, the z-transform and its applications, the discrete and fast Fourier transforms, digital filter design and analysis techniques, and computer-aided design.

Prerequisite: ESE 340

Fall, 3 credits

ESE 349 An Introduction to Fault Diagnosis of Digital Systems

A follow-up to ESE 318, to acquaint students with fault diagnosis of logic circuits. Both combinational and sequential circuits are considered. Concepts of faults and fault models are presented, followed by discussions of test generation, test selection, and fault dictionaries. Emphasis is on test generation for fault detection, fault location, fault location within a module, and fault correction. Some basic reliability-enhancing design techniques for digital circuits and systems are also discussed.

Prerequisite: ESE 318

Spring, 3 credits

ESE 350 Electrical Power Systems

Fundamental engineering theory for the design and operation of a modern electric power system. Modern aspects of generation, transmission, and distribution will be considered with appropriate inspection trips to examine examples of these facilities. The relationship between the facilities and their influence on the environment will be reviewed. Topics included are power system fundamentals, characteristics of transmission lines, generalized circuit constants, transformers, control of power flow and of voltage, per unit system of computation, system stability, and extra-high voltage a.c. and d.c. transmission.

Prerequisite: ESG 271

Spring, 3 credits

ESE 351 Energy Conversion

Natural and secondary energy sources; methods of energy conversion including thermionic, thermoelectric, and magnetohydrodynamic converters, fuel cells, and solar cells.

Prerequisites: ESG 271; ESG 301 or 302

Spring, 3 credits

ESE 352 Electromechanical Energy Converters

Basic principles of energy conversion; d.c., induction, and synchronous rotary converters; the three-phase system and symmetrical components; the relationships between voltage, current, flux, and m.m.f.; equivalent circuits and operating characteristics of rotary converters; and analysis of saturation effects.

Prerequisite: ESG 372

Fall, 3 credits

ESE 358 Computer Vision

Introduces fundamental concepts, algorithms, and computational techniques in visual information processing. The course covers image formation, image sensing, binary image analysis, image segmentation, Fourier image analysis, edge detection, reflectance map, photometric stereo, basic photogrammetry, stereo, pattern classification, extended Gaussian images, and the study of the human visual system from an information processing point of view. Crosslisted with CSE 327.

Prerequisites: ESE 318; CSE 111 or 114

Fall, 3 credits

ESE 362 Optoelectronic Devices and Optical Imaging Techniques

A thorough introduction to the field of optoelectronics including a firm basis of fundamental physics and an introduction to optical imaging and optical communication systems. A detailed coverage of laser and semiconductor devices along with a study of the commonly used optical radiation detectors. The definition of optoelectronics is extended to include a discussion of the behavior of light in crystals.

Prerequisite: ESG 372

Fall, 3 credits

ESE 370 Digital Simulation and Modeling

Crosslisted with CSE 370. (For course description, see alphabetical listing, Computer Science.)

Prerequisites: Upper-division standing; CSE 111 or 114; MAT 221 or 231 or 241

Fall, 3 credits

ESE 371 Computer Graphics

Input and output devices for human-computer communication. Bitmap displays and their uses. Picture and graphics editor. Curve fitting with emphasis on Bezier splines. Scan conversion. Geometric transformations, projections, hidden line problems. Anti-aliasing.

Prerequisite: CSE 201 or ESE 344

Fall, 4 credits

ESE 380 Microprocessors and Programmed Logic I

Concepts and design techniques necessary for the implementation of digital systems using programmed logic devices such as microprocessors, read-only memories (ROMs), and programmable logic arrays (PLAs). Emphasis is on microprocessor-based systems design. Hardware and software design techniques are equally emphasized. Laboratory work involves the actual structuring, programming, and debugging of programmed logic systems. Crosslisted with CSE 380.

Prerequisites: ESE 318; CSE 111 or 114

Fall, 4 credits

ESE 381 Microprocessors and Programmed Logic II

A continuation of ESE 380 emphasizing systematic approaches to and trade-offs in the design of microprocessor-based systems from initial specification to implementation. Crosslisted with CSE 381.

Prerequisite: ESE/CSE 380

Spring, 3 credits

ESE 390 Special Topics in Digital Systems

A vehicle for new course material of current interest in the area of digital systems. When offered, a specific title and course description will be made available at registration time. May be repeated but only three credits may be counted as technical electives.

Prerequisite: Permission of instructor

Schedule to be announced, 1- to 6 credits

ESE 440 Engineering Design I

Lectures by faculty and visitors on typical design problems encountered in engineering practice. During this semester each student chooses a senior design project for Engineering Design II. A preliminary design report is required. Not counted as a technical elective.

Prerequisites: ESG 315, 372; two ESE technical electives (except ESE 390, 499); ESE major; senior standing

Fall, 3 credits

ESE 441 Engineering Design II

Student groups carry out the detailed design of the senior projects chosen during the first semester. A final and detailed design report must be prepared. Not counted as a technical elective.

Prerequisites: ESE 440; ESE major; senior standing

Spring, 3 credits

ESE 475 Undergraduate Teaching Practicum

Students assist the faculty in teaching by conducting recitation or laboratory sections that will supplement a lecture course. The student will receive regularly scheduled supervision from the

faculty instructor. May be used as an open elective only and repeated once.

Prerequisites: Senior standing as an undergraduate major within the College; a minimum grade point average of 3.0 in all Stony Brook courses and the grade of B in the course in which the student is to assist; permission of department

Fall and spring, 3 credits

ESE 499 Research in Electrical Sciences

An independent research project with faculty supervision. Permission to register requires a B average in all engineering courses and the agreement of a faculty member to supervise the research. May be repeated, but only three credits of research electives (AMS 487, CSE 487, ESE 499, ESC 499, ESM 499, EST 499) may be counted toward the non-ESE technical elective requirements.

Fall and spring, 3 credits

Department of Materials Science and Engineering

Chairperson: Raymond F. Egerton

Undergraduate Program Director:

Patrick J. Herley

Faculty

Jeremy Q. Broughton, Associate Professor, Ph.D., Cambridge University: Molecular dynamics; computer simulation; electronic materials.

Herbert R. Carleton, Professor, Ph.D., Cornell University: Optical materials; electro-optics.

Benjamin Chu, Professor, Ph.D., Cornell University: Laser scatterings; small-angle X-ray scatterings; critical phenomena; molecular forces.

Clive R. Clayton, Associate Professor and Graduate Program Director, Ph.D., University of Surrey: Corrosion; ESCA.

Michael Dudley, Assistant Professor, Ph.D., University of Warwick: Synchrotron radiation topographic studies of solid-state reactivity; mechanical behavior of solids.

Raymond F. Egerton, Professor, Ph.D., Imperial College: Analytical electron microscopy; electron energy-loss spectroscopy.

Allen N. Goland, Adjunct Professor, Ph.D., Northwestern University: Solid-state physics.

Patrick J. Herley, Professor, Ph.D., Rhodes University; Ph.D., Imperial College: Thermal decomposition; catalysis.

Herbert Herman, Professor, Ph.D., Northwestern University: Phase transformations; protective coatings.

A. Peter Jardine, Assistant Professor, Ph.D., Bristol University: Scanning tunneling microscopy.

Franco P. Jona, Professor, Ph.D., Eidgenossische Technische Hochschule: Surface structures.

Alexander H. King, Associate Professor, D.Phil., Oxford University: Electron microscopy; crystal defects.

Sumner N. Levine, Professor, Ph.D., University of Wisconsin: Electronic materials.

Leslie L. Seigle, Professor Emeritus, D.Sc., Massachusetts Institute of Technology: Thermodynamics; diffusion; protective coatings.

Masaki Suenaga, Adjunct Professor, Ph.D., University of California, Berkeley: Superconducting alloys; electron microscopy.

Franklin F.Y. Wang, Professor, Ph.D., University of Illinois: Magnetism; dielectrics; physical ceramics.

John B. Warren, Adjunct Assistant Professor, Ph.D., University of Florida: Analytical electron microscopy, X-ray fluorescence; semiconductor defects.

David O. Welch, Adjunct Professor, Ph.D., University of Pennsylvania: Kinetics of diffusion; energetics; crystal lattice defects; radiation effects.

Teaching Assistants

Estimated number: 26

The Department of Materials Science and Engineering offers the Bachelor of Engineering degree program in engineering science as well as several interdisciplinary undergraduate programs in conjunction with other science and engineering departments on campus. These programs provide basic training for prospective graduates to enter a wide range of industries or to proceed to graduate studies in engineering fields. These joint programs are aimed at the materials aspect of mechanical engineering, electrical engineering, physics, and chemistry. Individualized programs are also available in biomedical materials, electronic materials, environmental properties of materials, and materials in energy conversion.

Engineering Science

The major in engineering science, in which all departments of the College participate, furnishes the student with a broad background in the basic engineering disciplines. It is designed for those who want an engineering education of a less specialized nature, or whose career goals lie outside the boundaries of the conventional engineering departments. Through the proper choice of electives and design projects, a degree of specialization may be achieved within the major. Recommended

course sequences in materials science and mechanics for this purpose are indicated below. In addition, with the help of a faculty advisor, the student may design a program uniquely suited to his or her own interests and objectives that cuts across departmental and college lines. Engineering students who wish to earn a B.E. degree with a concentration in applied analysis and statistics, computer science, or materials science should elect the major in engineering science. It is also good preparation for graduate studies in architecture, business, law, or medicine.

Requirements for the Major in Engineering Science

The major in engineering science leads to the Bachelor of Engineering degree. The following courses are required:

- | | <i>Credits</i> |
|--|----------------|
| 1. Mathematics:
MAT 131, 132 (or 125, 126, 127), 221; AMS 361, 362
(Students may substitute any of the following courses for AMS 362: AMS 301, 302, 310, 311, 312, 320, 326, 341, 342; MAT 310, 311, 313, 314, 315, 321, 322, 335, 342, 350, 353, and 371.) | 18-20 |
| 2. Sciences:
PHY 101, 102 or PHY 105, 106; PHY 251 or ESG 281;
CHE 131, 132, 133 or
CHE 141, 142, 143 | 21 |
| 3. Computer Science:
CSE 111 or 113, 114 | 3-6 |
| 4. Engineering Science Core Program:
ESG 211, 312 and seven courses of the following ten with at least two courses each in mechanical engineering, materials science, and electrical engineering:
Mechanical Engineering—ESG 260, 262, 363, 364
Materials Science and Engineering—ESG 302, 307, 332, 333
Electrical Engineering—ESG 271, 372 | 30-32 |
| 5. Engineering Synthesis and Design:
Satisfied through the project phase of ESG 313, 314, 315, 316, 317, or 318; ESG 440 and 441; and ESM 355 | 11-12 |
| 6. Engineering Specialization and Technical Electives:
The student should select courses of specialization suggested by each department to acquire depth of knowledge complementary | |

to the breadth of subject material in the major. Six technical electives are required, including at least two of the following design-oriented courses: ESC 310, 328, 333, 334; ESE 315, 318, 380.

7. Upper-Division Writing Requirement: 18-20
 All degree candidates must demonstrate skill in written English at a level acceptable for engineering science majors. The ESG student must register for the writing course ESG 300 concurrently with ESG 316. The quality of writing in the technical reports submitted for ESG 316 will be evaluated and students whose writing does not meet the required standard will be referred for remedial help. Detailed guidelines are provided by the department. If the standard of writing is judged acceptable, the student will receive an S grade for ESG 300, thereby satisfying the requirement. The requirement may also be met by earning a grade of C or higher in EST 390.
- | | |
|-------|---------|
| | 0 |
| Total | 101-111 |

Grading

A grade of C or higher is required in the following courses:

- a. MAT 131, 132; PHY 101, 102; ESG 211, 271, 312; and
- b. Each of at least six technical electives offered by the department of Electrical Engineering, Mechanical Engineering, or Materials Science and Engineering.

All courses taken to satisfy requirements 1 through 6 must be taken for a letter grade.

Sample Course Sequence in the Engineering Science Major

Freshman	Credits
<i>Fall</i>	
MAT 131	4
PHY 101	4
EGC 101	3
H/FA Core Course	3
S/BS Core Course	3
Total	17
<i>Spring</i>	
MAT 132	4
PHY 102	4
CSE 111	3
H/FA Core Course	3
S/BS Core Course	3
Total	17

Sophomore

<i>Fall</i>	
MAT 221	3
PHY 251 or ESG 281	4
CHE 131	4
CHE 133	1
Engineering Science Core Program Course	3-4
Total	15-16

<i>Spring</i>	
AMS 361	4
CHE 132	4
ESG 211	2
ESG 271	4
Total	14

Junior

<i>Fall</i>	
AMS 362	4
ESG 312	3
ESG 372	4
Engineering Science Core Program Course	3-4
H/FA Core Course that satisfies Study of Another Culture	3
Total	17-18

<i>Spring</i>	
ESG 313, 314, 316, or 318	2
ESG 300	0
ESM 355	3
Technical elective (design)	3
Two Engineering Science Core Program Courses	6-8
Total	14-16

Senior

<i>Fall</i>	
ESG 440	3
Technical elective (design)	3-4
Two technical electives	6-8
Engineering Science Core Program Course	3-4
Total	15-19

<i>Spring</i>	
ESG 441	3
Two technical electives	6
NS or S/BS Category B Core Course	3
Total	12

Recommended Course Sequences

Materials Science and Engineering

Students wishing to specialize in materials science and engineering should first determine whether they wish to work toward qualifications in electronic, optical, and magnetic (EOM) applications or physical metallurgy, which is more fundamentally concerned with the underlying structures and properties of materials. Suggested courses in these two areas are as follows:

Electronic, Optical, and Magnetic Applications

Core Program: ESG 260, 271, 302, 307, 332, 333, 372

Technical Electives: Choose from
 *ESM 310 Kinetic Processes in Solids
 *ESM 325 Diffraction Techniques and Structure of Solids
 ESM 335 Introduction to Polymers
 *ESM 336 Electronic Materials
 *ESM 337 Dielectric and Magnetic Materials
 *ESM 355 Materials and Processes in Manufacturing Design
 ESC 319 Introduction to Electromagnetic Waves and Fields
 ESE 321 Electromagnetic Waves and Fiber Optics
 ESE 330 Integrated Electronics
 ESE 331 Physical Electronics
 ESE 332 Laser and Optical Electronics

Physical Metallurgy

Core Program: ESG 260, 262, 271, 363, 302, 332, 372

Technical Electives: Choose from
 *ESM 306 Mechanical Properties of Engineering Materials
 *ESM 307 Physical Metallurgy
 *ESM 310 Kinetic Processes in Solids
 *ESM 315 Phase Transformation in Solids
 *ESM 325 Diffraction Techniques and Structure of Solids
 ESM 309 Thermodynamics of Solids
 ESM 355 Materials and Processes in Manufacturing Design
 ESC 305 Heat and Mass Transfer
 ESC 355 Applied Stress Analysis

*These courses are highly recommended.

Biomedical Engineering

Biomedical engineering is not a field of study that can be offered easily as an academic discipline because the term describes the *application* of various engineering disciplines to biomedical problems rather than an engineering discipline in its own right. For example, a mechanical engineer may apply his or her skills to the design of prosthetic devices, while an instrumentation engineer might design patient-monitoring equipment for intensive care facilities; both could be considered to be engaged in biomedical engineering. What is required for this application is a sound understanding of a particular branch of engineering and of certain principles of biology and medicine. The would-be biomedical engineer must first decide which branch of engineering he or she wishes to apply to the field, then obtain the appropriate expertise. Certain technical electives may be appropriate and these are listed below. The student should also make use of open elective credits to learn the basics of biology and organic chemistry.

Technical Electives

ESM 302 Materials Design and Techniques
ESE 315 Introduction to Feedback Control Theory
ESM 347 Physical Chemistry of Metal-Gas and Metal-Liquid Interfaces
ESM 351 Materials in Medical and Dental Sciences
ESM 335 Introduction to Polymers
ESM 355 Materials and Processes in Manufacturing Design
ESC 305 Heat and Mass Transfer

Open Electives

CHE 321, 322 Organic Chemistry
BIO 151, 152 Principles of Biology
BIO 310 Cell Biology
BIO 328 Mammalian Physiology
BIO 361, 362 Biochemistry I, II

The above course lists *do not* constitute a degree program in biomedical engineering; they are merely suggestions for courses that might be included in an engineering science program.

Manufacturing Engineering

A specialization in manufacturing engineering can be obtained by choosing the following courses:

Core Program: ESG 260, 271, 302, 332, 333, 363, 372 (either ESG 302 or 333 must be taken)

Technical Electives

- *AMS 310 Survey of Probability and Statistics
- ESM 302 Materials Design and Techniques
- *ESM 306 Mechanical Properties of Engineering Materials
- *ESM 307 Physical Metallurgy
- *ESM 355 Materials and Processes in Manufacturing Design
- ESC 305 Heat and Mass Transfer
- *ESC 310 Machine Design
- *ESE 315 Introduction to Feedback Control Theory
- ESE 318 Digital Systems Design
- ESE/CSE 346 Computer Communications
- *EST 392 Engineering and Managerial Economics

*These courses are highly recommended

Engineering science students who wish to specialize in either electrical or mechanical engineering should choose elective courses in consultation with a faculty advisor in the relevant department. This will assure appropriate consideration of the student's interests and goals.

Engineering Chemistry

The engineering chemistry major combines work in the Department of Materials Science and Engineering and the Department of Chemistry, and leads to the Bachelor of

Science degree awarded through the College of Arts and Sciences. See a description of this program on page 99.

