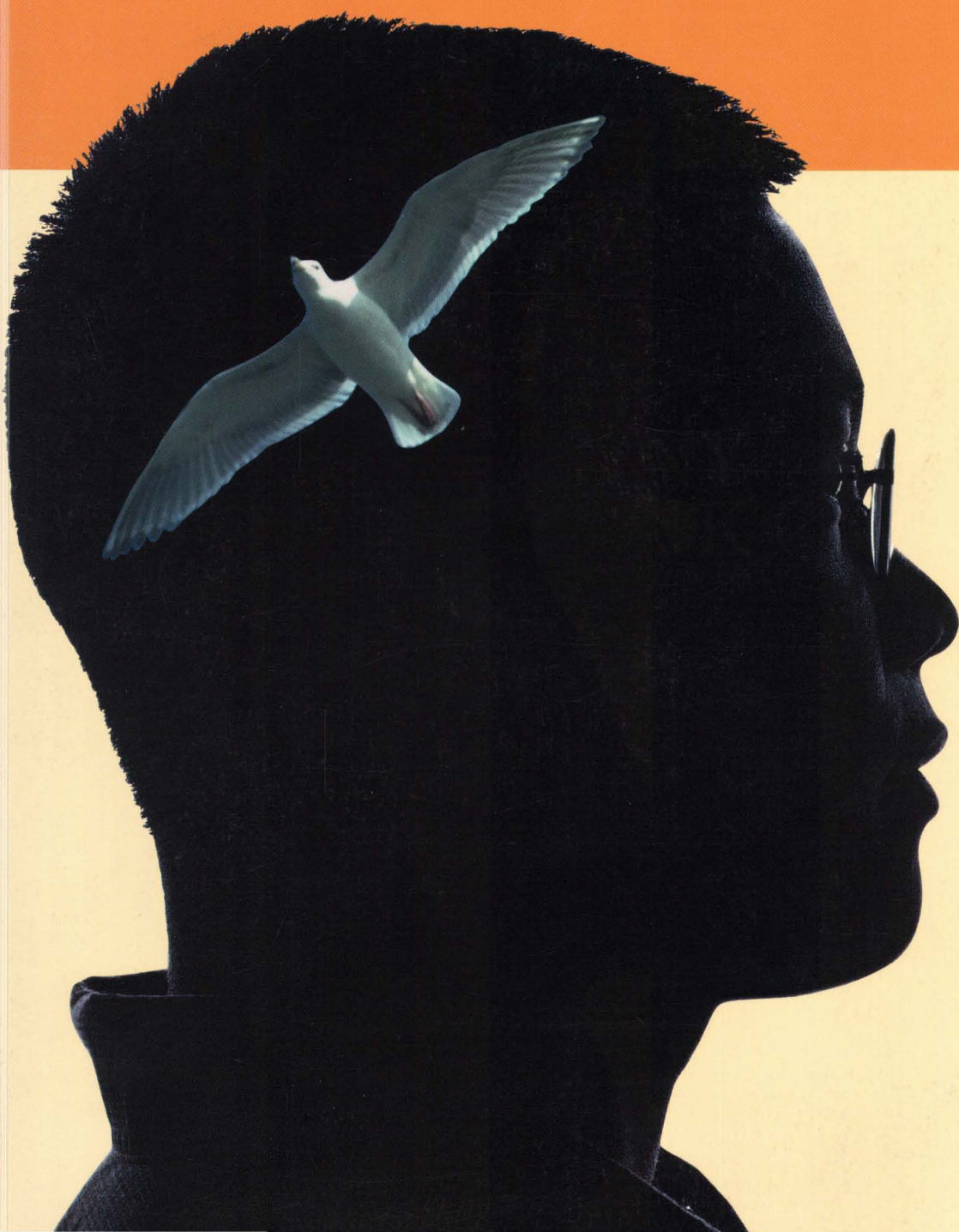


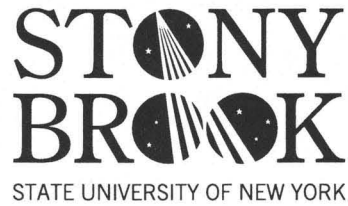
1999-2001

UNDERGRADUATE BULLETIN



**STONY
BROOK**
STATE UNIVERSITY OF NEW YORK

**THE UNIVERSITY
WITH A MIND OF
ITS OWN.**



1999-2001 Undergraduate Bulletin

Shirley Strum Kenny, President

The University represents that the information in this publication, which pertains to academic years 1999-2000 and 2000-2001, is accurate as of Spring 1999.

Circumstances may require that a given course be withdrawn or that alternate offerings be made.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.

The 1999-2001 Undergraduate Bulletin was produced by the College of Arts and Sciences and by the Office of the Assistant Vice President for Communications.

This publication can be made available in alternative format upon request.

Cover Design: Milton Glaser, Inc.
Cover Photography: Matthew Klein

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 the State University 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 the Equal Employment Opportunity Commission.

Any questions concerning this policy or allegations of noncompliance should be directed to:

Affirmative Action Officer
294 Administration Building
State University at Stony Brook
Stony Brook, NY 11794-0251
Telephone 516-632-6280

The Americans with Disabilities Act (ADA), which became effective January 26, 1992, requires that individuals with disabilities be afforded equal opportunity in the areas of public services and programs, employment, transportation, and communications. Prior to this federal legislation, the University had been subject to similar provisions under Sections 503 and 504 of the Rehabilitation Act of 1973. In compliance with the ADA's broader definition of disabilities, the University makes concerted efforts to provide reasonable accommodation and access to services and programs.

For more information contact:
Assistant ADA Coordinator
Disabled Student Services
133 Humanities Building
State University at Stony Brook
Stony Brook, NY 11794-5328
516-632-6748/9, V/TDD

Student themselves are responsible for reviewing, understanding, and abiding by the University's regulations, procedures, requirements, and deadlines as described in official publications including this Undergraduate Bulletin, the Student Handbook, and class schedules.

Additional Information

For general information about undergraduate programs, or to obtain an application, please write or phone:

Office of Undergraduate Admissions
State University at Stony Brook
Stony Brook, New York 11794-1901
516-632-6868
Fax 516-632-9027
TDD 516-632-6859

The general University telephone number is 516-689-6000.



Table of Contents

An Introduction to Stony Brook	5
Student Services	15
Admissions	25
Financial Information	31
Scholarships and Awards	43
Degree Requirements	49
Academic Policies and Regulations	55
Special Academic Programs	73

APPROVED PROGRAMS

College of Arts and Sciences 81

Africana Studies <i>B.A., minor</i>	84
Anthropology <i>B.A., minors</i>	87
Art History <i>B.A., minor</i>	90
Art, Studio <i>B.A., minor</i>	91
Astronomy <i>B.S.</i>	94
Biochemistry <i>B.S.</i>	96
Biology <i>B.S., minor, teacher prep.</i>	97
Chemistry <i>B.S., B.A., teacher prep.</i>	104
Child and Family Studies <i>minor</i>	109
Chinese Studies <i>minor</i>	110
Cinema and Cultural Studies <i>B.A., minor</i>	111
Classical Civilization <i>minor</i>	113
Comparative Literature <i>B.A., minor</i>	114
Dance <i>minor</i>	117
Earth and Space Sciences <i>B.A., teacher prep</i>	144
Economics <i>B.A.</i>	118
Education and Teacher Certification	121
Secondary education certification programs in Biology, Chemistry, Earth Sciences, English, French, German, Italian, Mathematics, Physics, Russian, Social Studies, Spanish, TESOL	
Engineering Chemistry <i>B.S., B.S./M.S.</i>	125
English <i>B.A., minor, teacher prep.</i>	127
Environmental Studies <i>living/learning center minor</i>	131
European Languages, Literatures, and Cultures, Dept. of	132
French <i>B.A., minor, teacher prep.</i>	133
Geology <i>B.S., minor</i>	141
Geosciences, Dept. of	141
German for Business <i>minor</i>	146
German Language and Literature <i>B.A., minor, teacher prep.</i>	135
Health and Wellness <i>living/learning center minor</i>	147
Hispanic Languages and Literature <i>B.A., minor, teacher prep</i>	148
History <i>B.A., minor, teacher prep.</i>	151
Human Sexual and Gender Development <i>living/learning center minor</i>	155
Humanities <i>B.A.</i>	156
Interdisciplinary Arts <i>living/learning center minor</i>	158
International Studies <i>living/learning center minor</i>	159
Italian <i>B.A., minor, teacher prep.</i>	136

Italian American Studies <i>minor</i>	160
Japanese Studies <i>minor</i>	161
Journalism <i>minor</i>	162
Judaic Studies <i>minor</i>	163
Korean Studies <i>minor</i>	164
Latin American and Caribbean Studies <i>minor</i>	165
Liberal Arts <i>see Multidisciplinary Studies</i>	
Linguistics <i>B.A., minor, TESOL</i>	166
Mathematics <i>B.S., minor, teacher prep.</i>	169
Media Arts <i>minor</i>	173
Medieval Studies <i>minor</i>	174
Middle Eastern Studies <i>minor</i>	175
Multidisciplinary Studies <i>B.A.</i>	176
Music <i>B.A., minor</i>	178
Optics <i>minor</i>	182
Pharmacology <i>B.S.</i>	183
Philosophy <i>B.A., minor</i>	186
Physical Education, Dept. of	189
Physics <i>B.S., teacher prep.</i>	191
Political Science <i>B.A., minor</i>	195
Psychology <i>B.A., B.S.</i>	199
Religious Studies <i>B.A., minor</i>	204
Russian Language and Literature <i>B.A., minor, teacher prep.</i>	139
Science and Engineering, Interdisciplinary <i>living/learning center minor</i> ..	207
Service Learning for Community-Based Action Research Living/learning center <i>minor</i>	208
Social Sciences <i>B.A., teacher prep.</i>	209
Sociology <i>B.A.</i>	211
South Asian Studies <i>minor</i>	214
Spanish <i>see Hispanic Languages and Literature</i>	
Theatre Arts <i>B.A., minor</i>	215
Women's Studies <i>B.A., minor</i>	218
Writing and Rhetoric	222

College of Engineering and Applied Sciences 223

Applied Mathematics and Statistics <i>B.S., B.S./M.S., minor</i>	228
Bioengineering <i>minor</i>	232
Biomedical Engineering <i>minor</i>	233
Business Management <i>B.S., minor</i>	234
Computer Engineering <i>B.E.</i>	241
Computer Science <i>B.S., B.S./M.S., minor</i>	237
Electrical Engineering <i>B.E., minor</i>	241
Electronic, Optic, and Magnetic Materials <i>minor</i>	246
Engineering Chemistry <i>see College of Arts and Sciences</i>	
Engineering Science <i>B.E., B.E./M.S., B.S./M.S. programs</i>	251
Information Systems <i>B.S.</i>	247
Manufacturing Engineering <i>area of specialization</i>	249
Materials Science <i>minor</i>	253
Materials Science and Engineering, Dept. of	250
Mechanical Engineering <i>B.E.</i>	254
Physical Metallurgy <i>minor</i>	258
Technology and Society <i>minor</i>	259

Health Sciences Center	261
Marine Sciences Research Center	267
Atmospheric and Oceanic Sciences <i>B.S.</i>	269
Marine Sciences minor	270

COURSE DESCRIPTIONS

AFH Africana Studies in Humanities	273
AFL African Languages	273
AFS Africana Studies in Social and Behavioral Sciences	273
AIM Advancement on Individual Merit Program	275
AMS Applied Mathematics and Statistics	275
ANP Physical Anthropology	277
ANT Social and Cultural Anthropology	277
ARB Arabic	280
ARH Art History	280
ARS Studio Art	281
AST Astronomy	283
ATM Atmospheric and Oceanic Sciences	284
BCP Pharmacology	284
BIO Biology	285
BNG Bioengineering	287
BUS Business Management	288
CBN Center for Behavioral Neurobiology	289
CCS Cinema and Cultural Studies	289
CHE Chemistry	291
CHI Chinese Language	291
CLS Classics	291
CLT Comparative Literature	292
CNH Chinese Studies in Humanities	292
CNS Chinese Studies in Social and Behavioral Sciences	292
CSE Computer Science	293
EAS Engineering and Applied Sciences	295
ECO Economics	295
EEL East European Languages	296
EGL English	296
ENS Environmental Studies	299
ESE Electrical Engineering	299
ESG Engineering Science	302
ESL English as a Second Language	303
ESM Materials Science	303
EST Technology and Society	304
EXT Internship	305
FLA Foreign Language Secondary Education	306
FLC Federated Learning Communities	306
FRN French Language and Literature	306
GEO Geology	307
GER German Language and Literature	309
GRK Greek (Ancient)	309
HAD Clinical Laboratory Sciences	309
HAT Respiratory Care	309
HBA Anatomical Sciences	309
HBH Pharmacological Sciences	310
HBM Microbiology	310
HBP Pathology	310
HBW Hebrew Language and Literature	310
HBV Physiology and Biophysics	310
HDH Dental Health	311
HDO Oral Biology and Pathology	311
HDP Periodontics	311
HIN Hindi	311
HIS History	311
HMC Health and Society	315
HNI Nursing	315
HON Honors College	315

HUE European Literature and Culture in English	316
HUF French Literature and Culture in English	316
HUG German Literature and Culture in English	316
HUI Italian Literature and Culture in English	316
HUL Romance Language Courses in English	317
HUM Humanities	317
HUR Russian Literature and Culture in English	317
HUS Spanish Literature and Culture in English	318
HWC Social Welfare	318
ISE Information Systems	319
ITL Italian Language and Literature	319
JDH Judaic Studies in Humanities	320
JDS Judaic Studies in Social and Behavioral Sciences	321
JNH Japanese Studies in Humanities	321
JNS Japanese Studies in Social and Behavioral Sciences	321
JPN Japanese	321
JRN Journalism	321
KOR Korean Language	322
KRH Korean Studies in Humanities	322
KRS Korean Studies in Social and Behavioral Sciences	323
LAC Latin American and Caribbean Studies	323
LAN Uncommonly Taught Languages	323
LAT Latin Language and Literature	323
LBR Library	323
LCR Living/Learning Center in Service Learning for Community-Based Action Research	323
LES Living/Learning Center in Environmental Studies	299
LHD Living/Learning Center in Human Sexual and Gender Development	324
LHW Living/Learning Center in Health and Wellness	324
LIA Living/Learning Center in Interdisciplinary Arts	324
LIN Linguistics	325
LIS Living/Learning Center in International Studies	326
LRN Learning Communities	326
LSE Living/Learning Center in Science and Engineering	326
MAE Mathematics Secondary Education	327
MAP Mathematics Proficiency Courses	327
MAR Marine Sciences	327
MAT Mathematics	329
MEC Mechanical Engineering	331
MUS Music	333
MVL Medieval Studies	335
PEC Physical Education	336
PHI Philosophy	337
PHY Physics	340
POL Political Science	342
POR Portuguese Language and Literature	345
PSY Psychology	346
RLS Religious Studies	347
RUS Russian Language and Literature	348
SAS South Asian Studies	349
SCI Science Teaching Secondary Education	349
SKT Sanskrit	350
SLN Sign Language	350
SOC Sociology	350
SPN Spanish Language and Literature	352
SSI Social Sciences Interdisciplinary	353
THR Theatre Arts	354
USB University at Stony Brook	357
WSE Women in Science and Engineering	358
WST Women's Studies	358
WRT Writing and Rhetoric	357

University Information	361
Program Index (with HEGIS codes)	363
Index	365
Campus Map	372



An Introduction to Stony Brook



How We Began

The State University at Stony Brook was originally established in 1957 as a college for the preparation of secondary school teachers of mathematics and science; our first campus was located at Oyster Bay, Long Island, on the grounds of a former Gold Coast estate. In 1962 a new campus was built in Stony Brook, on land donated by local philanthropist Ward Melville. In the forty years since its founding, the University has grown tremendously, and is now recognized as one of the nation's important centers of learning and scholarship—carrying out the mandate given by the State Board of Regents in 1960 to become a university that would “stand with the finest in the country.”

The State University at Stony Brook has become New York's comprehensive university center for the downstate metropolitan region. Starting with 9 buildings on a 480-acre site, Stony Brook has expanded to encompass 123 buildings on nearly 1,200 acres. The faculty has grown from about 175 to 1,682, the student body from 1,000 to 18,628, and the annual budget from about \$3 million to more than \$600 million.

The Carnegie Foundation has identified Stony Brook as one of the nation's 70 leading research institutions; a more recent study (*The Rise of American Research Universities*, by Hugh Davis Graham and Nancy Diamond, Johns Hopkins University Press, 1997) placed Stony Brook right after the University of California at Berkeley as one of the best public institutions of higher learning in the United States. Funding for Stony Brook's research programs has grown faster than at almost any other university, making it the major research campus in SUNY—itsself the largest public university system in the country. In addition to its leading position as a research center, Stony Brook offers excellent instructional programs in a broad spectrum of academic subjects. Internationally renowned faculty members teach courses from the undergraduate to the doctoral level to more than 18,000 students in more than 100 undergraduate and graduate degree programs. The academic and cultural resources of the University and the surrounding community provide a superb environment for intellectual and personal growth.

Our Surroundings

Close by the historic village of Stony Brook at the geographic midpoint of Long Island, the University campus lies about 60 miles east of Manhattan and 60 miles west of Montauk Point, convenient both to New York City's urban vitality and cultural attractions and the tranquil countryside and beautiful seashore of eastern Suffolk County. It is only a short drive to some of New York State's richest farmland and fishing grounds, the spectacular Atlantic beaches at Fire Island, the elegant resorts of the Hamptons, the craggy bluffs and natural harbors along Long Island Sound, and the picturesque village greens and gracious old homes of the North Shore towns. The internationally recognized research facilities of Brookhaven National Laboratory and Cold Spring Harbor Laboratory are nearby. And a two-hour train ride will bring you to the heart of one of the most exciting cities in the world.

The Stony Brook Campus

Stony Brook's bustling academic community is set among fields and woodlands. A nature preserve, bicycle paths, park benches, an apple orchard, and a duck pond are interspersed among the spacious plazas, modern laboratories, and classroom buildings, a performing arts center, and the rising walls of the new Asian American Cultural Center, being built with a \$25 million gift from Charles B. Wang, founder and CEO of Computer Associates.

At the center of West Campus stands the Frank Melville, Jr. Library, which holds 2 million bound volumes and some 3 million in microformat; around the library are the major academic buildings for the Colleges of Arts and Sciences and Engineering and Applied Sciences, the Van De Graaff nuclear accelerator, the Administration Building, Jacob K. Javits Lecture Center, Computer Science Building, Educational Communications Center, Computing Center, the Stony Brook Union, Indoor Sports Complex, and other service buildings. The Museum of Long Island Natural Sciences, located in the Earth and Space Sciences Building, displays dioramas of Long Island's natural landscape and special temporary exhibits.

The Student Activities Center features a food court and dining hall, study and assembly areas and an auditorium. The center provides a focal point for the extracurricular activities that are such an important part of life on campus.

Stony Brook's Staller Center for the Arts provides superb performances-arts facilities, where artists of international stature appear. The Staller Center also houses the departments of Theatre Arts, Music, and Art. A broad plaza (where outdoor concerts are held) connects the Melville Library, Stony Brook Union, and the Staller Center.

Encircling the academic buildings are six residential quadrangles, each with living space for about 1,000 students. The quads are made up of three to five coeducational “colleges,” or residence halls, each housing 200 to 400 students. About 60 percent of the undergraduate student body lives on campus. The quads are the basic social units for this on-campus population, providing residence halls, study and social space, and dining facilities. There is a 240-unit complex of one-, two- and three-bedroom apartments near the Health Sciences Center, and a 220-bed apartment building on the southwest corner of campus.

Rising dramatically above the wooded East Campus is the architecturally striking Health Sciences Center, which provides academic and support areas for five professional schools and University Hospital, a 504-bed facility that admitted its first patients in 1980 and has since become a nationally significant teaching hospital. (A recent study ranked it as one of the top 15 teaching hospitals in the country.) Also on the East Campus is the Long Island High Technology Incubator, an important link to local business, which opened its doors to 20 start-up companies in biotechnology and other high-technology fields in October, 1992.

South of the academic cluster is the 26-acre Ashley Schiff Nature Preserve. Beyond these woods, and linked to the rest of campus by shuttle bus service, are 11 functionally adaptable single-story buildings housing the Marine Sciences Research Center and the School of Dental Medicine. Across Nicolls Road lies more student housing, and the 350-bed Long Island State Veterans' Home, which was completed in the fall of 1991.

(See the map on page 372 of this bulletin.)

Stony Brook Students

Undergraduates at Stony Brook can choose from over 50 majors, offered through the College of Arts and Sciences, the College of Engineering and Applied Sciences, the Health Sciences Center, Marine Sciences Research Center, and the W. Averell Harriman School for Management and Policy.

The University's enrollment for 1998 was 18,628. Currently there are 12,260 undergraduate and 6,368 graduate students at Stony Brook; of these, approximately 14,158 are full-time. Many students are also enrolled part-time in late afternoon and evening courses offered by several departments and the School of Professional Development and Continuing Studies (formerly the School of Continuing Education).

The majority of Stony Brook's undergraduates—95 percent—come from New York State; 56 percent of these 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 spread across the globe, in countries such as France, Poland, Italy, Bolivia, Jamaica, Spain, Germany, England, and Korea. International students representing some 75 countries are attending Stony Brook.

The overwhelming majority of first-time, full-time Stony Brook students are still in attendance after their first year. Many students who do not remain full-time return for continued study at a later date, while others go on to another college. Approximately 55 percent of each incoming freshman class graduates from Stony Brook; 36 percent in four years, and an additional 19 percent after their fourth year. The graduation rate exceeds the national rate of approximately 50 percent.

The University aims at the highest standards in all of its programs. Its record of placing graduates in the nation's best graduate and professional schools shows that these standards are being maintained, and that an educational experience of high quality is available to the broad and diverse student body at Stony Brook.

Stony Brook Faculty

The vast majority of Stony Brook's 1,682 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. It was the productivity and high quality of our faculty that helped earn Stony Brook a ranking among the best public universities in the country. The faculty-student ratio is about one faculty member for every 18 students.

Eminent faculty members include numerous internationally recognized scholars. Many have earned high honors in their fields, such as Einstein Professor C.N. Yang, a Nobel laureate in Physics; John Milnor in Mathematics, winner of the prestigious Fields Medal; and MacArthur fellows John Fleagle, professor of Anatomical Sciences, Paul Adams, professor of Neurobiology and behavior, Patricia Wright, associate professor of Anthropology, and Daniel Monk, assistant professor of Art. Pulitzer-prize-winning poet Louis Simpson in English and Obie-winning poet, playwright, and activist Amiri Baraka in Africana Studies—these are only some of the best-known. Other eminent faculty members include: University Professor John H. Marburger in Physics and Electrical Engineering, former president of the University at Stony Brook; Distinguished Professors K. Daniel O'Leary in Psychology, Gerald E. Brown in Physics, James Glimm in Applied Mathematics and Statistics, Benjamin Chu in Chemistry, Lorne Mendell in Neurobiology and Behavior, Robert Sokal in Ecology and Evolution, Edward Reich in Pharmacological Sciences, H. Blaine Lawson, Jr. in Mathematics, Janos Kirz in Physics, Iwao Ojima in Chemistry, Theodosios Pavlidis in Computer Science, Felix Rapaport in Surgery, and Louis Ripa in Children's Dentistry; Distinguished Professors Emeriti Lewis Coser in Sociology, Jacob Bigeleisen in Chemistry, Seymour Cohen in Pharmacology, and Charles Rosen in Music; Distinguished Teaching Professors Norman Goodman in Sociology, Elof Carlson in Biological Sciences, Barbara Elling in Germanic and Slavic Languages and Literatures, Stanley Alexander in Dental Medicine, Judith Tanur in Sociology, Alan Tucker in Applied Mathematics and Statistics, Jonathan F. Levy in Theatre Arts, and

Shi Ming Hu in Social Sciences Interdisciplinary; Distinguished Teaching Professors Emeriti John Truxal in Technology and Society, Rose Zimbardo in Theatre Arts, and Homer Goldberg in English; Distinguished Service Professors Robert Cess in the Marine Sciences Research Center, Norman Goodman in Sociology, Lester Paldy in the Center for Science, Mathematics, and Technology Education, Velio Marsocci in Electrical Engineering, Barry Collier in Medicine and Pathology, Robert Lieberman in Earth and Space Sciences, Peter Paul in Physics, Eli Seifman in Social Sciences Interdisciplinary; and Distinguished Service Professors Emeriti Sidney Gelber in Philosophy, Marvin Kuschner, former dean of the School of Medicine, and J.R. Schubel, former dean and director of the Marine Sciences Research Center.

Stony Brook's distinguished faculty is also proud to include eleven members of the American Academy of Arts and Sciences, twelve members of the National Academy of Sciences, and three members of the National Academy of Engineering. More than 300 scholars from 40 countries pursue research here and teach at Stony Brook throughout the year.

The 1994 Middle States Reaccreditation Report observes that "Stony Brook has been strikingly successful in developing its research enterprise." In 1995-96 Stony Brook faculty members attracted \$98.9 million from the federal government, private foundations, and individuals to support research, the largest dollar amount in the SUNY system. Nearly 1,700 sponsored projects are actively being pursued, including scientific studies, training programs, public-service projects, educational activities, and library support. Among the hundreds of subjects currently under examination by faculty and students are cancer, arthritis, diabetes, lasers, semi-conductor chips, recombinant DNA, the mathematics of nonlinear systems, three-dimensional imaging systems, the psychology of political attitudes and behavior, the social history of American slavery, the interface between art and science, and urban problems and their solutions.

Academic Programs

The broad range and high quality of the programs at Stony Brook offer to undergraduates the opportunity to pursue both traditional and innovative courses of study. In their major areas, students delve deeply into one field, guided by nationally distinguished scholars. Major programs build on the Diversified Education Curriculum (D.E.C.), which stresses writing, quantitative literacy, and the serious examination of intellectual and societal issues. There are frequent opportunities for undergraduates to collaborate with faculty in research projects and creative activities.

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 Arts in Teaching, M.A.T.; Master of Fine Arts in Dramaturgy or Studio Art, M.F.A.; Master of Music, M.M.; Master of Philosophy, M.Phil.; Master of Professional Studies, M.P.S.; 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 Medicine 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 Schools. The College of Engineering and Applied Sciences is accredited by the Accreditation Board for Engineering and Technology, Inc. The Department of Chemistry is accredited by the American Chemical Society.

The Schools and Colleges

The *College of Arts and Sciences* offers degree programs in fine arts and humanities, in biological and physical sciences, in mathematics, and in social and behavioral sciences. In addition to departmental majors, special interdisciplinary majors using the resources of two or more departments are offered, as well as programs leading to provisional certification in secondary education. The Diversified Education Curriculum ensures that, in addition to concentration in their chosen major, students build a

firm base of academic skills while being exposed to diverse cultural traditions. Independent study and research are available and encouraged. Living/learning centers, where students share living and study space with like-minded peers, offer residence hall environments designed to enhance learning experiences, career development, and informal contact with faculty members through seminars and other activities.

The *College of Engineering and Applied Sciences* offers a wide range of programs that provide students with opportunities to find work in industry or proceed to graduate study in a variety of fields. Three accredited major programs in engineering give the student latitude to plan a course of study 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. Three 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 business, public, and nonprofit sectors. Named for one of New York's most distinguished public servants, the school trains students for careers primarily as managers. The school offers an undergraduate major and minor in business management and a graduate program in management in business, government, and the nonprofit sector. The admission requirements and curriculum for the major and minor are described on pages 234-236 of this bulletin. The graduate program's curriculum and degree requirements are described in the Graduate Bulletin.

The *Health Sciences Center* includes five professional schools and a teaching hospital. Undergraduate and graduate degrees are offered in health technology and management, nursing, and social welfare. Many health sciences courses are open to upper-division students from the other academic areas. Graduate degrees are also offered in dentistry and

medicine. Further details may be obtained from the Health Sciences Center Bulletin, available by writing or telephoning the Health Sciences Center Office of Student Services, State University of New York at Stony Brook, Stony Brook, NY 11794-8400; (516) 444-2111.