Physics of Materials

Physics majors may wish to pursue a career in engineering physics, particularly in the application of solid-state physics to materials science and engineering. After taking five courses in the Department of Materials Science and Engineering, the student may become eligible for the department's master's degree program. See p. 153 for information about the physics major.

B.E./M.S. Program

An engineering, engineering chemistry, or physics student may apply at the end of the junior year for admission to this special program, which leads to a Bachelor of Engineering or Bachelor of Science degree at the end of the fourth year and a Master of Science degree at the end of the fifth year. In the senior year, a student in the program takes three credits of ESM 599 and three credits of a graduate course. In the fifth year the student takes 24 graduate credits, of which at least 15 credits are coursework and three credits are ESM 599. The advantages of this program over the regular M.S. program are that a student may start his or her M.S. thesis in the senior year, and that he or she needs only 24 credits in the fifth year as opposed to 30 credits for a regular M.S. student. For details of the M.S. degree requirements, see the *Graduate Bulletin*.

Courses

See p. 186, Restrictions on Credits and Course Prerequisites, and p. 187, Course Numbers.

Note: The designator ESG denotes engineering interdisciplinary courses, which may be taught by faculty from any one of the three engineering departments, and which are required or recommended in one or more of the three majors leading to the B.E. degree. Engineering students wishing to use ESG courses toward completion of technical elective requirements must obtain the approval of their major department.

The designator ESM denotes courses offered by the Department of Materials Science and Engineering.

Engineering Science

ESG 101 Electricity and Magnetism

Introduces basic principles of electricity and magnetism. Topics include the nature of atoms and molecules, electromagnetic radiation, electronic and magnetic properties of materials, and basic electric circuits. Illustrative applications are drawn from both pioneering and modern devices that have revolutionized human life or are likely to do so in the future.

Spring, 3 credits

ESG 211 Engineering Laboratory I: Electrical Circuits and Electronics

Introduction to the measurement of electrical quantities; instrumentation; basic circuits, their operation and applications; electronic devices; amplifiers, oscillators, power supplies, wave-shaping circuits, and basic switching circuits.

Pre- or corequisite: CSE 111 or 114

Corequisite: ESG 271

Fall and spring, 2 credits

ESG 259 Particles and Rigid Body Mechanics

A review of vector algebra and calculus with kinematic applications such as curves in space, displacement, velocity, and acceleration of point particles in classical orthogonal coordinate systems; notion of force; statics of a single particle including gravity, friction, electrostatic, and magnetostatic forces; force as a vector field; moments about points and lines; couples; work; equivalent force systems and the wrench; equilibrium of systems of mass particles; special case of the rigid body. Rigid body kinematics and the kinematics of relative motions; single particle dynamics, including charge-carrying particles and elementary linear vibrations; dynamics of clusters of particles; dynamics of the rigid body. Not for mechanical engineering major credit.

Prerequisite: PHY 101 or 105

Pre- or corequisites: CSE 111 or 114; MAT 221
Fall, 4 credits

ESG 260 Engineering Statics

A review of vector algebra. Concept of force. Equilibrium of particles. Moments about points and lines, couples and equivalent force systems. Equilibrium of rigid bodies. Analysis of simple structures such as trusses, frames, and beams. Centroids, centers of gravity, and moments of inertia. Dry friction with applications to wedges, screws, and belts. Method of virtual work, potential energy, and stability.

Prerequisite: PHY 101 or 105

Corequisite: MAT 221

Fall, 3 credits

ESG 262 Engineering Dynamics

Vectorial kinematics of particles in space, orthogonal coordinate systems. Relative and constrained motions of particles. Dynamics of particles and the systems of particles, equations of motion, energy and momentum methods. Collisions. Two- and three-dimensional kinematics and dynamics of rigid bodies. Moving frames and relative motion. Free, forced, and damped vibrations of particles and rigid bodies.

Prerequisites: PHY 101 or 105; MAT 221; ESG 259 or 260

Spring, 3 credits

ESG 271 Electrical Sciences I

The efficient generation, storage, and transmission of energy and information are used to motivate the student's introduction to the various fields of electrical sciences. Such topics as signal analysis, electrical measurements, Kirchhoff's laws, linear circuit analysis via Laplace transforms, semiconductor devices, and basic electronic circuits are covered from both the theoretical and practical viewpoints. Computer-aided techniques are included.

Prerequisites: MAT 221; PHY 102 or 106

Pre- or corequisite: CSE 111 or 114

Fall and spring, 4 credits

ESG 281 An Engineering Introduction to the Solid State

An introduction to the nature and properties of the crystalline solid state, with particular attention to semiconductors and semiconductor technology. Elementary notions of statistical and kinetic theory necessary to understand the behavior of assemblies of particles are introduced. The basic concepts of oscillatory motions, wave-like phenomena, and classical electricity and magnetism are reviewed. Elementary quantum mechanics is introduced and a few simple problems (harmonic oscillator, electron in a box) are solved. The theory is then applied to the hydrogen atom; multielectron conductors are described; the origin of energy bands and energy gaps is explained; concepts such as Fermi energy, density of states, and work function are introduced; and, finally, the optical and transport properties of metals, insulators, and semiconductors are discussed.

Prerequisites: PHY 102 or 106; CSE 111 or 114
Fall and spring, 4 credits

ESG 300 Writing in Engineering Science

See Requirements for the Major in Engineering Science, Upper-Division Writing Requirement. Satisfactory/Unsatisfactory grading only.

Prerequisites: ESG major; upper-division standing

Corequisite: ESG 316
Spring, 0 credits

ESG 301 Thermodynamics

The absolute temperature and other thermodynamic variables, including thermodynamic potentials, are used to describe systems in thermal equilibrium by considering their interrelationships as governed by the laws of classical thermodynamics. Applications to phase transformations, inert and chemically reacting multicomponent systems, power cycles, and engines are considered.

Prerequisites: MAT 221; CSE 111 or 114
Fall, 4 credits

ESG 302 Thermodynamics of Materials

The basic laws and concepts of thermodynamics are elucidated, and the important thermodynamic relationships are systematically developed with reference to the behavior of materials. The thermodynamics of solids is discussed, including the thermodynamics of solutions and the calculation of reaction-free energies and equilibria in condensed phase reactions such as phase transformations, oxidation, and diffusion.

Prerequisite: CSE 111 or 114
Corequisite: MAT 221
Spring, 4 credits

ESG 307 Applied Physical Concepts for Engineers

Basic postulates of quantum mechanics. Schrödinger equation and methods for its solution. Introductory statistical mechanics and its relation to thermodynamics. Group theory and its application.

Prerequisite: ESG 281 or PHY 251
Spring, 4 credits

ESG 312 Engineering Laboratory II: Theory and Measurement in Engineering

Laboratory exercises and lectures covering the theory, practice, and design of engineering experimentation. The course has three components: error analysis and data message; elec-

trical circuits and experiment control; and mechanical and optical measurement.

Prerequisites: Junior standing; CSE 111 or 114; ESG 211

Fall, 3 credits

ESG 313-318 Engineering Experimentation

ESG 313 Engineering Experimentation: Applied Mathematics and Statistics

ESG 314 Engineering Experimentation: Computer Science

ESG 315 Engineering Experimentation: Electrical Engineering

ESG 316 Engineering Experimentation: Materials Science and Engineering

ESG 317 Engineering Experimentation: Mechanical Engineering

ESG 318 Engineering Experimentation: Technology and Society

Projects under faculty supervision that emphasize the principles of experimental design and data evaluation. Projects will generally be undertaken by teams of two students who choose from a selection of problems submitted by the engineering faculty or who suggest a problem and receive faculty approval. Students should register for the one course number above that names their project advisor's department.

Prerequisites for ESG 313, 314, 316, 318: ESG 312; CSE 111 or 114

Prerequisites for ESG 315: ESG 312, 372; junior standing

Prerequisites for ESG 317: ESG 312, 364

Corequisite for ESG 315: ESE 300

Corequisite for ESG 316: ESG 300

Corequisites for ESG 317: ESG 363; ESC 300
Spring, 2 credits (except ESG 317, 3 credits)

ESG 332 Materials Science I: Structure and Properties of Materials

A study of the relationship between the structure and properties of engineering materials and the principles by which materials' properties are controlled. The structure and structural imperfections in simple crystalline materials and the role that these factors play in defining electrical conductivity, chemical reactivity, strength, and ductility are considered. The molecular structure of polymers is discussed and related to the behavior of plastics, rubbers, and synthetic fibers. The principles of phase equilibria and phase transformation in multicomponent systems are developed. These principles are applied to the control of the properties of semiconductors, commercial plastics, and engineering alloys by thermochemical treatment. Corrosion, oxidation, and other deterioration processes are interpreted through the interaction of materials with their environment.

Prerequisites: CHE 131 or 141; CSE 111 or 114
Fall, 4 credits

ESG 333 Materials Science II: Electronic Properties

After a review of quantum mechanics and atomic physics, the binding energy and electronic energy levels in molecules and solids are discussed. The free-electron theory of metals is introduced and applied to the quantitative treatment of a number of electron emission effects. The band theory of solids is developed quantitatively via the Kronig-Penney model, and the transport properties of metals and semiconductors are discussed in detail. The physical principle of pn junctions, transistors, tunnel diodes, etc. is explained. Fundamentals and applications of photoconductors, lasers, magnetic materials,

and superconductors are also discussed. (ESG 332 is not a prerequisite.)

Prerequisites: PHY 251 or ESG 281; CSE 111 or 114

Spring, 4 credits

ESG 363 Mechanics of Solids

An introduction to the mechanics of deformable solids used in engineering structures. Topics include two-dimensional descriptions of stress and strain, elastic stress-strain temperature relations, beam deformations due to bending, statically indeterminate beams, torsion, and buckling.

Prerequisite: ESG 260
Spring, 3 credits

ESG 364 Introduction to Fluid Mechanics

Fundamental properties of fluids and their conservation laws in the context of applications to common engineering flows. Topics covered include hydrostatics, surface tension, dimensional analysis and dynamic similitude, Euler's equation, laminar and turbulent boundary layers, lubrication, drag on immersed bodies, open channel and pipe flows, and the rotating coordinate systems.

Prerequisites: ESG 262; CSE 111 or 114
Fall, 4 credits

ESG 372 Electrical Sciences II

The pertinent elements of solid-state physics and circuit theory are reviewed and applied to the study of electronic devices and circuits, including junction diodes, transistors, and gate and electronic switches; large-signal and small-signal analysis of amplifiers; amplifier frequency response; and rectifiers and wave-shaping circuits.

Prerequisites: ESG 271; CSE 111 or 114
Fall, 4 credits

ESG 440 Engineering Design I

Lectures by faculty members and visitors on typical design problems encountered in engineering practice. During this semester each student will choose a senior design project for Engineering Design II. A preliminary design report is required. Not counted as a technical elective.

Prerequisites: ESG 312; one of ESG 313, 314, 315, 316, 317, 318; CSE 111 or 114; ESG major; senior standing
Fall, 3 credits

ESG 441 Engineering Design II

Student groups carry out the detailed design of the senior projects chosen during the first semester. A final and detailed design report must be prepared. Not counted as a technical elective.

Prerequisites: ESG 440; ESG major; senior standing
Spring, 3 credits

Materials Science

ESM 302 Materials Design and Techniques

The relationship between the microscopic structure of materials and their macroscopic properties is studied in a laboratory/lecture course in which the student performs investigations using research-grade equipment. Techniques for the production of new materials or the modification of existing materials in order to satisfy design criteria for engineering applications are discussed and carried out in the laboratory. Topics such as crystal growth, impurity doping (e.g., in

semiconductors), heat treatment, precipitation, and solute hardening are covered. The effects of such treatments upon the structure of a wide range of materials (metals, semiconductors, ceramics, and glasses) are studied using X-ray diffraction and optical and electron microscopy. The effects of structural change upon the mechanical, electrical, magnetic, optical, and environmental-sensitive properties of materials are measured and correlated with the controlling treatments.

Prerequisite: Permission of instructor
Fall, 3 credits

ESM 306 Mechanical Properties of Engineering Materials

A unified approach for all solid materials is made with regard to the correlation between microstructure and their macroscopic mechanical properties. The course deals with various testing techniques for delineating mechanical properties of materials, considering elasticity, anelasticity, plasticity, dislocation theory, cohesive strength, fracture, and surface wear. Attention is given to strengthening mechanisms for solids, metals, ceramics, and polymers, with a view toward learning how manipulation of microstructure can be used to design materials of specified properties. Discussion of the various engineering applications of materials and of materials selection for a number of specified tasks is pursued.

Prerequisite: Permission of instructor
Spring, 3 credits

ESM 307 Physical Metallurgy

A study of the physical and mechanical properties of a wide range of metals and alloys, with special reference to engineering practice. Industrial processing and heat treatment of ferrous alloys are emphasized. Lecture, demonstrations, and laboratories.

Prerequisite: ESG 332
Fall, 3 credits

ESM 309 Thermodynamics of Solids

The application of thermodynamics to analysis of phase equilibria and reactions in solids. Topics include ideal and real solutions; phase equilibrium diagrams; first- and higher-order phase transitions; and thermodynamics of diffusion, oxidation, and corrosion reactions.

Prerequisite: ESG 301 or 302
Fall, 3 credits

ESM 310 Kinetic Processes in Solids

Atomistic rate processes in solids with emphasis on diffusion in crystals. Theory of diffusion and experimental techniques are developed, and the role played by a broad class of crystalline imperfections is examined. Topics include annealing of deformed materials, kinetics of defect interactions, thermally controlled deformation, kinetics of nucleation and growth, and solidification and precipitation.

Prerequisite: ESG 302 or 332
Spring, 3 credits

ESM 315 Phase Transformation in Solids

A review of the processes by which structures are changed in the solid state. Classical nucleation theory including homogeneous and heterogeneous mechanisms. Diffusional and diffusionless growth mechanisms. Transformation kinetics.

Prerequisite: ESG 332
Spring, 3 credits

ESM 325 Diffraction Techniques and Structure of Solids

X-ray diffraction techniques are emphasized in this introductory course. Topics covered include coherent and incoherent scattering of radiation, structure of crystalline and amorphous solids, stereographic projection, and crystal orientation determination. The concept of reciprocal vector space is introduced early in the course and is used as a means of interpreting diffraction patterns. Laboratory work in X-ray diffraction patterns is also included to illustrate the methods.

Prerequisite: ESG 332
Fall, 3 credits

ESM 327 Solid Crystal Surfaces

Description and explanation of the experimental methods currently used for the study of solid crystal surfaces. Introduction to two-dimensional crystallography. Discussion of the atomic structure of surfaces of metals, semiconductors, and insulators. Studies of the electronic structure, surface states, surface defects, and of absorption/desorption processes.

Prerequisite: ESG 281 or PHY 251
Spring, alternate years, 3 credits (not offered in 1989-90)

ESM 335 Introduction to Polymers

An introductory survey of the physics, chemistry, and technology of polymers. The topics covered include classification of polymers, molecular forces and bonds, structure of polymers, measurement of molecular weight and size, rheology and mechanical properties, thermodynamics of crystallization, polymerization mechanisms, and commercial polymer production and processing.

Prerequisite: ESG 332
Fall, 3 credits

ESM 336 Electronic Materials

The properties of intrinsic and extrinsic semiconductors are discussed with particular attention first to the equilibrium distribution of electrons in the bands and then to the non-equilibrium transport of charge carriers. The properties and applications of photoconductors and of luminescent materials are then described. The concept of stimulated emission is introduced, laser operation explained, and laser materials discussed in relation to their applications in science and technology. Other topics considered are the properties of magnetic materials, of dielectric materials, and of superconductors.

Prerequisite: ESG 333
Fall, 3 credits

ESM 337 Dielectric and Magnetic Materials

A survey of the properties of dielectric and magnetic materials pertinent to their application in modern technology. Emphasis is given to the practical material parameters that determine their uses.

Prerequisite: ESM 336
Spring, 3 credits

ESM 347 Physical Chemistry of Metal-Gas and Metal-Liquid Interfaces

The behavior and chemical properties of solid-gas and solid-liquid interfaces. Adsorption and the specific factors influencing (a) heterogeneous catalysis on gas-solid interfaces and (b) oxidation and reduction processes at metal-liquid interfaces are described. Examples are drawn from industrial processes to describe these effects. Crosslisted with CHE 347.

Prerequisites: CHE 302; PHY 102 or 106
Spring, 3 credits

ESM 351 Materials in Medical and Dental Sciences

A thorough survey of the uses of materials in the medical and dental sciences. Current research and the problems encountered in each area are reviewed. Topics include general consideration of materials requirements; corrosion and wear under physiological conditions; mechanical stress; interaction of materials with blood and the problems of clotting; transport of biological substances through membranes; application to the development of artificial arteries, hearts, heart valves, oxygenators, kidneys, and other organs; bone and dental implants.

Prerequisite: Permission of instructor
Spring, 3 credits

ESM 352 Materials in Energy Conversion

The efficiency of energy conversion devices is limited by the availability and properties of essential materials. The use of materials in energy conversion systems is examined, with emphasis on advanced devices such as magnetohydrodynamics, thermoelectrics, thermionic devices, solar energy converters, and fuel cells. The way in which materials properties influence device capability is analyzed, and factors controlling energy output and conversion efficiency are explained. Materials problems in energy storage systems are examined.

Prerequisite: ESG 332 or 333
Spring, 3 credits

ESM 355 Materials and Processes in Manufacturing Design

The design of mechanical and electrical systems, materials selection, and fabrication processes are surveyed and shown to be essential components of manufacturing engineering. The mechanical and thermal processing of a wide range of metallic and nonmetallic materials is reviewed. Modern computer-based materials selection, advanced processing methods, and automation are explored.

Prerequisite: ESG 332 or 333
Spring, 3 credits

ESM 475 Undergraduate Teaching Practicum

Students assist the faculty in teaching by conducting recitation or laboratory sections that supplement a lecture course. The student receives regularly scheduled supervision from the faculty instructor. May be used as an open elective only and repeated once.

Prerequisites: Senior standing as an undergraduate major within the College; a minimum grade point average of 3.0 in all Stony Brook courses and the grade of B in the course in which the student is to assist; permission of department
Fall and Spring, 3 credits

ESM 499 Research in Materials Science

An independent research project with faculty supervision. Permission to register requires a B average in all engineering courses and the agreement of a faculty member to supervise the research. May be repeated, but only three credits of research electives (AMS 487, CSE 487, ESE 499, ESM 499, ESC 499, EST 499) may be counted toward technical elective requirements.

Fall and Spring, 3 credits

Department of Mechanical Engineering

Chairperson: Alan S. Kushner
Undergraduate Program Director:
Jane Lee Fox

Faculty

Abraham L. Berlad, Professor Emeritus, Ph.D., Ohio State University: Combustion; energy technology.

John Caldwell, Adjunct Associate Professor, Ph.D., University of Wisconsin: Astronomy.

Robert D. Cess, Professor, Ph.D., University of Pittsburgh: Planetary atmospheres; climatory sciences.

Fu-Pen Chiang, Professor, Ph.D., University of Florida: Experimental stress analysis; solid mechanics.

Robert G. Currie, Adjunct Associate Professor, Ph.D., University of California, Los Angeles: Atmospheric sciences.

Aleksander Hac, Assistant Professor, Ph.D., Warsaw University: Dynamics and control.

Jane Lee Fox, Associate Professor, Ph.D., Harvard University: Ionospheric chemistry.

Sultan Hameed, Professor, Ph.D., University of Manchester: Atmospheric physics and chemistry.

Stewart Harris, Professor, Ph.D., Northwestern University: Physics of fluids; environmental engineering.

Joseph S. Hogan, Associate Professor Ph.D., New York University: Planetary atmospheres; satellite meteorology.

Thomas F. Irvine, Jr., Professor, Ph.D., University of Minnesota: Heat transfer; thermodynamics.

Jakov Karni, Assistant Professor, Ph.D., University of Minnesota: Heat transfer and fluid dynamics.

John Kincaid, Associate Professor and Graduate Program Director, Ph.D., Rockefeller University: Statistical mechanics and thermodynamics.

Alan S. Kushner, Professor, Ph.D., University of Maryland: Solid and computational mechanics.

Richard S.L. Lee, Professor, Ph.D., Harvard University: Suspension flow; fire research; bio-fluid mechanics.

Moez Mayourian, Assistant Professor, Ph.D., Columbia University: Kinematics and mechanisms design.

Toshio Nakamura, Assistant Professor, Ph.D., Brown University: Solid mechanics; computational fracture mechanics.

Edward E. O'Brien, Professor, Ph.D., The Johns Hopkins University: Fluid mechanics; chemically reactive flows; turbulence.

Jahangir Rastegar, Assistant Professor, Ph.D., Stanford University: Mechanical design.

George Stell, Professor, Ph.D., New York University: Thermodynamics; statistical dynamics.

James Tasi, Professor, Ph.D., Columbia University: Mechanics of solids.

Prasad Varanasi, Professor, Ph.D., University of California, San Diego: Planetary spectroscopy.

Michael D. Walker, Assistant Professor, Ph.D., The Johns Hopkins University: Experimental fluid mechanics; turbulence instrumentation.

Lin-Shu Wang, Associate Professor, Ph.D., University of California, Berkeley: Thermodynamics.

Ching H. Yang, Professor, Ph.D., Lehigh University: Structural design; energy technology; combustion theory.

Adjunct Faculty

Estimated number: 5

Teaching Assistants

Estimated number: 21

Mechanical engineering is a broad discipline with its roots in the Industrial Revolution. It is characterized by such subjects as mechanics, heat transfer, energy conversion, power generation, design, and manufacturing. The technical bases for these areas include all of the engineering sciences, especially solid mechanics, fluid mechanics, thermodynamics, and kinematics. Considerable expertise in both analysis and synthesis is required of the student. Analytical and computational skills are fostered by course requirements in science and mathematics; proficiency in synthesis is developed through a sequence of design courses, experimental laboratories, and a yearlong senior project.

Today's engineer almost certainly needs to have a knowledge of economics and the life sciences and to apply his or her expertise in the solution of socio-humanistic problems. Provision is made in the curriculum for courses and project work in these areas. The mechanical engineer must be flexible and individualistic. Careers may involve many of the following activities in almost any existing industry from aeronautics and automobiles to pharmaceuticals and textiles; research, development, design, testing, manufacturing, marketing, and administration. The curriculum includes technical electives from which the student can choose the specialty or specialties most suited to his or her career objectives.

Requirements for the Major in Mechanical Engineering

The major in mechanical engineering leads to the Bachelor of Engineering degree. The following courses are required:

	<i>Credits</i>
A. Engineering Concentration Requirements:	
1. Mathematics: MAT 131, 132 or 141, 142 or 125, 126, 127, 221, and AMS 361	15
2. Sciences: PHY 101, 102 or 105, 106 PHY 251 or ESG 281 CHE 131 or 141 CHE 133 or 143	17
3. Computer Science: CSE 111 or 114	3
4. Drawing: ESC 202 Technical Drawing	3
5. Laboratories: ESG 211, 312, 317	8
6. Mechanics: ESG 260 Engineering Statics ESG 262 Engineering Dynamics ESG 301 Thermodynamics ESG 363 Mechanics of Solids ESG 364 Introduction to Fluid Mechanics ESC 305 Heat and Mass Transfer ESC 398 Thermodynamics II	3 3 4 4 4 3 3
7. Materials Science: ESG 332 Structure and Properties of Materials	4
8. Electrical Sciences: ESG 271 Electrical Sciences I	4
9. Engineering Synthesis and Design: Satisfied through the project phase of ESC 310, 410, 440, and 441	12
B. Technical Electives: Central to the engineering curriculum is concentrated study to achieve a depth of under- standing of one or more of the engineering disciplines. Of the 15 required credits of technical electives, at least nine credits must be from courses listed below under either (1) or (2) or both. ESC 499 (for a maximum of three credits) may also be used. Of the nine credits at least three credits must be from courses marked with an asterisk (*), which are the designated mechanical engineering design electives. The remaining six credits of technical electives may be chosen from technical electives offered by Mechanical Engineering or other College of Engineering and Applied Sciences departments.	

Other approved technical elective courses may be added to the list from time to time.

1. Structural Analysis and Design: ESC 330, 342, 355, 381, 383, 411*, 412*
2. Power and Energy Systems: ESC 323, 328, 350, 360, 363*, 393, 394, 395, 397.

C. Upper-Division Writing Requirement:	15
All degree candidates must demonstrate skill in written English at a level acceptable for mechanical engineering majors. The ESC student must register for the writing course ESC 300 concurrently with ESG 317 and submit two final reports written for ESG 317. Students whose writing does not meet the required standard will be referred for remedial help. Detailed guidelines are provided by the department. If the standard of writing is judged acceptable, the student will receive an S grade for ESC 300, thereby satisfying the requirement.	0
Total	105

Grading

All students must obtain a 2.0 average for the following courses: ESG 260, 262, 301, 317, 363, 364; ESC 305, 310, 398, and 410. All courses taken to satisfy requirements A and B must be taken for a letter grade.

Sample Course Sequence in the Mechanical Engineering Major

Freshman	Credits
<i>Fall</i>	
MAT 131	4
PHY 101	4
EGC 101	3
H/FA Core Course	3
S/BS Core Course	3
Total	17
<i>Spring</i>	
MAT 132	4
PHY 102	4
CSE 111	3
ESC 202	3
H/FA or S/BS Core Course	3
Total	17

Sophomore

<i>Fall</i>	
MAT 221	3
ESG 281 or PHY 251	4
CHE 131	4
CHE 133	1
ESG 260	3
Total	15

<i>Spring</i>	
AMS 361	4
ESG 211	2
ESG 271	4
ESG 363	3
ESG 262	3
Total	16

Junior

<i>Fall</i>	
ESG 312	3
ESG 301	4
ESG 364	4
ESG 332	4
H/FA or S/BS Core Course	3
Total	18

<i>Spring</i>	
ESG 317	3
ESC 300	0
ESC 305	3
ESC 310	3
ESC 398	3
NS or S/BS Category B Core Course	3
Total	15

Senior

<i>Fall</i>	
ESC 440	3
ESC 410	3
Technical elective	3
Technical elective	3
Technical elective (design)	3
Total	15

<i>Spring</i>	
ESC 441	3
Technical elective	3
Technical elective	3
H/FA or S/BS Core Course that satisfies Study of Another Culture	3
Open elective	3
Total	15

Courses

See p. 186, Restrictions on Credits and Course Prerequisites, and p. 187, Course Numbers.

ESC 102 Weather and Climate

Introduces the nature and causes of common meteorological phenomena, severe weather occurrences, and climatic patterns. Topics include formation and movement of air masses and large-scale storms; techniques for weather prediction; weather satellites; hurricanes, tornadoes,

and thunderstorms; cloud and precipitation types; the climatic history of the earth; actual and potential effect of human activities on weather and climate, and of weather and climate on humans. Crosslisted with ATM 102. An open elective.

Fall, 3 credits

ESC 202 Fundamentals of Technical Drawing

Undertakes a thorough study of basic rendering techniques and skills required for technical drawing, including orthographic axonometric projections, rotations, and perspective. Drafting techniques such as line quality, lettering, and accuracy are emphasized. The final four weeks consist of an individual project that reflects the student's interests and reinforces the material taught in the course.

Fall and spring, 3 credits

ESC 205 Introduction to Atmospheric Science

The nature and causes of atmospheric phenomena. Basic physical and chemical processes and energetics. Atmospheric thermodynamics, hydrostatics, dynamics, kinematics. Atmospheric wind systems and pressure patterns, clouds and precipitation, severe storms. Crosslisted with ATM 205. An open elective.

Prerequisites: PHY 101 or 105; MAT 126 or 131 or 141

Spring, 3 credits

ESC 300 Writing in Mechanical Engineering

See Requirements for the Major in Mechanical Engineering, Upper-Division Writing Requirement. Satisfactory/Unsatisfactory grading only.

Prerequisites: ESC major; upper-division standing

Corequisite: ESC 317

Spring, 0 credits

ESC 305 Heat and Mass Transfer

The fundamental laws of momentum, heat and mass transfer, and the corresponding transport coefficients. Principles of steady-state and transient heat conduction in solids are investigated. Laminar and turbulent boundary layer flows are treated, as well as condensation and boiling phenomena, thermal radiation, and radiation heat transfer between surfaces. Applications to heat transfer equipment are covered throughout the course.

Prerequisites: ESC 301 and 364

Spring, 3 credits

ESC 310 Machine Design I

Fundamental concepts of mechanisms; degrees-of-freedom; linkages; position; velocity and acceleration analysis including graphical, analytical, and numerical solutions; force analysis; balancing; gear trains; cam design; flywheel design.

Prerequisites: CSE 111; ESG 262

Spring, 3 credits

ESC 323 Combustion

Lectures and laboratory work introduce the fundamentals of combustion processes: combustion theory; experimental properties of the ignition, quenching, propagation, and stability of

flames; explosions and detonations; combustion processes and air pollution; radiative properties of flames; dust explosions. Applications are to modern systems.

Prerequisite: ESG 301
Fall, 3 credits

ESC 328 HVAC and Energy Conservation
Engineering performance; efficiency; and applications of heating, ventilating, and air conditioning technology. Relation of energy conversion and storage systems to energy conservation in the home, commerce, industry, and transportation.

Corequisite: ESG 301
Spring, 3 credits

ESC 330 Structural Analysis

Structural stability. Statistically determinate and indeterminate structures. Analysis of trusses and frames in two dimensions. Displacement of structures using the method of virtual work. Method of superposition for analyzing statically indeterminate structures. Computer projects using matrix analysis for determinate and indeterminate trusses. Three-moment equation. Introduction to finite element analysis.

Prerequisites: ESG 363; CSE 111
Fall, alternate years, 3 credits (not offered in 1990-91)

ESC 342 Introduction to Experimental Stress Analysis

The concepts of three-dimensional stress and strain, their transformation laws, and their mutual relationships are discussed in detail. Results from theory of elasticity as pertinent to experimental stress analysis are also presented. Experimental techniques studied include two-dimensional photoelasticity, resistance strain gauge, moiré method, brittle coating, and analog methods. The application of different techniques to the measurement of stress and strain in models as well as actual structures is demonstrated. Students form small groups and each group is assigned different laboratory projects to gain experience in various experimental stress analysis methods.

Prerequisite: ESG 363
Fall, 3 credits

ESC 343 Planetary Atmospheres

An introduction to the origin, evolution, and current chemical and physical structures of the atmospheres of planets and satellites in the solar system. Topics include the thermal structure of atmospheres, atmospheric regions, interaction of atmospheres with the surfaces of planets, atmospheric escape, luminosity, and neutral and ionospheric chemical reactions. Contributions of space probes and satellite data to the understanding of planetary atmospheres are discussed. Crosslisted with ATM 343.

Prerequisites: PHY 252; CHE 131
Spring, alternate years, 3 credits (not offered in 1990-91)

ESC 345 Theoretical Meteorology

An introduction to the quantitative interpretation of the thermal and dynamical structure of planetary atmospheres. Topics to be covered include hydrostatic equilibrium, hydrostatic stability and convection, solar and terrestrial radiation, the atmospheric equations of motion for a rotating

planet, and atmospheric energy relationships and general circulation. Crosslisted with ATM 345.

Prerequisite: ESC/ATM 205
Fall, alternate years, 3 credits (not offered in 1990-91)

ESC 346 Dynamic Meteorology

Introduction to the structure and dynamics of the large-scale atmospheric motions that are responsible for weather and climate. Topics include principles of fluid dynamics; Coriolis force, geostrophic equilibrium, and the Proudman-Taylor theorem; circulation and vorticity; baroclinic instability, cyclogenesis, frontogenesis, and the weather systems; climate and the general circulation of the atmosphere. Crosslisted with ATM 346.

Prerequisite: ESC/ATM 205
Fall, 3 credits

ESC 348 Atmospheric Physics

An investigation of the relation between atmospheric phenomena and the nature of matter as expressed in the principles of physics. Topics studied include gravitational effects, thermodynamic properties of atmospheric gases, formation and growth of cloud particles, atmospheric electricity, solar and terrestrial radiation, atmospheric signal phenomena, atmospheric motions, and heat and mass transfer in the atmosphere. Crosslisted with ATM 348.

Prerequisite: PHY 102 or 106
Spring, alternate years, 3 credits (not offered in 1989-90)

ESC 350 Alternate Energy Technologies

An overview of the principles, technology developments, and applications of energy sources other than fossil or nuclear fuels, with emphasis on solar and wind energy. The approach is from a point of view of basic thermodynamics, effective use of given alternate energy technologies matched to appropriate tasks, and related economic considerations. Specific areas of study include solar hot water, active and passive solar heating and cooling systems, photovoltaics, types of wind generators and their conversion systems, and heat pumps. Selected topics in areas such as energy conservation, transportation, hydropower, or bio-mass are also surveyed as appropriate.

Prerequisite: ESG 301
Fall, alternate years, 3 credits (not offered in 1990-91)

ESC 355 Applied Stress Analysis

A study of structures with emphasis on internal stress analysis. A review of concepts of stress, deformation, and material behavior under various stress conditions. Introduction to the theories of elasticity and plasticity. Principles of virtual work and minimum energies and their application in structured analysis. Torsion and plane problems of elasticity and initiation of plastic flow. Analysis of plates weakened by a hole or crack.

Prerequisite: ESG 363
Spring, alternate years, 3 credits (not offered in 1989-90)

ESC 360 Numerical Solutions to Engineering Problems

Consideration of numerical methods used to solve differential and integral equations frequently encountered in engineering analysis and design. Finite difference and finite element formulations are examined as well as the solutions

of systems of linear algebraic equations by matrix and iteration techniques. Examples are drawn from fluid mechanics, electricity, elasticity, thermodynamics, and heat transfer. Students solve a number of computer problems as semester projects.

Prerequisite: ESC 305
Spring, 3 credits

ESC 363 Elements of Aircraft Design

As an introduction to aerodynamics, performance, and stability and control, the generation of life forces and calculations of aerodynamic forces in two- and three-dimensional subsonic flows are studied. Typical airplane performance problems of range, endurance, rate of climb, etc. are also covered.

Prerequisite: ESG 364
Spring, alternate years, 3 credits (not offered in 1990-91)

ESC 381 Mechanical Vibrations

The dynamic response of engineering structures is studied for steady state and transient load conditions. Topics studied are single degree of freedom system; multi-degree of freedom system with normal coordinates; dynamic response of elastic strings, rods, and beams to mechanical loading; and effect of viscoelastic behavior.