The *Marine Sciences Research Center (MSRC)* is the center for research, graduate and undergraduate education, and public service in the marine sciences for the State University of New York system. The MSRC is considered to be one of the leading coastal oceanography institutions in the world. The Center is also the focus for the study of atmospheric sciences and meteorology at Stony Brook. The center hosts five institutes, including the Institute for Terrestrial and Planetary Atmospheres and the Waste Reduction and Management Institute. The Center offers an undergraduate degree program in meteorology/atmospheric and ocean sciences, as well as a minor in marine sciences. Upper- and lower-division undergraduate courses are taught through the MSRC. Research opportunities and graduate-level courses are also available to outstanding undergraduate students.

Graduate Study at Stony Brook

The *Graduate School* offers advanced degree programs in many fields leading to the master's and doctoral degrees. Stony Brook's advanced graduate programs are internationally recognized, and consistently receive exceptionally high ratings from external evaluation agencies and scholarly studies. The graduate programs at Stony Brook are among the best in the nation. Stony Brook ranks in the top three of the nation's public research universities, and is among the top 25 institutions funded by the National Science Foundation. Stony Brook was the first public university in New York State to be recognized by the Carnegie Foundation as a "Type I Research" university—the highest classification, and a distinction granted to fewer than two percent of all colleges and universities nationwide. External support for research has grown to an annual sum of more than \$125 million, and according to a recent National Science Foundation study, our campus has one of the most rapidly growing research funding volumes of all universi-

ties in the country. Award-winning 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. Students in the humanities, arts, and social sciences will also find exciting opportunities to work with scholars and artists who are world leaders in their respective areas.

Graduate study is offered in 40 different degree program areas as well as in the five schools of the Health Sciences Center and the School of Professional Development and Continuing Studies. For a full listing of graduate programs of study consult the 1998-2000 Graduate Bulletin, available from the Graduate School, State University of New York at Stony Brook, Stony Brook, NY 11794-4433; (516) 632-7040, or on our web page at www.grad.sunysb.edu.

The *School of Professional Development and Continuing Studies (SPD)*, formerly the *School of Continuing Education*, offers several options for part-time graduate study. Degree programs include an interdisciplinary program, the Master of Arts in Liberal Studies (M.A./L.S.), which is designed for persons seeking a broader postbaccalaureate education than is ordinarily found in programs that focus on a single discipline, and is especially attractive to teachers who may use this degree to satisfy the master's degree requirement for permanent teacher certification. Also offered are the Master of Arts in Teaching (M.A.T.) for persons seeking provisional teacher certification in English, French, Italian, German, Russian, chemistry, earth science, physics, or social studies, and the Master of Professional Studies (M.P.S.) with a concentration in educational computing, human resource management, public affairs, software engineering, or waste management. In addition, SPD offers advanced graduate certificate programs in Long Island regional studies, waste management, environmental and occupational health and safety, coaching, school administration and supervision, and school district administration. Also available is the graduate special student (GSP) option, which provides an opportunity for graduate study to postbaccalau-

reates not yet enrolled in a degree program, or to students who do not intend to pursue a graduate degree. A broad selection of University courses is open to students under all of these options.

For an SPD Bulletin or additional information on the School of Professional Development and Continuing Studies, call or write the SPD Office, N-201 Ward Melville Social and Behavioral Sciences Building, University at Stony Brook, Stony Brook, NY 11794-4310; telephone (516) 632-7050; fax (516) 632-9046; e-mail spd@sunysb.edu.

Admission to Graduate Programs

Applicants to the Graduate School must have a bachelor's 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 programs establish additional requirements and deadlines for graduate admissions. Address any inquiries concerning graduate admission requirements to the specific program.

Financial Assistance

Financial assistance through the University may be available to graduate students in the form of teaching assistantships, fellowships, scholarships, loans, tuition scholarships, and work study programs. Most of these awards are available only to full-time, matriculated students.

Graduate Opportunity Tuition Scholarship Program

A scholarship equivalent to the cost of full 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 Scholarship Program for Economically Disadvantaged Students

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

Tuition Scholarships

Scholarships are available to students who enroll in a registered SUNY graduate or first professional program. These scholarships are awarded on a competitive basis.

Assistantships

Assistantships provide the principal form of support for graduate students. Graduate students perform duties in three principal areas: teaching, research, and administration.

For the 1996-97 academic year the full assistantship carries a ten-month stipend of \$9,572, which may be supplemented by other funds. Both state-funded TAs and GAs and externally funded assistantships are renewable at the discretion of the department, most for up to four years. Teaching and graduate assistants are affiliated with the Graduate Student Employees Union (GSEU).

Fellowships

Among the several fellowships Stony Brook awards for graduate study, the Graduate Council Fellowships and the W. Burghardt Turner Fellowships are the most prestigious. Graduate Council Fellowship awards result from Graduate School-wide competition. Funds permitting, these are five-year fellowships, subject to satisfactory academic progress. Graduate Council Fellows usually qualify for full tuition scholarships.

The W. Burghardt Turner Fellowship, funded by the State University of New York Underrepresented Graduate Fellowship Program, provides stipend support and full tuition scholarships for African-American, American Indian, and Hispanic-American graduate students. Typically, twenty Turner Fellowships are available each academic year.

Incoming graduate students who are members of underrepresented groups may apply for Patricia Roberts Harris Fellowships, which are funded by the U.S. Department of Education. They provide a stipend and tuition scholarship, with possible renewal for a maximum of three additional years.

Special Centers and Institutes

The University is home to a myriad 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 AIDS Education and

Resource Center; Alzheimer's Disease Assistance Center; Applied Behavioral Medicine Research Institute; Arms Control and Peace Studies Center; Bach Aria Festival and Institute; Cancer Center; Carol M. Baldwin Breast Cancer Center; Center for the Analysis and Synthesis of Macromolecules; Center for Behavioral Neuroscience; Center for Biotechnology; Center for Corporate Continuing Education and Training; Center for Education on Substance Abuse; Center for Excellence and Innovation in Education; Center for Health Policy and Management; Center for Industrial Cooperation; Center for Italian Studies; Center for Regional Policy Studies; Center for Religious Studies; Center for Science, Mathematics, and Technology Education; Center for Womyn's Concerns; Educational Communications Center; Empire State College; and the Executive Management Center.

Other campus-based institutes and laboratories include the High Energy Physics Group, Howard Hughes Medical Institute in Neurobiology, Humanities Institute, Institute for Cell and Developmental Biology, Institute for Long Island Archaeology, Institute for Mathematical Modeling, Institute for Mathematical Sciences, Institute for Medicine in Contemporary Society, Institute for Mental Health Research, Institute for Pattern Recognition, Institute for Social Analysis, Institute for Terrestrial and Planetary Atmospheres, Institute for Theoretical Physics, Laboratory for Arthritis and Related Diseases, Laboratory for Behavioral Research, Laboratory for Experimental Mechanics Research, Laboratory for Image Analysis, Laboratory for Personal Computers in Education, Laboratory for Political Research, Long Island High Technology Incubator, Long Island Leadership Institute, Long Island Library Resources Council, and the Long Island Regional Advisory Council on Higher Education.

Stony Brook also houses the Lyme Disease Center, Microscopy Imaging Center, New York Sea Grant Institute, Nuclear Theory Group, Occupational and Environmental Health Center, Research Group for Human Development and Educational Policy, Sleep Disorders Center, Small Business Development Center, Stony Brook Radiation Lab-

oratory, Sudden Infant Death Syndrome Regional Center for Eastern New York State, Suffolk Partnership Program, Taproot Workshops, Inc., Transplantation Society, and the Waste Management Institute. The University is a partner in Brookhaven Science Associates, which is now managing Brookhaven National Lab.

Academic Journals and Periodicals

Academic publications edited or published at the university include *Abdominal Imaging*; *Advances in Learning and Behavioral Disabilities*; *Art Criticism*; *Biological Psychiatry*; *Circuits, Systems, and Signal Processing*; *Continental Philosophy*; *Developmental Review*; *Evolution*; *Evolutionary Anthropology*; *Forum Italicum*; *Gradya*; *Heat Transfer—Japanese Research*; *Humanities Series in Contemporary Studies in Philosophy*; *Humanities Series in Philosophy and Literary Theory*; *Indiana Series in Philosophy of Technology*; *International Association of Philosophy and Literature*; *Journal of College Science Teaching*; *Journal of Educational Technology Systems*; *Journal of Histotechnology*; *Journal of Urban Analysis and Public Management*; *Long Island Historical Journal*; *Materials Science and Engineering*; *minnesota review*; *Philosopher's Annual*; *The Physics Teacher*; *Previews of Heat and Mass Transfer*; *Quarterly Review of Biology*; *Romantic Movement Bibliography*; *Slavic and Eastern European Arts*; *Stony Brook Bulletin for Theory and Criticism*; *SUNY Series in Aesthetics*; *SUNY Series in Contemporary Studies in Philosophy*; *SUNY Series in Political Thought*; *Taproot*; *Thermal Spray Technology*; *Transplantation Proceedings*; and *Victorian Literature and Culture*.

The Campus and the Community

Stony Brook is the only major research university on Long Island, one of the nation's largest and most vital suburban regions, with a population larger than that of ten states. As the public university center for Nassau and Suffolk counties and the metropolitan New York region, Stony Brook serves the complex, growing Long Island economy through research into local problems; by participating in 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. Excluding the state and county governments, the University is Long Island's second largest employer, with 9,590 people on the campus payroll. It is the largest single-site employer in Suffolk County. The University generates an estimated billion dollars annually in direct and indirect economic impact on the region.

An important educational center for the Island, Stony Brook also provides a social and cultural focal point, making art, theatre, music, and film available to the local community. Several hundred concerts, lectures, films, theatre productions, art exhibits, and sports events on 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. The University offers a specialized referral center for health care, multiple recreational opportunities, and a broad range of other services for individuals and groups in the public and private sectors. Regional business and civic leaders help guide the Stony Brook Foundation, Inc., the University's independently incorporated development arm, and community members with special interests in campus programs participate in the Friends of the Staller Center for the Arts and the University Hospital Auxiliary.

Technology, Research, and Industry

The University is an active partner with business on Long Island, a principal regional resource for high-technology research collaboration, the development needs of a highly skilled work force, and a source of technical support for public-policy challenges. The campus houses several active and innovative centers that work with local business. The Long Island High-Technology Incubator provides a protected setting for 20 start-up technology companies. The Center for Advanced Technology in Medical Biotechnology, a founding member of the New York Biotechnology Association, manages a \$2-million-per-year publicly and privately funded program promoting commercially viable biotechnology research, University-industry collaboration, and technology transfer. It has helped its partner companies create

1,400 jobs in this booming field. The Long Island Research Institute (LIRI) works to develop new technologies and attract research programs to the area. The Strategic Partnership for Industrial Resurgence (SPIR) is a state-funded project that matches the resources of the colleges of engineering at Stony Brook and three other State University campuses to research and development initiatives in the industrial sector. The region's extraordinary profusion of coastal environments is a living laboratory for the Marine Sciences Research Center, one of the world's leading centers for coastal oceanography. Senior public and private sector managers are trained by the Harriman School for Management and Policy, while the Center for Corporate Continuing Education and Training serves all segments of business and industry with noncredit instruction. Recently, the Center for Regional Policy Studies completed the wide-ranging Long Island Strategic Economic Development Plan, which provides recommendations for a sound regional economy through the year 2010.

Education

Stony Brook plays an important role in local education as well. Liberty Partnerships is a program that sends undergraduate and graduate tutors and interns into the field to help at-risk students remain in junior and senior high school and go on to college. The Teacher Opportunity Corps recruits and trains Stony Brook students from underrepresented groups to become teachers in areas with the greatest need. The Science and Technology Entry Program (STEP), sponsored by the New York State Education Department, provides academic enrichment, counseling, and tutoring for underrepresented minorities and low-income secondary school students interested in scientific, technical, and health-related careers.

The Center for Excellence and Innovation in Education plays an important role on Long Island by coordinating, supporting, strengthening, and developing undergraduate (pre-service) and graduate (in-service) teacher certification and teacher education programs, educational research and development programs, and school-University partnership programs. The center has had a significant positive impact on the region, and is widely recognized as a symbol of

the State University at Stony Brook's commitment to teacher education, educational research, and development.

In addition to the University's many degree programs, there are broad opportunities for credit-bearing and noncredit instruction for individuals pursuing specific, limited objectives or seeking personal enrichment.

Health Care

The University Hospital and Medical Center serves the health care needs of Long Island residents and trains dentists, physicians, nurses, social workers, and other health professionals such as physician assistants, physical therapists, and medical technologists. The hospital, which opened in 1980, is the only tertiary-care center in Suffolk County, and serves as a regional center for advanced patient care, education, research, and community service.

University Hospital offers the most sophisticated instrumentation and computerized physiological monitoring systems available. Medical and surgical services include a full array of highly specialized diagnostic and treatment techniques. The hospital consists of 504 beds with eight intensive care units dedicated to anesthesia, burn, cardiovascular, coronary, pediatric, medical, surgical, and transplant patients. A fully equipped neonatal intensive care unit provides the only tertiary-care services for premature and newborn infants in Suffolk County. Obstetrical services also include antepartum care and a perinatal education program.

University Hospital serves many regional roles. The Emergency Medicine Department operates as the designated level-one trauma center for the county. The hospital has designations as a perinatal center, a regional transplant center, a cardiac diagnostic center, a comprehensive center for total cancer care, a sleep disorders laboratory, and a Lyme disease center. It further serves as the region's burn center and directs the state-designated AIDS center. It also offers adult and pediatric surgery and orthopaedic services, including a comprehensive pain and rehabilitation program.

Among the services provided are cardiac catheterization, angioplasty, and electrophysiological studies, complete renal services, endoscopy, hematology studies,

detailed analysis of allergic and immune disorders, and diagnostic and interventional radiology. Advanced services such as lithotripsy, laser surgery, ophthalmic laser treatment, and nuclear medicine are provided. Multidisciplinary teams care for adults and children with chronic conditions such as diabetes, cystic fibrosis, multiple sclerosis, and the physical and psychosocial effects of headache and pain. A full array of psychiatric services for children and adults is available. Psychiatric emergency care is provided 24 hours a day.

University Hospital's clinical laboratories offer extensive services to patients. They include diagnostic radiology imaging, magnetic resonance imaging, stereotactic core breast biopsy, special procedures, interventional radiology, and nuclear medicine. In addition, University Hospital provides clinical neurophysiology monitoring and testing, endoscopy and gastroenterological services, pulmonary function studies, renal care, respiratory care, vascular diagnostic services, and the full range of physical and occupational therapies.

In the course of a year, University Hospital cares for more than 25,000 inpatients and treats more than 43,600 people in its Emergency Department. Close to 2,500 babies are born here each year, and more than 475,000 patients visit the medical center for physician care and ambulatory diagnostic and treatment services. In addition, the hospital dental service meets the needs of about 6,000 patients a year who have particularly complex dental problems.

Consistent with the hospital's community service mission, Stony Brook plays a key role in providing medical care to underserved communities and is a leading provider of both hospital- and community-based cancer screening programs. The medical center recently established a health care teleservices department that provides a variety of health-related informational services to the community using a comprehensive, up-to-the-minute computer database. Specially trained oncology nurses answer questions about cancer. Staff nurses assist patients with information about other health concerns. Nurses serve as advocates for callers and help streamline their access to the medical center.

Each year about 400 volunteers con-

tribute more than 50,000 hours of service. Every semester 100 to 120 undergraduate students serve as volunteers in the hospital, where they gain valuable experience while exploring careers in health care.

As an academic medical center, University Hospital at Stony Brook is an integral part of the Health Sciences Center of the State University of New York and is the principal clinical resource for the educational and research programs of the Schools of Dental Medicine, Health Technology and Management, Medicine, Nursing, and Social Welfare. University Hospital provides training for 484 residents and fellows in 45 approved specialty programs (including subspecialties) and the general practice/dental medicine program. Each clinical service of University Hospital is headed by a chief who is also the chair of the related department in the School of Medicine.

The medical center has a strong commitment to research. Investigators pursue clinical research, new diagnostic methods and patient therapies, as well as basic research into the causes and mechanisms of disease at the cellular and molecular levels. Recently, the medical center was designated as one of 24 centers nationwide to conduct the Women's Health Initiative. Under the auspices of the National Institutes of Health, this research initiative includes a series of clinical studies seeking to estimate the influence of environmental, genetic, and lifestyle factors on health and disease in women.

The Health Sciences Center operates the Long Island State Veterans Home, which is a 350-bed skilled nursing facility situated on the University campus. The home provides state-of-the-art, long-term and intermediate-level care to veterans of the United States Armed Forces. The home offers a broad range of services and features two 25-bed special care units, one for veterans with Alzheimer's disease and the second for those with respiratory disease. In addition, the home's services include medical-model adult day care that provides a full range of medical, allied health, and social services for veterans living in the community.

Campus Activities

Cultural Activities on Campus

A wide variety of lectures, seminars, concerts, exhibits, theatrical perfor-

mances, movies, and sporting events are scheduled regularly during the academic year. Campus Life Time is a 90-minute period on Wednesdays from 12:40 to 2:10 p.m. when no classes are scheduled, allowing students, faculty, and staff opportunities to participate in campus programs, convocations, meetings, and student club/organization activities.

Some recent well-known speakers at Stony Brook have included educator Henry Louis Gates, authors Maxine Hong Kingston, Louise Erdrich, and Umberto Eco, scientist-writer Paul R. Ehrlich, paleontologist Robert Bakker, human rights leader Julian Bond, former U.S. Attorney General Ramsey Clark, actress Phyllis Frelich, professor of law Lani Guinier, National Science Foundation Director Walter Massey, and His Holiness Tenzen Gyatso, the XIV Dalai Lama of Tibet.

Art galleries in the Staller Center for the Arts, in Melville 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.

Generally, five films are shown weekly on campus, including vintage and current productions; admission is usually free for students. The campus enjoys an average of one classical music concert every 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 recognized as the most important performing arts center in Suffolk County. It includes the 1,100-seat Main Theatre, the 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. More than 200 recitals and concerts are given with no admission charge. Highlights of past seasons

include performances by the Martha Graham Dance Company, MOMIX, the Vienna Choir Boys, Rita Moreno, Midori, the Tchaikovsky Chamber Orchestra, and the Peking Acrobats, as well as performances by the Stony Brook Concert Band, Chamber Symphony and Symphony Orchestras, Chamber Chorus, Gospel Choir, and University Chorus, and productions by the Department of Theatre Arts University Theatre.

Besides the free concerts, special student discounts are available for events at the Staller Center, and an arrangement has been made for students to purchase tickets for Main Theatre events that are not sold out. "Student rush" tickets are \$6.50 and go on sale 15 minutes before curtain time. The Staller Center for the Arts provides a place 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.

Student Organizations and Activities

Student Polity, the undergraduate student government organization, and its related groups, particularly the Student Activities Board, sponsor many campus activities. In recent years, popular student-sponsored concerts have featured Fishbone, Red Hot Chili Peppers, Patra, KRS, Ani DiFranco, Phish, and Jimmy Cliff.

Student Polity presently funds more than 100 student interest clubs and organizations, which in many cases complement students' academic work. Varied student interests are represented by groups as diverse as the Pre-Med Society, Stony Brook at Law, Cycling Club, Committee on Cinematic Arts (COCA), the Holography Club, Returning Student Network, the Chess Masters, the Science Fiction Forum, and the Young Parents Are Students Too Support Network, to name just a few.

The student newspaper, *Statesman*, is published twice 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; *Blackworld*, a newspaper focusing primarily on news of interest to the black community on campus; and *Stony Brook Shelanu*, a newspaper published by the

B'nai Brith Hillel Foundation.

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

Athletics

Stony Brook currently offers 20 intercollegiate varsity sports, 11 for men and 9 for women, competing in 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 (NISRA), along with local conferences for various sports.

In July 1993, Stony Brook initiated a process of complying with Division II regulations that would ultimately take its entire athletic program to the NCAA Division I level. That five year effort will come to fruition during the Fall 1999 semester when all of Stony Brook's Athletic teams are officially elevated to Division I status.

Stony Brook teams have enjoyed success in recent seasons with NCAA tournament appearances by the men's and women's basketball and women's volleyball teams, and by members of the men's and women's track and cross-country teams and the men's and women's swimming teams. In recent years, for instance, the women's volleyball team has captured a New York State championship and advanced to the NCAA Division III Women's Volleyball Championships five times. In 1992, the volleyball team captured the Eastern Regional title in the NCAA playoffs and finished third in the nation. The men's basketball and baseball teams have each appeared in two ECAC playoffs, with the baseball team capturing the title in 1992.

Religious Centers on Campus

The Interfaith Center is the representative organization for chaplains and campus ministry who are officially selected representatives of religious denominations and have a major concern for and a working relationship with the University. Members cooperate with administration, faculty, students, and

staff in programs that contribute to the human quality of the University and to the integrity of its academic purpose. Worship services are held and opportunities are provided to learn about and appreciate diverse religious traditions. Students should also be aware of Section 224-a of the New York State Education law as it pertains to exceptions from classes and coursework on religious holidays. See page 70 for more information regarding this law.

Baptist Campus Ministries is an organization of the Southern Baptist Convention. The campus office is in 166 Humanities. B'nai B'rith Hillel Foundation is the umbrella organization that serves the needs and concerns of Jewish students on campus, offering cultural, educational, religious, and social programs, as well as overseeing the kosher meal plan. Check with the Hillel Office, 165 Humanities, for the schedule and location of weekly and high holiday services. The Catholic Campus Ministry offers liturgies, retreats, the sacraments, and opportunities for Christian living and service, as well as full social and educational programs. Its office is in 158 Humanities. The Islamic Society of North America, 153 Humanities, addresses the social needs and spiritual development of Muslim students. The Protestant Campus Ministry, 160 Humanities, provides the opportunity to worship, social gatherings, study, counseling, and retreats. It also provides transportation to local churches. The Unitarian Universalist Campus Ministry is sponsored by the Long Island Area Council of U.U. Societies.

Offices of the Interfaith Center are in rooms 153-167 of the Humanities Building. Students are invited to visit, ask questions, and participate.

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 the University

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 noncompliance should be directed to:

Director of Affirmative Action
Administration Building 294
University at Stony Brook
Stony Brook, NY 11794-0251
Telephone: (516) 632-6280

The Americans with Disabilities Act (ADA), which became effective January 26, 1992, requires that individuals with disabilities be afforded equal opportunity in the areas of public services and programs, employment, transportation, and communications. Prior to this federal legislation, the University had been subject to similar provisions under Sections 503 and 504 of the Rehabilitation Act of 1973. In compliance with the ADA's broader definition of disabilities, the University makes concerted efforts to provide reasonable accommodation and access to services and programs.

For more information contact:

Assistant ADA Coordinator
Disabled Student Services
133 Humanities Building
University at Stony Brook
Stony Brook, NY 11794-5328
(516) 632-6748/9, V/TDD

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 not be improperly restricted and may be subject only to reasonable time, place, and manner restrictions, and other lawful regulation. The State University Board of Trustees' Rules for the Maintenance of Public Order (Part 535 of Title VIII—Compilation of Codes, Rules, and Regulations of the State of New York) are 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

The University Student Conduct Code defines acceptable community behavior. For a resident student, this means 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, one 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, sexual harassment, sexual assault, acquaintance (date) rape, relationship violence, and racial 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 Director of Judicial Affairs, 347 Administration Building, or call (516) 632-6705.

Parking and Traffic

All vehicles parked on campus are required to have a valid parking permit. Commuter students with a valid permit may park at any of the three commuter lots. South P Lot is located at the south entrance to campus on Stony Brook Road. North P Lot is located near the north entrance, next to the Long Island

Rail Road commuter lot. There is also a commuter parking lot by the Health Sciences Center. Bus service is available from the commuter lots to the West Campus. Parking is also available in three parking garages, located by the Administration Building, the Health Sciences Center, and the University Hospital. The hourly rate is \$1.50, up to a maximum of \$7.50 for the day.

After 4 p.m., commuters with a valid permit can park in any lot except those posted as 24-hour faculty/staff lots, the Indoor Sports Complex lot, the Chapin and Schomburg apartment lots, and specially designated areas. Commuter parking is also available in the Administration and Health Sciences Center garages after 4:30 p.m., at \$3 a day, or at the special evening student rate of \$7 (plus tax) per month. A commuter permit is required to purchase a monthly garage pass.

Commuter express buses leave the South P Lot every five minutes between 7:30 a.m. and 6:30 p.m. After 6:15 p.m., there is one bus every 15 minutes until 9 p.m., Monday through Friday. The University also provides access service to persons with disabilities.

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 a motor vehicle 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.

University Police

The University Police is staffed by 100 employees of whom 60 are sworn peace officers. The University Police have jurisdiction over the 1,100 acre campus and its 123 buildings. While officers are not specifically assigned to residence halls, those halls are part of regular campus patrols. Trained officers are avail-

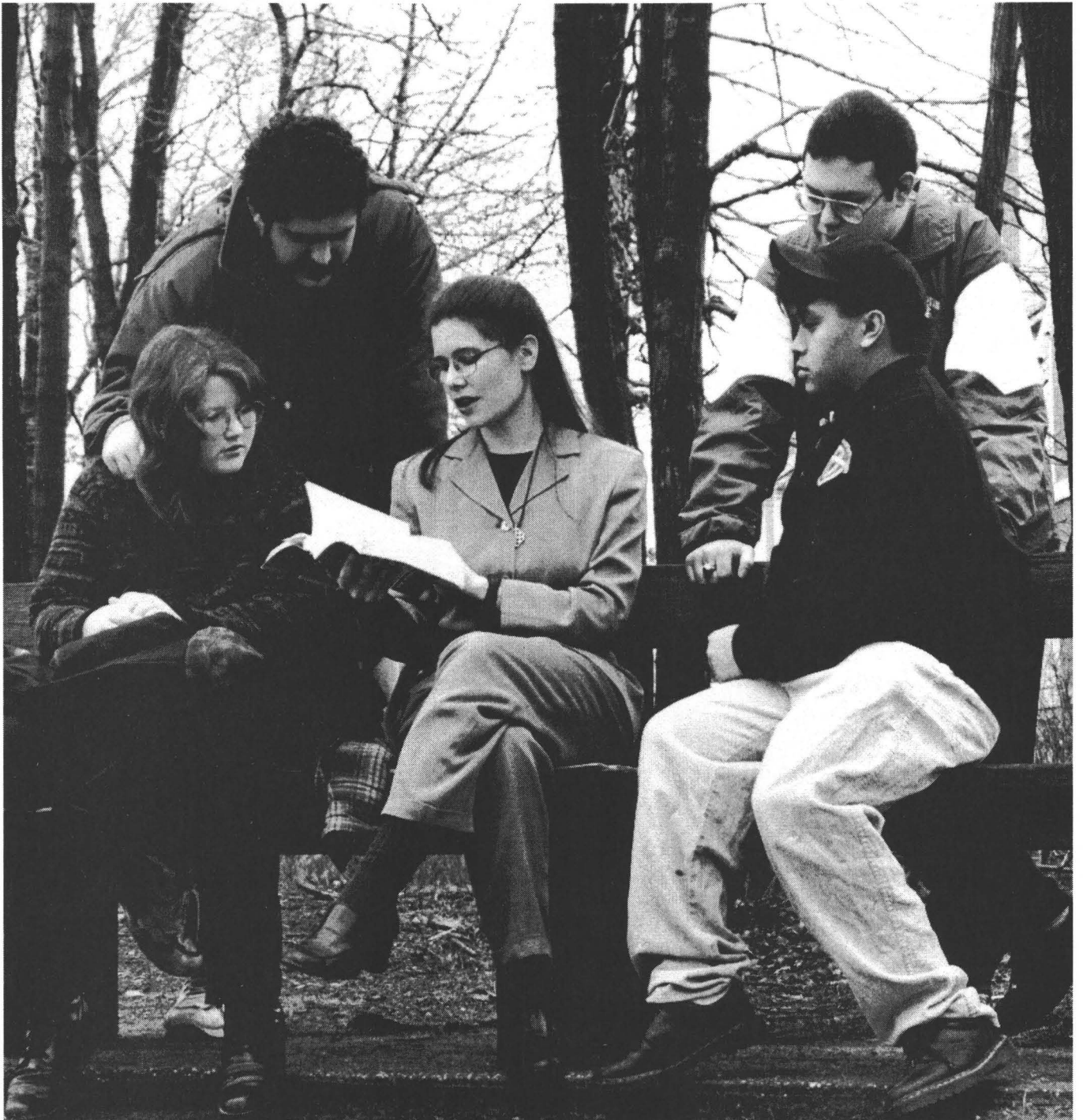
able to respond and assist around the clock throughout the year.