Prerequisite: ESG 363
Spring, alternate years, 3 credits (not offered in 1990-91)

ESC 393 Engineering Fluid Mechanics

The application of the principles of fluid mechanics to important areas of engineering practice such as turbomachinery, hydraulics, and wave propagation. Prepares students for advanced coursework in fluid dynamics. Extends the study of viscous effects, compressibility, and inertia begun in ESG 364.

Prerequisite: ESG 364
Spring, 3 credits

ESC 394 Fluids and Heat Transfer Laboratory

Students experimentally investigate the behavior of fluids in situations that have proven to be seminal in the development of fluid dynamics. Experiments are undertaken on air or water flow over submerged objects, through jets and nozzles in a channel, and through non-isothermal systems.

Prerequisites: ESG 317; ESC 305
Corequisite: ESG 364
Fall, 3 credits

ESC 395 Jet Propulsion Systems

Basic principles of operation and performance of jet propulsion systems (air breathing and rocket). Analysis of flow-through rotating machines, combustors, inlets, and nozzles. Component matching. Circle analysis of turbojet, turbofan, and ramjet engines. Liquid and solid propellant rockets.

Prerequisites: ESG 301 and 364
Spring, alternate years, 3 credits (not offered in 1989-90)

ESC 397 Air Pollution and Its Control

A detailed introduction to the causes, effects, and control of air pollution. The pollutants discussed include carbon monoxide, sulfur oxides, nitrogen oxides, ozone, hydrocarbons, and particulate matter. The emissions of these gases from

natural and industrial sources and the principles used for controlling the latter are described. The chemical and physical transformations of the pollutants in the atmosphere are investigated and the phenomena of urban smog and acid rain are discussed. Crosslisted with ATM 397.

Prerequisites: PHY 102 or 106; CHE 131 or 141; upper-division standing
Fall, 3 credits

ESC 398 Thermodynamics II

Review of the fundamentals of thermodynamics. Applications of thermodynamics to the analysis of power cycles including Rankine cycles, internal combustion engines, turbojets, and rockets. Consideration of refrigeration cycles including heat pumps. Discussion of combustion, chemical equilibrium, and alternative energy systems.

Prerequisite: ESC 301
Spring, 3 credits

ESC 410 Machine Design II

Applied stress analysis; theories of failure for structural elements and machine components; study of the fundamental principles of design as applied to mechanical components such as bearings, gears, shafting, springs, screws, belts, clutches, and brakes under both static and dynamic loading.

Prerequisites: ESC 310; ESG 363
Fall, 3 credits

ESC 411 System Dynamics and Control

Differential equations for physical systems and their solutions; Laplace transformations; block diagram and transfer function; system response; system analysis and stability; system compensation and design.

Prerequisite: MAT 221
Fall, 3 credits

ESC 412 Computer-Aided Design

Application of computers to solution methods in engineering. Discusses numerical, optimization, and finite element methods. Includes hands-on experience on CAD workstations, CAD software packages for automated drafting solid modeling, system modeling, and static and dynamic finite element analysis.

Prerequisites: ESC 202; AMS 361; ESG 363
Spring, 3 credits

ESC 440 Engineering Design I

Lectures by faculty and visitors on typical design problems encountered in engineering practice. During this semester each student will choose a senior design project for Engineering Design II. A preliminary design report is required. Not counted as a technical elective.

Prerequisites: ESC 312, 317; CSE 111 or 114; ESC major; senior standing
Fall, 3 credits

ESC 441 Engineering Design II

Student groups carry out the detailed design of the senior projects chosen during the first semester. A final and detailed design report must be prepared. Not counted as a technical elective.

Prerequisites: ESC 440; ESC major; senior standing
Spring, 3 credits

ESC 475 Undergraduate Teaching Practicum

Students assist the faculty in teaching by conducting recitation or laboratory sections that supplement a lecture course. The student receives

regularly scheduled supervision from the faculty instructor. May be used as an open elective only and repeated once.

Prerequisites: Senior standing as an undergraduate major within the College; a minimum grade point average of 3.0 in all Stony Brook courses and the grade of B in the course in which the student is to assist; permission of department
Fall and spring, 3 credits

ESC 499 Research in Mechanics

An independent research project with faculty supervision. Permission to register requires a B average in all engineering courses and the agreement of a faculty member to supervise the research. May be repeated, but only three credits of research electives (AMS 487, CSE 487, ESE 499, ESM 499, ESC 499, EST 499) may be counted toward technical elective requirements.
Fall and spring, 3 credits

Department of Technology and Society

Chairperson: Thomas T. Liao
Undergraduate Program Director: David L. Ferguson

Faculty

Abram B. Bernstein, Visiting Associate Professor, Ph.D., University of Washington: Natural and technological hazards; science, technology, and public policy.

John C. Bierworth, Stony Brook Professor, J.D., Columbia University: Foreign affairs; management; ethics; environment.

David L. Ferguson, Associate Professor, Ph.D., University of California, Berkeley: Quantitative methods; computer applications; intelligent tutoring systems; mathematics and engineering education.

Arthur Gilmore, Lecturer and Graduate Program Director, M.S., University of Colorado: Aeronautical engineering; engineering economics.

Thomas T. Liao, Professor, Ed.D., Columbia University: Science education; educational technology; curriculum development.

Susan Moger, Lecturer and Director of Technical Writing Center, M.A.T., Wesleyan University: Technical writing; writing across the curriculum; curriculum development; fire protection technology.

Lester Paldy, Professor, M.S., Hofstra University: Physics; science policy and education.

Emil J. Piel, Professor Emeritus, Ed.D., Rutgers University: Technology and society issues; decision making; curriculum development.

Sheldon J. Reaven, Associate Professor, Ph.D., University of California, Berkeley: Energy-environmental issues; waste management; philosophy of science and technology.

John G. Truxal, Distinguished Teaching Professor, Sc.D., Massachusetts Institute of Technology: Technology and society issues; automatic control systems.

Marian Visich, Jr., Professor, Ph.D., Polytechnic Institute of Brooklyn: Technology and society; space mechanics; aerospace propulsion.

Adjunct Faculty:

Estimated number: 8

Teaching Assistants:

Estimated number: 7

The department focuses on the environmental and societal impacts of technological innovation from the viewpoint of the engineer, and also on the engineering concepts that underlie technological change and form the bridge from engineering to the other intellectual disciplines. Through these activities, the department also provides one of the vehicles through which Stony Brook interacts with other universities and colleges, pre-college institutions, and professional schools.

Physical Facilities

Computing facilities are maintained through the university's Computing Center mainframe as well as by the Department of Technology and Society. The department's facilities include 50 microcomputers, primarily networked IBM personal computers and Apple Macintosh workstations. A laboratory for personal computers is available to students working on course-related or independent research projects.

The Technical Writing Center

The department's Technical Writing Center offers students one-to-one counseling in all stages of writing. Tutors help students to identify their own strengths and weaknesses as writers and provide them with strategies for overcoming writer's block; to organize specific writing assignments (such as laboratory reports, research papers, design projects, journal articles, and resumes); and to clarify and polish final drafts. The Technical Writing Center cooperates closely with the English Department's Writing Center.

The Minor in Technology and Society

The department offers two versions of the minor in technology and society. Students should arrange for an interview with the faculty of the department at the time they submit their application to enter either program to discuss the requirements listed below.

The minor for students with majors leading to the B.A. or B.S. degree may be fulfilled by satisfactorily completing six courses:

1. At least four EST courses.
2. Two other College of Engineering and Applied Sciences courses approved by the undergraduate program director.
3. At least three of the six courses must be at the 300 level or above.
4. A 2.5 grade point average must be attained in the six courses.

The minor for students with majors leading to the B.E. degree may be fulfilled by satisfactorily completing six courses:

1. Four EST courses. An EST technical elective cannot be used to satisfy both this requirement and a major in the College of Engineering and Applied Sciences.
2. Two courses not offered by the College of Engineering and Applied Sciences and approved by the undergraduate program director. These could include SOC 315 Sociology of Technology; PHI 364 Philosophy of Technology; PHI 368 Philosophy of Science. AMS 331 Mathematical Modeling is the only exception to the rule.
3. At least three of the six courses must be at the 300 level or above.
4. A 2.5 grade point average must be attained in the six courses.

Courses

See p. 186, Restrictions on Credits and Course Prerequisites, and p. 187, Course Numbers.

EST 100 Societal Impact of Computers

A critical assessment of the role that computing and data processing play in contemporary society. Following an introduction to the information management capabilities that automation can provide, a study will be made of economic, legal, and moral issues involved in the utilization of these capabilities. Crosslisted with CSE 100.
Fall and spring, 3 credits

EST 191 Introduction to Technology Assessment (Issues, Methods, and Cases)

Multidisciplinary study of the environmental, economic, scientific, engineering, social, and ethical impacts of a technology, and of policy options for controlling them. Each class, often working as a research team and visiting area facilities, concentrates on one or two topics such as plastics and the environment, nuclear power plants, computers and privacy, recycling on Long Island, or the ozone layer and global climate.
Spring, 3 credits

EST 192 Introduction to Modern Engineering

Familiarizes students with systems and decision-making concepts of modern engineering and technology. The conceptual areas to be studied include an engineering approach to problem

solving and design, modeling of dynamic systems, and technology assessment. The artificial heart program, solar energy technology, and building access for the handicapped are some of the sociotechnological case studies that are used.

Fall, 3 credits

EST 194 Patterns of Problem Solving

A survey of techniques and methods of problem solving as developed by the engineer and applied scientist. Applications drawn from a broad range of fields. Primarily intended for non-engineering majors. Crosslisted with AMS 194.
Spring, 3 credits

EST 290 Technology, Society, and Values: Balancing Risks and Rewards

An examination of the mechanisms by which society balances risks and benefits of new technologies. The course addresses the nature of science, engineering, and technology; the progression from new scientific discoveries to new technological capabilities; the ways in which individuals and institutions draw attention to technological risks; the challenge of protecting the public from risky technologies while promoting new industries; and the roles of scientists and engineers in legal and regulatory proceedings. A Core Course satisfying Natural Sciences Category B.

Prerequisite: One Natural Sciences Category A course
Spring, 3 credits

EST 291 Energy, Environment, and People

Case studies selected from topics such as radioactive wastes; Long Island's toxic wastes; Shoreham; Chernobyl, and nuclear safety; agriculture and the environment; and global resources. The course emphasizes the interplay between scientific and engineering considerations and human values and institutions. A Core Course satisfying Natural Sciences Category B.
Prerequisites: Two Natural Sciences Category A courses (except those designated ANP); any AMS course numbered 102 or higher or any MAT course numbered 120 or higher
Fall, 3 credits

EST 300 Microcomputers in Science and Mathematics for Educators

Effective interactive learning approaches include the use of computer simulations, microworlds, problem solving via programming, computer-assisted science laboratories, and applications courseware. Course also involves study of design and evaluation techniques. Primarily designed for future secondary science and mathematics teachers, the focus of this course is on the use of microcomputers in classrooms and laboratories.

Prerequisite: EST/CSE 100
Spring, 3 credits

EST 305 Applications Software for Information Management

Introduction to the role of applications software in various types of organizations with emphasis on methods of formulating the requisite information flows to engender adequate communications, operation, and control. The importance of auditability, maintainability, and recoverability in systems design is stressed. Provides students

with knowledge of basic techniques and elementary skills in representing system structure with application of the principles in practical case studies using spreadsheet and database software. Extensive interaction with applications software reinforces concepts presented.

Prerequisite: EST/CSE 100
Fall and spring, 3 credits

EST 310 The Exploration of Space

The basic engineering and scientific concepts of the exploration of space. The main topics covered include the role of man in space and space exploration. The course is primarily intended for non-engineering students.

Prerequisite: One year of college mathematics; upper-division standing
Fall, 3 credits

EST 320 Cybernetics

The basic concepts of cybernetics: control and communication in machines and people. The four principal topics are signals in electronic systems; sensors for signal detection and modification; communication with machines and people; and automatic feedback control, including automation and natural systems. The course is designed primarily for non-engineering students. A Core Course satisfying Natural Sciences Category B.

Prerequisites: MAT 120; one Natural Sciences Category A course
Fall, 3 credits

EST 330 Natural Disasters: Societal Impacts and Technological Solutions

A study of the physical causes of natural disasters; their societal impacts in developed and developing nations; the use of engineering, architecture, and regional planning to reduce vulnerability and loss; and the institutional mechanisms, both domestic and international, for providing cross-cultural technology transfer and post-disaster assistance. Case studies of disasters in a number of countries are included. A Core Course satisfying Natural Sciences Category B.
Prerequisites: Upper-division standing; one Natural Sciences Category A course
Fall, 3 credits

EST 360 Science, Technology, and Arms Control

A study of the application of scientific technology to national defense covering nuclear weapons and delivery systems, chemical and biological weapons, conventional weapons systems, defense research and development, arms control and disarmament negotiations, and international technology transfer. Crosslisted with POL 361. A Core Course satisfying Natural Sciences Category B.

Prerequisites: Upper-division standing; one Natural Sciences Category A course
Fall, 3 credits

EST 370 Nuclear Proliferation: Technology and Politics

The proliferation of nuclear technology employable for both peaceful and military purposes, the threat it poses to world political and military stability, and the responses made by governments

and international organizations. The topic requires the ability to read a diverse array of technical material for which students will need background in both physical and social sciences. Crosslisted with POL 370. A Core Course satisfying Natural Sciences Category B.
Prerequisite: EST 360/POL 361
Spring, 3 credits

EST 390 Communication Skills in Engineering and Applied Science

Considers writing and speaking skills essential in business and the professions with strong emphasis on presenting technical material to non-technical audiences such as managers, salespeople, and consumers. Students learn to tailor material to specific audiences and to write memoranda, letters, and resumes, as well as technical descriptions, short reports, and proposals. Includes oral presentations and participation in group discussions and simulations.

Prerequisites: Satisfaction of the Lower-Division Writing Requirement; CEAS major; upper-division standing

Fall and spring, 3 credits

EST 392 Engineering and Managerial Economics

Applications of fundamental economics principles and systems analysis to problems of planning and design in manufacturing or service sectors of industry. Includes the time value of money, analysis of various types of cash flows, development of rate of return, and benefit-to-cost ratios in their use to evaluate competing investment programs. The role of depreciation and investment tax credits on the level of corporate taxation leading to the determination of after-tax rates of return.

Prerequisite: Upper-division standing in a CEAS or economics major
Fall, 3 credits

EST 393 Production and Operations Analysis

Development of analytical techniques useful in supplying information for planning purposes in the manufacturing and service sectors. Introduction to mathematical modeling of production, inventory, distribution, and service systems using linear programming, network, and probabilistic methods. Applications of forecasting and materials requirements planning in the development of resources to meet anticipated needs. Practical, real-life case studies are used throughout with appropriate familiarization with computer uses in problem solving and simulation.

Prerequisites: Upper-division standing; ESC or ESE or ESG major
Spring, 3 credits

EST 420 Seminar on Information-Age Society

The characteristics and current trends in telecommunication technology. The communication infrastructure of a major urban area leads to the study of interactive cable television, computer generation of speech, and industrial and governmental applications. On a national scale, satellite and fiber-optic communications are considered with both civilian and military implications.

Prerequisite: EST 320

Fall or spring, 3 credits

EST 475 Undergraduate Teaching Practicum

Students assist the faculty in teaching by conducting recitation or laboratory sections that supplement a lecture course. The student receives regularly scheduled supervision from the faculty instructor. May be used as an open elective only and repeated once.

Prerequisites: Senior standing in the College; a minimum grade point average of 3.0 in all Stony Brook courses and a grade of B in the course in which the student is to assist; permission of department

Fall and spring, 3 credits

EST 499 Research in Technology and Society

An independent research project with faculty supervision. Permission to register requires a B average in all engineering courses and the agreement of a faculty member to supervise the research. May be repeated, but only three credits of research electives (AMS 487, CSE 487, ESE 499, ESC 499, ESM 499, EST 499) may be counted toward technical elective requirements.

Fall and spring, 3 credits

Technology and Society Courses Approved as Engineering Technical Electives

EST 392 Engineering and Managerial Economics

EST 393 Production and Operations Analysis

EST 499 Research in Technology and Society (no more than three credits)

W. Averell Harriman School for Management and Policy



Faculty

Stanley M. Altman, Associate Professor, Ph.D., Polytechnic Institute of Brooklyn: Analytic methods; evaluation of public agencies.

John C. Bierworth, Stony Brook Professor, J.D., Columbia University: Foreign affairs; management; ethics; environment.

Charles M. Cameron, Assistant Professor, Ph.D., Princeton University: Policy analysis; American politics and policy; political economy.

T. Owen Carroll, Associate Professor, Ph.D., Cornell University: Analytic methods; energy policy; social policy. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1974.

Jeff T. Casey, Assistant Professor, Ph.D., University of Wisconsin: Organizational behavior; experimental methods.

Tammy Rae Feldman, Assistant Professor, Ph.D., Harvard University: Comparative management; organizational decision making; business and government economics of regulation; industrial organization.

Mel Hinich, Professor, Ph.D., Stanford University: Statistics and finance.

Joseph Kaldor, Associate Professor, part time, LL.M., New York University: Business policy and law.

Lee E. Koppelman, Professor, D.P.A., New York University: Regional planning; energy policy; local government and intergovernmental relations.

George Pidot, Adjunct Associate Professor, Ph.D., Harvard University: Using computers to solve policy problems.

Anne Preston, Assistant Professor, Ph.D., Harvard University: Labor economics.

Mark Schneider, Professor, Ph.D., University of North Carolina at Chapel Hill: Public policy; urban politics.

John Scholz, Associate Professor, Ph.D., University of California, Berkeley: Policy implementation and evaluation; regulation; economic development and comparative policy analysis.

Thomas Sexton, Associate Professor and Director of Graduate Studies, Ph.D., State University of New York at Stony Brook: Operations research and statistics as applied to the field of health care management.

Michael Simon, Professor, Ph.D., Harvard University: Law and management.

Jadranka Skorin-Kapov, Assistant Professor, Ph.D., University of British Columbia: Management science; discrete optimization; nonlinear mathematical programming with applications; artificial intelligence.

Anne Subach, Lecturer, M.B.A., Wharton School of Finance, University of Pennsylvania: Accounting.

Matthew Sobel, Professor, Ph.D., Stanford University: Operations management and stochastic processes.

Paul Teske, Assistant Professor, Ph.D., Princeton University: Political economy; urban politics; regulatory policy.

Harry Weiner, Associate Professor and Director of Sloan Program, S.M., Massachusetts Institute of Technology: Redesign of organizational structure to improve programmatic capabilities.

Joan Weinstein, Lecturer, M.A., University of California, Berkeley: Interpersonal relations and intergroup conflict in large bureaucracies.

Anthony Weston, Assistant Professor, Ph.D., University of Michigan: Ethics.

Gerrit Wolf, Professor, Ph.D., Cornell University: Decision and organizational behavior.

Richard A. Wueste, Adjunct Lecturer, J.D., University of Chicago: Ethics in management.

Glenn Yago, Associate Professor, Ph.D., University of Wisconsin: Industrial and managerial strategies for competitiveness in productivity, employment, and capital markets.

Teaching Assistants

Estimated number: 7

The W. Averell Harriman School for Management and Policy offers undergraduate students a major in business management, a minor in business, and a combined baccalaureate degree in Arts and Sciences or Engineering and Applied Sciences with an M.S. in management and policy. The School provides students with the skills and knowledge for managing business enterprises, as well as for managing nonprofit agencies or public policies in government. In the courses students learn about computers and quantitative decision making, about how organizations work financially, operationally, legally, and behaviorally, and about the functions and strategies organizations play in society.

The Business Management Major

This major provides training in general management for those students who intend to enter the job market directly after receiving their bachelor's degree. Students learn the basic techniques and skills of management that are essential to a modern economy.

Requirements for the Major

The major in business management leads to the Bachelor of Science degree. (Students in this major must complete the same university and college requirements as students in the College of Arts and Sciences.) All courses must be taken for a letter grade. The following courses are required:

	<i>Credits</i>
1. Two courses in data management: AMS 102 Elements of Statistics CSE 110 Introduction to Computer Science	3 3
2. Two courses in modeling for managers: AMS 201 Matrix Methods and Models ECO 348 Analysis for Managerial Decision Making	3 4
3. Two courses in operations management: ECO 214 Managerial Accounting PAM 346 Operations Management	3 3
4. Two courses in money management: ECO 251 Intermediate Microeconomic Theory ECO 389 Corporate Finance	4 3
5. One of the following courses in the management of people: SOC 381 Sociology of Complex Organizations PSY 309 Psychology of Work PSY 313 Organizational Behavior Management PAM 345 Special Topics in Management (appropriate topic only)	3
6. Three courses in strategic management: PAM 440 International Management POL 261 Business Law PAM 441 Business Policy, Formulation, and Administration	3 3 3
7. One of the following two- or three-course elective options:	6-11
a. Finance ECO 368 Modern Portfolio Theory ECO 370 Application and Theory of Financial Markets	
b. Economics and Planning ECO 237 Economics of Industrial and Labor Relations ECO 252 Intermediate Macroeconomic Theory ECO 318 Economics of Manpower Planning	

- c. Forecasting
ECO 252 Intermediate Macroeconomic Theory
ECO 321 Econometrics
ECO 387 Stabilization Policy, Business Cycles, and Forecasting
- d. Public Finance
ECO 326 Economics of American Industry
ECO 383 Public Finance
- e. Public Administration
POL 364 Organizational Decision Making
SOC 381 Sociology of Organizations (if not taken to satisfy requirement 5)
- f. Organizational Theory and Behavior
Two of the following in addition to course chosen to satisfy requirement 5:
SOC 370 Work and the Professions
SOC 383 Sociology of Business
PSY 309 Psychology of Work
PSY 313 Organizational Behavioral Management
SOC/WNS 371 Gender and Work
SOC 381 Sociology of Organizations
PAM 345 Special Topics in Management (appropriate topic only)
- g. Operations Research
AMS 341 Operations Research I: Deterministic Models
AMS 342 Operations Research II: Stochastic Models
- h. Advanced Computer Programming
CSE 301 File Processing
CSE 305 Introduction to Database Systems
- i. Technology and Society
EST 290 Technology, Society, and Values: Balancing Risks and Rewards
EST 392 Engineering and Managerial Economics
- j. International Scene (select one)
 - 1) France
FRN 320 Business French
FRN 390 French Civilization
 - 2) Italy
ITL 320 Business Italian
ITL 390 The Italian Scene
 - 3) Germany
GER 200 *Landeskunde*
GER 231 German for Business and Career

- 4) Spanish America
SPN 303 Practical Spanish
SPN 392 The Culture and Civilization of Spanish America

Total	44-48
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- 8. Upper-Division Writing Requirement:
All degree candidates must satisfy the School that they can communicate ideas in written English. Majors fulfill this requirement by achieving an evaluation of S (Satisfactory) on a portfolio of written work completed for courses in the major that have been taken before the end of the junior year. The portfolio, which must be submitted to the dean's office, must consist of six samples such as letters, memoranda, analyses of problems, short papers, cases, or term papers. A student must receive an S on the portfolio in order to take PAM 441.

Acceptance into the Major

A minimum cumulative grade point average of 3.0 at the completion of the sophomore year is required for acceptance into the business management major, which begins in the junior year. Students must have completed all proficiency and Core Curriculum requirements as well as the prerequisites to courses required for the major before they enter the program. The prerequisite courses (MAT 125, 131, or 141; ECO 101 or 104; SOC 105 or 106 or PSY 103 or 104; POL 102 or 105) must have been passed with a grade of C or higher.

Entering freshmen and other lower-division students may declare the business management area of interest (GBM) to assure that they receive information and advice about preparing for acceptance into the major.

Business Minor

The business minor (BUS) is intended primarily for students who are preparing for careers in business and who are planning to do graduate work in business administration or management. For those students, the minor complements their chosen major by introducing them to principles and techniques used in business and management.

Because graduate schools and employers in business prefer people with experience, students are encouraged to include a semester or summer internship in their undergraduate program.

The requirements for this minor are relatively extensive; they include specific advanced courses in economics, political science, and a choice among several other social sciences; these courses have one or more prerequisites. Students are encouraged to plan the inclusion of this minor within their course selection early in their undergraduate career.

Requirements for the Minor in Business

Credits

- | | |
|--|-------|
| 1. One of the following courses:
AMS 102, 310; CSE 110, 111; ECO 320; PSY 201 (SOC 211, 212 or CSE 113, 114 may be substituted) | 3-4 |
| 2. POL 261 | 3 |
| 3. ECO 114 | 3 |
| 4. ECO 251 | 4 |
| 5. One of the following courses:
SOC 381, 383; PSY 309, 313; POL 364, 366 | 3 |
| 6. ECO 348 | 4 |
| 7. Either PAM 441 or an approved internship to be taken after completion of requirements 1 through 5 | 3 |
| Total | 23-24 |

All courses must be taken for a letter grade.

Baccalaureate/Master's Degree Program in Government, Nonprofit, and Enterprise Management

The Harriman School offers an accelerated program for Stony Brook students, allowing them to combine any Arts and Sciences or Engineering and Applied Sciences major on the undergraduate level with a Master of Science degree program in management and policy having a government, nonprofit, or enterprise management concentration. Enrollment in this five-year program is restricted to students with a grade point average of at least 3.0 and approved coursework.

The admissions process begins with application to the program at the end of the sophomore year. At this time previous coursework is reviewed. The accepted student chooses appropriate courses for the junior year to complement the Harriman curriculum in consultation with a Harriman advisor. The student will then apply to the Harriman School in the spring of the junior year, with admission based on grades over five semesters, Graduate Record Examination scores, and letters of recommendation.

The management curriculum begins with nine graduate courses taken in the senior year and is completed in one additional year with ten more graduate courses.

Further information can be obtained from the publication *Graduate Studies Opportunities* and from the director of graduate studies.

Courses

See p. 60, Course Credit and Prerequisites, and p. 61, Undergraduate Numbering System.

PAM 345 Special Topics in Management

An advanced course treating specific issues in the theory and practice of management. May be repeated for different topics.

Prerequisites: Upper-division standing; permission of dean of the Harriman School

Fall and spring, 3 credits

PAM 346 Operations Management

Analysis and design of manufacturing service systems. Topics include project management, production scheduling, inventory management, quality control, and congestion management.

Prerequisites: AMS 102 and 201; CSE 110; ECO 214 and 348

Fall and spring, 3 credits

PAM 440 International Management

Analysis of how international trade, development, marketing, innovation, and competition influence the productivity and performance of many U.S. firms. Techniques of management in international markets are studied.

Prerequisites: ECO 348 and 389; SOC 381 or PSY 309 or 313 or PAM 345

Fall and spring, 3 credits

PAM 441 Business Policy, Formulation, and Administration (Formerly EST 441)

The problems faced by the general manager in business planning, forecasting, and decision making. Typical case studies relating to establishing objectives and formulating strategies are assigned as a basis for a discussion-oriented class session. Analyses of financial statements, production planning, and organizational structures are involved in arriving at recommendations for action.

Prerequisites: Senior standing; permission of instructor

Fall and spring, 3 credits

PAM 487 Independent Research

A course of study providing opportunities for a student to undertake independently a special project entailing advanced readings, reports and discussion, or research on topics of his or her choosing with the guidance of a faculty member. May be repeated.

Prerequisite: Permission of Harriman School

Fall and spring, 1 to 6 credits

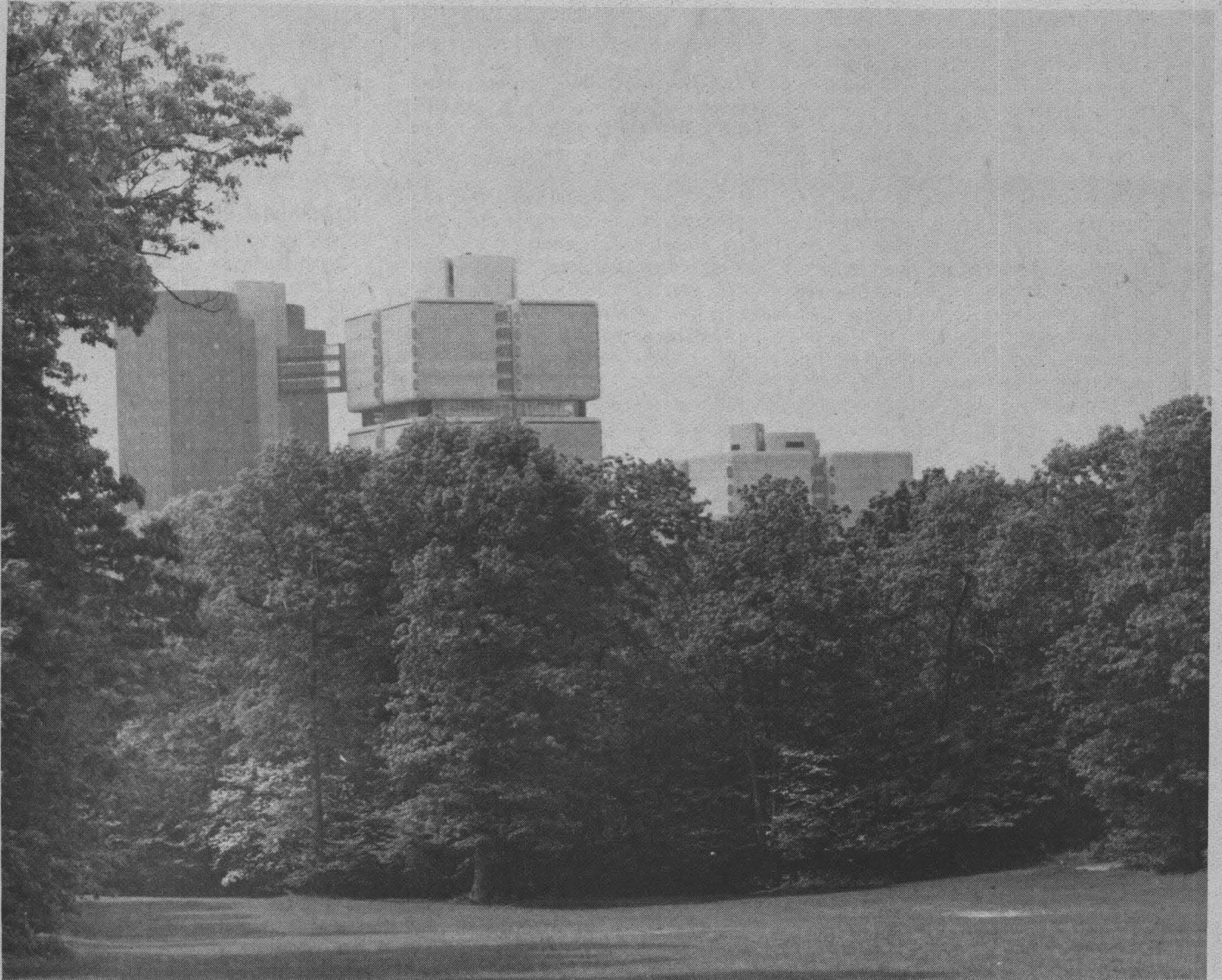
PAM 488 Internship

Participation in local, state, national, or international private enterprises, public agencies, or nonprofit institutions. Students will be required to submit a written proposal, progress reports, and a final written report on their experience to the client, to the faculty sponsor, and to the school. Satisfactory/Unsatisfactory grading only.

Prerequisites: Business management major or business minor; permission of instructor, Harriman School, and Office of Undergraduate Studies

Fall; and spring, 3 to 6 credits

Health Sciences Center



This chapter provides an overview of Stony Brook's Health Sciences Center and lists the courses and minor open to Main Campus students. Complete information about all other Health Sciences Center courses and Health Sciences majors, as well as admission and graduation requirements, is published in the Health Sciences Center Bulletin.

Overview

The Health Sciences Center consists of five professional schools and University Hospital, the major teaching facility for the educational programs of the Center. The schools—Allied Health Professions, Dental Medicine, Medicine, Nursing, and Social Welfare—offer professional education to approximately 1,600 students and conduct programs of research, service, and continuing professional education. Professional, technical, and laboratory resources support the academic activities of the students and faculty.

The Health Sciences Center has four primary objectives. It seeks to increase the supply and proficiency of health professionals in fields of demonstrated regional, state, and national need; to provide health care of sufficient variety and quality to enable professional education and related research to occur; to sustain an environment in which research in health and related disciplines can flourish; and to emerge as a regional resource for advanced education, patient care, and research in broad areas of health.

The nature of the Health Sciences Center calls for close cooperation in the support of the academic, scientific, and administrative functions common to the programs and needs of more than one school. This constitutes an important integrative force in the intellectual life of the Center. Of special importance are the Center-wide activities of the Division of Audiovisual and Classroom Support Services, the Division of Laboratory Animal Resources, the library, and the Office of Student Services.

University Hospital serves the health care needs of the residents of Long Island and provides training for physicians and other health-care professionals. Opened in 1980, the 480-bed hospital uses the very latest in medical knowledge and technologies to meet the needs of its patients. The hospital offers highly specialized services and serves many regional roles. It also provides training for more than 300 medical residents in 29 specialty programs, including general dentistry and the subspecialties of medicine.

While University Hospital provides a hospital teaching environment for students, the Health Sciences Center will continue to utilize the clinical facilities currently being

provided for its students in Long Island hospitals and health agencies that have entered into partnership agreements with the Health Sciences Center.

At present, more than 2,000 skilled professionals from the Long Island region have faculty appointments and participate in the schools of the Center. All Health Sciences Center students, as part of their clinical training or fieldwork, work for a specific time with some of the Long Island health and welfare agencies. Continuing education for many health professions is offered by the schools, as well as courses offered on a non-matriculated basis. The Center also sponsors conferences, workshops, and lectures on major health issues for the general community.

Program Offerings

Current offerings include both undergraduate and post-baccalaureate programs. All undergraduate programs begin in the upper division.

The School of Allied Health Professions offers baccalaureate degree programs in cardiorespiratory sciences, medical technology, physical therapy, and physician's assistant education. Baccalaureate degree programs are also offered by the schools of Nursing and Social Welfare.

The Health Sciences Center enrolls M.D. and M.D./Ph.D. candidates in the School of Medicine, D.D.S. candidates in the School of Dental Medicine, and master's degree candidates in the schools of Allied Health Professions, Nursing, and Social Welfare. Doctoral degree programs are offered in anatomical sciences, microbiology, oral biology and pathology, pathology, pharmacological sciences, and physiology and biophysics.

Admissions Procedures

Admission to all Health Sciences Center programs is by formal application only and is selective because enrollment for each program is limited. Admissions are generally conducted for the fall only. Each school of the Health Sciences Center is responsible for determining its own admissions policy and for selecting its own students.