The members of the University Police are committed to community policing and are actively involved in campus activities. The goal of the Campus Relations Team is to educate the campus community on such topics as personal safety, risk awareness, crime prevention (including date and acquaintance rape prevention), drug and alcohol risk awareness, and many other community safety issues. They accomplish their mission through formal and informal talks, new student orientation programs, and the creation and distribution of pamphlets and posters across the campus. The Office of Community Affairs may be reached at 632-7786.

In the event of an emergency call 632-3333.



Student Services



Academic Support Services

Offices and programs that provide academic advice, tutoring, and additional academic support to students:

Calculus Resource Room
Academic Advising Center
College of Engineering and Applied Sciences Undergraduate Office
English as a Second Language
Intensive English Center
Mathematics Learning Center
Undergraduate Academic Affairs
Undergraduate Transfer Office
Writing Center

Calculus Resource Room

Instructors of calculus courses staff the Calculus Resource Room, located in A-125 Physics. Students who need assistance with coursework in any of the 100-level calculus courses can find someone in the room most of the time between 10 a.m. and 4 p.m., Monday through Friday, and during several weekday evenings. Call the Undergraduate Mathematics Office at 632-8250 for evening hours.

Academic Advising Center

Located on the third floor of the main library, the Academic Advising Center, open Monday through Friday from 10:00 a.m. to 4:00 p.m., serves students on a walk-in basis. Evening appointments for undergraduate evening students are also available.

The Academic Advising Center provides academic advising on general education requirements and academic rules and regulations. Advisors help students plan their course schedules and academic programs and also help students planning for various professions, including the health professions. Advisors also counsel students who need clarification of the University's academic policies and regulations.

In coordination with the Office of New Student Programs, the Center coordinates USB 101, a one-credit extended orientation course for entering students taught by University faculty and staff.

The Center sponsors several outreach programs. The Mentor Program arranges for faculty and staff mentors to individual students. The Academic Peer Internship Program affords the opportunity for qualified undergraduates to serve as peer interns, advising other undergraduate students and assisting them with the development of study

skills. The Achievement Support Program provides information to freshmen and sophomores about available academic services and ways to supplement these services when needed. The program assists at-risk students with study skills development and time management and demonstrates the value of departmental tutoring centers, computing and media centers, and academic advising.

The Center sponsors the Golden Key National Honor Society, which recognizes the top 15% of juniors and seniors in all academic programs. Golden Key membership offers access to scholarships, career assistance, and leadership opportunities.

The Center is also a SOAR site, where students can view and print their unofficial academic records and degree audit reports (DARTS).

College of Engineering and Applied Sciences Undergraduate Student Office

The Engineering and Applied Sciences Undergraduate Student Office administers the College of Engineering and Applied Sciences undergraduate academic programs and coordinates undergraduate academic advising. It provides general academic advising and information about the College Diversified Education Curriculum (D.E.C.) requirements, and requirements for admission to its majors. It receives and processes student petitions and grievances, advises students of administrative procedures, and assists with the processing of transfer credits. The office serves as the center for the CEAS Internship Program, publicizing internship openings and assisting corporate offices with selection and placement of student interns. It also disseminates information about special scholarships available to students in the College's majors and coordinates the scholarship application and selection process.

English as a Second Language

The ESL program offers beginning, intermediate, and advanced level courses aimed at raising students' abilities to understand, speak, read, and write standard English to the level desired of college students in the United States. For additional information contact the Linguistics Department at 632-7777 or 632-7774.

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. The IEC program is also open to people who do not plan to enroll at Stony Brook after completing the training but who wish to improve their English for personal or professional reasons.

An applicant who meets the academic criteria for admission may be given conditional admission to the University with the provision that the applicant successfully complete one of the advanced IEC levels and be recommended by the director. The program consists of 18 hours per week of non-credit English language courses, including reading, writing, speaking, and listening skills. Elective courses include: American Studies, Business English, Conversation, TOEFL Preparation, Grammar, and Conversation through Video. IEC students may audit University courses or, if they are in the advanced IEC level, may register for one course with the permission of the IEC director.

In the summer, the IEC offers two four-week programs. Students attend English classes and join excursions to places of cultural and historic interest. The second summer session offers a three-day trip to Washington, D.C., providing students the opportunity to visit the nation's capital. Admission is open to all foreign students who have completed the equivalent of a secondary school education. Participants are eligible to receive a student (F-1) visa, may live on campus, and may use all university facilities.

For additional information or brochures, prospective students may visit the IEC office in E-5320 Melville Library Monday through Friday 9:00 a.m. through 4:00 p.m., call 516-632-7031, fax to 632-6544, e-mail cbradley@notes.cc.sunysb.edu or visit the office Web site at <http://www.sunysb.edu/ieec>.

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 A-127 Physics (632-9845), and is open during the day and some evenings. Please call for hours.

Undergraduate Academic Affairs

This administrative academic unit oversees a variety of academic programs that provide services to populations with special interests, abilities, needs, or circumstances. Innovative programs, specialized advising, and enrichment opportunities are offered to students who are academically talented as well as those who need academic support.

Pre-law and pre-graduate and undergraduate health professions advisers are located in the office. The Office of Undergraduate Academic Affairs coordinates the nominations for prestigious scholarship and fellowship opportunities outside the University. The office is also responsible for the coordination and administration of the College of Arts and Sciences Academic Judiciary Committee and the Committee on Academic Standing and Appeals.

Undergraduate Transfer Office

The Undergraduate Transfer Office provides academic advice to prospective and enrolled transfer students. Advisors are available to help students plan their academic programs and course selections to ensure a smooth transition to Stony Brook. Advisors evaluate transfer credits for Diversified Education Curriculum (D.E.C.) requirements and work with academic departments to facilitate the evaluation of transfer credits for major and upper-division requirements. Advisors enter transfer credits on the Stony Brook record for both new transfer students and continuing students.

In addition, advisors assist all students seeking advice in selecting summer school courses to be taken at other institutions. The office also has a SOAR terminal enabling students to print their degree audit reports (DARTS). Academic advising is available on a walk-in basis, by e-mail, and by telephone. (632-7028).

Writing Center

The Writing Center is a tutoring center that provides free, individual help with writing to all members of the Stony Brook community including undergraduate and graduate students, faculty, and staff. Tutors assist with writing projects ranging from freshman composition essays to post-doctoral grant proposals. Tutors are trained in all aspects of writing and address a broad range of writing issues, e.g. getting started, organization, grammar, punctuation, English as a second language, and listening to the finished product.

Three types of tutoring sessions are available: weekly standing appointments with the same tutor; short term appointments; and drop-in sessions. All tutoring sessions are 50 minutes long.

The Writing Center is open Monday through Friday. For hours of operation or to schedule an appointment, call 632-7405.

Other Student Services

Offices, organizations, and facilities that provide additional services to students:

- Bookstores
- Campus Residences
- Center for Excellence in Learning and Teaching
- Child Care Services
- Commuter Student Affairs
- Computer Corner
- Computing Services
- Counseling Center
- Dean of Students
- Disabled Student Services
- Indoor Sports Complex
- International Student Services
- Libraries
- Off-Campus Housing
- Stony Brook Union
- Student Activities Center
- Division of Student Affairs
- Student Health Service
- Office of Student Judiciary
- Veterans Affairs
- University Ombuds Office

Bookstores

Textbooks, trade books, supplies, and clothing are stocked in the University bookstores at two locations on campus: ground level of the Melville Library (opposite the Stony Brook Union) and Level 2 Health Sciences Center. Books are sold at the manufacturer's list price.

Students should shop early to obtain any available used books. Books may be returned within the first ten days of classes providing they are in the same condition as when purchased. Refunds can be made only during the first two weeks of classes, and a receipt is required. During the first two weeks of each semester, the bookstores hold extended hours.

A selection of reference and general reading books is available, and titles not in stock can be ordered. The clothing department sells custom-printed T-shirts and sweatshirts. Art and engineering supplies are stocked in addition to regular stationery items. The stores also carry a selection of greeting cards, gifts, and health and beauty aids.

For more information, call the University bookstores at 632-6550 (West Campus) or 444-3686 (East Campus).

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 300 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. The residential colleges, each housing approximately 220 students, are arranged in quadrangles. Each quadrangle has a unique atmosphere and personality.

Each residence hall is supervised by a residence hall director (RHD). 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 (e.g., study skills workshops, guest lecturers, resumé writing workshops). 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 University is currently in the midst of a multi-year revitalization project to upgrade all of its facilities. Scheduled for completion by the year 2000, the revitalization project includes new furniture in bedrooms and public areas, enhancements to social and recreational facilities, modernization of the HVAC systems, and more.

Each residential college has public lounges, laundry rooms, and recreational facilities. Every residence hall room is equipped with a telephone and cable television hookup, which provides quality television reception as well as access to more than 40 cable stations including HBO. There are also state-of-the-art Fitness and Computing centers located in every Quad, open free of charge to all residents. The Fitness Centers feature CYCEX circuits, Life Cycles, Stair Masters, and free weights. Aerobic classes are taught in most of the centers, and staff are available to develop and monitor personal fitness plans for all users. The Computing Centers feature Pentium PCs which run all Microsoft Office applications, provide access to electronic mail, and the Internet. Trained staff are available in each center to provide technical assistance and guidance.

Ethernet hook-ups are available in some residence halls. Residence halls without ethernet hook-ups offer rental analog adaptors to students who wish to access on- and off-campus computing facilities.

Several quadrangles have dining halls. First-year and transfer students living on campus must participate in one of the meal plan options during their first two semesters of residence. Most residence halls have been designated as cooking-free buildings and students living in those buildings are required to enroll in one of the meal plan options offered by the University Food Service. Many residence halls offer the options of quiet communities and substance-free rooms. These options have become increasingly popular with the residence hall population.

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.

The Residence Hall Association, representing all students who live on campus, addresses important issues of concern to quad residents, including an annual review of the residence hall budget. Students are encouraged to become active members of this organization.

The Harry Chapin Apartment Complex houses graduate, married, and health sciences students. Single parents with children are also eligible to apply for accommodations. The apartments have one, two, three, or four bedrooms, a kitchen, living room, and bathroom. All apartments are furnished. Rental agreements are made on a 12-month basis. The cost varies depending on the size of the apartment and the number of occupants. On West Campus, the Schomburg Apartments house single graduate and Health Sciences Center students in four-bedroom apartments and married couples in one-bedroom apartments.

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

Residence Hall Billing

The Residence Hall agreement is for the full academic year, although billing is processed by the semester. Once a student accepts the key to his or her room, the student becomes financially responsible for the full housing charge for that semester. Should a student wish to cancel housing at the end of the fall semester, the student must complete a proper checkout (which includes signing out of the room and returning the room key to the Quad Office) by 8:00 p.m. on the last day of the fall semester to avoid being assessed full housing charges for the subsequent spring semester.

Career Placement Center

The Career Placement Center assists students and alumni with all types of career planning concerns while providing placement services and acting as a

resource for information on internships and full-time, permanent employment. Individual and group consultation with students is offered. Students are also encouraged to undertake periodic critical self-examination to relate their academic expertise to their aspirations for future professional involvement and advancement. Two computerized guidance services, FOCUS II and SIGI Plus, are also available for students to use in their career decision-making process.

Job fairs and a campus interview program hosted during the fall and spring semesters enable students to meet with prospective employers to discuss job opportunities. The Center is partnered with JOBTRAK, Inc., which posts job vacancies on-line and provides a computerized interview sign-up and resumé referral system giving students access to employers visiting campus. A credentials service supports students in their application for jobs or advanced study by maintaining letters of recommendation that are copied and sent directly to employers and schools.

Students are encouraged to participate in a volunteer service program (VITAL) to gain experience in specific career areas by working with agencies and institutions that seek volunteers.

The Internship Program provides students with the opportunity to spend a semester or summer working for pay and/or academic credit under the supervision of both University faculty and professional staff at a cooperating agency or organization. Internships require 40 hours on the job during the semester or summer for each credit earned. One to six credits may be earned for semester or summer internships.

Internships afford students the opportunity to apply theory to practice; to test their career intentions; to improve their 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 when seeking employment or applying to professional school.

The Job Search Preparation Program includes group workshops that assist students and alumni in writing resumé, interviewing effectively, and developing job search strategies. As part of the Career Placement Center's Outreach

Program, career counselors visit classrooms, student organizations, and academic departments when requested in order to provide career-related information.

The Career 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 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). Many of these examinations are administered on campus. There is also a growing collection of videotapes on a variety of career topics. In addition, the Career Advisor's Network (CAN) enables students to contact Stony Brook alumni for information on specific career areas (e.g., social work, business management, etc.). Finally, the Self-Service Career Center offers a variety of information sheets on career planning topics that are available for students to pick up.

Students are encouraged to visit the Career Placement Center and become familiar with the services it provides. The office, located in W-0550 Melville Library, is open weekdays, except Tuesdays, from 8:30 a.m. to 4:00 p.m. On Tuesday, the Center is open from 8:30 a.m. to 7:00 p.m. A comprehensive website is also available to students at <http://www.sunysb.edu/careers/>. The telephone number is 632-6810 (Voice/TDD).

Center for Excellence in Learning and Teaching (CELT)

The Center for Excellence in Learning and Teaching (CELT) is a partner in the University's effort to create an exciting and fulfilling undergraduate learning experience through the promotion of a collaborative, energized, and supportive academic environment. CELT's activities include: providing information to undergraduates about academic support services; sponsoring internships for undergraduates who are interested in learning website design and other technology applications; providing technolog-

ical resources, space and support for the development of technology-based learning activities; "Spotlight on Excellence" at the CELT Web site, featuring faculty, departments, and programs with innovative learning and teaching approaches; developing mentoring networks for new faculty, graduate teaching assistants, and faculty; and developing partnerships between University and community entities, including local school groups, to encourage the growth of lifelong learning skills.

To learn more about the center, located in W-1515 Melville Library, visit the Website at www.cvc.sunysb.edu/celt. CELT can also be reached by telephone at 632-1057 and by e-mail at celt@notes.cc.sunysb.edu

Child Care Services

Stony Brook Child Care Services is a nonprofit service for university students, faculty, and staff that provides child care for children from two months to five years old. Four on-campus facilities in newly renovated houses are staffed with professionals in the early childhood field, who are assisted by students enrolled in coursework practice. The primary aim is to provide a warm, supportive, and creative atmosphere in which each child, and each child's family, is regarded as individual. Two of the centers, Toscanini and Clark, are for children from two months to three years old, and the other two, Early Childhood Center (ECC) and Benedict, are for children from three to five years old. Hours of operation vary. Fees are charged on a sliding scale based on income.

There are extensive waiting lists for these centers; interested persons should call for an application well before the service will be needed, as placement cannot be guaranteed. Call 632-6930 for more information.

Commuter Student Affairs

The Office of Commuter Student Affairs is located in Suite 131 in the Student Activities Center and is open weekdays from 8:30 a.m. to 5:00 p.m. It offers services, programs, advocacy, and outreach on behalf of commuter students. Programs offered include workshops in stress management, car maintenance, Internet job searches, as well as various activities and receptions designed to promote faculty, staff, and commuter student interaction and communication.

In addition to providing services, this office brings the commuter perspective to campus committees and to campus programs. It responds to students' requests, queries and suggestions, intercedes on their behalf, and is both reactive and proactive for commuter students. It also facilitates the recommendations of the Commuter Student Affairs Advisory Board whose membership consists of faculty, staff, and commuter students. In collaboration with campus constituencies such as the Commuter Student Association and the Department of Student Activities, the Office of Commuter Student Affairs actively aids and encourages commuter students to become full participants in campus life.

The Office of Commuter Student Affairs can be reached by telephone at 632-7353 or by e-mail at comstudaff@ccmail.sunysb.edu.

Computer Corner

The Computer Corner is operated by the Faculty Student Association, the campus non-profit auxiliary service corporation, and offers educational discounts on brand name hardware and software to University students, faculty, and staff. Discounts that are equivalent to state contracted pricing, including extended warranty and on-campus delivery and repair service, are offered for personal computer packages approved and recommended by the Campus Department of Information Technology. Computer Corner is an authorized educational dealer for Dell, Apple, Hewlett Packard, Microsoft, Borland, Systematic, Hauppauge Computer, and a variety of other manufacturers. The store is located in the Educational Communications Building (ECC) facing the Psychology Buildings. Store hours are Monday through Friday 9:30 a.m. to 4:00 p.m. For additional information call 632-7630, fax 632-6329, or e-mail Computer.Corner@sunysb.edu.

Computing Services

The University's computing environment is characterized by an ever-changing array of hardware, software, network connectivity, and consulting services. The Stony Brook Instructional Networked Computing (SINC) sites are located throughout the campus in the Life Sciences Library, Melville Library, Math Tower, Harriman Hall, and in the Social and Behavioral Sciences, Computer

Science, Engineering, Chemistry, and Humanities Buildings. A site in the Stony Brook Union is planned for Fall 1999. These sites have a variety of computers, software, and printers. Unless machines are reserved for a class, the equipment in all SINC sites is accessible to any student during operating hours, and student consultants are available at all SINC sites to answer user questions. At times, free classes to learn some of the common applications are offered.

Central computing provides a UNIX environment. UNIX is the multi-user system used most frequently for e-mail, Internet access, and class assignments. It also includes Java, Perl, Pascal, FORTRAN, C and C++ software. All registered students may have an account on the IC UNIX system and may request server space for a personal Web page.

An account on the Instructional Computing UNIX system also provides access to the Internet from a home or dormitory personal computer, allowing graphical browser software such as Netscape or Internet Explorer to access Web pages, the STARS library system, and other resources. Students are required to purchase additional equipment, including a modem, network interface card (NIC), or an analog plug-in adapter to access the Internet from their residences. The exact requirements for each residence hall are included in the housing information mailed to each student before the academic year.

Dell Pentium and Apple Macintosh personal computers are available through the Computer Store in the ECC Building. Instructional Computing has site licenses for PC: Solve, True Basic, Lotus Notes, and Lotus SmartSuite. Information needed to obtain copies of this software can be obtained in the Library SINC site.

Consulting services are provided by various offices within the Division of Information Technology. Refer to the campus phone directory for specific services. For more information about SINC sites, contact Instructional Computing in S-1460 Melville Library, at 632-8050 or the student consultants at 632-9602, or visit their website at <http://www.sinc.sunysb.edu>.

Counseling Center

The University Counseling Center provides consultation, crisis intervention,

brief psychotherapy, and group and couple's therapy for full-time students, including matriculated SPD students. Part-time students may request referrals for the campus Psychological Center or counseling services elsewhere and are welcome to register for educational programs. Counseling services are available year-round. All information about counseling at the Center is strictly confidential, except when needed in situations where there is an imminent threat or danger.

A student does not have to be confronting desperate or overwhelming difficulties in order to benefit from counseling. The Center encourages students to come in and discuss problems, even if they are not sure that counseling is what they need. For many students, dealing effectively with emotional and social issues increases their success with academic work. Some have an unrealistic image of college life, which minimizes or overlooks the significant life changes required. Even those students who are flexible and resilient can feel the stress associated with being a University student. For example, the transition from home to college is sometimes difficult. Residents must cope with the pressures of residence hall life. Commuting students may need help in juggling competing priorities. Academic requirements are usually more rigorous and competition keener than previously experienced. Other students experience major life crises, losses, family or relationship problems, and self-esteem and identity issues while in college. The University Counseling Center is a place for help with all these issues.

The Counseling Center also has outreach programs to enhance personal growth and skill development. The most popular workshops deal with stress management, meditation, study skills, feeling better about yourself, and interpersonal communication. Support groups for adult children of alcoholics, eating concerns, and women who have experienced sexual abuse are offered. The programs are free for all full- and part-time students. In addition to workshops, the University Counseling Center sponsors a weekly radio show, "Taking Care of Yourself," which focuses on health and mental health issues.

The University Counseling Center realizes the need to understand the diverse

mix of cultural and social groups that make up the campus community. Through its liaisons, the Counseling Center works cooperatively with the following groups: EOP/AIM, the Mentor Program, Campus Residences, Undergraduate Academic Affairs, the Academic Advising Center, the academic departments, International Student Services Office, Dean of Students Office and Disabled Students Services.

The Center is open from 8:00 a.m. to 5:00 p.m. on Monday, Wednesday, Thursday, and Friday, and from 8:00 a.m. to 7:00 p.m. on Tuesday during the school year, and from 8:00 a.m. to 4:00 p.m. during intersession, summer, and spring break. Appointments for an initial visit are made on a same day or next day basis by calling 632-6720. In emergency situations, students will be seen right away without a scheduled appointment. The Counseling Center is located on the second floor of the Student Health Center. Any student needing a disability-related accommodation should call the Counseling Center at 632-6720.

For mental health emergencies after hours and on weekends, students should call Public Safety at 632-3333 or go to the University Hospital Emergency Room. Anyone not experiencing an emergency but wanting to speak to someone after hours and on weekends can call the Response Hotline at 751-7500 or the University Response Hotline at 632-HOPE.

Further information about counseling services can be found on the Center's Web site: <http://www.sunysb.stuaff/counsel>.

Dean of Students

The Dean of Students provides administrative oversight of and support for the Interfaith Center, Polity (student government), student clubs and organizations, and student services such as the meal plan. The Dean's office organizes campus events such as Homecoming and Family Day and oversees the office of Commuter Student Affairs and the department of Student Union and Activities.

Disabled Student Services/ADA

Disabled Student Services (DSS) coordinates advocacy and support services for students with disabilities. These services assist in integrating students' needs with the resources available at the University

to eliminate physical or programmatic barriers and to ensure an accessible academic environment.

Students are responsible for identifying and documenting their disability through the DSS office. DSS staff plan and implement the academic adjustments or reasonable accommodations necessary to support students' academic programs. All information and documentation of disability is confidential.

Students receive assistance with admission and orientation; registration information and referrals; special housing and transportation; recruitment of readers, interpreters, note-takers, aides, and attendants; University procedures and requirements; test accommodations; and counseling. A learning disabilities specialist is available to refer students for diagnostic testing and individualized educational programming, meet accommodation needs, and provide in-service training to the University community. A supported education program offering individual counseling and group sessions is available for students with psychological disabilities.

Special equipment available for student use on short-term loan includes two- and four-track tape recorders, wheelchairs, note-takers paper, an FM amplification system, keys for elevators, and a TT. Also available are temporary handicapped parking permits, a volunteer taping service, and the use of a computer, a reading machine, and other equipment in the Melville Library.

The office also advises STAC (Students Toward an Accessible Campus), a Polity-sponsored social and community service club for disabled and non-disabled students.

The 1992 Americans with Disabilities Act (ADA) requires that individuals with disabilities be afforded equal opportunity in the areas of public services and programs, employment, transportation, and communications. In compliance with the ADA's definition of disabilities, the University makes concerted efforts to provide reasonable accommodation and access to services and programs.

Students who anticipate requiring assistance should notify the Disabled Student Services/ADA office as early as possible to allow time for implementing recommended services. The office is located in Room 133 Humanities Building, or call 632-6748/9, V/TT.

Indoor Sports Complex

The west wing of the Indoor Sports Complex, next to the Stony Brook Union, opened in the fall of 1990. Connected to the existing gymnasium, the 105,000-square-foot complex seats 4,500 for basketball and volleyball and 5,000 for lectures, concerts, and other special events. The facility houses a four-lane, six-sprint-lane track (177 meters in distance), six glass back-walled squash courts, locker rooms, six team rooms, and a training room equipped for hydro- and electrotherapy. Attractive lobbies, offices, and two concession stands complete the facility.

The Pritchard Gymnasium, which is now the east wing of the Indoor Sports Complex, features seating for 1,800 for basketball and volleyball; a six-lane, 25-yard pool; eight racquetball courts; a Universal weight room; a dance studio and exercise room; and three multipurpose courts for basketball, volleyball, badminton, or indoor soccer, available when not in use for competition. The complex is Long Island's premier college sports facility, second in size only to Nassau Coliseum.

Outdoor facilities extend over 25 acres and include Seawolves Field, the home of football and lacrosse; tennis courts; a six-lane, 400-meter track; four single-wall handball/paddleball courts; and recently renovated fields for varsity soccer, baseball, and softball. The intramural fields, also recently renovated, are used for softball, touch football, soccer, beach volleyball, and many other sports.

The complex serves as the center for physical education as well as intercollegiate athletic intramurals and addresses the recreational, educational, and entertainment needs of the University community. Special events include track and basketball championships, trade shows, and concerts, as well as sports clinics.

Most facilities may be used for recreational purposes when they are not scheduled for classes, intercollegiate athletics, special events, or intramurals. Current times for recreation may be obtained in the Indoor Sports Complex and hours are subject to change. The Indoor Sports Complex is open Monday through Sunday from 8 a.m. to 11 p.m. It is closed on all major holidays. Hours are adjusted for winter and spring breaks.

International Student Services

International Student Services counsels students from other countries concerning finances, U.S. government regulations (including immigration and tax concerns), and cross-cultural issues relating to study in the United States. The international student and scholar advisors are the Designated School Officials (DSO) and Alternate Responsible Officers (ARO) on campus who are responsible for assisting students in obtaining and maintaining F-1 and J-1 status in the United States. Questions relating to academics are usually handled by academic advisors in the Academic Advising Center or in the academic department.

International Services provides information regarding the SUNY Health Insurance Plan for international students and scholars. All students in F-1, F-2, J-1 or J-2 status are required to purchase the international student health insurance provided by the State University of New York. The mandatory fee for this insurance is billed to the student. Waivers of the mandatory health insurance plan must be applied for no later than the end of the first two weeks of classes.

International Student Services works with community groups and student organizations to provide access to a varied program of activities, including a liaison for students with the community host family group.

An F-1 or J-1 foreign student must take a full course of study of 12 credits, must attend a mandatory international student orientation program, and should consult with an International Student Advisor *before* 1. accepting employment, 2. traveling outside the United States either permanently or temporarily, 3. applying for a U.S. visa abroad, 4. transferring to another institution within the United States, 5. withdrawing from the University, 6. changing his or her address within the United States, 7. changing to another non-immigrant or immigrant status (for example: from F-1 to "permanent resident"), 8. dropping below 12 credits for a semester; or 9. changing academic major or level of study. To maintain legal immigration status, an F-1 or a J-1 student must also have a valid passport, Form I-94, and Certificate of Eligibility Form I-20 or IAP-66.

International students transferring from other schools in the United States must have their Certificates of Eligibility (Form I-20 or IAP-66) processed for transfer to Stony Brook by an international student advisor at Stony Brook within the first 15 days of classes. All international transfer students must meet with an international student advisor for an initial intake interview within their first semester.

The International Student Services Office is located in the Graduate School, 2401 Computer Science Building. The telephone number is 632-9559. The fax number is 632-7243.

Libraries

The Stony Brook campus houses a number of libraries 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, and fine arts. 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, music, and legal materials. Other facilities of note are a music listening center, an instructional computing center and a variety of study spaces. The full range of library services, including open stack privileges and database searches, are available to all students.

There are six science libraries. Four of these—chemistry, computer science, marine and atmospheric sciences, and mathematics/physics—are located in departmental buildings. A fifth, engineering and geosciences, is located on the main floor of the Melville Library. The sixth, biology, is located in its own building. A Health Sciences Library is located in the Health Sciences Center. Collectively, the university libraries contain more than 1.8 million bound volumes and three million publications in microformat. Numerous data files in CD-ROM and other electronic formats are also available.

Other library facilities of note are the Senator Jacob K. Javits Collection of pri-

vate papers and memorabilia and the William Butler Yeats Archives.

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. Students are urged to check the posted hours of operation at the various libraries, as well as at the main library.

Off-Campus Housing Service

An off-campus housing service, located in 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, tips for renters, listings of short-term and interim housing, bed and breakfast, hotel, and motel information, and local transportation information and maps. Call 632-6770 for further information or visit the office's Web site with on-line, interactive database at <http://och.vpsa.sunysb.edu>.