Admissions decisions are made by committees in each of the schools. Application processing and records are handled in the Health Sciences Center Office of Student Services, where applications for all undergraduate programs can be obtained in the fall of the year preceding the year of anticipated admission.

Undergraduate Eligibility

All Health Sciences Center baccalaureate programs begin in the upper division. To be eligible for consideration, students must have completed 57 college credits or their equivalent before matriculating in the program to which they seek admission. All pro-

grams require specific course prerequisites. Most undergraduate programs are full time. Part-time studies are offered by the Cardiorespiratory Sciences Department in the School of Allied Health Professions and by the registered nurse program in the School of Nursing.

Applications are accepted from both Stony Brook students and from students transferring to Stony Brook from other educational institutions. Stony Brook undergraduate students are *not* automatically admitted to Health Sciences Center programs; they should note that admission to any of the undergraduate programs is *not* simply a change of major.

Application forms and academic advisement about prerequisites for admission and course and program content is available from each of the schools of the Center and from the Office of Student Services.

PRE-PROFESSIONAL PROGRAMS

Conditional Acceptance Program

Although undergraduate students enter the Health Sciences Center programs at the junior level, the schools of Allied Health Professions and Nursing offer to a very limited number of Stony Brook students the opportunity to begin their studies in a particular Health Sciences Center program in their freshman year. Qualified high school students who have been admitted to the university and who have accepted the offer of admission are eligible to apply. Each program has specific criteria for admission.

In the freshman and sophomore years, accepted students will be required to take courses to meet the University Distribution Requirements, prerequisites to the professional program, and two pre-professional courses. Those who successfully meet the criteria established by the school will be advanced to upper-division (junior) status in the professional program.

Further information may be obtained from the Office of Student Services in the Health Sciences Center.

Scholars for Medicine Program

The Scholars for Medicine Program is an integrated course of study designed to develop an effective bridge between the collegiate preparatory period and the medical curriculum. Each year up to ten qualified Stony Brook sophomores interested in a career in medicine are accepted into the program, which leads to the baccalaureate and M.D. degrees. During the next three years, under the guidance of advisors, participants integrate the final two years of undergraduate study with the first preclinical year at Stony Brook's School of Medicine. This allows them to take a variety

of graduate or undergraduate courses in several departments; to combine interests in the arts, humanities, social sciences, physical sciences, and biological sciences; or to pursue scientific research. As continuing medical students, they then complete the second year of the preclinical curriculum and two years of clinical training.

Only sophomores at Stony Brook are eligible to apply for the Scholars for Medicine early selection program. Students who transfer into the sophomore class are eligible to apply if they have been enrolled at Stony Brook for at least two semesters prior to the time the early selection process is complete. Each applicant must complete—at Stony Brook—by the end of the sophomore year at least a year of chemistry and a year of biology, as well as the University Lower-Division Writing Requirement. Given the limited number of places available, only students whose credentials exhibit a notable level of academic excellence are likely to be chosen to participate. Individuals concentrating on any academic area are eligible. Preference will be given to residents of New York State.

Further information about the Scholars for Medicine Program is available in the Center for Academic Advising.

Health Sciences Center Academic Calendars

The Health Sciences Center follows two academic calendars—a modular calendar and a semester calendar.

The modular academic calendar applies to courses in the School of Nursing, the undergraduate programs in the School of Allied Health Professions, and to some basic sciences courses. The semester academic calendar applies to courses in the School of Social Welfare, the graduate program in the School of Allied Health Professions, and to some basic sciences courses.

The modular calendar is composed of modules of approximately five weeks in length. Courses consist of one, two, three, or more modules as determined by the faculty of each school. Specific information about the number of modules required for each modular course appears in the *Health Sciences Center Bulletin*.

Minor in Health and Society

The health and society minor (HSO), offered through the Department of Community and Preventive Medicine in the School of Medicine, is intended primarily for students who are preparing for careers in health care: medicine, dentistry, nursing, social welfare, and the allied health professions. It complements the work of students majoring in the humanities and social sciences.

The minor is interdisciplinary in nature. The sequence of possible courses is designed to offer a broad exploration of the

relationships between contemporary health care and the humanities and social sciences. It is recommended that students plan the inclusion of this minor within their course selection early in their undergraduate careers. Students are encouraged to complete part A in the minor requirements before taking HMC 200.

Requirements for the Minor

	<i>Credits</i>
A. Any two individual courses from among the following: BIO 101, 102; HIS 135, 136, 291, 292; HUM 121, 123; PHI 104, 109	6
B. HMC 200	3
C. Any two individual courses from among the following: ECO 342*; HIS 316, 323; HMC 331, 361; PHI 368, 370, 376; SOC 353*, 392* (Health Care Delivery and Health and Illness sections only); WNS/HIS 333	6
D. HMC 486 or 487 (Students will be permitted to take this only after completing A, B, and C above.)	3
Total	18

Notes on the Minor

1. Courses marked with an asterisk (*) have prerequisites in the department of origin; for some, the prerequisites may be waived upon petition.
2. Biology majors may **not** substitute BIO 151, 152 for the courses indicated in part A.
3. Three credits of P/NC are allowed but part D must be satisfied with a letter grade.

Additional information and advice regarding the minor can be obtained by contacting the coordinator in the Department of Community and Preventive Medicine or an advisor in the Center for Academic Advising.

Courses

Note: Graduate students wishing to work in areas with 300 listings may, by taking independent study (HMC 590), arrange a course of study.

HMC 200 Medicine and Society

An examination of some traditional concerns of the humanities and social sciences as they occur in basic health care and its delivery. Practicing physicians or other health care professionals present clinical cases to emphasize such topics as allocation of scarce resources, issues of dying and refusing treatment, confidentiality, and cultural factors and disease. Discussion will focus on the social, historical, ethical, and humanistic import of the cases. A Core Course

satisfying Humanities and Fine Arts Category B. Crosslisted with HAS 290.

Fall or spring, 3 credits

HMC 331 Legal and Ethical Issues in Health Care

Introduces students to some of the major ethical and legal doctrines that affect health care professionals. The doctrines will be discussed by addressing specific problem situations. Some of the topics are the right to refuse medical, mental, and social care; the right to life and its limits (e.g., suicide, euthanasia, abortion); the right to receive care; and access to and evaluation of health care delivery. Since the goal of the course is to sensitize professionals to legal and ethical issues like those they will be called upon to resolve, students will be expected to take part in class discussions and do readings.

Alternate years, 3 credits (not offered in 1990-91)

HMC 361 Literature and Medicine

Exploration of major themes of medical care and illness as presented in works of poetry, prose, and drama. Themes include personal and ethical dilemmas confronted by doctors; special characteristics and discourse of the medical setting; the experience of being ill; philosophical, social, and spiritual dimensions of the clinical encounter; and the search for meanings in medical events.

Prerequisite: One course in literature or HMC 200

Spring, alternate years, 3 credits (not offered in 1989-90)

HMC 486 Practicum in Health and Society

Observation of clinical services in University Hospital or other health care settings, and seminar discussions of readings in humanities and social sciences that deal with problems in contemporary health care. Primarily for pre-health majors at the upper-division level—especially students completing the minor in Health and Society.

Prerequisite: Permission of instructor
Spring, 3 credits

HMC 487 Independent Study

Projects must be approved by the department.

Prerequisite: Permission of instructor

Fall or spring, 1 to 3 credits

Other Health Sciences Courses Open to Main Campus Undergraduates

The School of Medicine and the School of Dental Medicine also offer courses for elective credit to undergraduate students enrolled in courses of study in all departments of the university. The School of Allied Health Professions and the School of Social Welfare usually open several courses each year, on a space-available basis, to students who are not matriculated in a Health Sciences Center program. (See below; also see the *Undergraduate Bulletin Supplement*.) To register for Health Sciences Center courses numbered 300 and higher, Main Campus students should have completed their freshman and sophomore years, or have earned a minimum of 57 university credits.

Because of the different calendars used in the Health Sciences Center, students are not able to advance register for some of these courses.

In such cases they may register by submitting an add form to the Office of Records during the add-drop period. Permission of the instructor is required.

Allied Health Professions

HAS 190 Introduction to the Health Professions

Presents topics of interest to students considering a career as a health professional. Introduces basic concepts of health, factors influencing health care, health care settings, and selected health professions. Professional roles assumed by allied health professionals, nurses, and social workers are explored. Directs students in examining personal, cultural, and social values as they relate to the implementation of these roles. Crosslisted with HNI 190.
Spring, 1 credit

HAS 290 Medicine and Society

An examination of some traditional concerns of the humanities and social sciences as they occur in basic health care and its delivery. Practicing physicians or other health care professionals present clinical cases to emphasize such topics as allocation of scarce resources, issues of dying and refusing treatment, confidentiality, and cultural factors and disease. Discussion will focus on the social, historical, ethical, and humanistic import of the cases. A Core Course satisfying Humanities and Fine Arts Category B. Crosslisted with HMC 200.
Fall or spring, 3 credits

Anatomical Sciences

HBA 300 Human Biology

A lecture course that examines the physiology and anatomy of the human body. The course includes an examination of cellular processes and a description of the tissues and the organ systems of the body. Throughout, function is correlated with structure. Not for biology major credit.

Prerequisites: BIO 152; C or higher in CHE 112; permission of instructor for all non-Health Sciences students
Fall, 4 credits

HBA 325 Anatomical and Biological Illustration

An introduction to human anatomy for the studio artist who is interested in biological illustration. The course will provide an introduction to techniques of illustration utilizing as subject matter the skeleton, prosection, and cadaver dissection. Details of human anatomy will often be discussed by comparison of humans with other vertebrates. Lectures will precede each laboratory/studio class and involve proportion, topographic and surface anatomy, bone-muscle relationships and human movement, comparative forms of visceral organs, and the comparative anatomy of humans and higher primates. Crosslisted with ARS 355.

Prerequisite: ARS 152 or BIO 101 or 151
Fall, 2 credits

HBA 393, 394 Special Topics from the Anatomical Sciences Literature

Tutorial readings in anatomical sciences with periodic conferences, reports, and examinations

arranged with the instructor. Open to juniors and seniors. May be repeated.

Prerequisite: Permission of instructor
Fall (393) and spring (394), 1 or 2 credits each semester

HBA 398, 399 Research Project in Anatomical Sciences

An independent research project under faculty supervision, with emphasis on the principles of experimental design, data collection, evaluation of findings, and reporting of results. The student is expected to prepare a report on the project and be able to discuss his or her work. Open to juniors and seniors. May be repeated.

Prerequisites: Laboratory experience; permission of the supervising instructor
Fall (398) and spring (399), 2 to 4 credits each semester

Biomedical Sciences

HBI 398, 399 Research Projects in Biomedical Sciences

An independent research project under faculty supervision, with emphasis on the principles of experimental design, data collection, evaluation of findings, and reporting of results. Project report required. May be repeated.

Prerequisites: Laboratory experience; permission of supervising instructor and URECA Program director
Fall (398) and spring (399), 3 credits each semester

Dental Health

HDH 301 Independent Readings and Research

The student will conduct his or her research project under the supervision of one or more members of the Department of Dental Health. The student is expected to submit a written report detailing his or her research activities and conclusions. This course is offered for undergraduate students who demonstrate an interest in the health care delivery system of the United States.

Prerequisites: SOC 392 (Health Care Delivery); approval of department chairperson
Fall and spring, 3 credits

Microbiology

HBM 320 General Microbiology

Study of the molecular structure and function of bacteria and viruses. Emphasis is placed on the functional anatomy, energetics, and genetics of the prokaryotic cell, and on the replication cycle and host relationships of viruses. Infectious disease processes, the immune system, and the use of antibiotics also are studied. This course satisfies the microbiology requirement for admission to nursing, veterinary, and optometry professional schools.

Prerequisites: CHE 112 or 131; BIO 231; HBA 300; permission of instructor. CHE 131, 133 recommended
Spring, 3 credits

HBM 321 General Microbiology Laboratory

Designed to complement the lecture material of HBM 320, the optional laboratory will cover basic and applied microbiological methods. Techniques such as growth of bacteria in liquid and agar media, quantitative methods of determination of bacterial concentrations, antibiotic sen-

sitivity, and Gram-staining are included. For pre-health professions students.

Prerequisites: CHE 112 or 131; BIO 231; HBA 300; permission of instructor. CHE 131, 133 recommended

Corequisite: HBM 320
Spring, 1 credit

HBM 393, 394 Special Topics from the Microbiology Literature

Tutorial readings in microbiology with periodic conferences, reports, and examinations arranged with the instructor. Open to juniors and seniors. May be repeated.

Prerequisite: Permission of instructor
Fall (393) and spring (394), 1 or 2 credits each semester

HBM 398, 399 Research Project in Microbiology

An independent research project under faculty supervision, with emphasis on the principles of experimental design, data collection, evaluation of findings, and reporting of results. The student is expected to prepare a report on the project and be able to discuss his or her work. Open to juniors and seniors. May be repeated.

Prerequisites: Laboratory experience; permission of the supervising instructor
Fall (398) and spring (399), 2 to 4 credits each semester

Nursing

HNI 190 Introduction to the Health Professions

Presents topics of interest to students considering a career as a health professional. Introduces basic concepts of health, factors influencing health care, health care settings, and selected health professions. Professional roles assumed by allied health professionals, nurses, and social workers are explored. Directs students in examining personal, cultural, and social values as they relate to the implementation of these roles. Crosslisted with HAS 190.

Spring, 1 credit

HNI 290 Introduction to Nursing

An introduction to nursing for students who are considering a career in nursing. The student will be oriented to the nature and scope of the profession of nursing, settings where nursing is practiced, and selected skills basic to nursing practice.

Fall and spring, 2 credits

Oral Biology and Pathology

HD 320, 321 Oral Biology Research I, II

The student will conduct an independent research project under the supervision of one or more members of the Department of Oral Biology and Pathology. The student is expected to submit a written report detailing experimental methods, results, and conclusions. These courses are offered for juniors. A copy of the student's transcript must be submitted with the application.

Prerequisite for HD 320: Permission of department. BIO 152 and CHE 132 and 134 recommended

Prerequisite for HD 321: HD 320

Fall and spring, 4 credits each semester

HD 420, 421 Oral Biology Research III, IV

The student will conduct a research project under the supervision of one or more members of the Department of Oral Biology and Pathology. The student is expected to submit a written report detailing experimental methods, results, and conclusions. These courses are offered for seniors in Arts and Sciences. A copy of the student's transcript must be submitted with the application.

Prerequisite for HD 420: Permission of department. BIO 152 and CHE 132 and 134 recommended

Prerequisite for HD 421: HD 420

Fall and spring, 4 credits each semester

Pathology**HBP 310 Pathology**

A study of the basic mechanisms of disease and the pathophysiology of the important human illnesses. Primarily for Health Sciences Center students; others admitted with special permission.

Prerequisites: BIO 151, 152; permission of instructor

Modules 3 through 6, 3 credits

HBP 390 Basic Mechanisms in Pathology

Biochemical mechanisms underlying human diseases, including connective tissue, macromolecules, inflammation, coagulation mechanisms, fibrinolysis, immunological defenses, and cancer.

Prerequisite: BIO 361

Spring, 3 credits

HBP 393, 394 Special Topics from the Pathology Literature

Tutorial readings in pathology, with periodic conferences, reports, and examinations arranged with the instructor. Open to juniors and seniors. May be repeated.

Prerequisite: Permission of instructor

Fall (393) and spring (394), 1 or 2 credits each semester

HBP 398, 399 Research Project in Pathology

An independent research project under faculty supervision, with emphasis on the principles of experimental design, data collection, evaluation of findings, and reporting of results. The student is expected to prepare a report on the project and be able to discuss his or her work. Open to juniors and seniors. May be repeated.

Prerequisites: Laboratory experience; permission of supervising instructor

Fall (398) and spring (399), 2 to 4 credits each semester

Periodontics**HDP 320, 321, 322 Introduction to Periodontal Research**

The student will be taught various techniques and procedures used in current periodontal research. The student will be expected to undertake a small research project implementing these techniques.

Prerequisites: CHE 132 and 134; BIO 152; permission of instructor

Fall (320), spring (321), and summer (322), 1 to 4 credits each semester

HDP 420, 421, 422 Research in the Biology and Pathology of Periodontium

An independent research project under faculty supervision with emphasis on the principles of experimental design, data collection, evaluation of findings, and reporting of results. The student is expected to prepare a report on the project and be able to discuss his or her work. Open to upper-division students. May be repeated up to a maximum of 8 credits.

Prerequisites: HDP 320, 321; permission of instructor

Fall (420), spring (421), and summer (422), 2 to 4 credits each semester

Pharmacological Sciences**HBH 372 Drugs, Medication, and Disease**

Examines the development of the current situation in the drug field and its relationship to public health. Covers current ideas about (1) how drugs are developed, (2) how drugs act, and (3) how drug side effects occur; includes the underlying principles of selectivity, structure-activity relationships, and drug metabolism. The major classes of drugs used in chemotherapy and in pharmacodynamics will be used and discussed in illustration of the course material.

Prerequisites: BIO 361; permission of instructor

Fall, 3 credits

Note: Arts and Sciences students may receive no more than a total of 6 credits in a single semester of any combination of courses numbered 393 through 399.

HBH 393, 394 Topics in Pharmacology

Tutorial readings in pharmacology with periodic conferences, reports, and examinations arranged with the instructor. Open to juniors and seniors. May be repeated.