Stony Brook Union

With 10 meeting and conference rooms, a 348-seat auditorium, a large two-level, multi-purpose room, a ballroom that accommodates 600, and an art gallery displaying the works of campus and community artists, the Stony Brook Union hosts student clubs, organizations, and events.

In addition to club meetings and concerts, students use the Stony Brook Union for the video arcade, video rentals, televisions, quiet areas, and food vendors, including a pizzeria, cafeteria, deli, restaurant, and bakery.

The campus radio station, WUSB-FM (90.1), staffed by students and volunteers, operates from the Union. Student newspapers, the television station 3TV, and student-run audio-visual services all have offices in the Union. The Faculty Student Association (FSA), located in Room 282, provides for campus auxiliary

services such as food services, vending machines, flea markets, the publishing of course materials, and coordination with test preparation services.

The Union Crafts Center, on the lower level, offers non-credit workshops, open to all for a nominal fee, in ceramics, photography, silkscreening, leatherwork, bartending, cooking, car maintenance, weaving, and many other crafts and skills. For Crafts Center information, call 632-6822.

Weekends at Stony Brook include concerts, plays, movies, guest lecturers, and sporting events. Past concerts have included Eddie Murphy, George Carlin, Phish, Linda Kim, Busta Rhymes, Bob Dylan, Funk Master Flex and Red Alert. Craft fairs, club fairs, and special cross-cultural exhibits are also popular activities on campus.

The Union also houses campus services, such as an information center with campus maps, train and bus schedules, campus telephone directories, and information about campus events such as concerts and movies. The Information Center's phone number is 632-6830.

Hours of operation for the fall and spring semesters are: Monday through Wednesday, 8:00 a.m. to 1:00 a.m.; Thursday and Friday, 8:00 a.m. to 2:00 a.m.; Saturday, 10:00 a.m. to 2 a.m.; and Sunday, 10:00 a.m. to 1:00 a.m. During recess and intersession, the Union is open Monday through Friday, 8:30 a.m. to 5:00 p.m. and is closed New Year's Day, Easter Sunday, Memorial Day, Independence Day, Labor Day, Thanksgiving, and Christmas. For any changes in the normal schedule, call 632-6830.

Student Activities Center

Opened in 1997, the Student Activities Center hosts many student clubs and organizations. The undergraduate student government, Student Polity Association, has a suite of offices on the second floor. The Commuter Commons is a bi-level lounge, complete with computer carrels, billiard and ping pong tables, and the office of the Commuter Student Association. The Administrative Office of Commuter Student Affairs is right across the hall, within the Dean of Students' suite.

Student activities and room reservations for both the Stony Brook Union and the

Student Activities Center are planned through the Department of Student Union and Activities, on the second floor of the Student Activities Center.

Nine meeting and conference rooms are available, each seating from 35 to 85 people. A multi-purpose state-of-the-art auditorium seats 586 and can be used for dances, movies, concerts, speakers, and other special events. The auditorium lobby overlooks a sculpture garden and courtyard. With its benches and pergola, the area is a choice spot for students to relax.

The arched windows of the Main Dining Hall, with upper and lower dining lounges, give students a panoramic view of the center of campus, from the Administration Building to the east, Harriman Hall on the west, Engineering to the south, and Chemistry to the north.

On the lower level, a full service bank, post office, and a student-run print shop are available. The Eugene Weidman Wellness Center has a dance floor, heart strengthening machines, a juice bar, and a seminar series addressing the full range of human needs, physical, spiritual, cultural, philosophical, emotional, and mental. The Student Activities Center is expanding to include more lounges, an art gallery, enlarged Wellness Center, and multi-function programming areas. For information on the hours of operation, call 632-9392. For a listing of campus activities, access the Events Calendar on www.sunysb.edu.

Division of Student Affairs

As campus advocates for all students, the departments within the Division of Student Affairs are responsible for supporting the needs of the student body and providing a positive campus life experience for each student. The Division consists of the following offices: Campus Residences; Career Placement; University Counseling; Dean of Students, which includes Commuter Student Affairs, and the Department of Student Union and Activities, on the second floor of the Student Activities Center; Disabled Student Services; Student Health Services; Student Judiciary; and Veterans Affairs. Detailed information is available in the Stony Brook Student Handbook, which is available in most major campus offices and in the campus bookstore.

Student Health Service

New York State Public Health Law requires that every student demonstrate proof of immunity against measles, mumps, and rubella. This law requires the University to prohibit students' future attendance if they fail to acquire or submit certification of the necessary immunizations. Compliance is mandatory; students who fail to provide proof of immunization will be prevented from registering for courses.

The Student Health Service, located in the Infirmary Building, provides health care to all registered students, and to faculty and staff on an emergency basis only. There is a mandatory fee of \$75 for full-time students and \$7.50 per credit for part-time students. The health service is open Monday through Friday, 8 a.m. to noon and 1:00 p.m. to 5:30 p.m. The hours during intersession and in the summer are 8:00 a.m. to 4:30 p.m. When the Student Health Service is closed, 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, nurse practitioners, and nurses. Students need only "walk in" to the Infirmary Building, register, and they will be seen by the medical staff. Some prescriptions can be filled and laboratory work completed as part of the mandatory fee. There is a gynecology clinic (Women's Center), wart clinic, health educator, 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 632-6054.

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 Director of Judicial Affairs, 347 Administration Building, 632-6705.

Veterans Affairs

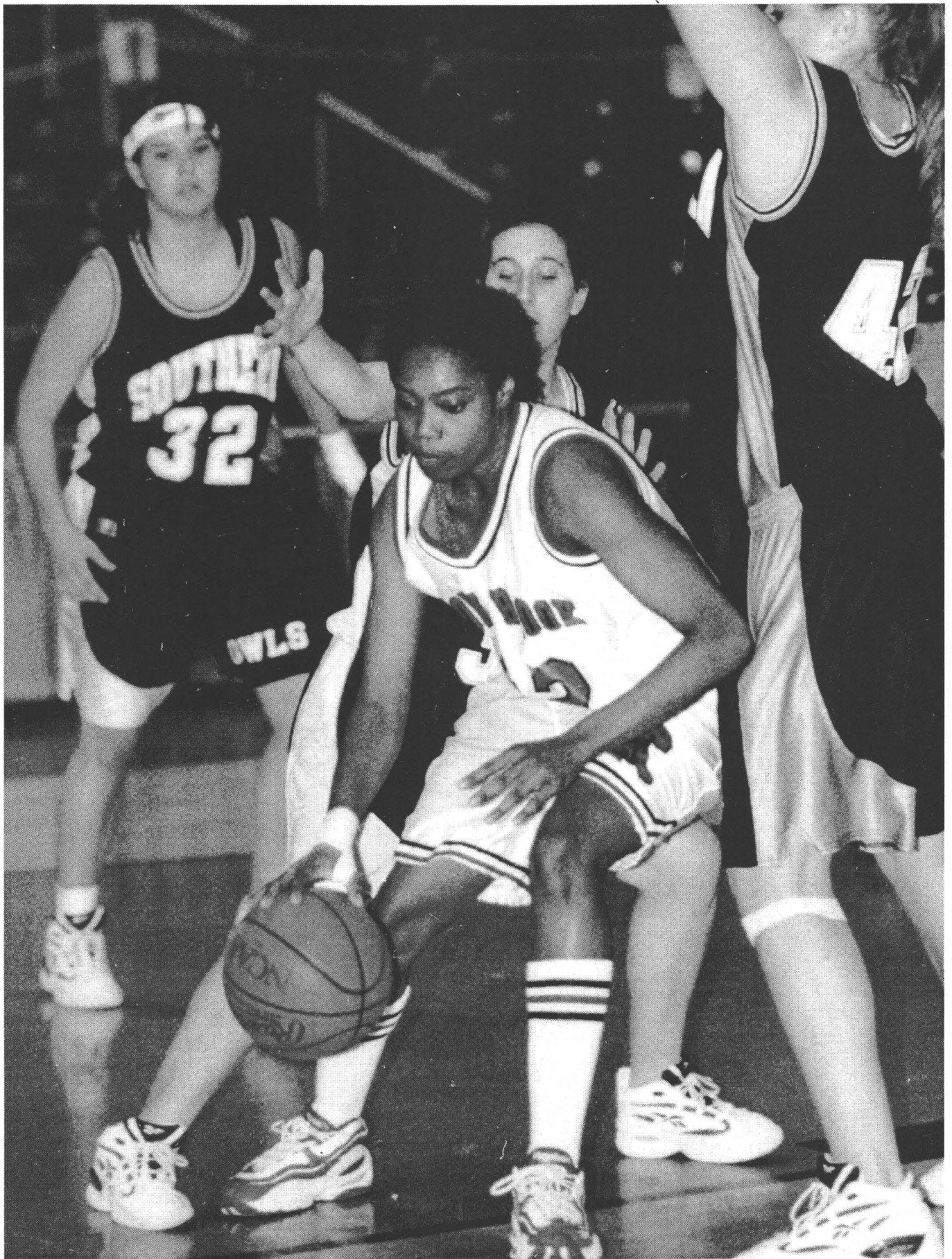
The Office of Veterans Affairs, part of the Office of the Vice President for Student Affairs, offers assistance in applying for educational benefits and completing and forwarding forms and supporting documents for eligible veterans and dependents. In addition to serving as liaison between these students and Veterans Administration, the office provides certification and tuition deferment services. The office is located in Room 348 of the Administration Building. For additional information or to make an appointment for assistance, please call 632-6700/1.

University Ombuds Office

The services of the University Ombuds Office are available to all students, faculty, and staff. The office provides a comfortable, receptive place to turn, for instance, if a student is having trouble getting through a bureaucratic maze or needs help resolving a dispute with someone or in solving a problem.

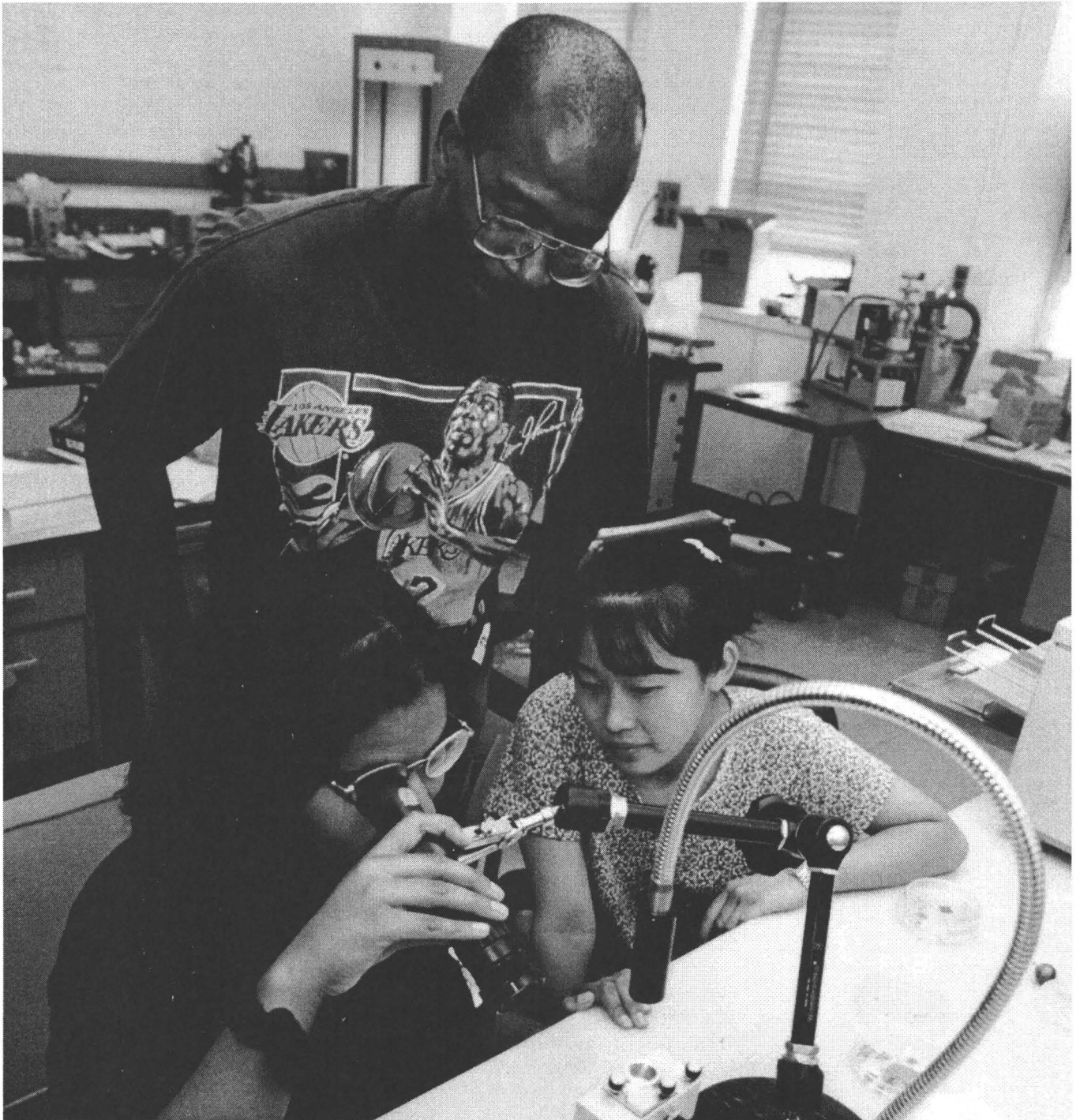
All matters handled by the Ombuds Office remain confidential. Depending on the nature of the question or problem, the Ombuds Office might offer specific advice or mediation, provide information, or make the appropriate referral to facilitate resolution. The Ombuds Office is also open to those who simply need someone to listen impartially and privately and suggest a course of action.

The University Ombuds Office is located in Room 114 Humanities Building. Hours are 9 a.m. to 5 p.m. Monday through Friday. Walk-in visits are possible, but scheduled appointments are recommended. The phone number is 632-9200.





Admissions



The information in this chapter refers to undergraduate admission to the College of Arts and Sciences, the College of Engineering and Applied Sciences (CEAS), and the Marine Sciences Research Center (MSRC).

Transfer students and current Stony Brook students seeking admission to any of the junior-senior level undergraduate programs in the Health Sciences Center should consult the Health Sciences Center section in this bulletin and the separate Health Sciences Center Bulletin.

Students are encouraged to submit an application for admission by July 10 for fall admission and by December 20 for spring admission.

Freshman Admission

Stony Brook evaluates applicants on an individual basis. There is no automatic cutoff in the admission process, either in grade point average, rank, or test scores. The Admissions Committee seeks to enroll the strongest and most diverse class possible. Successful applicants will typically have earned:

- a high school diploma or equivalent (a Regents diploma is preferred for New York State residents);
- a strong high school academic program that includes:
 - 3 to 4 units of mathematics (4 units required for engineering)
 - 4 units of English
 - 4 units of social studies
 - 3 units of science (4 units required for engineering)
 - 2 or 3 units of a foreign language;
- Standardized test scores that indicate the promise of success in a rigorous undergraduate course of study.

Stony Brook also welcomes applications from those with special talent or exceptional ability in a particular area. SAT II scores in writing, mathematics, and a third area of the student's choice are recommended. Two letters of recommendation from counselors and teachers may be requested by Stony Brook's Admissions Office.

Application Procedures for Freshmen

Freshmen are generally admitted to the University rather than to a particular

program. Students interested in majors in the College of Engineering and Applied Sciences should indicate their interest on the admissions application; qualified students are admitted directly into those programs. Admission to the University does not guarantee acceptance into CEAS programs.

All applicants must submit a completed application for undergraduate admission available either through the Office of Undergraduate Admissions or their high school guidance office. To receive an application form, contact the Office of Admissions at 632-6868 or via e-mail (admiss@mail.vpsa.sunysb.edu) or by visiting the Office of Undergraduate Admissions Web site (www.sunysb.edu/admissions).

Early Decision for Freshmen

Early decision is an early application/early notification program for fall admission to the first college choice. Students who apply to Stony Brook under early decision are permitted to apply to other colleges for regular admission while awaiting a decision.

The deadline for filing early decision applications is November 1. The Office of Admissions notifies early decision applicants by December 15. Students accepted in the early decision program are expected to make their tuition deposit by January 15 and withdraw their application at all other institutions.

Early Admission from High School

While the University does not actively seek students who expect to leave high school before completing all requirements for either a Regents or high school diploma before they matriculate at college, such applicants are 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.

Early admission students who are still included on their high school rosters after enrolling at the University are not eligible for financial aid.

Notification of Freshman Admission

Students are notified of their admission for the fall semester beginning January 15 and on a rolling basis thereafter.

Notification for spring admission begins on November 1 and continues on a rolling basis thereafter. Admission to the University is determined approximately two 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 dean 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. A deferment is not honored if the student attends another institution.

Transfer Student Admission

Entrance Requirements

Individuals who registered at a regionally accredited college or university after graduating from high school are eligible to transfer to Stony Brook. Applicants are required to have performed well in a strong academic program. If the applicant has earned fewer than 24 credits, high school transcripts must also be submitted.

The State University of New York is committed to offering admission to qualified graduates of University-parallel programs, i.e., A.A. and A.S. degree recipients from colleges within the State University of New York and City University of New York systems. Students are not, however, guaranteed admission into the program of their choice. Graduates of career-oriented programs (A.A.S. and A.O.S.) will be considered for admission on an individual basis and in competition with other transfer applicants.

Students interested in majors in the College of Engineering and Applied Sciences should indicate their interest on the admissions application; qualified students are admitted directly into those programs. Admission to the University does not guarantee acceptance into CEAS programs. See the College of Engineering and Applied Sciences chapter for further information.

Application Procedures for Transfer Students

All applicants must submit a completed application for undergraduate admission, available through the Office of Undergraduate Admissions. To receive an application form, contact the Office of Admissions at 632-6868 or via e-mail (admiss@mail.vpsa.sunysb.edu) or by visiting the Office of Undergraduate Admissions web site (www.sunysb.edu/admissions).

To facilitate students' transfers to Stony Brook and to maximize the University's service to applicants, Stony Brook strongly encourages students to file applications in the fall for entrance the following fall semester. Such early application makes possible an early decision, enabling transfer students to participate in an early orientation and registration. It also increases the likelihood of their receiving the financial aid for which they are eligible.

Offers of admission are conditional, pending receipt of all 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 registration. Applicants who expect to be degree recipients (A.A. or A.S.) should present evidence of receipt of the degree prior to registration for advising purposes.

Note: Any deliberate falsification or omission of data (including transcripts) may result in denial of admission or dismissal.

Transfer Credit Policies

1. Transfer credit is entered on the official University transcript with the understanding that neither previous grades nor their cumulative averages are shown.
2. Graduates of SUNY or CUNY colleges who earned an Associate in Arts or Associate in Science degree prior to matriculation at Stony Brook receive transfer credit for all credits completed as part of their associate degree requirements. Official proof of an A.A. or A.S. degree must be submitted by October 1 after fall semester entry or February 15 after spring semester entry.
3. Credits for students transferring from SUNY or CUNY colleges without a degree, or with any degree other than the A.A. or A.S., or from colleges that are not part of SUNY or CUNY are handled differently. All credits passed with a letter grade of C or higher earned at regionally accredited institutions or programs recognized by New York State's Program on Noncollegiate Sponsored Instruction and recorded on official transcripts are accepted for transfer credit and evaluated for applicability to specific Stony Brook degree requirements. Successfully completed courses from these institutions for which a grade equivalent to P or S was assigned are also accepted for transfer credit.
4. Almost all credits earned at community colleges are considered lower-division credit.
5. Transfer courses are reviewed individually by the Undergraduate Transfer Office for their applicability toward fulfillment of general education requirements. Applicants who have completed college-level study at an institution outside of the United States will have their credits evaluated for application to the University's general education requirements by the Undergraduate Admissions' counselor for international students.
6. Courses satisfactorily completed elsewhere in the intended major or needed to fulfill the 39 upper-division credits requirement must be evaluated by the appropriate academic department for specific applicability. No transferred course with a grade lower than C may be counted among the 39 upper-division credits required for graduation. Forms for requesting the evaluation of specific courses for major and upper-division credit are available in the Undergraduate Transfer Office and in the Engineering and Applied Sciences Undergraduate Student Office. Students may begin the evaluation process as soon as they accept the offer of admission.
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' counselor for international students before seeking a departmental course evaluation.

Stony Brook routinely prepares tables of course equivalents for several SUNY and CUNY institutions. Students wishing additional information should consult an admissions counselor.

Special Admissions Programs

Educational Opportunity Program/ Advancement on Individual Merit (EOP/AIM)

EOP/AIM 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 EOP/AIM, each student is assigned to a professional counselor who provides academic advising and encourages academic achievement. All EOP/AIM freshmen are required during their first year to enroll in either AIM 102 Expository Writing or AIM 104 Literary Analysis and Critical Reasoning, which are offered through the program. Tutorial assistance in academic subjects is provided for EOP/AIM students, who are encouraged to use all academic support services available through the program or other University offices.

Entering freshmen admitted through EOP/AIM are required 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.

To be considered for admission to the University through EOP/AIM, applicants must be a member of a household supported by:

- A. one or more individuals whose total annual income does not exceed the applicable amount listed in column two in the table below; or,
- B. more than one worker whose total annual income does not exceed the applicable amount listed in column three in the table below; or,
- C. one worker whose total annual income does not exceed the applicable amount listed in column three in the table below.

Household size (including head of household)	Total Annual Income Category A	Total Annual Income Categories B and C
1	\$10,750	\$13,450
2	\$17,000	\$19,700
3	\$19,500	\$22,200
4	\$24,300	\$27,000
5	\$28,750	\$30,650
6	\$33,800	\$31,450
7	\$37,600 <i>plus \$3,800 per add'l family member</i>	\$40,300 <i>plus \$3,800 per add'l family member</i>

All applicants for admission through EOP/AIM must also be academically eligible for acceptance at the time of application. To be academically eligible, applicants typically have earned:

1. High school average below minimum for regular admission to the University (usually 80.0 to 84.9);
2. Three-year sequence of mathematics and science; and
3. Combined SAT score of 850 (minimal verbal score of 450 or a TOEFL score of 550).

Freshmen may also be considered with a GED score of 285 or higher.

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. Transfers typically have a minimum grade point average of 2.3 with at least 18 credits completed at their previous college.

Students wishing to apply to the University through EOP/AIM should contact their school guidance office or the Undergraduate Admissions Office at (516) 632-6868. Applicants are encouraged to apply early, as there is limited space in the program.

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. Participating 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 colleges.

Returning Students

The University welcomes applications from motivated individuals of all ages. Previously earned grades are evaluated differently for adults who have not been enrolled in school for five or more years. All applicants are required to submit high school and/or college transcripts. If SAT scores or additional documentation is required, the Undergraduate Admissions Office will contact the applicant. An admissions interview before or soon after filing an application has proved helpful for returning students, providing a chance for them to discuss what they have done since attending school and to learn about the University's programs and services.

Admission for Second Bachelor's Degree

Students who previously earned a bachelor's degree, either at Stony Brook or another institution, may be eligible for the Second Bachelor's Degree Program.

All applicants must file an application for undergraduate admission, submit an official transcript indicating previous degree earned, and normally have a minimum cumulative grade point average of at least 2.5.

Students who earned a degree from either a foreign university or an institution that is not regionally accredited are reviewed individually to determine eligibility for the Second Bachelor's Degree Program.

Admission of International Students

International students interested in applying to the University 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.

Original certified transcripts, records, certificates, etc. of secondary school and college courses and grades in the original language and accompanied by an English translation 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 grading scale. A 2.5 grade point average is required of international 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 a grade point average 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 page 27.)

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 430 or higher or 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.

Early completion of the application is crucial. Applicants should keep in mind the following deadlines for completed applications: for the fall semester the deadline is April 1; for the spring semester, it is October 1.

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

Admission of Students with Disabilities

The academic admission procedures for students with a disability are the same as for all other applicants. Students with a disability, including students with a

learning disability, 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.

Admission for 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 and transfer students see page 26.)

Admission for Non-Degree Study

General Information

Non-matriculated study is available at Stony Brook for individuals who are not ready to study for a degree or who are not interested in studying for a degree. Non-matriculated students cannot graduate 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. 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. 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 a small administrative fee.) 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 as visiting students should see a financial aid counselor on their home campus about continuing to receive financial aid.

Applications for non-matriculated study are available in the Undergraduate Admissions Office. They should be completed and returned with transcripts from all previous institutions. Applicants for full-time non-matriculated study (FTNM) must have achieved a minimum G.P.A. of 2.5 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 2.3 for a minimum of 15 credit hours. Adults returning to school after an absence of five or more years may request special consideration if they do not meet these standards.

Non-matriculated students' academic performance is reviewed at the conclusion of each semester. Students earning less than a 2.0 semester grade point average are not permitted to continue.

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 Calculus III: Differential Equations, Spanish Composition and Conversation, Introduction to Sociology, Introduction to 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 an average of 90 or above, should have taken honors and advanced placement courses when available, and have Regents scores in the high 80's or 90's. Participants must have the approval of 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) 632-6867

Acceptance to the College of Engineering and Applied Sciences Programs

Qualified freshman and transfer applicants to the University may be accepted directly into the applied mathematics and statistics, business management, computer science, computer engineering, electrical engineering, engineering science, information systems, or mechanical engineering majors; however, they must specify their interest at the time they apply. Admission to the University does not guarantee acceptance into any of these eight programs. See the College of Engineering and Applied Sciences chapter for further information.

Visiting the Campus

Visits to the campus are strongly recommended. During the academic year, knowledgeable students conduct campus tours that leave from the Undergraduate Admissions Office. Prospective students are invited to tour the campus with guides who are informative about Stony Brook and responsive to questions. Tours are scheduled throughout the year and leave from the Undergraduate Admissions Office. It is advisable to call 632-6868 for the schedule 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-day orientation session during which they may confer with faculty members 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. Detailed information concerning the content, costs, and dates of orientation is sent shortly after the offer of admission.

Pre-Enrollment Deposit and Refund Policy

Each new student is required to pay an advance tuition deposit of \$100 and an additional \$200 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 fully refundable until July 1; thereafter, they are refundable according to a prorated schedule. 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 Services Center, State University of New York at Stony Brook, Stony Brook, NY 11794-1351, 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.

Summer Session Admission

Each year the University offers a wide range of courses, from lower division (100 and 200 level) to upper division (300 and 400 level) during the Summer Sessions, which usually consists of two consecutive sessions, each equivalent to a semester. These classes are the same as those offered during the academic year and offer the same number of credits. During the summer most classes meet two or three times per week, although some may meet as often as five times per week. Day and evening classes are available in both sessions.

The University has an open admission policy during the summer to all graduates of accredited high schools or equivalency programs. In addition, high school students who have completed their junior year by the end of June may take selected introductory-level summer courses if their grade average is 85 or higher.

Admission to summer classes is for the Summer Sessions only. Those students who wish to continue studying at Stony Brook during the academic year, either toward a degree at Stony Brook or as non-degree students, must apply for admission following the procedures outlined in this bulletin. Upon acceptance as students at Stony Brook they may use Summer Sessions credits taken at Stony

Brook toward fulfillment of their academic requirements.

To request information about Summer Sessions, write or phone:

Summer Sessions Office
Humanities Building, Room 102
State University of New York
at Stony Brook
Stony Brook, NY 11794-5370
(516) 632-7070

or e-mail at summerschool@sunysb.edu.

The web address is
www.sunysb.edu/summer/



Financial Information



Students themselves are responsible for reviewing, understanding, and abiding by the University's regulations, procedures, requirements, and deadlines as described in official publications including this *Undergraduate Bulletin*, the *Student Handbook*, and Class Schedules.

Charges are posted to the student's account upon registering for classes. It is the student's responsibility to pay his or her student account after registration. Billing statements will be sent to the student with a due date for full payment. All tuition, fees and charges must be paid in a timely manner, regardless of whether a billing statement has been received.

Failure to satisfy this financial obligation by the due date of the billing statement will result in late fees, and will prevent students from receiving transcripts, diplomas, certifications as well as from being permitted to register for future semesters. Nonpayment does not constitute official withdrawal, which must be done through the Registrar's Office. 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 pages 34 under Refund of Tuition. All tuition, fees and charges are estimated as of January 1999 and are subject to change without prior notice.