Prerequisite: Permission of instructor

Fall (393) and spring (394), 1 to 5 credits each semester

HBH 396, 398, 399 Research Project in Pharmacology

An independent research project under faculty supervision, with emphasis on the principles of experimental design, data collection, evaluation of findings, and reporting of results. The student is expected to prepare a report on the project. Open to juniors and seniors. May be repeated.

Prerequisites: Laboratory experience; permission of supervising instructor

Fall (398), spring (399), and summer (396), 1 to 6 credits each semester

Physiology and Biophysics**HBY 310 Cell Physiology**

The physiology of animal cells: excitation, conduction, transduction, transport, motility, secretion, and responses to transmitters and hormones.

Prerequisites: PHY 101 or 103 or 105; BIO 328

Spring, 3 credits

HBY 350 Physiology

The normal functioning of human tissues and organs and their regulation by the nervous and endocrine systems. Special emphasis will be given to physiological control systems and the preservation of the constancy of the internal

environment. Lectures, conferences, and demonstrations.

Prerequisites: College courses in biology and chemistry; some background in physical science; primarily for Health Sciences students; others by permission of instructor

Modules 1 through 4, 4 credits

HBY 393, 394 Special Topics from Physiology and Biophysics Literature

Tutorial readings in physiology and biophysics and periodic conferences, reports, and examinations arranged with the instructor. Open to juniors and seniors. May be repeated.

Prerequisite: Permission of instructor

Fall (393) and spring (394), 1 or 2 credits each semester

HBY 398, 399 Research Project in Physiology and Biophysics

An independent research project under faculty supervision, with emphasis on the principles of experimental design, data collection, evaluation of findings, and reporting of results. The student is expected to prepare a report on the project and be able to discuss his or her work. Open to juniors and seniors. May be repeated.

Prerequisites: Laboratory experience; permission of supervising instructor

Fall (398) and spring (399), 2 to 4 credits each semester

Social Welfare

The following courses are offered in the semester indicated, but not necessarily each year. Upper-division Main Campus students may take these courses with the permission of the instructor and the School of Social Welfare's Office of Student Services.

HWC 317 Understanding Organizations

Designed to provide the undergraduate social work student with an opportunity to develop a foundation for a conceptual framework for the understanding of social agencies. Examines social and political factors such as class, race, gender, age, and ethnicity, which have historically influenced organizational structure, program design and implementation, and activities.

Spring, 3 credits

HWC 346 Working with Children of Alcoholics

Deals with children of alcoholic parents; how parents' illnesses affect the social, emotional, and educational development of their children; and the survival roles children assume in order to live in troubled alcoholism families. Emphasizes identification of children who suffer from parental alcoholism when they are seen in settings other than home or social service agencies, namely school and youth programs. Identifies referral services.

Spring, 3 credits

HWC 349 Overview of Gay and Lesbian Issues

Examines the status of homoerotic individuals and groups within the United States in order that the students may assess and intervene toward the goal of liberating lesbian women and gay men. Covers historical and current attitudes, the

range of cultural oppression, special concerns of subgroups, relationship and sexual issues, and problems and needs of lesbians and gay men.

Spring, 3 credits

HWC 361 Implications of Racism on Social Welfare

Examines personal and institutional racism in the United States and the effect racism has on the delivery of services to individuals who do not fit the traditional "American model." Examines the historical relationship between racism and social welfare policies, programs and practice, and contemporary strategies for change.

Fall or spring, 3 credits

HWC 363 The Politics of Homelessness

Analyzes homelessness as an issue of social policy, including its history, recent causes, and current demographics; emphasizes the political and economic context that has made it a major social problem.

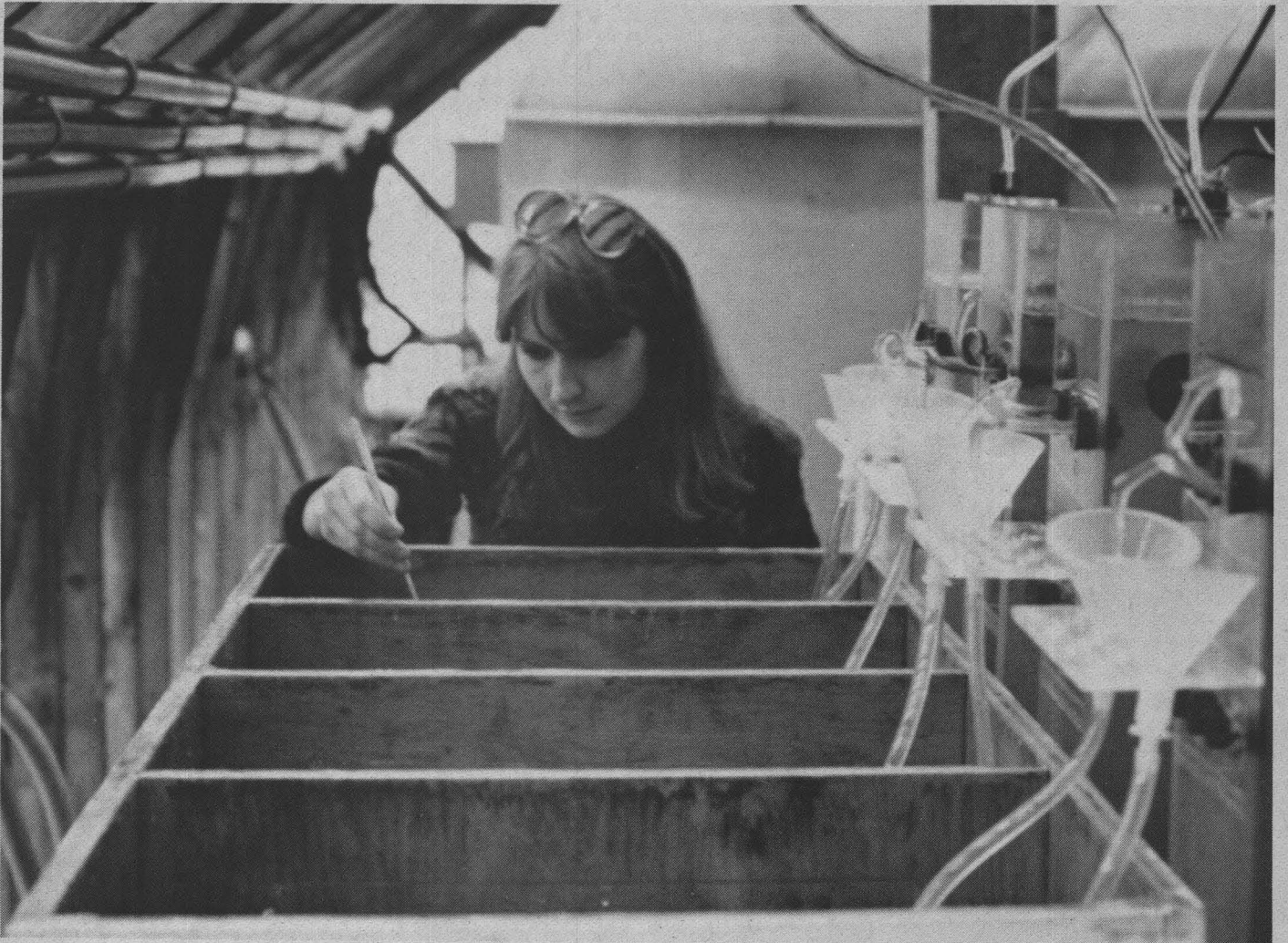
Spring, 3 credits

HWC 369 Youth in Crisis

Examines the etiology of youth stress using interpersonal, interactional, and developmental perspectives. Explores effective individual and group approaches specifically geared toward helping youth and families cope more effectively.

Fall or spring, 3 credits

Marine Sciences Research Center



Dean and Director: *J.R. Schubel*

Director of Undergraduate Studies:
Edward J. Carpenter

Faculty

Josephine Y. Aller, Research Associate Professor, Ph.D., University of Southern California: Marine benthic ecology; invertebrate zoology; marine microbiology; biogeochemistry.

Robert C. Aller, Professor, Ph.D., Yale University: Marine geochemistry; marine animal-sediment relations.

Henry J. Bokuniewicz, Associate Professor and Director of Graduate Studies, Ph.D., Yale University: Near-shore transport processes; coastal sedimentation; marine geophysics.

Malcolm J. Bowman, Professor, Ph.D., University of Saskatchewan: Oceanography of coastal waters; water quality modeling; microstructure and turbulence.

V. Monica Bricelj, Assistant Professor, Ph.D., State University of New York at Stony Brook: Molluscan physiological ecology; benthic ecology.

Boudewijn H. Brinkhuis, Assistant Professor, Ph.D., State University of New York at Stony Brook: Physiological ecology of seaweeds and seagrasses.

Edward J. Carpenter, Professor, Ph.D., North Carolina State University: Nitrogen cycling; phytoplankton ecology.

Robert M. Cerrato, Assistant Professor, Ph.D., Yale University: Benthic ecology; population and community dynamics.

J. Kirk Cochran, Associate Professor, Ph.D., Yale University: Marine geochemistry; use of radionuclides as geochemical tracers; diagenesis of marine sediments.

David O. Conover, Associate Professor, Ph.D., University of Massachusetts: Ecology of fishes; fishery biology.

Elizabeth M. Cosper, Research Assistant Professor, Ph.D., City University of New York: Phytoplankton physiology and ecology; resistance of microalgae to pollutants.

Robert K. Cowen, Assistant Professor, Ph.D., University of California, San Diego: Fishery oceanography; near-shore fish populations; fish ecology.

Nicholas S. Fisher, Associate Professor, Ph.D., State University of New York at Stony Brook: Marine phytoplankton physiology and ecology; biogeochemistry of metals; marine pollution.

Jed A. Fuhrman, Associate Professor, Ph.D., University of California, San Diego: Marine microbial ecology; bacterioplankton production.

Valrie A. Gerard, Associate Professor, Ph.D., University of California, Santa Cruz: Marine macrophyte ecology and physiology.

Herbert Herman, Professor, Ph.D., Northwestern University: Ocean engineering; undersea vehicles; marine materials.

Sarah G. Horrigan, Assistant Professor, Ph.D., University of California, San Diego: Marine microbial ecology; nutrient cycling.

Richard K. Koehn, Professor, Ph.D., Arizona State University: Genetics and physiological ecology of natural populations, especially marine bivalves.

Lee E. Koppelman, Professor, D.P.A., New York University: Coastal zone management; planning; policy studies.

Cindy Lee, Associate Professor, Ph.D., University of California, San Diego: Marine geochemistry of organic compounds; organic and inorganic nitrogen cycle biochemistry.

Darcy J. Lonsdale, Assistant Professor, Ph.D., University of Maryland: Zooplankton ecology with special interest in physiology; life history studies.

Glenn R. Lopez, Associate Professor, Ph.D., State University of New York at Stony Brook: Benthic ecology; animal-sediment interactions.

James E. Mackin, Assistant Professor, Ph.D., University of Chicago: Geochemistry of suspended sediment/solution interactions.

Robert E. Malouf, Associate Professor, Ph.D., Oregon State University: Shellfish biology; aquaculture.

John L. McHugh, Professor Emeritus, Ph.D., University of California, Los Angeles: Fishery management; fishery oceanography; whales and whaling.

William J. Meyers, Associate Professor, Ph.D., Rice University: Carbonates; sedimentology.

Charles Nittrouer, Professor and Associate Director of Research, Ph.D., University of Washington: Geological oceanography, continental margin sedimentation.

Akira Okubo, Professor, Ph.D., The Johns Hopkins University: Oceanic diffusion; animal dispersal; mathematical ecology.

Donald W. Pritchard, Professor Emeritus, Ph.D., University of California, San Diego: Estuarine and coastal dynamics; coastal zone management.

Sheldon Reaven, Associate Professor, Ph.D., University of California, Berkeley: Energy and environmental problems and issues, especially waste management.

Frank J. Roethel, Lecturer, Ph.D., State University of New York at Stony Brook: Environmental chemistry; behavior of coal waste in the environment; solution chemistry.

J.R. Schubel, Professor, Ph.D., The Johns Hopkins University: Coastal sedimentation; suspended sediment transport; coastal zone management.

Mary I. Scranton, Associate Professor, Ph.D., Massachusetts Institute of Technology: Marine geochemistry; biological-chemical interactions in seawater.

Scott E. Siddall, Assistant Professor, Ph.D., University of Miami: Biology and ecology of molluscan larvae; shellfish mariculture.

Lawrence B. Slobodkin, Professor, Ph.D., Yale University: Theoretical ecology; marine ecology.

R. Lawrence Swanson, Adjunct Professor, Ph.D., Oregon State University: Recycling and reuse of waste materials; waste management; waste disposal.

Mario E.C. Vieira, Research Assistant Professor, Ph.D., The Johns Hopkins University: Estuarine and coastal waters circulation and dynamics.

Dong Ping Wang, Professor, Ph.D., University of Miami: Coastal ocean dynamics.

Franklin F.Y. Wang, Professor, Ph.D., University of Illinois: Ocean engineering; ocean structures; energy.

Peter K. Weyl, Professor, University of Chicago: Coastal zone planning; physical oceanography.

Robert E. Wilson, Associate Professor, The Johns Hopkins University: Estuarine and coastal ocean dynamics.

Peter M.J. Woodhead, Research Professor, B.S., University of Durham: Behavior and physiology of fish; coral reef ecology; ocean energy conversion systems.

Charles F. Wurster, Associate Professor, Ph.D., Stanford University: Effects of chlorinated hydrocarbons on phytoplankton communities.

Jonathan P. Zehr, Research Assistant Professor, Ph.D., University of California, Davis: Aquatic microbial physiological ecology; nutrient cycling.

Adjunct Faculty:

Estimated number: 1

Teaching Assistants

Estimated number: 9

The Marine Sciences Research Center (MSRC) is the center for research, graduate education, and public service in the marine sciences for the State University of New York system. Two features distinguish MSRC from other leading oceanographic institutions: a clear and persistent focus on the Coastal Ocean, and the commitment to translate the results of research into forms readily usable by decision makers in resolving important environmental and management problems of the coastal zone. The MSRC is one of the few comprehensive coastal oceanographic institutions in the nation.

Although the primary instructional programs are at the graduate level, MSRC offers joint five-year programs with the Department of Earth and Space Sciences and with the College of Engineering and Applied Sciences leading, respectively, to the B.S. degree in geology or the B.E. degree in engineering science, and the M.S. degree in marine environmental sciences. Students interested in entering one of the joint five-year programs should consult with their undergraduate departmental advisor and with the graduate program director of the MSRC.

The MSRC offers a number of oceanography and marine sciences courses specifically for undergraduates, including an intercession course in Puerto Rico every January. In addition, the first-year graduate courses at MSRC are, with permission of the instructor, open to qualified, advanced undergraduate students. The MSRC offers opportunities to undergraduates for research and training in oceanography at sea and in the laboratory.

Physical Facilities

The Marine Sciences Research Center is housed in four buildings—Challenger, Dana, Discovery, and Endeavour, south of the academic core buildings. The MSRC manages the Flax Pond Laboratory, a 0.6-square-kilometer salt marsh system located seven kilometers from campus.

The MSRC's seagoing facilities include the *R/V Orrust*, an 18m steel-hulled vessel designed and built specially for MSRC work in coastal waters. The *Orrust* has a range of approximately 1,300 kilometers and a cruising speed of 10 knots (18.5 km/hr.). It is equipped with a "wet" laboratory and an electronics "dry" laboratory. MSRC also operates a number of smaller boats for field work in local embayments and nearshore waters.

Further information can be obtained from the publication *Graduate Studies Opportunities* and from the director of graduate studies of the Marine Sciences Research Center.

Minor in Marine Sciences

This minor is open to students who either wish to prepare themselves for future graduate education in marine sciences or who are preparing for a career in a marine-related field. The minor, which is interdisciplinary in nature, provides a foundation in marine aspects of biology, chemistry, geology, and physics for the undergraduate. Intended primarily for science majors, the minor assumes completion of basic courses in mathematics, physics, chemistry, biology, or geology.

Requirements for the Minor

	Credits
A. MAR 101 or 104	3
B. At least 15 credits from the following: All upper-division MAR courses (with a maximum of three credits from MAR 487), BIO 343 or 353	15
Total	18

Note: No more than three credits of Pass/No Credit will be accepted toward the minor.

Courses

See p. 60, Course Credit and Prerequisites, and p. 61, Undergraduate Numbering System.

MAR 101 Long Island Sound: Science and Use

An introduction to one of the region's most important coastal marine environments—Long Island Sound. The course traces the origin and development of the Sound; presents an overview of the natural, physical, biological, chemical, and geological processes that characterize it; explores its importance to society and assesses how society's uses of the Sound have affected it; evaluates attempts to manage it; and looks at the future of the Sound. A Core Course satisfying Natural Sciences Category A-2.

Fall, 3 credits

MAR 104 Oceanography

An examination of the World Ocean and the processes that control its major features and the life that inhabits it. Suitable for non-science majors. A Core Course satisfying Natural Sciences Category A-2.

Spring, 3 credits

MAR 302 Marine Microbiology and Microbial Ecology

Introduction to the evolution, diversity, and importance of the microbial flora of the sea. Lectures will highlight the physiological distinctions and ecological functions of each of the major microbial groups (viruses, bacteria, fungi, protozoans, algae). Particular emphasis will be placed on the role of these microorganisms in many of the elemental (geochemical) cycles of the oceans. Aspects of the microbiota as agents of environmental pollution and/or detoxification will also be discussed.