Tuition and Fees

Tuition

New York State Resident Tuition:	
Full-time student (12 credits or more)	\$1700.00/semester
Part-time student (per credit hour up to 11 credits)	\$137.00/credit
Out-of-State Resident Tuition:	
Full-time student (12 credits or more)	\$4150.00/semester
Part-time student (per credit hour up to 11 credits)	\$346.00/credit

Housing

	Each Semester
Double occupancy	\$1815.00
Double occupancy (premium)	\$1915.00
Single occupancy	\$2179.00
Single occupancy (premium)	\$2299.00
Sole occupancy	\$2723.00
Sole occupancy (premium)	\$2873.00
Cooking fee (on-campus resident not on meal plan)	\$208.00

Meal Plan

Each Semester	\$1200.00
---------------	-----------

Fees

Comprehensive Fee	
Full-time student (12 credits or more)	\$287.50/semester
Part-time student (per credit hour up to 11 credits)	\$28.35/credit
The comprehensive fee provides funding for the Student Health Center and the intercollegiate athletic program, as well as the increasing transportation and technological needs of the campus.	
Late Payment Fee¹	
All students	\$30.00
Late Registration Fee²	
All students	\$30.00
Lost Identification Card Fee	
All students	\$10.00
Orientation³	
Two part program	\$125.00
Returned Check Fee	
All students	\$20.00
Student Activity Fee⁴	
Undergraduate full time	\$82.75/semester
part-time	\$7.00/credit
Transcript Fee	
All students	\$5.00/each

¹Cumulative up to \$90.00/semester.

²Incurred for registration on or after the first day of classes.

³Prices are approximate and subject to change.

⁴This fee is set by Student Polity (Undergraduate Student Government).

Student Health Insurance

To be announced

Deposits

Advance Tuition Deposit	
applies toward first-semester charges.	
Freshmen and Transfers	\$100.00
Advance Housing Deposit	
All students	\$200.00

Summer Session

Tuition

New York State Resident Tuition:	
Part-time student (per credit hour)	\$137.00/credit
Out-of-State Resident Tuition:	
Part-time student (per credit hour)	\$346.00/credit

Housing

Single room single occupancy	\$114.00/week
Double room double occupancy	\$85.00/week

Fees

College fee	\$.85 per credit
Comprehensive fee	\$77.50 per term
The comprehensive fee provides funding for the Student Health Center, as well as the increasing transportation and technological needs of the campus.	
Undergraduate Student activity fee	\$15.00
Late registration fee	\$30.00

Payment of Fees and Charges

It is the student's responsibility to pay his or her student account after registration. After registering for classes, all students will be sent a billing statement for tuition and fees with instructions for making payment. All tuition, fees and charges must be paid in a timely manner.

Tuition, fees, and other University charges assessed on each billing statement will be due in full by the due date appearing on your statement. University

billing statements are sent to the permanent address on file with the Registrar's Office. The student is responsible for making sure that a correct address is on file and must inform the Registrar's Office of any change of address. Students must have proof of approved aid, waivers, or scholarships in order to properly defer payment. Without satisfactory evidence to defer, students are expected to pay charges up front and wait for reimbursement when the aid, waiver or scholarship funds are actually received. Students should apply early for any financial aid they expect to use to pay their University bill.

Payments made by check or money order must be made payable to Stony Brook University, and sent to P.O. Box 619, Stony Brook, NY 11790. Any payment that fails to clear is subject to a \$20.00 handling fee and may be subject to a \$30.00 late payment fee. Payments made by return mail should include the bottom portion of the statement (to ensure proper credit to the account), and sent in the return-addressed envelope provided with the bill. Mailed payments must be postmarked by the due date to avoid the late payment fee. Students are encouraged to pay by mail or by telephone in order to avoid lines at the Bursar. All payments should include the student's University ID number for prompt and proper credit.

Payment may also be made with Visa, MasterCard, Discover and American Express. Payment with a credit card can be accomplished by our Automated Telephone System at 516-632-1100 with a touch-tone phone. Listen to the recorded directions and choose option #4.

Students registering on or after the first day of classes shall be required to pay a late registration fee of \$30. The late registration period ends at the close of the second week of classes.

Failure to pay the amount due by the billing due date will result in an automatic assessment of the incremental late payment fee of \$30.00. Incremental late payment fees, up to a total of \$90 per semester, will be assessed on all accounts not completely paid by the due dates indicated on each successive account statement. Students should apply early for any financial aid in order to have their account paid before the university billing due dates. Late fees will not be removed based on pending financial aid.

The Office of Student Accounts offers a Time Option Payment Program (TOPP). This program allows for the budgeting of expenses on a monthly basis. This is not a loan of any sort; therefore, no interest will be charged. There is an annual processing fee to help defray the administrative expenses of the program. For further information please contact the Business Office.

Students failing to meet financial obligations incurred while in attendance at Stony Brook may be subject to additional collection agency fees and/or fines.

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 the time of payment for the deferment to be applied to the account (only current awards are deferrable).

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

1. Tuition Assistance Program: All New York State residents are encouraged to file for Tuition Assistance Program (TAP) awards. 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. Federal Perkins Loan, Federal Supplemental Educational Opportunity Grant (SEOG), and Federal Pell Grants: 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. 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 Services before coming to the Office of Veterans Affairs to request a deferment.

4. 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.
5. 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 Business Office in order to receive deferment.
6. New York Higher Education Services Corporation Loans (NYHESC): After filing the required loan forms, the student will receive the Notice of Loan Guarantee from Albany. Deferment will be automatically applied to each student's account.

Refund Policy

All requests for refunds must be submitted in writing to the Business Office, University at Stony Brook, Stony Brook, NY 11794-1301.

Refund of Pre-enrollment Tuition Deposits

Each new student is required to pay an advance tuition deposit of \$100. 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 Services. After the first day of classes, pre-enrollment tuition deposits will be forfeited.

Refund of Housing Deposits

Each student is required to pay a \$200 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 the 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. After the first day of classes, housing deposits will be forfeited.

Refund of Tuition

Students who withdraw from the University or decrease their academic load shall be liable for payment of tuition in accordance with the following schedule:

Academic Year:	
Withdrawal during	Liability
First week	0%
Second week	30%
Third week	50%
Fourth week	70%
Fifth week	100%

Six-Week Summer Session:	
Withdrawal during	Liability
First week	0%
Second week	75%
Third week	100%

Five-Week Summer Session:	
Withdrawal during	Liability
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.

Certification of the effective date of withdrawal must be made by the Registrar's Office.

After 100% liability, a student is liable for tuition and all fees in full. Students who register for courses and who do not file the appropriate withdrawal or do not drop before the end of the fourth week of classes are liable for their full charges.

Note: Non-attendance of classes does not classify as an official withdrawal, and does not relieve the student of his or her financial obligation, or entitle the student to a refund.

More information can be found in the university's Refund Policy publication, available in the Office of Student Accounts.

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 Registration Related Fees

During 0% liability, refunds will be processed for registration related fees, such as the comprehensive fee, student activity fee, and specific course fees, such as engineering or physical education laboratory fees. After 0% liability, all fees are due in full.

Students who register for courses and who do not file the appropriate withdrawal or do not drop before the end of the fourth week of classes are liable for their full charges.

Refund of Room Fee

When occupancy levels are at or above 100 percent capacity, residents wishing to cancel their housing will be billed a prorated portion of their housing fees through the end of the week in which they last occupied a space in the residence halls.

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 Campus ID/Meal Plan Office. On notification from this office, the Office of Student Services will credit the account and prepare a refund 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 during 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 their tuition and fees provided the student has made a written request to the Office of Student Accounts within one year after the end of the term that the money was paid to the University.

Other Expenses

Food

All resident students will be enrolled on a Resident Meal Plan unless they have previously completed two semesters of study at Stony Brook, reside in a designated cooking area, and select the Resident Cooking Program as a dining Option on their Room Selection/Meal Plan Application. Failure to select a dining option or an invalid selection of cook-

ing will result in an enrollment on the Standard Advantage Meal Plan. All students who reside in residence hall areas designated as mandatory meal plan areas must enroll on a Resident Meal Plan regardless of class status or tenure at Stony Brook.

For more up to date information, please refer to the meal plan brochure or call or visit the Campus ID/Meal Plan Office, Room 0319 Melville Library (adjacent to the bookstore), 632-6517. 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.

Food Service

The University, through a food service contractor, provides several meal plan options. There are three dining halls located in the resident areas. Kelly and H dining halls offer all-you-can-eat breakfast, lunch, and dinner. Also offered in Kelly is a Taco Bell Express and a 24-hour deli. In addition to the dining halls, USB Dining offers several other eateries. Roth Food Court houses the kosher dining room and offers traditional meals as well as alternatives such as Burger King, Deng Lee's Chinese Cuisine, Seawolves Sub Shop, Changing Scenes, and USB Delivery. The Student Activities Center offers a wide array of food, as does the Humanities Cafe. The Student Union houses the End of the Bridge restaurant, the Union Deli, Stony Snacks, Bleacher Club, and Papa Joe's.

There are other independently run student-operated eating establishments on campus which do not accept the meal plan. These student operated establishments offer everything from snacks to complete meals. Hours of operation vary by location and it is best to inquire at orientation or before arriving on campus.

Books and Supplies

The average estimated expense is \$750 for nine months (September-May). This figure is used for computing the basic student aid budget.

Miscellaneous Expenses

The average estimated personal expense is \$1,188 for nine months. This figure is used for computing the basic student aid budget.

Travel Expenses

The average estimated expense is \$700 for nine months on campus for a student residing in a dorm. The average estimated expense is \$2,066 for nine months for a student residing with parents and commuting to the campus. These amounts are also used for computing the basic student aid budget.

Study Abroad Expenses

Students who participate in SUNY Study Abroad programs 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 Service

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 nondiscriminatory 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 average price per month for a furnished room is \$350. 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 \$250-\$450 per month plus a percentage of the utility costs.

Apartment listings cover those available in standard apartment building complexes and in private homes. The usual rental rate of a studio apartment (one large room, bathroom, closets, kitchenette) in a house is approximately \$450-\$600 per month. A studio apartment in one of the apartment facilities is usually \$500-\$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 \$550-\$950 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 \$700-\$1,800 per month, not including utilities. The price depends on the number of rooms in the house, the condition of the house, and its proximity to 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 Federal Perkins Loan, Federal Supplemental Educational Opportunity Grant (FSEOG), Federal Work-Study (FWS), and Educational Opportunity Program (EOP). The office also manages the Federal Pell Grant, Federal Family Education Loan (FFEL) Program, the New York State Tuition Assistance Program (TAP), and the New York State Aid for Part-Time Study (APTS) Program. These programs are described below, together with other sources of 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 Free Application for Federal Student Aid (FAFSA), the Express Tuition Assistance Program Application (ETA), and the Aid for Part-Time Study (APTS) application. Application forms and information about application guidelines and deadlines are available at the Office of Financial Aid and Student Employment, 230 Administration Building, (516) 632-6840. (Note: the ETA is mailed directly to the students after filing the FAFSA; please see the New York State Programs section for further information about the application process for a Tuition Assistance Program [TAP] Grant.)

Note: Students should be aware that the University will implement all changes in standards and/or policies that are prescribed by the federal and state regulations governing financial aid administration.

FEDERAL PROGRAMS

Application Procedures

Students may apply for funding through the federal programs by filing a Free Application for Federal Student Aid (FAFSA). The completed application should be mailed to the federal process

or in the envelope provided. Within four to six weeks, the applicant will receive a document called a Student Aid Report (SAR) indicating his or her Expected Family Contribution (EFC). This EFC is used to determine the applicant's eligibility for one or more of the federal programs.

The information contained in the SAR will be transmitted electronically to Stony Brook if the applicant included the institution's Title IV School Code (002838) on the FAFSA. This information is necessary in order to provide a financial aid award package to the student. The Office of Financial Aid and Student Employment notifies each student of his or her award package through an award letter. The student must complete and sign the letter and return it with any other requested documentation to the Office of Financial Aid and Student Employment before awards can be accepted.

If the student's application is selected for verification, he or she will be requested to provide additional documentation to substantiate the accuracy of the information filed on the FAFSA. This documentation must be compared to the SAR data and corrections made (if necessary). Finally, the Office of Financial Aid and Student Employment must be in receipt of the data from a correct and valid SAR before payment of awards can be made.

Requirements and Responsibilities of Recipients

In order to receive financial assistance through any of the federal programs, the student must: 1. be a citizen, permanent resident alien, or other eligible resident of the U.S.; 2. be matriculated into a degree program; 3. register with Selective Service, if required; and 4. not owe refunds of any awards made previously through one or more of the federal programs, 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 (i.e., tuition, fees, books, and living expenses).

The student must maintain satisfactory academic progress. Federal regulations specify that academic progress be measured each year (following the spring semester). Eligibility for assistance

from the Federal Pell Grant, Federal SEOG, Federal Perkins Loan, Federal Work-Study, and Federal Stafford Loan programs is contingent on the candidate's meeting "quality" and "quantity" standards:

- The law specifies that by the end of the second academic year, the student must have either a minimum G.P.A. of 2.0 or academic standing consistent with the requirement for graduation from his or her program of study.
- In addition, a full-time undergraduate student in a four-year program must successfully earn a minimum of 24 credits per year in order to complete his or her program in a maximum of five years. Incomplete (I), No Record (NR), Failure (F), Unsatisfactory (U), No Credit (NC), and Academic Dishonesty (Q) grades do not count as earned credits. The student may make up credits during the summer session(s) if he or she has not earned the required number by the completion of the spring semester. However, payment for the summer courses must be made by the student.

Further information about academic progress as a condition of federal student aid can be obtained by contacting the Office of Financial Aid and Student Employment.

"Emancipated" or "Independent" Student Status

The designation of independent status refers only to whether or not a student is required to report parental income when applying for financial aid. 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. 24 years of age or older by December 31 of the award year.
2. a veteran of the U.S. armed forces.
3. enrolled in a graduate or professional program (beyond a bachelor's degree).
4. married.
5. a ward of the court.
6. having legal dependents other than a spouse.

Note: Independent status under the federal definition does not necessarily ensure independent status for state aid programs. See "Independent" Student

Status," page 38.

Federal Pell Grant

Selection of Recipients and Allocation of Awards

The Federal Pell Grant Program is an entitlement program. Eligibility and award amount are based on need. Financial need is determined by a formula applied to all applicants. The formula was developed by the U.S. Department of Education and is reviewed annually by Congress. The Expected Family Contribution (EFC) is calculated by this formula.

The applicant must be pursuing a first bachelor's degree and enrolled for at least three credits in an approved post-secondary institution.

Award Schedule

Currently, awards range from \$400 to \$3,000. The award amount will be affected by the cost of attendance at a particular institution and the student's enrollment status. The Pell award is not duplicative of state awards.

Federal Supplemental Educational Opportunity Grant (FSEOG)

Selection of Recipients and Allocation of Awards

The applicant must be 1. in exceptional financial need and 2. pursuing a first bachelor's degree.

Award Schedule

Awards range from \$100 to \$1,000, and are made on a funds-available basis. Priority is given to Pell Grant recipients. In addition, students must apply by the priority deadline in order to be considered. (Contact the Office of Financial Aid for further details.)

Federal Perkins Loan

Selection of Recipients and Allocation of Awards

At Stony Brook, Federal Perkins Loans are available to matriculated students enrolled at least half time as graduate or undergraduate degree candidates. Awards are made on a funds-available basis. Students must apply by the priority deadline in order to be considered. (Contact the Office of Financial Aid and Student Employment for further details.)

Award Schedule

Annual loan limits are established at

\$3,000 for undergraduate students and \$5,000 for graduate students. The maximum amounts that may be borrowed are \$15,000 as an undergraduate and \$30,000 for graduate and undergraduate study combined.

Actual Federal Perkins Loans are limited based on annual allocations and collections, and presently average \$1,500 per year at Stony Brook.

Repayment

The current interest rate, payable during the repayment period, is five percent on the unpaid principal. Repayment begins nine months after the last date of enrollment 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. Information on loan cancellation provisions for borrowers who go into certain fields of teaching or specified military duty is available through the Office of Financial Aid.

Federal Work-Study Program (FWS)

Selection of Recipients and Allocation of Awards

The FWS program provides part-time employment to undergraduate and graduate students who need the income to help meet the costs of postsecondary education.

The University at Stony Brook strives to make employment reasonably accessible to all its eligible students who have financial need. In the event that more students are eligible for FWS than there are funds available, preference is given to students with the greatest financial need. In addition, students must apply by the priority deadline in order to be considered. (Contact the Office of Financial Aid and Student Employment for further details.)

Award Schedule

The Office of Financial Aid and Student Employment provides recipients of an FWS allocation with a listing of the available FWS positions. Students may work up to 20 hours each week. Hourly wage rates are variable and currently range from \$5.15 to \$8.00 per hour for undergraduate students.

Note: Students interested in participating in Stony Brook's Community Service Program (a program that provides stu-

dents with the opportunity to serve the public interest while earning Federal Work-Study wages) should contact the Office of Financial Aid and Student Employment.

Federal Family Education Loan Program (FFEL) Subsidized and Unsubsidized Federal Stafford Loans

Selection of Recipients and Allocation of Awards

Stafford Loans are either subsidized or unsubsidized.

- A subsidized loan is awarded on the basis of financial need. The federal government pays interest on the subsidized loan until the student begins repayment.
- An unsubsidized loan is not awarded on the basis of need. The student is charged interest from the time the loan is disbursed until it is paid in full. If the student allows the interest to accumulate, it will be capitalized (i.e., the interest will be added to the principal amount of the loan and will increase the repayment total). If the student pays the interest as it accrues on a monthly basis, the total of principal plus interest repaid will be lower.

To be eligible for a Federal Stafford Loan, a student must be enrolled at least half time in an approved program of study.

Loan Schedule

A student may borrow up to a total of \$2,625 in a subsidized and/or unsubsidized loan for the first year of undergraduate study, \$3,500 for the second year, and \$5,500 for subsequent undergraduate study. Independent undergraduates can apply for an additional \$4,000 in an unsubsidized loan for each of their first two years of study, and \$5,000 annually for the remaining years.

A graduate student may borrow a total of \$8,500 in a subsidized and/or unsubsidized loan per class year. Graduate students may apply for an additional \$10,000 in an unsubsidized loan for each year of graduate study.

The total debt a student can have outstanding from all Stafford Loans combined is:

- \$23,000 as a dependent undergraduate student;
- \$46,000 as an independent undergraduate student (no more than \$23,000 of

this amount may be in subsidized loans); or

- \$138,500 as a graduate or professional student (no more than \$65,500 of this amount may be in subsidized loans). The graduate debt limit includes any Stafford Loans received for undergraduate study.

Repayment of Subsidized Loans

A student may borrow at a relatively low interest rate (currently the treasury bill rate plus 2.3 percent with a cap of 8.25 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. Interest does not accrue on this loan during periods of enrollment or the grace period. The federal government pays the interest for the student during this time period. Payment of principal may be deferred for up to three years for certain categories of borrowers.

The following regulations governing repayment apply:

- 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.
- The standard repayment period is ten years.
- The maximum period of a loan, from date of the original note, may not exceed 15 years, excluding authorized deferments of payments.
- Repayment in whole or part may be made at any time without penalty.

Repayment of Unsubsidized Loans

The terms of the unsubsidized loan are the same as those for the subsidized loan (see above), except that the federal government does not pay the interest on this loan. The student is responsible for paying all of the interest that accrues on the loan while in school, during the grace period, and during any periods of deferment or repayment. (The interest rate is currently the treasury bill rate plus 1.7 percent during in-school periods and 2.3 percent during repayment with a cap of 8.25 percent.)

Federal Parent Loan for Undergraduate Students (FPLUS)

This loan is available to parents of financially dependent undergraduate students. FPLUS loans for which the first

disbursement was made on or after July 1, 1993 have no annual or aggregate limits. Borrowing is based on cost of education minus aid. The interest rate, which is adjusted each July, is the treasury bill rate plus 3.1 percent with a cap of 9 percent, and repayment begins within two months of receipt of the loan. Applications are available at the Office of Financial Aid and Student Employment and at participating banks.

NEW YORK STATE PROGRAMS

Note: Where any question of eligibility exists, the student or prospective student should contact New York State Higher Education Services Corporation (HESC) at (518) 474-5642.

Tuition Assistance Program (TAP)

Application Procedures

To apply for TAP, students should begin by completing the Free Application for Federal Student Aid (FAFSA) and mailing it to the federal processor. (Forms are available at any financial aid office or high school guidance office.) Upon receipt of the student's FAFSA, the federal processor will send income and demographic data to New York State Higher Education Services Corporation (HESC) if the following two conditions were met: 1. the student is a New York State resident and 2. he or she listed at least one New York State institution on the FAFSA. HESC will send the student a pre-printed Express Tuition Assistance Program Application (ETA). The student should check the information on the form, make any necessary changes (including the addition of Stony Brook's undergraduate TAP code: 0875), sign and return the ETA to HESC.

HESC determines the applicant's eligibility and mails an award certificate directly to the applicant indicating the amount of the grant.

Requirements and Responsibilities of Recipients

In order to receive an award through the Tuition Assistance Program, the applicant must 1. be a New York State resident and a U.S. citizen, permanent resident alien, paroled refugee, or conditional admittant to the United States; 2. enrolled full time and matriculated in an approved New York State postsecondary institution and program; and 3. be charged a tuition of at least \$200 per year.

In addition, the New York State Education Department has issued academic guidelines governing eligibility for the Tuition Assistance Program. Under these regulations, students must meet minimum academic achievement requirements in order to receive payment of awards.

According to these regulations, 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—Satisfactory academic program pursuit is defined as receiving a passing or failing grade in a certain percentage of a full-time course load in each term for which an award is received. The percentage increases from 50 percent of the minimum full-time course load in each term of study in the first year for which an award is

received, to 75 percent of the minimum full-time course load in each term of study in the second year for which an award is received, to 100 percent of the minimum full-time course load in each term thereafter.

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

A student who does not meet these minimum standards for any one semester will be ineligible to receive an award payment for the following semester. However, a waiver of the minimum achievement standards may be granted under certain extenuating circumstances. Students who do not meet the requirements will receive notification in the mail as to their next appropriate course of action.

"Independent" Student Status

The designation of independent status for TAP applicants refers only to whether or not a student is required to report parental income and is contingent upon the following criteria. Applicants must be:

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; or
 - b. claimed as a dependent by parents on their federal or state income tax returns; or
 - c. a recipient of gifts, loans, or other financial assistance in excess of \$750 from parents; or

Standard Satisfactory Academic Progress Only for the Purpose of Determination of Eligibility for State Student Aid										
Semester Calendar Bachelor's 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	1.2	2.0	2.0	2.0	2.0	2.0	2.0

3. under 22 years of age on June 30, and meeting all other requirements listed in 2, above, and additionally able to meet at least one of the following requirements:
- both parents deceased, disabled, or incompetent, or
 - receiving public assistance other than Aid to Families with Dependent Children (AFDC) or food stamps, or
 - ward of a court, or
 - financially independent due to the involuntary dissolution of the student's family, resulting in relinquishment of parental responsibility and control, or
 - married on or before December 31 of the year preceding the academic year for which application is made, or
 - enrolled as a graduate student, or
 - 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 for the Tuition Assistance Program does not necessarily ensure independent status for federal aid programs. See "Emancipated' or 'Independent' Student Status," page 38.

Selection of Recipients and Allocation of Awards

The Tuition Assistance Program is an entitlement program. There is neither a qualifying examination nor a limited number of awards.

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 EOP/AIM 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 (taken from the New York State tax return[s] filed in the year previous to the academic award year). All income data are subject to verification by the New York State Department of Taxation and Finance.

Currently, awards at Stony Brook for undergraduate study range from a minimum of \$100 to a maximum of \$3,085.

Aid for Part-Time Study Program (APTS)

Application Procedures

The student must complete an Aid for Part-Time Study application and submit it to the Office of Financial Aid by the first day of classes in which he or she is seeking an award. Signed photocopies of New York State tax returns from the base year (i.e., the year previous to the academic year: 1998 tax returns for the 1999-2000 academic year) must be submitted with the application.

Requirements and Responsibilities of the Recipient

Applicants must: 1. be working toward an undergraduate degree or enrolled in a registered certificate program; 2. enroll as a part-time student for a minimum of three credits, but less than 12; 3. maintain good academic standing; 4. be a resident of New York State; 5. be either a U.S. citizen, permanent resident alien, or refugee; 6. meet the income limits (see below); 7. not have used up Tuition Assistance Program (TAP) eligibility; 8. have a tuition charge of at least \$100 per year; 9. not be in default of a Federal Family Education Loan.

Selection of Recipients and Allocation of Awards

Awards are made to applicants who meet the criteria in the preceding section and are determined to have financial need according to the following formula:

- The family income (i.e., net taxable income of student and parents) of students who were claimed as tax dependents by their parents in the base year must not exceed \$50,550.
- The family income (i.e., net taxable income of student and spouse) of independent students with no tax dependents cannot exceed \$34,250.
- The family income (i.e., net taxable income of student and spouse) of independent students with tax dependents (not including the student and spouse) must not exceed \$50,550.

Award Schedule

APTS awards cannot exceed the cost of tuition and are determined each semester by dividing the total program allocation by the number of qualified applicants who complete the application

process by the deadline.

Educational Opportunity Program (EOP)

Educational Opportunity Program (EOP) funds are allocated on the basis of need to undergraduate students enrolled in Stony Brook's Advancement on Individual Merit (AIM) Program.

The AIM program 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 bachelor's degree program, and many continue their education in graduate and professional schools throughout the country.

For further information on EOP/AIM, contact:

The EOP/AIM Program
W-3520 Library
University at Stony Brook
Stony Brook, NY 11794-3375
Telephone: (516) 632-7090

Division of Military and Naval Affairs (DMNA) Education Incentive Program

Application Procedures

The student must complete a Recruitment Incentive and Retention Program application at his or her guard unit. The unit commander or other authorized representative determines and certifies (if eligible) the applicant's eligibility for this program. If certified, the applicant brings the certificate of eligibility to the Office of Veterans Affairs at Stony Brook in order to register for classes. The student should telephone 632-6700 or 632-6701 for an appointment.

Note: This is a newly instituted program; procedures are subject to change. Further inquiries about the program should be directed to DMNA at 1-800-356-0552.

Requirements and Responsibilities of Recipients

Participants in this program must be members of the Army/Air Guard or NY Naval Militia in good standing, having successfully completed initial active duty training, naval enlisted code training, or a commissioning program. The program is limited to undergraduate study.

The student must be matriculated and enrolled for a minimum of six credit hours per semester. Participants must be in good academic standing. Good academic standing is determined by the campus and is defined as not being on academic probation.

Participants are required to apply first for all available financial aid. Proof of application must be presented to DMNA.

Students must sign a statement of rights and responsibilities.

Selection of Recipients and Allocation of Awards

The Education Incentive Program allows an eligible guard or militia member to receive a tuition voucher equal to the amount of tuition costs remaining after all other student aid, except loans, is applied against the undergraduate in-state annual tuition of SUNY institutions.

Award Schedule

The voucher amount is the current cost of tuition (excluding the college fee) at the institution up to SUNY's current tuition minus any grants received through the Federal Pell Grant, New York State TAP, New York State Aid for Part-Time Study, or ACES (Army Continuing Education System) program or from any other source. Benefits received under the Montgomery G.I. Bill Act of 1984 shall not be considered educational aid for purposes of this program.

OTHER NEW YORK STATE PROGRAMS

- **Child of Veteran Award Supplement**
- **Persian Gulf Veterans Tuition Award Supplement**
- **Vietnam Veterans Tuition Award Supplement**
- **Memorial Scholarships for Families of Deceased Police Officers and**

- **Firefighters Supplement**
- **Child of Deceased Correction Officer Award Supplement**

Application Procedures

Students who believe they may be eligible for one of the programs listed above should request an application from the New York State Higher Education Services Corporation by calling (518) 474-5642 or writing to the following address: NYSHESC, Division of Grants and Scholarships, 99 Washington Avenue, Albany, NY 12255.

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, Administration Building room 348, for applications, information, and assistance. Telephone 632-6700 or 632-6701 for an appointment.

Services Provided:

- Assistance in completion of forms.
- Forwarding of forms and supporting documentation to appropriate agency.
- Assistance in procuring a full or partial deferment of tuition, fees, and charges.
- Mediation between the student and the Veterans Administration to resolve problems, such as underpayment of benefits or non-receipt of payment.
- Referral to resources and services both on and off campus.
- Counseling services to veterans and their dependents. Students are invited to make an appointment to discuss academic or career concerns.

Suggestions:

- If the student is making an initial application for VA benefits, he or she should bring a certified copy of his or her DD-214 (keep the original in a safe place) to the Office of Veterans Affairs.
- The student should maintain records of correspondence with the Veterans Administration, including a log of all payments received (including the date the check was issued, the amount, and the period for which payment was intended).
- The student should make arrangements for alternative means of payment of educational expenses (i.e., financial aid, loans, etc.) in the event

that VA benefits are not received by the expected date.

The Montgomery G.I. Bill—Chapter 30

Eligibility for this program requires individuals to have served for two or three years of continuous active duty after July 1, 1985 and to have contributed \$100 per month for the first 12 months of service. Entitlement accrues at the rate of one month for each month of active duty up to 36 months. Applications and benefits are processed through the V.A. Regional Office in Buffalo, NY. An eligible veteran generally has 10 years from date of discharge or release from active duty in which to use these benefits.

Post-Vietnam-Era Veterans Educational Assistance Program (VEAP)—Chapter 32

VEAP is a voluntary contributory program for persons who served between January 1, 1977 and June 30, 1985. Under this program, the appropriate branch of the military will match the individual's contribution on a two-to-one basis. The maximum period of entitlement is 36 months.

Survivors and Dependents Educational Assistance—Chapter 35

This program provides benefits to the spouses and children of veterans deemed "100-percent service disabled" and to the surviving spouses and children of veterans who died in service. Forty-five months of entitlement are permitted under this program.

Vocational Rehabilitation for Disabled Veterans—Chapter 31

Vocational rehabilitation is intended to help the service-disabled veteran select, prepare for, and secure employment that is compatible with his or her interests, abilities, physical capabilities, and goals. Entitlement may be provided for up to 48 months. An eligible veteran generally has 12 years from the date of discharge or release from active duty in which to use these benefits.

Selected Reserve Educational Assistance Program—Chapter 1606

This program provides benefits to individuals enlisting, reenlisting, or extending their enlistment with the Selected Reserve or National Guard for six or more years of service. Entitlement is for a maximum of 36 months or the equivalent in part-time training.

OTHER FINANCIAL ASSISTANCE

Student Employment Opportunities

The University provides a number of student employment opportunities not based on financial need. Wages vary and are paid by the employing department of the University. Students may contact the Office of Financial Aid and Student Employment. Students should specify that they are seeking information on Student Employment (or Student Assistance) and not Federal Work-Study.

Faculty-Student Association

The Faculty-Student Association (FSA), which operates an array of auxiliary business services and programs for the campus such as dining, bookstores, and the campus ID Office, employs close to 500 students in a wide range of capacities. The FSA Office of Student Staffing Resources (SSR) is dedicated to providing placement, advising, and special training programs for its on-campus employment and internship opportunities. FSA also offers a range of scholarship and work-incentive awards to student staff who demonstrate excellence or innovation in job performance. Contact the FSA Student Staffing Resources for additional information.

Parents' Affiliation

If a student's parents belong to a union or fraternal group, the student could be eligible for financial aid. Other sources of scholarships include Daughters of the American Revolution, Junior Achievement, Parent-Teacher Associations, Boy or Girl Scouts, Elks, and Chambers of Commerce.

Scholarships and Grants from Private Sources

Many private student aid programs are available. Awards may be based on need, need plus criteria, or criteria alone. Students are encouraged to investigate scholarships for which they may be eligible. Among the criteria for which a grant or scholarship may be awarded are academic achievement, artistic talent, athletic ability, career plans, community activities, leadership potential, parents' employers, proposed college major, religious affiliation, and special interest.

Job Locator Service

The Office of Financial Aid provides a job locator service for off-campus jobs

available during a student's tenure at Stony Brook. Postings are on a bulletin board outside of the Office of Financial Aid and Student Employment.

Professional Associations

If a student has settled on a career, he or she should investigate the professional associations in that particular area. They may have scholarships available to encourage students to pursue careers in their field.





Scholarships and Awards



Scholarships

The University awards scholarships to selected students based on merit and/or need. For information on need-based scholarships, contact the Office of Financial Aid and Student Employment at (516) 632-6840. For further information on any of the merit scholarship programs listed below, contact the Office of Undergraduate Admissions at 632-6868 or the Scholarship Coordinator in W-3519 Melville Library at 632-6712.

Honors Programs

Provost's Honors Scholarships

- Four-year full New York State tuition scholarships for freshmen.
- Two-year New York State tuition scholarships for transfer students.

Honors College Scholarships

- \$2,000 merit-based scholarship for one year.

Honors scholarships are awarded to students of proven academic ability who desire intellectual challenge and the opportunity for creative interaction in a highly personalized teaching environment. Students must submit a separate application for these scholarships and are required to submit detailed letters of recommendation and an essay on a designated topic.

For detailed information and criteria for the above scholarships, contact Laurie Fiegel, of the Honors College Program, at 632-7081 or visit their Web site <http://www.honors.sunysb.edu>.

Presidential Achievement Scholarships

This is a merit-based scholarship program designed to recognize academic and leadership accomplishments of first-year undergraduate students at Stony Brook. Qualitative and quantitative criteria are equally considered in awarding Presidential Achievement Scholarships, which range from partial to full New York State tuition.

For additional information and specific criteria for these scholarships, contact Robert Pertusati in the Office of Undergraduate Admissions at 632-6868.

WISE—Women in Science and Engineering

Awards in the amount of \$2,000 are available for the first year of study. Students must apply for admission to the WISE program and are selected on the basis of their potential and interest in a science (including social science) mathematics, or engineering. For further information, students may contact Lois Roman or Toby Speed at 632-6947/6948 or they may contact the program through e-mail at wise@data-lab2.sbs.sunysb.edu or view the Web site at <http://wise.sunysb.edu>.

College of Engineering and Applied Sciences Scholarships

The College of Engineering and Applied Sciences (CEAS) administers a number of scholarships ranging from \$500 to full tuition awards for students enrolled in an engineering, computer science, and/or applied mathematics or statistic major. For more information, call the CEAS Undergraduate Student Office at 632-8381 or visit their Web site at <http://ceas.sunysb.edu>.

Northrop Grumman Scholarships in the College of Engineering and Applied Sciences

These scholarships are awarded each year to meritorious students in the College of Engineering and Applied Sciences.

Society of American Military Engineers Scholarship

The Society of American Military Engineers Scholarship 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. Students interested in this scholarship should contact the Engineering and Applied Sciences Undergraduate Student Office at 632-8381.

Research Careers for Minority Scholars Scholarships

These scholarships, funded by the National Science Foundation, are awarded to high-achieving entering freshmen who plan to major in mathematics, engineering, computer science, physics, or chemistry, or to high-achieving juniors or seniors majoring in mathematics or applied mathematics and statistics.

Students interested in this scholarship should contact Michelle McTernan at 632-7093.

Howard Hughes Medical Institute Undergraduate Research Fellow Scholarships

This program provides fellowship support to selected students engaged in research in the biological sciences at Stony Brook. Women and students from underrepresented groups are strongly encouraged to apply. Scholarships are available for both the academic year and the summer. Students interested in this scholarship should contact Judy Nimmo in the Department of Biochemistry and Cell Biology at 632-9750.

Pope Foundation Scholarships

These scholarships in the amount of \$500-\$1,500 per year are awarded annually on behalf of the Pope Foundation to students pursuing Italian or Italian-American studies who have demonstrated outstanding academic performance and are in financial need. These scholarships may be renewed for up to four years. Students wishing to apply should contact the Center for Italian Studies 632-7444.

Music Scholarships

The Department of Music offers a limited number of competitive scholarships to incoming freshmen and transfer students. Students may compete for scholarships in performance, composition, history, or theory.

For information and application materials, contact the Director of Undergraduate Studies, Department of Music at 632-7330.

Nominations for State, National, and International Scholarships and Fellowships

The University nominates candidates for awards such as the Rhodes Scholarships, Mellon Fellowships in the Humanities, the Luce Scholars Program, 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, National Science Foundation Graduate Fellowships, National Collegiate Athletic Association Post-graduate Scholarships, the Winston Churchill

Foundation Scholarship, the Barry Goldwater Scholarship, the British Marshall Scholarship, and the Empire State Mathematics and Science Teacher Program.

For application information see Rosemary Effiom in the Office of Undergraduate Academic Affairs.

University Association Scholarships

These scholarships are awarded to returning students and students attaining a 3.5 cumulative g.p.a. who have also dedicated themselves to University service and other volunteer experiences. They are awarded to seniors based on grades and activities from the junior year and excellent recommendations.

Athletic Scholarships

Stony Brook's athletic program offers aid based on merit and/or need in all of its 19 varsity sports. For more information, students may call the Athletic Office at 632-7205.

Other Scholarships

The scholarships listed above are merely examples of the several available on campus. Undergraduate students interested in other scholarships should contact their academic department.

Awards

Awards at the University at Stony Brook are given to students at the end of the academic year in recognition of high achievement.

Alpha Kappa Alpha Sorority Achievement Award

This award is presented annually by the Alpha Kappa Alpha sorority to an African-American, Latino, or Native American woman completing the freshman or sophomore year in recognition of academic accomplishments and service contributions to the community.

Alumni Association Commuter Student Award

This award is presented to a commuter student who has demonstrated academic excellence and leadership through participation in campus life.

Alumni Association Legacy Award

This award is presented to a student who

is the child of an alumnus/alumna and demonstrates academic success and leadership in the campus community.

Alumni Association Returning Student Award

This award is presented to a returning student who has demonstrated academic excellence and leadership through participation in campus life.

Alumni Association Student Employee Award

This award is presented to a student employed on campus in recognition of contributions to the university community and academic excellence.

Ashley Schiff Alumni Association Award

This award is presented to a student who has made significant contributions to conserving and preserving the natural environment.

Babak Movahedi Senior Leadership Award

This award, established by Babak Movahedi, Class of '82, is presented to a graduating senior who has made a significant change in the university by bringing together various constituencies through the development of community life.

Class of 1970 Alumni Association Award

This award is presented to the student who made the most significant contribution to the University in his or her freshman year.

Daniel Cohen Research Award

This award is presented to an undergraduate to support a research project in hematology. The award is in memory of Daniel Cohen.

Delta Sigma Theta Sorority Merit of Excellence Award

This award is presented annually by the Pi Delta chapter of the Delta Sigma Theta sorority to an African American, Latina, or Native American woman completing the freshman year who has shown a high level of commitment to community service and scholastic achievement.

Departmental Awards

Astronomy—Sherman Raftenberg Award for the outstanding student majoring in astronomy. Chemistry—CRC Freshman Award, Emerson Award to Outstanding Junior, American Institute of Chemists' Senior Award, Sei Sujishi Prize, Outstanding Chemistry Senior Award, Outstanding Engineering Chemistry Senior Award. English—Naomi Stampfer Scholarship, Lillian E. Kahn Award, Homer Goldberg Scholarship. French—French Embassy Cultural Services Awards to outstanding graduating majors. Geology—Myron Fuller Award for an outstanding student, Oliver A. Schaeffer Award. 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. Mathematics—Applied Mathematics Scholarship to outstanding mathematics major, Robert Frey Scholarship to outstanding transfer student majoring in mathematics, Thomas Jefferson Scholarship to a student with average grades but extreme financial need, John McClave Scholarship for an academically talented math major. Mechanical Engineering—Richard S. L. Lee Award. Music—Edith Salvo Award for the outstanding student in the Department of Music, Elizabeth Ball Kurz Award for students planning a career in music, Natale and Josephine Maresca Award for Distinction in Piano Performance, Billy Jim Layton Prize. Physical Education—Athletic awards presented to intercollegiate athletes for outstanding achievement in sports. Physics—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 Awards. Theatre Arts—Richard Hartzell Prize for a senior major, preferably a filmmaker, Peter J. Rajkowski Award for a major in recognition of leadership, initiative, and organizational skills in theatre projects. Women's Studies—Award presented to a graduating minor for academic excellence and community service.

In addition, the Stony Brook Foundation presents awards at commencement to undergraduate students demonstrating high academic achievement as determined by their departments.

Edward Couney Award

This award is presented each year by a committee consisting of the faculty in biological and medical illustration to the outstanding undergraduate student in that field.

Edward Lambe Science Teaching Award

This award is presented annually to a student preparing for a career in science teaching.

Elisabeth Luce Moore Award

The Elisabeth Luce Moore Award in International and Religious Studies is given annually to a deserving student, graduate or undergraduate, who has demonstrated outstanding academic achievement and gives promise of contributions of unusual stature to the fostering of international understanding and the appreciation of religious values.

Elizabeth Couey Alumni Association Award

This award is given to a junior who has been active in campus affairs and who has done the most to foster communication and create understanding among students, faculty, and administrators.

Elizabeth Couey Award

The Stony Brook Union Advisory Board and the Department of Student Union and Activities present this award to a graduating senior who has exhibited outstanding contributions toward the improvement and growth of student services and programs and exemplifies Elizabeth Couey's unique qualities, which include the ability to listen with understanding, guide without boundaries, give and take with love, and grow with each passing day.

Emile Adams Award for Community Service

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

Faculty-Student Association Elsa Jona Quality of Campus Life and Enrichment of Work Environment Awards

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

Faculty-Student Association Joseph Atlonito, Esq. Pre-Law Award

The Faculty-Student Association annually offers an award to an outstanding pre-law student who has rendered excellent service to the campus community.

H. Lee Dennison Award

The H. Lee Dennison Award, named in honor of Suffolk County's first chief executive, is presented by the University 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 highest academic average in that work.

Health Sciences Undergraduate Award

This award is presented annually by the University Association of the University at Stony Brook to a Health Sciences Center junior for academic excellence and outstanding non-academic service activities on campus and in the community.

Hugh J.B. Cassidy Memorial Award

This award is presented to a current or former School of Professional Development student who can demonstrate that an SPD degree or certificate program has made a significant impact on his or her professional life and/or in the community.

Junior Class Award

This award is presented annually by the University Association to two outstanding juniors in recognition of academic excellence and personal contributions to the University community.

Larry Roher Undergraduate Entrepreneurial Achievement Award

This award established by Larry Roher, Class of '79, is awarded to a deserving student who has served in a managerial and leadership role either on campus or off campus and has pursued entrepreneurial and innovative activities.

Martin B. Travis Award

This award is made annually to a student completing a major in political science who plans to attend law school. The award honors Professor Emeritus Martin B. Travis.

Martin Buskin Memorial Award

This award is presented annually to the student who most exemplifies the qualities of journalistic integrity, scholarship, and deep concern for education.

Michael Flynn Award

Established by the Flynn family in memory of their son, Michael, this award is presented to a student who has overcome physical adversity.

Minorities in Medicine Award

This award is presented annually by the Minorities in Medicine Organization to an outstanding African-American, Latino, or Native American upper-division student who has demonstrated a commitment to pursuing a career in the health professions.

Mortimer Kreuter Award

This award is presented annually to selected teacher certification candidates in recognition of excellent performance 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.

Norma Mahoney Black and Hispanic Alumni Association Award

This award is presented to an African-American, Latino, or Native American graduating senior who has excelled in his or her academics and who has demonstrated a concern for the Black and Latino communities.

Northrop Grumman-Tau Beta Pi Award

This award is presented annually by the Northrop Grumman 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.

Outstanding Student Achievement Awards

The Office of Special Programs presents this award to Educational Opportunity Program (EOP) seniors who graduate with a cumulative grade point average of 3.0 or higher.

Patricia E. Herman Award

This award is presented annually in memory of Patricia E. Herman to a junior or senior majoring in political science who has an interest in urban planning and/or environmental issues.

Patrick W. Warner Award in Economics and Applied Mathematics

This award is presented annually to a junior majoring in economics or applied mathematics and statistics to recognize outstanding academic achievement. The award honors Patrick W. Warner, Class of '74.

Phi Beta Kappa Undergraduate Research and Creative Activities Awards

These awards, one in research and one in creative activities, are presented annually to recognize superior performance by undergraduate students at any level in the liberal arts and sciences.

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 an African American, Latino, or Native American student completing the sophomore year who has shown a high level of commitment to community service.

President's and Provost's Art Acquisition Awards

These awards are given 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 become part of the University's permanent collection and are displayed in University offices.

Raymond F. Jones Award

This award is presented annually 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 biological sciences in recognition of outstanding academic accomplishments.

Returning Student Award

This award is presented by the University Association to an undergraduate who has successfully returned to college after years or decades away from higher education. The award recognizes academic excellence and service to the community beyond the campus.

Richard B. Moore Scholarship

This award, established by the Stony Brook Foundation and Joyce Moore Turner to honor the memory of the distinguished civil rights activist and historian, provides annual recognition to a Stony Brook student of African heritage who has demonstrated outstanding academic achievement.

Scholastic Achievement Incentives for Non-Traditional Students (S.A.I.N.T.S. Awards)

African Student Union Akuwasi Owusu-Baah Award

This award is presented annually to a student who is a member of an underrepresented group and has shown a commitment to promoting an awareness of African culture within the University setting.

Founders Award

The Founders Award is presented annually to the outstanding African American, Latino, or Native American 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 two exceptional graduating African

American, Latino, or Native American students who are about to enter graduate school, one in the natural sciences, mathematics, or engineering, the other in the social sciences or humanities. Consideration is given to both academic achievement and community service.

Minorities in Engineering and Applied Sciences Award

This award is presented annually by the Minorities in Engineering and Applied Sciences Organization to an African American, Hispanic, or Native American student who has demonstrated outstanding achievement in mathematics, physical science, engineering, or computer science.

Outstanding Achievement Awards

These awards are presented annually to two freshmen, two sophomores, and two juniors to recognize outstanding African American, Latino, and Native American students.

Yacub E.L. Shabazz Award

This award is presented annually to the outstanding upper-division African American, Latino, or Native American student who has demonstrated a high level of commitment to community service.

Senior Leadership and Service Awards

These awards are presented annually by the Department of Student Union and Activities to graduating students who have exhibited outstanding leadership and service to the campus community.

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.

Single Parent Awards

These awards are presented to full-time students in their junior year who are single parents in need of financial assistance.

Sophomore Student Alumni Association Award

This award is presented to a sophomore who has demonstrated leadership in creating an environment of tolerance and understanding on campus.

Stewart Harris Undergraduate Award

This award is presented to a high-achieving incoming student in the College of Engineering and Applied Sciences.

Undergraduate Excellence Recognition Certificates

These certificates, presented annually by the offices of the President, Student Affairs, and Undergraduate Academic Affairs, recognize the special achievements of undergraduates who have demonstrated excellence in a wide range of categories including, but not limited to, academic achievement, research, the performing and creative arts, leadership, and service to the campus community.

Ward Melville Valedictorian Award

In honor of the first chairperson of the Stony Brook Council, the University annually presents its most distinguished undergraduate honor, the Ward Melville Valedictorian Award, to the graduating senior who has attained the highest academic average during four years at Stony Brook.

William J. Sullivan Award

This award is presented annually by the University in honor of Justice William J. Sullivan, late chairperson of the Stony Brook Council. The award is the most prestigious service award 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.

William and Teresa Meyer Award

This award is presented to an upper-division or graduate student in the humanities or social sciences who shows promise in Middle Eastern or Asian studies.



Degree Requirements



General education courses, the major, and electives are the three 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. General education courses provide breadth of knowledge within a balanced liberal arts framework. Electives give students freedom to choose courses that enhance their educational goals beyond the basic requirements set by the faculty.

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 affect all human life. The knowledge of the variety, richness, and interdependence of the human experience that students gain during their undergraduate years will enrich their future professional and personal life. The person with a broad education in the arts and sciences and with well-developed communication and quantitative skills is most likely to flourish in changing times.

University Degree Requirements

Note: The Degree Audit Report and Tracking System (DARTS) provides a computer-generated report indicating each student's progress toward fulfilling degree requirements. The report is designed to be a helpful advisory tool and is not an official evaluation of a student's progress.

Credit Hour Requirement

Bachelor of Arts degree: Completion of at least 120 hours of passing work.

Bachelor of Science degree: Completion of at least 120 credit hours of passing work.

Bachelor of Engineering degree: Completion of at least 128 credit hours.

Restrictions on the number of credits that may be counted toward graduation requirements are stated under "Course Credit and Grading Limits" in the chapter "Academic Policies and Regulations." Among the kinds of courses with restrictions are independent study, activity-related courses, remedial, and repeated courses.

Liberal Arts and Sciences Requirement

State education guidelines require students to complete a minimum number of credits in the liberal arts and sciences. Stony Brook degree requirements are structured so that students satisfy this requirement by completing the other requirements for the degree.

Residence Requirement

After the 57th credit, at least 36 credits must be earned at Stony Brook.

Notes:

1. Special restrictions apply to students earning a Bachelor of Engineering degree. Refer to the College of Engineering and Applied Sciences chapter for details.
2. Credits earned in Study Abroad programs—except those sponsored by Stony Brook—do not count toward residency.
3. Credits earned in National Student Exchange programs do not count toward residency.

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

A minimum cumulative grade point average of 2.00 is required for all academic work at Stony Brook. (Note: Grades from other institutions are not included in the Stony Brook g.p.a.)

Major Requirement

Each candidate for a degree must satisfy the requirements of a declared major. Major requirements are detailed in the "Approved Programs" section of this Bulletin. Students must officially declare a major by the end of the freshman year.

Upper-Division Credit Requirement

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

Some of these credits may be earned through courses transferred from other colleges and individually evaluated at Stony Brook as upper division. See "Transfer Credit Policies" in the chapter "Academic Policies and Regulations."

General Education Requirement: Entry Skills and Diversified Education Curriculum

Candidates for degrees in the College of Arts and Sciences, the W. Averell Harriman School of Policy and Management, and the Marine

Sciences Research Center must have satisfied Entry Skill 1 Basic Mathematics Competence, Entry Skill 2 Basic Writing Competence, Entry Skill 3 Elementary Foreign Language, and the Diversified Education Curriculum for these students detailed in this chapter.

Candidates for degrees in Applied Mathematics and Statistics, Computer Science, and Information Systems, and candidates for the Bachelor of Engineering degree must have satisfied Entry Skill 1 Basic Mathematics Competence, Entry Skill 2 Basic Writing Competence, and the Diversified Education Curriculum for these students detailed in this chapter.

Entry Skills

All students in the College of Arts and Sciences, W. Averell Harriman School of Policy and Management, and Marine Sciences Research Center are expected to show basic competence in mathematics, writing, and a foreign language. Students directly admitted to the majors in the College of Engineering and Applied Sciences (excluding business management) must show basic competence in mathematics and writing.

Skill 1: Basic Mathematics Competence

Students should be able to formulate and solve mathematical problems arising in their university work.

Basic Mathematics Competence may be satisfied before entering Stony Brook in either of the following ways:

1. By having passed, while in high school, the New York State Regents Examination in Sequential Mathematics III with a score of at least 75.
2. By having achieved a score of 525 or higher on the SAT II in mathematics; or a score of 560 or higher on the mathematics portion of the SAT I; or a score of 56 or higher on the mathematics portion of the PSAT; or a score of 23 or higher on the American College Testing (ACT) Test in Mathematics.

All entering students who have not achieved basic mathematics competence must satisfy the requirement in one of the following ways:

- By scoring at the appropriate level on a University placement test during their first year at Stony Brook. (This examination is offered during freshman and transfer orientations, in the first week of each semester, and before advance registration

for the following semester.) Students who do not attain the proficiency-level score must enroll in the appropriate course during their first year on this campus.

- By earning a grade of C or higher in the remedial class MAP 103 or in a transferred course of at least three credits evaluated by Stony Brook as equivalent to MAP 103. Credit toward graduation will not be given for such transferred courses taken after matriculation.
- By obtaining at least three transfer credits or Challenge credit for any MAT or AMS course. 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 a University placement test 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.
- 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.
- By passing a Stony Brook course that meets the general education requirement in mathematics with a grade of C or higher.

Note: Transfer students entering with an A.A. or A.S. degree from a SUNY or CUNY school do not automatically satisfy basic mathematics competence.

Skill 2: Basic Writing Competence

All entering students must take the University's writing placement examination, a diagnostic placement test. This exam may be taken only once. Students satisfy Skill 2 by scoring level 3 or higher on the University's writing placement examination or by having passed with a grade of C or higher a college composition course judged equivalent to WRT 101 or 102 or 103 or by receiving a score of 3, 4, or 5 on the AP English exam. Students must begin satisfaction of writing competence in the first year and must take writing courses in sequence in successive semesters until the D.E.C. A English Composition requirement is satisfied.

Notes:

1. College courses taken while the student was in high school can only be considered for equivalency to WRT 101 or 102 or 103 if taken on the college campus.

2. Transfer students entering with an A.A. or A.S. degree from a SUNY or CUNY school do not automatically satisfy basic writing competence.

3. Transfer students who have passed with a C or higher a course equivalent to WRT 101 or 102 or 103 need not take the placement examination.

Skill 3: Elementary Foreign Language Competence

Because of the increasing globalization of culture, society, and the economy, students should have an elementary knowledge of a foreign language.

Students achieve foreign language competence before entering Stony Brook by a third-year high school Regents examination score of 75 or higher or a score of 525 or higher on the SAT II 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. A third-year high school foreign language course passed with a grade of 85 or higher fulfills this requirement for those students whose high school does not offer the New York State Regents examination or its New York City equivalent. Stony Brook strongly recommends that students satisfy the requirement in high school. Students whose secondary school transcripts and transcripts from previously attended universities show a total of two years of formal language study in an institution where the language of instruction is other than English also have satisfied this requirement.

All entering students who have not achieved this entry-level foreign language competence may satisfy the requirement in one of the following ways:

- Enrolling in and passing with a letter grade of C or higher the second semester of an elementary foreign language course numbered 101 or 112 or enrolling in and passing a foreign language course at the intermediate level or higher.
- Obtaining equivalent transfer credit in a foreign language course with a grade of C or higher.
- Passing a Stony Brook Challenge examination in a foreign language course numbered 101 or numbered 112 or higher.

Notes:

1. Literature and culture courses taught in English translation under the auspices of the foreign language departments do not satisfy the elementary foreign language requirement.

2. Students who received transfer credit for a foreign language course under the auspices of a college while in high school must attain the acceptable score on one of the standardized examinations listed above unless the course was taken on the campus of an accredited college and taught by a member of the college faculty.

3. No credit is awarded for Stony Brook Challenge examinations taken to fulfill the elementary foreign language requirement unless the student meets the requirements outlined in "Guidelines for the Stony Brook Challenge Program," available in the Academic Advising Center.

4. Students who know a language not offered at Stony Brook may satisfy the elementary foreign language requirement through the Challenge Examination Program by meeting the "Guidelines for the Stony Brook Challenge Program," although no credit will be awarded.

The Diversified Education Curriculum (D.E.C.)

D.E.C. courses are shown in the course listings at the back of this Bulletin; the D.E.C. category letter (A through K) is tagged to the course number (e.g., WRT 103-A). Courses with a D.E.C. category tag that are taken for the major can also be used to satisfy the appropriate D.E.C. category.

Important notes:

- All courses offered to satisfy D.E.C. requirements must be taken for a letter grade. Courses taken for Pass/No Credit will not satisfy D.E.C. requirements.
- A course is assigned to one D.E.C. category only and will satisfy only the category to which it is assigned.
- If no letter tag appears after a course number, that course may not be used to satisfy any D.E.C. requirement.
- College courses taken while the student was in high school can only be evaluated for applicability to D.E.C. categories if the courses were taught on the college campus.
- AP, CLEP subject examinations, RCE, or Challenge credit, or other approved credit by examinations with appropriate scores, may be used to satisfy one course in each of the categories E, F, and G. Course credit by examination may not be used in any other category except AP credit for category C.
- Categories I and J may be satisfied by transfer in only two ways: 1) with one semester of an intermediate level or higher

foreign language course appropriate to the category; 2) with six credits of college-level study abroad (with no more than three of these credits at the elementary level of the appropriate foreign language) in a geographic area applicable to the category.