Prerequisites: BIO 151, 152; CHE 132 or 142
Fall, alternate years, 3 credits (not offered in 1989-90)

MAR 303 Long Island Marine Habitats

The study of six representative marine environments around Long Island. Students will visit the sites on Saturday field trips, measuring environmental parameters and identifying common plants and animals. Using qualitative and quantitative methods in the field and in two weekly laboratory sessions, the class will determine major factors that control the biological community in each habitat.

Prerequisites: BIO 151, 152 or 113 or 114; CHE 111 or 131
Fall, 3 credits

MAR 333 Coastal Oceanography

Aspects of physical, biological, chemical, and geological processes that characterize coastal marine environments. Topics include such natural phenomena as upwelling, particle transport, benthic/pelagic coupling, and barrier island processes, as well as anthropogenic impacts on the Coastal Ocean. A Core Course satisfying Natural Sciences Category B.

Prerequisites: MAT 127 or 132 or 142; BIO 151, 152 or CHE 132 or 142 or GEO 102/112
Pre- or corequisite: PHY 102 or 104 or 106
Spring, 3 credits

MAR 337 Primary Productivity in the Sea

A review of classic and current research on primary production by marine phytoplankton and macroalgae. Topics will include photosynthesis and growth, nutrients, temporal and spatial variability, competition, and predation.

Prerequisites: CHE 132 or 142; BIO 152; one upper-division BIO course as approved by the instructor; CHE 322 or 332 recommended
Spring, 3 credits

MAR 340 Environmental Problems:

Case Histories

A detailed examination of the scientific, social, and legal aspects of four to six important environmental problems, including the benefits and costs of the use of the insecticide DDT; cancer-causing agents in the human environment, such as asbestos, hair dyes, saccharin, and tobacco smoke; garbage disposal and bottle bills; energy conservation; and acid rain. A Core Course satisfying Natural Sciences Category B.

Prerequisites: Upper-division standing; one Natural Sciences Category A chemistry or biology course
Spring, 3 credits

MAR 371 Introduction to Tropical Marine Ecology

An examination of coral reefs, seagrass beds, and mangroves and the physical and biological parameters that influence them at the LaParguera Marine Station, Puerto Rico. Through morning lectures and afternoon and evening field and laboratory studies students will be introduced to the general features of tropical marine systems, including a description of the oceanographic setting, formation of reefs, species diversity, and productivity, as well as more specific aspects of the biology, behavior, and ecology of the fish, invertebrates, and plants associated with these tropical marine habitats and communities. Students will participate in group projects designed to demonstrate the interplay of physical and biological processes in shaping these communities.

Prerequisites: BIO 151, 152; PHY 102 or 104 or 106 or CHE 132 or 142; permission of instructor
Winter intersession, 3 credits

MAR 390 Development of Aquaculture

A comprehensive, interdisciplinary description and analysis of the culture of aquatic organisms for human use. The course covers both marine and freshwater aquaculture of plants, shellfish, and finfish. Basic principles of aquaculture are illustrated with specific examples of organisms cultured for staple and luxury foods, biochemicals, wastewater treatment, etc. The development of aquaculture as an industry and its role in managing aquatic resources are covered.

While much of the course material is biological, economic, social, and legal aspects of natural resource allocation are also emphasized.

Prerequisite: BIO 113 or 115 or MAR 104

Fall, 3 credits

MAR 413 Marine Biochemistry

Survey of biochemical features and adaptations characteristic of the marine biota. Specific topics to be discussed will include salinity, temperature and pressure adaptations, calcification and silicification, marine natural products and toxins, bioluminescence, and photosynthetic light adaptation.

Prerequisite: BIO 361

Spring, 3 credits

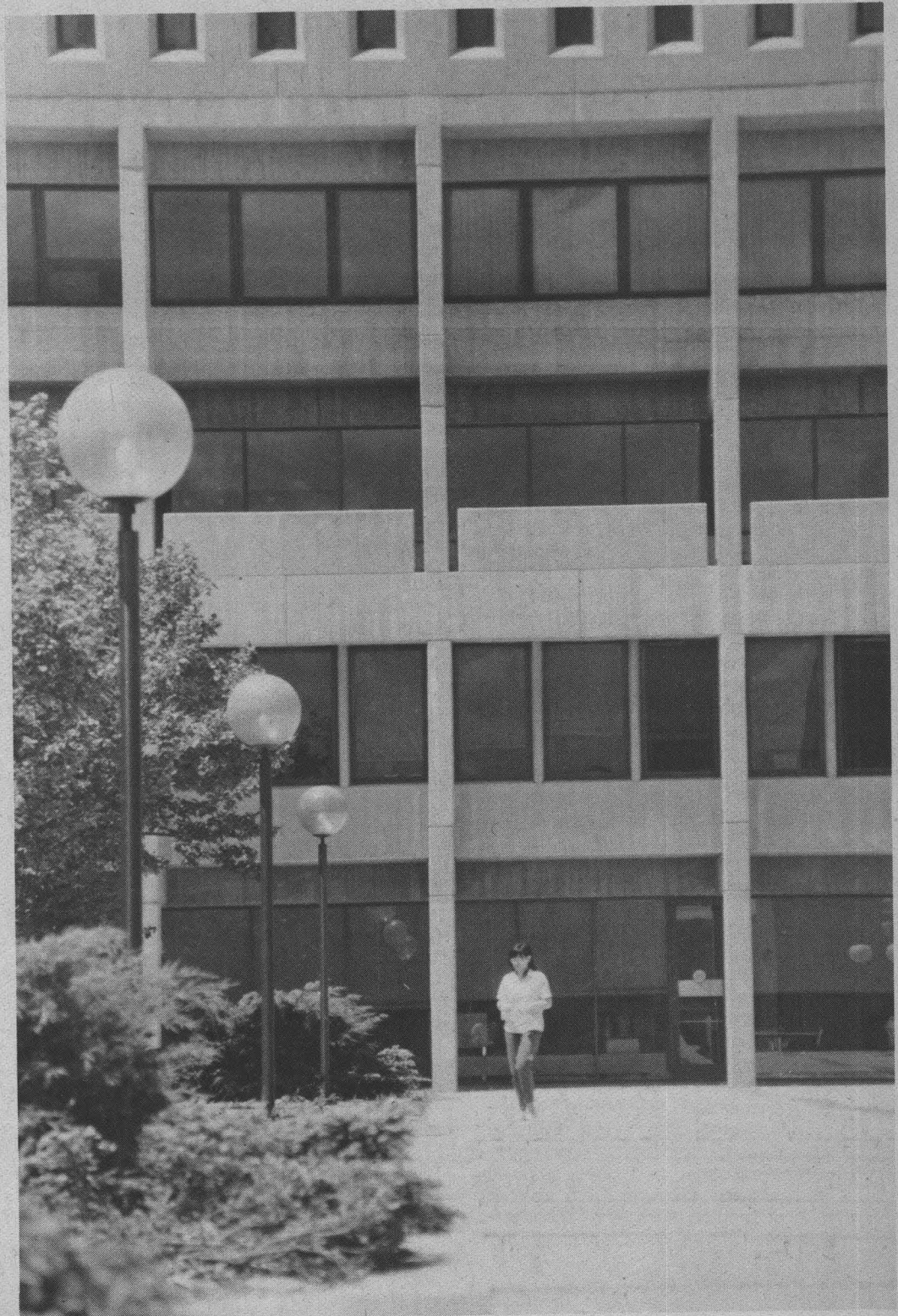
MAR 487 Research in Marine Sciences

A student may conduct research for credit. The student must submit a research proposal for approval before the beginning of the credit period and a written report of the work before the end of the credit period. May be repeated.

Prerequisite: Permission of instructor and of MSRC Undergraduate Studies Committee

Fall and spring, 1 to 3 credits

Directories



Directories

STATE UNIVERSITY OF NEW YORK

General Statement

State University's 64 geographically dispersed campuses bring educational opportunity within commuting distance of virtually all New York citizens and comprise the nation's largest, centrally managed system of public higher education.

When founded in 1948, the university consolidated 29 state-operated, but unaffiliated, institutions. In response to need, the university has grown to a point where its impact is felt educationally, culturally, and economically the length and breadth of the state.

More than 370,000 students are pursuing traditional study in classrooms or are working at home, at their own pace, through such innovative institutions as Empire State College, whose students follow individualized and often non-traditional paths to a degree. Of the total enrollment, more than 100,000 students are 24 years or older, reflecting State University's services to specific constituencies, such as refresher courses for the professional community, continuing educational opportunities for returning service personnel, and personal enrichment for more mature persons.

State University's research contributions are helping to solve some of modern society's most urgent problems. It was a State University scientist who first warned the world of potentially harmful mercury deposits in canned fish, and another who made the connection between automobile and industrial exhaust combining to cause changes in weather patterns. Other University researchers continue important studies in such wide-ranging areas as immunology, marine biology, sickle-cell anemia, and organ transplantation.

More than 1,000 public service activities are currently being pursued on State University campuses. Examples of these efforts include special training courses for local government personnel, state civil service personnel, and the unemployed; participation by campus personnel in joint community planning or project work; and campus-community arrangements for community use of campus facilities.

A distinguished faculty includes national and internationally recognized figures in all the major disciplines. Their efforts are recognized each year in the form of such prestigious awards as Fulbright-Hayes, Guggenheim, and Danforth fellowships.

The university offers a wide diversity of what are considered the more conventional career fields, such as business, engineering, medicine, teaching, literature, dairy farming, medical technology, accounting, social work, forestry, and automotive tech-

nology. Additionally, its responsiveness to progress in all areas of learning and to tomorrow's developing societal needs has resulted in concentrations that include pollution, urban studies, computer science, immunology, preservation of national resources, and microbiology.

SUNY programs for the educationally and economically disadvantaged have become models for delivering better learning opportunities to a once forgotten segment of society. Educational Opportunity Centers offer high school equivalency and college preparatory courses to provide young people and adults with the opportunity to begin college or to learn marketable skills. In addition, campus-based Educational Opportunity Programs provide counseling, developmental education, and financial aid to disadvantaged students in traditional degree programs.

Overall, at its EOCs, two-year colleges, four-year campuses, and university and medical centers, the university offers 3,600 academic programs. Degree opportunities range from two-year associate programs to doctoral studies offered at 12 senior campuses.

The 30 two-year community colleges operating under the program of State University play a unique role in the expansion of educational opportunity. They provide local industry with trained technicians in a wide variety of occupational curricula, and offer transfer options to students who wish to go on and earn advanced degrees.

The university passed a major milestone in 1985 when it graduated its one-millionth alumnus. The majority of SUNY graduates pursue careers in communities across the state.

State University is governed by a board of trustees, appointed by the governor, which directly determines the policies to be followed by the 34 state-supported campuses. Community colleges have their own local boards of trustees whose relationship to the SUNY board is defined by law. The state contributes one-third to 40 percent of their operating costs and one-half of their capital costs.

The State University motto is "To Learn—To Search—To Serve."

Campuses

University Centers

State University of New York at Albany
State University of New York at Binghamton
State University of New York at Buffalo
State University of New York at Stony Brook

Colleges of Arts and Sciences

State University College at Brockport
State University College at Buffalo
State University College at Cortland
State University of New York Empire State College
State University College at Fredonia
State University College at Geneseo
State University College at New Paltz
State University College at Old Westbury
State University College at Oneonta
State University College at Oswego
State University College at Plattsburgh
State University College at Potsdam
State University College at Purchase

Colleges and Centers for the Health Sciences

State University of New York Health Science Center at Brooklyn
State University of New York Health Science Center at Syracuse
State University of New York College of Optometry at New York City
State University of New York (Health Sciences Center at Buffalo)*
State University of New York (Health Sciences Center at Stony Brook)*

Colleges of Technology

State University of New York College of Technology at Alfred
State University of New York College of Technology at Canton
State University of New York College of Agriculture and Technology at Cobleskill
State University of New York College of Technology at Delhi
State University of New York College of Technology at Farmingdale
State University of New York College of Agriculture and Technology at Morrisville
State University of New York College of Technology at Utica/Rome** (upper-division and master's programs)
(Fashion Institute of Technology at New York City)***

*The Health Sciences Center at Buffalo and Stony Brook are operated under the administration of their respective University Centers.

**This is an upper-division institution authorized to offer baccalaureate and master's degree programs.

***While authorized to offer such baccalaureate and master's degree programs as may be approved pursuant to the provisions of the Master Plan, in addition to the associate degree, the Fashion Institute of Technology is financed and administered in the manner provided for community colleges.

Specialized Colleges

State University of New York College of Environmental Science and Forestry at Syracuse
State University of New York Maritime College at Fort Schuyler

Statutory Colleges****

New York State College of Agriculture and Life Sciences at Cornell University
New York State College of Ceramics at Alfred University
New York State College of Human Ecology at Cornell University
New York State School of Industrial and Labor Relations at Cornell University
New York State College of Veterinary Medicine at Cornell University

Community Colleges

(Locally-sponsored, two-year colleges under the program of State University)

Adirondack Community College at Glens Falls
Broome Community College at Binghamton
Cayuga County Community College at Auburn
Clinton Community College at Plattsburgh
Columbia-Greene Community College at Hudson
Community College of the Finger Lakes at Canandaigua
Corning Community College at Corning
Dutchess Community College at Poughkeepsie
Erie Community College at Williamsville, Buffalo, and Orchard Park
Fashion Institute of Technology at New York City*
Fulton-Montgomery Community College at Johnstown
Genesee Community College at Batavia
Herkimer County Community College at Herkimer
Hudson Valley Community College at Troy
Jamestown Community College at Jamestown
Jefferson Community College at Watertown
Mohawk Valley Community College at Utica
Monroe Community College at Rochester
Nassau Community College at Garden City
Niagara County Community College at Sanborn
North Country Community College at Saranac Lake

****These operate as "contract colleges" on the campus of independent universities.

Onondaga Community College at Syracuse
Orange County Community College at Middletown
Rockland Community College at Suffern
Schenectady County Community College at Schenectady
Suffolk County Community College at Selden, Riverhead, and Brentwood
Sullivan County Community College at Loch Sheldrake
Tompkins Cortland Community College at Dryden
Ulster County Community College at Stone Ridge
Westchester Community College at Valhalla

*While authorized to offer such baccalaureate and master's degree programs as may be approved pursuant to the provisions of the Master Plan, in addition to the associate degree, the Fashion Institute of Technology is financed and administered in the manner provided for community colleges.

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STATE UNIVERSITY OF NEW YORK AT STONY BROOK

Members of the Council

Subject to powers of State University trustees defined by law, the operations and affairs of the State University at Stony Brook are supervised locally by a ten-member Council. Nine are appointed by the governor; the tenth, a student member with all the rights and responsibilities of the other members, is elected by the student body. However, at press time there was a vacancy among the governor-appointed members. All positions listed are correct as of February 1, 1989.

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Academic Calendar

Fall Semester 1989

August 28-September 1, Monday-Friday: Final registration and payment (or proper deferral) of fees for students not previously registered. Schedule announced prior to registration.

September 4, Monday: Labor Day.

September 5, Tuesday: **Classes begin:** late registration begins with \$20 late fee assessed.

September 7, Thursday: Senior Citizen Auditor Program registration (telephone 632-7065 for information).

September 11, Monday: Last day for students to drop a course without tuition liability.

September 18, Monday: End of late registration period. Last day for undergraduate and CED/GSP students to add a course or to drop a course without a W (Withdrawal) grade being recorded. Last day for undergraduate students to change status to or from full-time/part-time.

September 22, Friday: Last day to file for December graduation; undergraduate and graduate (except CED) students file applications at Office of Records/Registrar; CED students file at CED Office. Last day for May graduation candidates (undergraduates) to file degree application at Office of Records and receive notification before Advance Registration for spring semester.

September 29, Friday: Last day for graduate students (except CED/GSP) to add or drop a course.

October 9, Monday: Yom Kippur. Classes not in session. Columbus Day observed.

October 10, Tuesday: Classes follow Monday schedule.

November 1, Wednesday: Last day for removal of Incomplete and NR (No Record) grades from spring semester and summer session.

November 3, Friday: Last day for undergraduate and CED/GSP students to drop a course. Last day for undergraduates to change courses to or from Pass/No Credit.

November 7, Tuesday: Election Day (classes in session).

November 8-16, Wednesday-Thursday: Prime Time for Students (intensive academic advising period).

November 13-December 1, Monday-Friday: Advance registration for spring semester (schedules for undergraduate and graduate students announced prior to registration).

November 22, Wednesday: Thanksgiving recess begins at close of classes.

November 27, Monday: Classes resume.

December 15, Friday: Last day of classes: last day to withdraw from the university (CED/GSP students must have School approval). Last day for graduate students to submit theses and dissertations to Graduate School for December graduation.

December 18, Monday: Final examinations begin.

December 22, Friday: Final examinations end; fall semester ends.

December 29, Friday: Last day for departments to submit Completion Statements for December master's and doctoral degree candidates.

Mathematics Teacher Preparation Program	138	Music, 1005, B.A. (see also Minors)	140	Sanskrit	167
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Media Arts (Minor)	139	Oral Biology and Pathology (complementary to degree major)	217	Science Teacher Preparation Program	169
Medical Technology (see also <i>Health Sciences Center Bulletin</i>)	215	Pathology (complementary to degree major)	218	Sign Language (complementary to degree major)	132
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*Teacher Preparation courses offered