**D.E.C. Requirements
for Students with Majors in the
College of Arts and Sciences, W.
Averell Harriman School of Policy
and Management, and Marine
Sciences Research Center**

University Skills

Use the lines provided under each category to work out how you will satisfy your D.E.C. requirements. The first group of requirements—D.E.C. categories A-D—focuses on ways of learning essential to the entire academic experience and subject matter intrinsic to liberal learning.

**Category A English Composition
2 courses**

A _____, _____

The ability to communicate effectively in written English is essential to success both in the University and in society. Students satisfy this requirement by passing WRT 101 Introductory Writing Workshop and WRT 102 Intermediate Writing Workshop A or WRT 103 Intermediate Writing Workshop B.

Notes:

1. A score of 4 or 5 on the University's writing placement examination satisfies the first course of the two course requirement.
2. Students must begin completion of D.E.C. A during their first year at Stony Brook and must take writing courses in sequence until the requirement is satisfied.
3. All transfer and rematriculated students who have passed, with a grade of C or higher, a composition course judged equivalent to WRT 102 or WRT 103 will have satisfied this requirement.
4. Once matriculated, the student must complete Category A at Stony Brook.

**Category B Interpreting Texts in the
Humanities
1 course**

B _____

Category B courses help students develop skills of interpretation and analysis that will enable them to examine subject matter critically, not only in the humanities, but in all other college courses.

**Category C Mathematical and
Statistical Reasoning
1 course**

C _____

Category C courses help students understand and use quantitative skills and ideas critical to higher education.

Note: A score of 4 or 5 on the AP mathematics examination satisfies category C.

**Category D Understanding the Fine
and Performing Arts
1 course**

D _____

Category D courses acquaint students with the works of creative artists and performers and their artistic medium, such as art, music, or theater. The basic terminology, analytical tools used to interpret one of the arts, and representative works in a particular field are examined. Such exposure is essential to intellectual growth and the development of a humanist foundation from which to approach other disciplines.

Disciplinary Diversity

The second group of requirements—D.E.C. categories E-G—exposes students to the modes of thinking, methods of study, and subject matter of major branches of knowledge—natural and physical sciences, social and behavioral sciences, and arts and humanities.

**Category E Natural Sciences
2 courses**

E _____, _____

Category E courses expand students' knowledge about objects and processes observable in nature, whether animate as in the biological sciences, or inanimate as in the physical sciences of chemistry or physics.

**Category F Social and Behavioral
Sciences
2 courses**

F _____, _____

Category F courses focus on individual and group behavior within society. These disciplines use methods such as historical analysis of documents, or survey and interview data, to observe and analyze human activity and society.

**Category G Humanities
2 courses**

G _____, _____

Category G courses examine disciplines and methods that express the way people view the human condition.

**Expanding Perspectives and
Cultural Awareness**

The final group of requirements—D.E.C. categories H-K—challenges students to confront their own perceptions of the world and the people in it. Courses in these categories build on study in the earlier categories.

**Category H Implications of Science
and Technology
1 course**

H _____

Category H courses are designed to help students understand the social and global implications of science and technology and to examine examples of the impact of science, culture, and society on one another.

**Category I European Traditions
1 course**

I _____

Category I courses consider the Western cultural tradition through specialized study of a European nation or area from one or more viewpoints (e.g., historical, artistic, social, political).

**Category J The World Beyond
European Traditions
1 course**

J _____

Category J courses increase students' understanding of a nation, region, or culture that is significantly different from the United States and Europe in at least one respect.

**Category K American Pluralism
1 course**

K _____

Category K courses apply a multicultural approach to study the diverse society of America. The focus may be on one group and its relation to the whole of U.S. society or on the interactions of several groups within our culture. Category K must be completed at Stony Brook.

D.E.C. Requirements for Students with Majors in Applied Mathematics and Statistics, Computer Science, Information Systems or Those Pursuing a Bachelor of Engineering Degree

University Skills

The first group of requirements—D.E.C. categories A-C—focuses on ways of learning essential to the entire academic experience and subject matter intrinsic to liberal learning.

Category A English Composition 2 courses

A _____, _____

The ability to communicate effectively in written English is essential to success both in the University and society. Students satisfy this requirement by passing WRT 101 Introductory Writing Workshop and WRT 102 Intermediate Writing Workshop A or WRT 103 Intermediate Writing Workshop B.

Notes:

1. A score of 4 or 5 on the University's writing placement examination satisfies the first course of the two course requirement.
2. Students must begin completion of D.E.C. A during their first year at Stony Brook and must take writing courses in sequence until the requirement is satisfied.
3. All transfer and rematriculated students who have passed, with a grade of C or higher, a composition course judged equivalent to WRT 102 or WRT 103 will have satisfied this requirement.
4. Once matriculated, the student must complete Category A at Stony Brook.

Category B Interpreting Texts in the Humanities 1 course

B _____

Category B courses help students develop skills of interpretation and analysis that will enable them to examine subject matter critically, not only in the humanities, but in all other college courses.

Category C Mathematical and Statistical Reasoning 1 course

C _____

Category C courses help students understand and use quantitative skills and ideas critical to higher education.

Note: A score of 4 or 5 on the AP mathematics examination satisfies category C.

Disciplinary Diversity

The second group of requirements—D.E.C. categories E-G—exposes students to the modes of thinking, methods of study, and subject matter of major branches of knowledge—natural and physical sciences, social and behavioral sciences, and arts and humanities.

Category E Natural Sciences 2 courses

E _____, _____

Category E courses expand students' knowledge about objects and processes observable in nature, whether animate as in the biological sciences, or inanimate as in the physical sciences of chemistry or physics.

Category F Social and Behavioral Sciences 1 course

F _____

Category F courses focus on individual and group behavior within society. These disciplines use methods such as historical analysis of documents, or survey and interview data, to observe and analyze human activity and society.

Category G Humanities 1 course

G _____

Category G courses examine disciplines and methods that express the way people view the human condition.

Expanding Perspectives and Cultural Awareness

The final group of requirements—D.E.C. categories H-K—challenges students to confront their own perceptions of the world and the people in it. Courses in these categories build on study in the earlier categories.

In choosing courses to satisfy D.E.C. I and J, students should choose one with a

humanities designator and one with a social and behavioral sciences designator.

Category H Implications of Science and Technology 1 course

H _____

Category H courses are designed to help students understand the social and global implications of science and technology and to examine examples of the impact of science, culture, and society on one another.

Category I European Traditions 1 course

I _____

Category I courses consider the Western cultural tradition through specialized study of a European nation or area from one or more viewpoints (e.g., historical, artistic, social, political).

Category J The World Beyond European Traditions 1 course

J _____

Category J courses increase students' understanding of a nation, region, or culture that is significantly different from the United States and Europe in at least one respect.

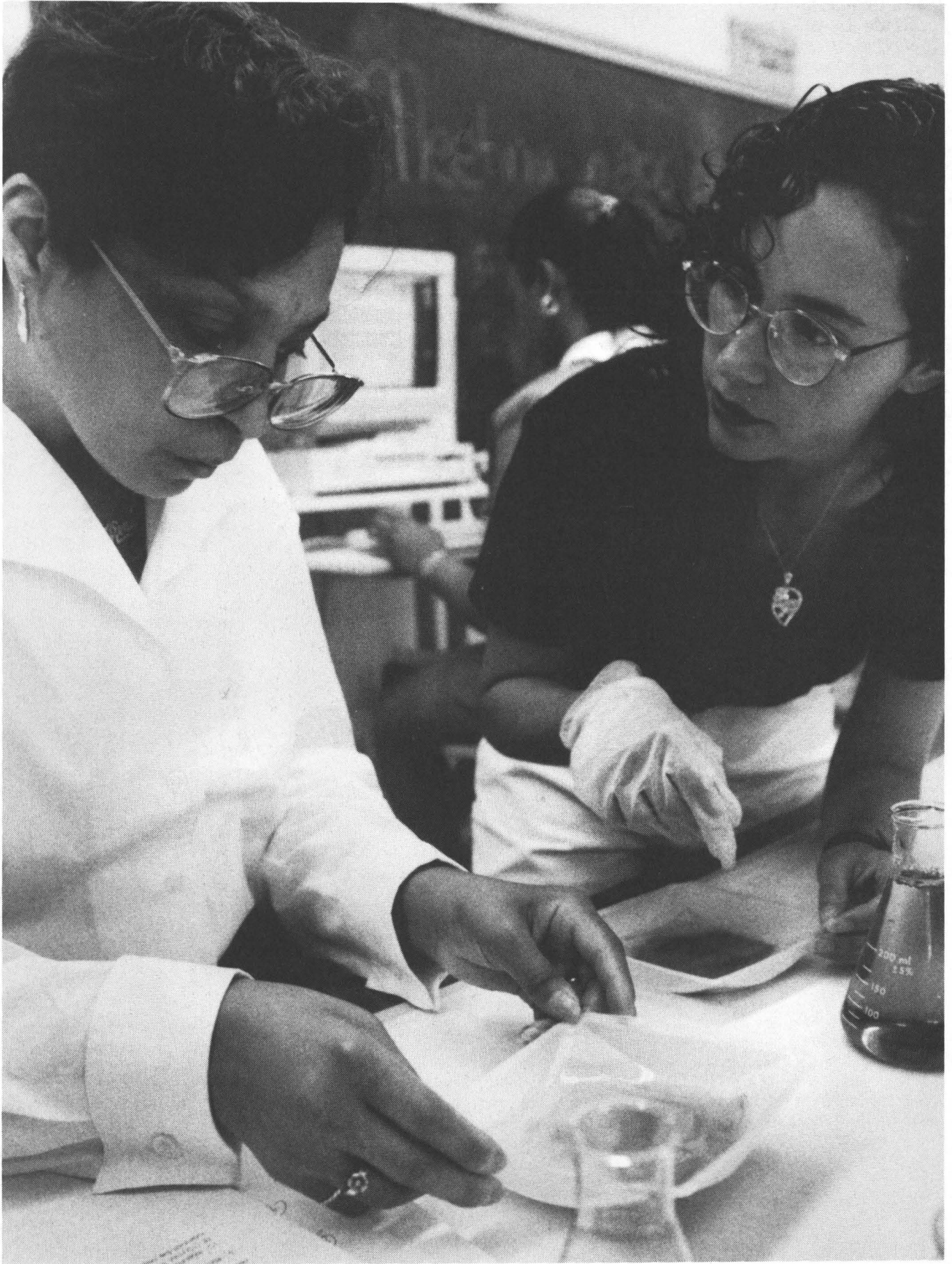
Note: B.E. degree students may petition the Undergraduate Student Office for permission to substitute a category K course for a category I or J course.

Category K American Pluralism 1 course

K _____

Not required for students seeking the Bachelor of Engineering degree.

Category K courses apply a multicultural approach to study the diverse society of America. The focus may be on one group and its relation to the whole of U.S. society or on the interactions of several groups within our culture. Category K must be completed at Stony Brook.





Academic Policies and Regulations



Students themselves are responsible for reviewing, understanding and abiding by the University's regulations, procedures, requirements, and deadlines as described in official publications including this *Bulletin*, the *Student Handbook*, and Class Schedules. The information in this section applies to students on the West Campus (College of Arts and Sciences, College of Engineering and Applied Sciences, Marine Sciences Research Center) in undergraduate programs and to those planning to apply to programs in the Health Sciences Center.

Registration for Classes

Students should register for classes as soon as they are eligible to do so. With the assistance of an academic advisor, each student selects a group of courses. The student must register for classes each semester in accordance with instructions issued by the Registrar's Office and published in the Undergraduate and Graduate Class Schedules booklet as a prerequisite to class attendance. It is the student's responsibility to see that the program conforms with academic regulations and meets degree requirements.

Before registering for the first time at the University, all new students participate in an orientation, which includes an academic advising program. During orientation, students receive academic information and advice from faculty members, professional advisors, and student orientation leaders. Incoming transfer students attend sessions at which they discuss the applicability of their previous coursework for Stony Brook's graduation requirements, including their planned major department. At the conclusion of orientation, students register for the coming semester.

Continuing students register each semester either via telephone through the University's automated telephone system or in person at the Registrar's Office. Advance registration begins in November for the following spring and in April for the following fall. All continuing students should advance register. Final registration takes place during the week before and through the first ten days of classes. Full-time students may enroll for up to nineteen credit hours each semester, but during the period of

advance registration are temporarily limited to a maximum of seventeen credits. Registration priority is based on class standing, which is defined by the number of credits completed: freshman, 0-23; sophomore, 24-56; junior, 57-84; senior, 85 or more. Registration instructions are published in the Undergraduate and Graduate Class Schedules booklet each semester and confirmation of students' course programs is available by telephone, at on-campus SOAR (Student On-Line Access to Records) sites, or the World Wide Web (www.sunysb.edu/www/studinfo.html).

After registering, students are billed and payment is due on the date indicated on the bill. Payment can be made through the University's automated telephone system, which also provides information to students on their individual accounts and on financial aid.

Note: Nonpayment of tuition by registered students does *not* constitute official withdrawal from the University. Students must officially withdraw in person through the Academic Advising Center or in writing through the Registrar's Office to avoid financial liability.

Change in Course Registration and Late Registration

After the tenth day of classes, students must petition to add a course following procedures established by the appropriate faculty Committee on Academic Standing and Appeals (CASA), described later in this chapter. Students may drop a course by telephone or in person after the first ten class days, but full-time students (those registered for 12 or more credits) must maintain at least 12 registered credits. A "W" (withdrawal) will be recorded on the transcript. (See Course Load and Course Withdrawal below.) Students granted permission to make changes in registration after deadlines stated in the academic calendar will be assessed a fee.

First-Week Attendance

Students are expected to attend all classes from the first day of the semester on. Those who do not attend, during the first five days of the semester, a class for which they are registered risk losing their right to remain in the course. A faculty member has the prerogative of deregistering students not in atten-

dance, particularly if others are seeking to add the course. To be certain to avoid an NR (No Record) on the transcript, students must take responsibility for dropping a course by telephone or by submitting a Registration Adjustment form during the first ten days of classes.

Full-Time/Part-Time Status

Full-time enrollment status is an eligibility requirement for most forms of financial aid, health insurance coverage, and intercollegiate athletics, and provides priority status for on-campus housing. Full-time or part-time status is determined on the basis of the number of credits for which a student is enrolled after 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, full time. Students are responsible for determining the implications of changing their enrollment status.

Course Withdrawal

From the eleventh class day in the semester through the fourteenth day before the last day of classes, a full-time student may withdraw from a course providing that full-time status (a minimum of 12 registered credits) is maintained. A mark of "W" will appear on the transcript indicating withdrawal. Part-time students may withdraw from a course and will receive a mark of "W."

A student who wishes to withdraw from a course during the last two weeks of classes may do so only by withdrawing from the University.

Students officially withdraw from a course by using the Automated Telephone System or by submitting a Registration Adjustment form to the Registrar's Office. Students withdrawing from all their courses (withdrawing from the University) may also do so in writing. Note: Non-attendance or notification of the instructor alone does not constitute official withdrawal.

Course Load and Course Withdrawal

Full-time matriculated students—that is, those students who seek to earn a degree from the University—normally register for 12 to 19 credit hours per semester. Requests for permission to

register for more than 19 credits must be submitted to the appropriate Committee on Academic Standing and Appeals.

After the first ten days of classes, full-time students who wish to drop one or more classes and thereby carry fewer than 12 credits (an “underload”) must petition the appropriate Committee on Academic Standing and Appeals. Approval for an underload, granted for the current semester, is allowed only in emergency situations. Before requesting an underload, the student should determine the consequences of dropping below 12 credits for scholarships, loans, and intercollegiate athletic eligibility. Students with approved underloads will be charged at the full-time tuition rate. Students who have chronic difficulties that make full-time study inappropriate should only register for 11 or fewer credits (part-time status).

Citizens of other countries who are in the U.S. on an F-1 or J-1 visa must register for at least 12 credits each semester unless formal approval to do otherwise has been obtained from International Student Services. International students holding other visas should consult International Student Services.

Final Examinations

The academic calendar provides five-six days each semester for a Final Examination Period. The last examination of the course, whether comprehensive or covering only a portion of the material, must be given during the Final Examination Period at the time designated for the course. Exceptions may only be granted by the dean of the faculty member's college for compelling academic reasons. Unit exams may only be given during the last three class periods if a final examination is also given during the Final Examination Period.

University Graduation Requirements

All candidates for any of the bachelor's degrees conferred must satisfy all University graduation requirements as detailed in the Degree Requirements chapter in this bulletin.

Liberal Arts and Sciences Requirements

State education guidelines require students to complete a minimum number of

credits in the liberal arts and sciences. Stony Brook degree requirements are structured so that students satisfy this requirement by completing the other requirements for the degree.

Bachelor of Arts degree: Completion of at least 90 credits in liberal arts and sciences courses.

Bachelor of Science degree: Completion of at least 60 credits in liberal arts and sciences courses.

Bachelor of Engineering degree: Completion of at least 30 credits in liberal arts and sciences courses.

Non-liberal arts and sciences courses are detailed in the “Course Credit and Grading Option Limits” section of this chapter.

Grading System

Either a letter grade or status report is assigned each semester for every course for which a student is registered after the second week of classes.

The term “letter grade” refers to A through F and in certain circumstances to S grades.

A	(superior work)
A-	
B+	
B	(good work)
B-	
C+	
C	(satisfactory work)
C-	
D+	
D	(minimum passing work)
F	(failing work)
I	(incomplete)
NC	(no credit)
NR	(no record)
P	(pass)
Q	(academic dishonesty)
R	(pending completion of second semester of a year-long course)
S	(satisfactory work)
U	(unsatisfactory work)
W	(withdrawal)

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 assigned. 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 disabling 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 graduation cannot be changed to any other grade subsequent to receiving a degree.

Incomplete (I)

If circumstances beyond the student's control inhibit the student's ability to complete the work for a course on time, the student is responsible for informing the instructor of the circumstances immediately. At the discretion of the instructor, a temporary report of I (Incomplete) may be assigned, signifying that the student has been granted additional time to complete the requirements for the course. After granting an I, the instructor will set a date for completion of the requirements. That date will be no later than November 1 for courses begun the preceding spring semester or summer session and no later than March 15 for courses begun the preceding fall semester.

Students may not complete coursework for which an Incomplete was assigned by auditing or registering again for a subsequent offering of the course. If the instructor determines that circumstances merit it, the instructor may request an extension of the original Incomplete by written notification to the Registrar. This extended deadline will be no later than the last day of classes of the semester following the one in which the course was taken. Longer extensions for extraordinary reasons must be approved by the appropriate dean. If the work is not satisfactorily completed 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 measures of the student's academic standing.

Pass/No Credit Option (P/NC)

Within the specific limits noted below, a student may elect to have the final grade in any course recorded on the official aca-

demical record either as P (Pass) if the reported letter grade is A through D, or as NC (No Credit) if the reported letter grade is F. Neither P nor NC is calculated into the grade point average (g.p.a.). Students may elect this option by telephone through the ninth week of classes or in person at the Registrar's Office through the twelfth week of classes.

The following provisions reflect the intent of this option, which is to encourage students to explore other and sometimes less familiar areas of study.

1. Courses graded P may not be used to satisfy general education requirements.
2. At least 100 credits of the 120 credits required for the B.A. or B.S. or of the 128 credits required for the B.E. degree must be passed with a letter grade (A through D).
3. Election of the P/NC option is limited to the fourteenth day before the last day of classes as stated in the academic calendar of the Class Schedule each semester. After the date specified in the academic calendar, no changes either to or from the P/NC option may be made.
4. The Registrar does not communicate to the instructor of a course the names of students who elect the P/NC option.
5. Majors and minors in the College of Arts and Sciences have specific restrictions on the use of the P/NC option to satisfy their requirements. Refer to the specific major or minor requirements in the Approved Programs chapter of this Bulletin for details.
Students in the College of Engineering and Applied Sciences may not take any courses in the major, including technical electives, P/NC.
6. Courses for which the grade of P is recorded are not considered among the minimum of 12 credits required for a student to be on the Dean's List.
7. A student may not retake a course with a grade recorded as P unless the assigned letter grade was C- or below.
8. Certain courses may not be taken with the P/NC option, such as remedial courses, and are so noted in the Bulletin course descriptions.

See also Course Credit and Grading Option Limits later in this chapter.

No Record (NR)

Students are responsible either for completing the required work in or withdrawing from every course for which they have 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 attended, the instructor will assign a report of NR (No Record). An NR may not be assigned for any other reason. If the student was actually in the class, the student must ask the instructor to correct the record by submitting a grade to replace the NR to the appropriate Committee on Academic Standing and Appeals. NR grades are not computed in the g.p.a.

Q Grade

A grade of Q is assigned to a student found guilty of academic dishonesty. The Q remains on the transcript and is computed in the g.p.a. as a grade of F. Students who have a single finding of dishonesty may have the Q replaced by a letter grade determined by the instructor after satisfactory completion of a non-credit seminar addressing issues of academic dishonesty unless the applicable academic judiciary committee determines otherwise. Rescinded Q grades may be reinstated if there is a new finding of academic dishonesty.

Registered (R)

Some courses, chiefly senior honors projects numbered 475-476, are designated year-long courses. The final grade and credits for the course are assigned only after completion of both semesters. Instructors 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 semester. 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.

Satisfactory/Unsatisfactory (S/U)

Some courses are designated as S/U grading and students will not receive a letter grade (A through D) for them. Students may not elect to take such courses P/NC. S/U grading is not calculated into the grade point average (g.p.a.). Courses with S/U grading are counted among the 100 credits required for the degree that must be taken for a letter grade. They also apply to the criteria for Dean's List.

Withdrawal (W)

A mark of W is recorded when the student withdraws from a course after the first ten days of classes. The W is used to indicate that the student withdrew after the end of the add/drop period. The W is not calculated into the grade point average (g.p.a.).

Grade Point Average (G.P.A.)

For the purpose of determining grade point average, 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
Q	0.00

The following grade reports are not calculated into the g.p.a.:

P, NC, NR, R, S, U, W

Grades for courses transferred from other institutions do not affect the grade point average. Grades earned in remedial courses are not calculated in the cumulative g.p.a. Following is an example of a grade point average calculated for one semester:

Quality Points = Point Value x Course Credits

Grade	Point Value	Course Credits	Quality Points
A	4.0	3	12
B	3.0	4	12
C+	2.33	3	6.99
D	1.0	3	3
F	0.0	3	0
Total		16	33.99

Total Credits Attempted = 16

Total Quality Points = 33.99

G.P.A. = Quality Points / Credits Attempted

G.P.A. = 2.12

Semester Grade Reports

Grade reports are prepared shortly after the conclusion of each semester and are accessible by telephone. Although credit for repeated courses is included in the total semester credits, only credit for approved repeated courses will ultimately count toward graduation.

Academic Standing for All West Campus Undergraduates

All students are required to maintain a minimum cumulative grade point average of 2.0 to remain in good academic standing. Exception: First semester freshmen will be deemed to be in good academic standing.

Academic standing is reviewed at the end of each spring semester. Freshmen and all students on probation will have their academic standing reviewed at the end of each semester.

Academic Support and Retention

Stony Brook is committed to helping students who appear in danger of falling into, or who do fall into, academic difficulties. The following retention system is designed to identify and provide academic support for these students.

Academic Warning

Students who are in good academic standing but whose semester g.p.a. falls below 2.0 will receive a letter of warning

and will be encouraged to contact an academic advisor.

First semester freshmen whose g.p.a. is below 2.0 will receive a letter of warning and will be required to contact an academic advisor who must approve the student's schedule for the following semester. Students who fail to consult an academic advisor will be deregistered.

Students in good academic standing whose semester g.p.a. is below 2.0 for two consecutive semesters will receive a letter of warning and will be required to contact an academic advisor who must approve the student's schedule for the following semester. Students who fail to consult an academic advisor will be deregistered.

Probation

Students whose cumulative g.p.a. falls below 2.0 will be placed on probation and will be required to contact an academic advisor who must approve the student's schedule for the following semester. Students who fail to consult an academic advisor or who fail to register for the approved schedule will be deregistered.

Suspension

Students on probation who fail to achieve good academic standing the following semester will be suspended. Students may petition for reinstatement by completing a petition form and submitting it to the Committee on Academic Standing and Appeals of their college (College of Arts and Sciences or College of Engineering and Applied Sciences).

Dismissal

All reinstated students remain on probation. Conditions may be attached to the student's reinstatement. Students who fail to meet the conditions for reinstatement or who fail to achieve a 2.0 cumulative g.p.a. within two semesters of reinstatement will be dismissed.

Advanced Standing by Examination

Stony Brook accepts 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, Regents College Examinations, and Stony Brook's own Challenge Program. (See below for details about these programs.) Credit by examination

may not be used to satisfy most Diversified Education Curriculum requirements; however, they may be used to satisfy one course in each of categories E, F, and G, and AP credit may satisfy category C. Credit by examination does not count toward the University's residence requirement.

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 awarded 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. Students who score at least a 3 on a subject area examination will receive three general elective credits; however, each academic department determines the minimum test score required for academic credit in a particular subject.

College-Level Examination Programs

The University awards credit for the CPEs (College Proficiency Examinations) and for the CLEP (College-Level Examination Program) subject examinations only. Credit is not awarded for the CLEP general examinations. The scores received must be equivalent to a grade of C.

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 page 69.)

Transfer Credit Policies

1. Transfer credit is entered on the official University transcript. Grades received for transferred courses are not shown nor are they included in the calculation of the student's cumulative grade point average at Stony Brook.
2. Graduates of SUNY or CUNY colleges who earned an Associate in Arts or

Associate in Science degree *prior to matriculation at Stony Brook* receive transfer credit for all credit completed as part of their associate degree requirements. Official proof of an A.A. or A.S. degree must be submitted by October 1 if the student enters the University in the fall semester or by February 15 if the student enters the University in the spring semester.

3. Credits for students transferring from SUNY or CUNY colleges without a degree, or with any degree other than the A.A. or A.S., or from colleges that are not part of SUNY or CUNY are evaluated individually. Credits for all courses passed with a letter grade of C or higher at regionally accredited institutions or recognized by the Program on Noncollegiate Sponsored Instruction of the State of New York and recorded on official transcripts are accepted and evaluated for applicability to specific Stony Brook degree requirements. Credits for successfully completed courses from these institutions for which a grade equivalent to P or S was assigned are also accepted.
4. Almost all credits earned at community and technical colleges are considered lower-division credit.
5. Transfer courses are reviewed individually by the Undergraduate Transfer Office for their applicability toward fulfillment of general education requirements. Applicants who have completed college-level study at an institution outside of the United States will have their credits evaluated for application to the University's general education requirements by the Undergraduate Admissions counselor for international students.
6. Courses satisfactorily completed elsewhere toward the intended major or needed to fulfill the 39 upper-division credits requirement must be evaluated by the appropriate academic department for specific applicability. No transferred course with a grade lower than C may be counted among the 39 upper-division credits required for graduation. Forms for requesting the evaluation of specific courses for major and upper-division credit are available in the Undergraduate Transfer Office and in the Engineering and Applied Sciences Undergraduate Student Office. Students may begin the evaluation

process as soon as they accept the offer of admission.

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 counselor for international students before seeking a departmental course evaluation.
8. Courses offered by regionally accredited colleges in the high school and completed while the student was in high school will be evaluated for general elective credit upon receipt of an official college transcript.
9. Courses offered by regionally accredited colleges on the college campus and completed while the student was in high school will be evaluated for transfer credit according to the guidelines in the "Application of Transfer Credits to General Education Requirements" section below.

Students wishing additional information should consult the Undergraduate Transfer Office.

Application of Transfer Credits to General Education Requirements

College of Arts and Sciences, Marine Sciences Research Center, and W. Averell Harriman School of Policy and Management

1. All Entry Skills requirements may be met either through a specified examination, through courses taken at Stony Brook, or through transfer of equivalent courses. Satisfaction of these requirements will be evaluated at the time of matriculation.
2. All students who have earned an A.A. or A.S. degree in a university-parallel program at a SUNY or CUNY *prior to matriculation at Stony Brook* will receive a waiver of categories A through H by completion of the liberal arts requirement of their previous college.
3. All other transfer students will have their previous courses evaluated for applicability to the D.E.C. as follows:
 - a. Students who, at matriculation, provide official transcripts showing

all of the following will be considered to have met the D.E.C. requirements in categories A through H. (Note: Individual transfer courses cannot be used to satisfy more than one category, and a total of eleven courses must be used.):

- One college English composition course with a grade of C or higher
 - One mathematics or statistical reasoning course with a grade of C or higher
 - Three courses in the humanities and fine arts
 - Three courses in the natural sciences and mathematics (including no more than one in mathematics in addition to that used for mathematical or statistical reasoning)
 - Three courses in the social and behavioral sciences
- b. Entering students whose transcripts at matriculation lack any of the eleven required courses listed above will have their courses evaluated for each category using a broad interpretation of the intent of each D.E.C. category.
 - c. All students may satisfy categories A through H by transferring credits from regionally accredited colleges and universities; however, once matriculated at Stony Brook, students may not satisfy category A by transfer.
 - d. Students must fulfill categories I and J at Stony Brook, with two exceptions:
 1. by transferring an intermediate or higher foreign language course, as appropriate to the category. Note: If the intermediate or higher foreign language transferred course was used to fulfill one of the three required humanities distribution courses (see 3.a above), it may not be used to fulfill category I or J;
 2. by completing six credits of college-level study abroad (with no more than three of these credits at the elementary level of the appropriate foreign language) in a geographic area appropriate to the category.
 - e. All students must fulfill category K at Stony Brook.

College of Engineering and Applied Sciences

1. All Entry Skills requirements may be met either through a specified examination, through courses taken at Stony Brook, or through transfer of equivalent courses. Satisfaction of these requirements will be evaluated at the time of matriculation.
2. All students who have earned an A.A. or A.S. degree in a university-parallel program at a SUNY or CUNY college *prior to matriculation at Stony Brook* will receive a waiver of categories A through G by completion of the liberal arts requirement of their previous college.
3. All other transfer students will have their previous courses evaluated for applicability to the D.E.C. as follows:
 - a. Students who, at matriculation, provide official transcripts showing all of the following will be considered to have met the D.E.C. requirements in categories A through G. (Note: Individual transfer courses cannot be used to satisfy more than one category, and a total of seven courses must be used):
 - One college English composition course with a grade of C or higher
 - One mathematics or statistical reasoning course with a grade of C or higher
 - Two courses in the humanities and fine arts
 - Two courses in the natural sciences and mathematics (including no more than one in mathematics in addition to that used for mathematical or statistical reasoning)
 - One course in the social and behavioral sciences
 - b. Entering students whose transcripts at matriculation lack any of the seven required courses listed above will have their courses evaluated for each category using a broad interpretation of D.E.C. principles.
 - c. All students may satisfy categories A through G by transfer from accredited colleges and universities; however, once matriculated at Stony Brook, students may not satisfy category A by transfer.
 - d. All College of Engineering and Applied Sciences students must satisfy category H at Stony Brook.
 - e. Students must fulfill categories I and J at Stony Brook, with two exceptions:
 1. by transferring an intermediate or higher foreign language course, as appropriate to the category. Note: If the intermediate or higher foreign language transferred course was used to fulfill one of the two required humanities distribution courses (see 3.a above), it may not be used to fulfill category I or J;
 2. by completing six credits of college-level study abroad (with no more than three of these credits at the elementary level of the appropriate foreign language) in a geographic area appropriate to the category.
 - f. All students must fulfill category K at Stony Brook. (Candidates for the B.E. degree need not complete category K.)

Study at Other Institutions After Matriculation

Students who wish to transfer credit from other institutions after matriculation at Stony Brook must study at a regionally accredited institution and earn a grade of C or higher in any course taken. In addition, if the student plans to transfer courses from an institution for which printed transfer equivalencies are not available (i.e. published Transfer Credit Guides and printed transfer equivalency sheets), the student must secure prior formal approval from the University. The Undergraduate Transfer Office maintains Transfer Credit Guides to selected schools with course equivalencies to Stony Brook offerings. These are available at the Transfer Office or on their Web site at www.sunysb.edu/admissions/transguide.html. Forms for securing prior approval are also available in the Undergraduate Transfer Office. Students must arrange to have official transcripts sent to the University upon completion of courses taken.

Currently enrolled students in the College of Arts and Sciences should consult with the Undergraduate Transfer Office before taking general education or elective courses elsewhere. Students who

plan to transfer courses toward major requirements should get prior approval from the major department. Engineering and Applied Sciences students must receive a departmental advisor's approval before taking a course elsewhere.

Summer Study Elsewhere

To ensure that courses will be fully acceptable for transfer credit, students planning to take summer courses elsewhere should discuss their plans in advance with both the appropriate departmental academic advisor and Stony Brook's Undergraduate Transfer Office. If the student plans to transfer courses from an institution for which printed transfer equivalencies are not available, the student should secure prior approval for courses toward major requirements from the major department, and for courses toward general education requirements and elective credit from the Transfer Office. After the University receives an official transcript indicating that the student has completed the courses with grades of C or higher, appropriate transfer credit will be noted on the student's academic record.

Undergraduate Course and Curricular Numbering System

- 100-199 Introductory courses; appropriate for and generally taken by freshmen (U1 standing).
- 200-299 Intermediate courses; appropriate for and generally taken by sophomores (U2 standing).
- 300-399 Upper-division courses; appropriate for and generally taken by juniors and seniors (U3 and U4 standing).
- 400-499 Upper-division major courses, seminars, directed readings and research, and teaching practice; appropriate for and generally taken by juniors and seniors. A few 400-level courses for seniors only are so noted.

Courses with hyphenated numbers (e.g., HIS 495-496) are year-long courses. Students will not be awarded credit for either course unless they complete both semesters.

Renumbered Courses

The notation ("formerly ABC ###") after a course number and title indicates that the course designator or number has

been changed. Courses renumbered from lower-division (100-200) to upper-division (300-400) level may not be used retroactively to satisfy the 39 upper-division credit requirement of the University unless specifically noted in the course description.

The newly renumbered or designated courses may not be repeated for credit.

Enrichment Courses

These courses are restricted to specific groups of students. AIM 102 and 104 are open to students in the EOP/AIM program only. LBR 150 is available to freshmen or sophomore or transfer students with fewer than 30 credits, and provides advanced training in using the library. USB 101, a one-credit course for first-semester freshmen and transfer students, introduces students to the Stony Brook academic environment. See the descriptions of each of these courses in the Course Description Section.

Multiple Registrations for the Same Course

Repeatable Courses

Certain courses note in their descriptions that they "may be repeated once" or "may be repeated as the topic changes." Students may repeat such courses within those restrictions and receive credit each time. All grades for such repeatable courses are computed in the student's grade point average.

Retaking Courses

A student may register again in a course for which C- or lower or a non-passing grade has been previously recorded. Each grade appears on the student's academic transcript and is included in the computation of the grade point average and the semester credit load, but credit for the re-taken course will not count toward satisfaction of graduation requirements, whether the course was first taken at Stony Brook or elsewhere.

A student who registers again in a course for which a grade of C or higher has been previously recorded should note that the credits for the course will not count toward the semester credit load, the semester g.p.a., or the cumulative g.p.a. This regulation also applies if the student had elected the P/NC option,

and the grade assigned by the instructor was a C or higher.

Mutually Exclusive Courses

Mutually exclusive courses are courses whose content is so similar that students who have taken one will be repeating the material if they take the other. Such courses are identified in their *Undergraduate Bulletin* descriptions with the notation "not for credit in addition to ABC ###". Students risk losing both credits and grade for registration in the second of two courses that are designated mutually exclusive.

Crosslisted Courses

Crosslisted courses are courses offered under the auspices of two or more departments and are identified by the notation "crosslisted with ABC ###" in the *Undergraduate Bulletin* and in the Class Schedule. Crosslisted courses may also be indicated with a slash, such as AFH/PHI 379 or HIS 334/WST 336. The title, course description, prerequisite(s), and credit hours for crosslisted courses are identical. A crosslisted course is taught by the same instructor and meets in the same location and at the same time as the course with which it is crosslisted. Students may register under either designator but may not repeat the course by enrolling a second time under the other designator. Those students wishing to use a crosslisted course for major requirements should verify with the department which designator is acceptable.

Coscheduled Courses

Coscheduled courses are upper-division undergraduate courses that are taught at the same time and in the same location as graduate courses. The undergraduate and graduate versions of the course must have separate requirements as described in the syllabi for the courses and separate grading policies for undergraduate and graduate students.

Auditing

Auditing refers to the practice of attending a course for informational instruction only. The privilege of auditing courses is limited to matriculated students and senior citizens. Matriculated students who wish to audit a course must first obtain permission from the instructor. Senior citizens must arrange to audit courses through the School of Professional

Development and Continuing Studies. An auditor does not receive academic credit for the course, nor does the University maintain any record of the auditor's attendance in the course.

Individual instructors may establish policies for auditors in their courses. In general, auditors are expected to refrain from participating in class discussions and from turning in or asking for grading of homework, term papers, or examinations. After the end of the add/drop period, the student may not change status in a course from auditor to registered.

Course Credit and Grading Option Limits

Listed below are the maximum number of credits that can be applied toward the 120 required for the B.A. or B.S. degree or the 128 required for the B.E. degree:

Credits earned with a P Grade

Students must complete at least 100 credits of the 120 required for the B.A. or B.S. or of the 128 credits required for the B.E. degree with a letter grade. No courses may be taken P/NC for general education requirements.

Independent study **30 credits**
273, 287, 444-449, 484-489

Internships **12 credits**

PEC (physical education) **10 credits**
(Only 4 credits may be at the 100-level)

Activity-related courses **9 credits**
AFS 283, LHD 307, LHD 308,
PSY 283, SSI 283

Undergraduate teaching practica
CAS students **6 credits**
CEAS students **7 credits**

Maximum number of credits earned in non-liberal arts and sciences courses
B.A. candidates **30 credits**
B.S. candidates **60 credits**
B.E. candidates **90 credits**

The following courses are non-liberal arts and sciences courses:

ARS 154
BUS 114, BUS 214, BUS 348
MUS individual instrument or voice instruction courses
Student teaching courses numbered 451, 452, and 454
THR 244, THR 295, THR 296, THR 301-307, THR 340
100-level physical education courses

ESE, ESG, ESM, and MEC courses
HAD, HBA, HBM, HDH, HDO,
HDP, HNI courses and HWC
field work courses

Credits by approved examinations 30 credits

Approved examination programs are: Advanced Placement examinations, College Level Examination Program subject examination, Regents College examinations, Stony Brook Challenge examination

Graduate courses 6 credits

Remedial courses 0 credits

AIM 102, MAP 101, and MAP 103 are remedial courses

Repeated courses 0 credits

Courses are not repeatable unless specifically noted as repeatable in *Undergraduate Bulletin* course description.

Note: A course passed with a C- or lower may be taken again, but the credits count only once. A course passed with a C or higher may not be repeated.

Minimal Undergraduate Student Responsibilities

By accepting responsibility for their education, students enhance the development of their academic, social, and career goals. It is expected that students accept responsibility for their academic choices as part of their educational experience at Stony Brook. Services are available to assist students with academic advising, long-range goals, and career explorations. Students themselves are responsible for reviewing, understanding, and abiding by the University's regulations, procedures, requirements, and deadlines as described in official publications including the University's *Bulletins*, the *Student Handbook*, and Class Schedules. The following guidelines were endorsed by the University Senate on May 6, 1996.

Responsibilities in the Classroom

Students are expected to:

- attend class regularly unless other arrangements are made;
- arrive for class on time and leave the classroom only at the end of class;
- engage in class discussions and activities when appropriate;

- exhibit classroom behavior that is not disruptive of the learning environment.

Course Responsibilities

Students are expected to:

- observe the requirements for the course and consult with the instructor if prerequisites are lacking;
- obtain and understand the course syllabus;
- keep up with the course work and take all scheduled examinations;
- address any conflicts in syllabus and exam scheduling with the instructor as soon as possible;
- review all graded material and seek help if necessary;
- as soon as possible notify the instructor of any disabilities that might interfere with completion of course work;
- fairly and thoughtfully complete the course evaluation form.

Academic Progress

Students are expected to take an active part in assessing their academic progress each semester, and to monitor their progress towards completion of graduation requirements. They are expected to:

- review academic policies and procedures described in the current *Undergraduate Bulletin* and its Supplements;
- know basic University, college, and departmental graduation requirements in their chosen majors and minors so they may plan completion of these requirements;
- maintain personal copies of a tentative degree plan, progress reports, general educational material, and transfer credit evaluations until after graduation;
- see that any academic records from other universities are transferred and received by all the appropriate offices (Admissions and Undergraduate Transfer Office) for evaluation.

Interactions with Faculty, Instructors, and other Students

Students are expected to:

- understand the concept of academic honesty and adhere to its principles;
- be respectful and polite to all instructors and other students;

- be familiar with and abide by the University's sexual harassment policies as well as University policies regarding consensual relationships between instructors and students;
- consult the Student Conduct Code about other aspects of student conduct in and out of the classroom.

Minimal Instructional Responsibilities

Instructors at Stony Brook have teaching responsibilities that involve a broad range of methods. The following list of responsibilities does not define good teaching; it defines only a minimal set of conditions and practices that faculty members and teaching assistants are expected to observe in performing their teaching functions. These updated guidelines were endorsed by the University Senate on May 6, 1996.

Classroom and Conference Responsibilities

- Instructors must meet their classes regularly and promptly, at times and places scheduled.
- Classes should be canceled only for the most serious reasons, and students should be given advance notice, if at all possible, of instructors' absences.
- Instructors must schedule and maintain regular office hours to meet their students' needs, minimally three hours per week, at times to suit the schedules of as many students as possible.
- Office hours should be announced in class and posted outside instructors' offices and in department offices.
- Instructors should be available for appointments with students who are unable to meet with them during regularly scheduled office hours.
- Instructors are responsible for careful supervision and classroom preparation of teaching assistants assigned to their courses.

Course Definition and Requirements

- Instructors must adhere to the course descriptions in the *Undergraduate Bulletin*.
- Prerequisites that are not stated in the *Bulletin* or the Supplement or the Class Schedule may not be imposed.
- A written syllabus that clearly defines the content, goals, and requirements of

each course must be distributed at the beginning of the course, made readily available throughout the Add/Drop period, and kept on file in the department office. The syllabus should include the Provost's Americans with Disabilities Act statement and information about examination dates and times, the policy on make-up exams, office hours, and the basis for the final grade.

- Instructors must conduct any teaching and course evaluation survey that has been approved by their departments or the College or University Senates. The results of class evaluations should be used in periodic reviews and revision, when appropriate, of the course.

Assessment of Student Performance

- Homework assignments, examinations, and term papers should be evaluated and returned promptly. Written comments, explaining the instructor's criteria for evaluation and giving suggestions for improvement, should be provided.
- Examinations and term papers submitted at the end of the term should be graded and either returned to students or retained for one semester.
- Instructors must observe the Final Examination Schedule that appears in each semester's Class Schedule booklet. Instructors of courses taught on the semester schedule may only give a unit exam in class during the last week of the semester if a final examination is also given during the Final Examination Period.

Professional Conduct and Interaction with Students

- Instructors must report all suspected occurrences of academic dishonesty to the Academic Judiciary Committee (CAS) or the Committee on Academic Standing and Appeals (CEAS).
- Instructors should always be aware that in teaching and advising they represent the University. They are bound by the University's sexual harassment policies. Instructors are also bound by University policies that prohibit any consensual relationships with students that might compromise the objectivity and integrity of the teacher-student relationship. Examples include romantic, sexual, or financial relationships.
- Instructors should strive to maintain the privacy and confidentiality of stu-

dents' examinations, homework, and final grades.

- In dealing with students, instructors should be polite, helpful, and fair. They should take into account the wide range of cultural factors and physical challenges that can affect learning, and should attempt to help students overcome any disadvantages.

Committees on Academic Standing and Appeals (CASA)

Undergraduate students whose declared major is applied mathematics and statistics, business management, computer engineering, computer science, electrical engineering, engineering science, information systems, or mechanical engineering should make requests in matters outlined below to the Committee on Academic Standing of the College of Engineering and Applied Sciences. Information about academic regulations and advice about individual requests may be obtained from the Engineering and Applied Sciences Undergraduate Student Office where students in these majors file petitions.

All other West Campus undergraduate students should make their requests to the Committee on Academic Standing and Appeals of the College of Arts and Sciences. Written information on guidelines and procedures may be obtained from the Academic Advising Center or, for EOP/AIM students, the Office of Special Programs. Students with majors in the College of Arts & Sciences file petitions with the Office of Undergraduate Academic Affairs.

Both committees operate under faculty legislation and consider exceptions to regulations pertaining to such matters as registration changes, course loads, and academic standing. The CEAS committee also deals with academic dishonesty and academic grievances. Note: Not all exceptions to regulations or deadlines are petitionable. Changing to or from the P/NC option after the deadline published in the academic calendar is not petitionable.

In exceptional circumstances, students may petition the appropriate Committee on Academic Standing for permission to withdraw from a course after normal deadlines. Students who obtain permission to add or drop courses after the normal deadlines will be charged \$15 for each program change form processed by

the Registrar. Students who, because of extraordinary situations beyond their control, are granted permission to withdraw from all courses and who will not be in attendance during the semester are not charged a fee.

The Committee on Academic Standing and Appeals of the appropriate college considers all petitions for reinstatement in cases of academic suspension. (See the section Academic Standing for All West Campus Undergraduates earlier in this chapter.)

Academic Dishonesty

Intellectual honesty is the cornerstone of all academic and scholarly work. Therefore the University views any form of academic dishonesty with the utmost seriousness. 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. The judiciary committee of each college has jurisdiction over all courses offered in that college. Either committee may inform preprofessional committees about any findings of academic dishonesty which, in its judgment, are of sufficient seriousness. Information about the procedures for hearings and other functions of these committees dealing with academic dishonesty is available in the Office of Undergraduate Academic Affairs and in the Engineering and Applied Sciences Undergraduate Student Office.

Scientific Misconduct

While most cases of academic dishonesty may be under the jurisdiction of the judiciary committees, students involved in allegations of scholarly misconduct as defined below are subject to the campus policy and procedure for investigating such allegations as filed in compliance with the requirements of the Public Health Service's Office of Research Integrity.

Scholarly misconduct is defined as:

1. Fabrication, falsification, plagiarism, or other serious deviation from accepted practices in proposing, carrying out, or reporting results of scholarly activities; and

2. Retaliation of any kind against a person who reported or provided information about suspected or alleged misconduct and who has not acted in bad faith. This definition is not meant to include actions involving honest error or honest differences in interpretations or judgments of data.

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, other requirements for credit, and any other academic matters. While such grievances are most often brought by students against instructors, the committees consider grievances involving any member of the academic community on the West 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 agreements between New York State and United University Professions (the faculty-staff union) or GSEU (the Graduate Student Employees Union).

The committees consider only charges of clearly improper academic practices; they will not intervene in disagreements about an instructor's intellectual judgment (e.g., grading). Grievances should be brought to a committee only after students or others have unsuccessfully pursued other avenues of redress, such as discussion with the instructor and department chairperson. Grievances should be put in writing, including all 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 Academic Affairs or the Engineering and Applied Sciences Undergraduate Student Office.

Student On-Line Access to Records (SOAR)

The SOAR system provides direct, immediate access to selected parts of

individual student academic records. Students may view and print their unofficial grade report (called ARTIS), their degree audit report (DARTS), their current course registration and course registration for the next semester, if any. Students may also check their registration status and review the mailing addresses that the University has on file for them.

Students log on to SOAR at the Student Services/Registrar counter, the Academic Advising Center, the CEAS Undergraduate Student Office, EOP/AIM, Undergraduate Transfer Office, and the Health Sciences Center Student Services Office. Many applications, such as registration information, transcript request status, and degree audit information, are available under the SOAR designation on the University's home page at www.sunysb.edu.

Degree Audit Report and Tracking System (DARTS)

The Degree Audit Report and Tracking System (DARTS) provides a computer-generated report indicating each student's progress toward fulfilling degree requirements. The report is designed to be a helpful advisory tool and is not an official evaluation of a student's progress.

Academic Advising

Academic advising involves exploring a student's life goals and vocational aims to determine each student's program choice. Advisors begin with these broader issues to help entering and continuing students select courses and plan appropriate schedules. Advisors can help students to clarify their values and can help relate students' interests and abilities to their educational and career plans. Advisors can help students adjust to new learning styles required at a large university, such as lecture classes, team teaching, and laboratory instruction. Students are responsible for understanding and abiding by the University's policies, requirements, regulations, and deadlines and advisors can help explain them.

The Academic Advising Center offers advising to all College of Arts and Sciences students. Advisors explain academic regulations, help students select

courses and plan their academic programs, explore majors and minors, and advise students concerning procedures for petitioning for exceptions to University regulations and procedures. Students may also e-mail their advising questions to Advising@sunysb.edu, or view the Center's web page, accessed through the University's home page. Evening appointments are available for students attending courses in the evening. The Center also coordinates the orientation of new students. Only advisors in major and minor departments and programs can provide official advising on their major's or minor's requirements.

The Undergraduate Transfer Office advises new transfer students through their first semester at Stony Brook and evaluates transferred credits toward the University's general education requirements. Students planning to take courses elsewhere after matriculation at the University should review their course selections with the Transfer Office prior to enrollment.

The Engineering and Applied Sciences Undergraduate Student Office provides specialized advising for students interested in College of Engineering and Applied Sciences professional programs. A designated faculty member for each academic department and program in both the College of Arts and Sciences and the College of Engineering and Applied Sciences directs the undergraduate program and coordinates the advising of students regarding the discipline or program. All students are expected to consult an appropriate advisor before registering each semester.

Prime Time for Students

Each November and April, for a period approximately coinciding with advance registration for the next semester, academic departments provide extra advising hours and schedule special events pertaining to their programs. These Prime Time for Students activities provide special opportunities for students to talk with faculty members about individual courses, major and minor requirements, and the appropriateness of the academic field for certain career choices.

Selection of Area of Interest

All newly admitted freshmen, except those accepted into majors with

approved limited access, are placed in the GEN (general program) category. At orientation, incoming freshmen are encouraged but not required to declare one of several areas of interest for which an advisor's signature is not required. These areas of interest are listed on the Declaration of Major form which also is used for officially declaring an area of interest, major, minor, secondary education option, addition of major or minor, and change of major or minor. The forms are also available from the Registrar's Office and the Academic Advising Center.

New freshmen who do not wish to declare an area of interest will remain in the GEN (general program) category until the end of the freshman year. Those who have declared an area of interest may change to another area of interest.

By officially declaring an area of interest, the student indicates his or her preference, but it does not guarantee a place in any major that has limited acceptance.

Selection and Change of Major

Most forms of financial aid require that the student have an officially declared major to be considered for eligibility.

College of Arts and Sciences Majors

The Declaration of Major form, available in the Registrar's Office, is used officially to declare a major; the signature of a departmental advisor is required for all majors in the College of Arts and Sciences.

Students must declare a major before registering for the first semester of the sophomore year if they have not already done so. New transfer students who matriculate as sophomores, juniors, or seniors must declare a major during their first semester at Stony Brook.

Academic departments advise students about the courses and major(s) in their departments and sign students into the majors. The signed Declaration of Major form must be submitted to the Registrar's Office for processing.

New transfer students who have indicated a major on their application for admission should confirm their major status in person with their chosen department or program early in their first semester at Stony Brook.

Students who have declared a specific major may change at any time before graduation. Students should discuss the change with an advisor in the desired program, obtain the appropriate signature on the Declaration of Major form, and submit the form to the Registrar's Office for processing.

College of Engineering and Applied Sciences Majors

All majors in the College of Engineering and Applied Sciences (CEAS) are limited admission and qualified freshmen or transfer students are accepted directly into such majors when admitted to the University.

Students planning on a major in the College of Engineering and Applied Sciences should consult the Undergraduate Student Office in CEAS for advising on appropriate course selection.

Students not accepted upon admission to the University may apply for CEAS majors after completion of required courses, listed with the department's major requirements in this *Bulletin*. Interested students should consult the College's Undergraduate Student Office for application procedures.

Health Sciences Center Majors

All majors in the Health Sciences Center undergraduate programs (School of Nursing, School of Social Welfare, School of Health Technology and Management) are limited admission, junior/senior level programs. Qualified freshmen who indicate an interest in certain undergraduate majors offered through the Health Sciences Center on their application to the University are conditionally accepted directly into the major shortly after they are admitted.

Students may not seek admission to these programs by using a Declaration of Major form. Declaring an area of interest related to one of the majors does not guarantee later acceptance. Continuing and transfer students who wish to enter one of the upper-division programs in the Health Sciences Center must formally apply for admission to that program after completing the course and credit requirements described in the Health Sciences Center section of this *Bulletin* and be formally accepted.

Declaration of Minor

Although students are not required to complete a minor in order to graduate, many minors are available for those wishing to develop another area of specialization without the full depth of an academic major. An academic minor is a specified sequence of courses totaling between 18 and 24 credits, including at least nine credits of upper-division work. It does not lead to a degree. Many major departments also offer a minor in the discipline. In addition, interdisciplinary minors that draw on courses from a variety of disciplines are described in the Approved Programs listings. With each *Bulletin* description, the name and departmental affiliation of the minor coordinator is listed, along with the office location, phone number, and, where available, an e-mail and web address. The Declaration of Major form, available from the Registrar's Office and the Academic Advising Center, is used officially to declare a minor; the signature of the minor coordinator or director is required. Students may have up to three declared minors recorded on their University transcript.

Double Majors

When a student officially declares and completes two majors (a double major), the student receives one baccalaureate degree upon graduation. The student must fulfill the graduation requirements of the degree-granting college when specifying B.A. or B.S. or B.E. The University does not officially recognize triple majors.

Double majors may be composed of any two majors (except Multidisciplinary Studies) within the College of Arts and Sciences or with one major in the College of Engineering and Applied Sciences and one in Arts and Sciences or with one major in the Health Sciences Center's School of Health Technology and Management and one in Arts and Sciences or in the College of Engineering and Applied Sciences. Students who wish to complete two majors must obtain the approval of the two departments or programs involved. The number of credits taken to fulfill the requirements of both must total at least 60. Students should submit a Declaration of Major form to add a second major when both majors are in the College of Arts and Sciences. The form is not used if the sec-

ond major is in the College of Engineering and Applied Sciences or in the School of Health Technology and Management. Students must have been formally accepted to these majors through direct admission or application. Certain restrictions apply within the College of Engineering and Applied Sciences concerning double majors and students should consult the Undergraduate Student Office of the College.

Double Degrees

Under certain circumstances, a student who pursues majors in two of the three largest academic units offering bachelor's degrees may receive two degrees simultaneously.

Bachelor of Engineering and Bachelor of Arts or of Science

Qualified students may be granted permission to earn double degrees at the undergraduate level. This is permissible only if one of the majors leads to a Bachelor of Arts or Bachelor of Science degree offered in the College of Arts and Sciences and the other leads to a Bachelor of Engineering degree offered in the College of Engineering and Applied Sciences.

Written approval to undertake a double degree must be obtained from the Engineering and Applied Sciences Undergraduate Student Office and from the Academic Advising Center, subject to review by the Office of Undergraduate Academic Affairs.

In addition to meeting all of the Diversified Education Curriculum requirements, including those requirements specific to either College, and all other graduation requirements, the candidate for a double degree must earn a total of 144 credits and must fulfill the requirements of the Bachelor of Engineering degree and the requirements of the Bachelor of Arts or the Bachelor of Science degree.

Health Sciences and a West Campus College

Students at Stony Brook may simultaneously earn bachelor's degrees from both a West Campus college and the Health Sciences Center if they have been formally admitted to each unit. Written approval to undertake this curriculum

must be obtained from the dean of the Health Sciences school in which the student is formally enrolled and from the Academic Advising Center, subject to review and final authorization by the Office of Undergraduate Academic Affairs. The double degree consists of a Bachelor of Science degree from the Health Sciences Center and either a Bachelor of Arts or Bachelor of Science or Bachelor of Engineering from a West Campus program.

The double degree will be awarded 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) the area of specialization of the West Campus program is fundamentally different from that of the Health Sciences Center program.

Only double degrees, not double majors, may be earned by students studying jointly in the School of Nursing or the School of Social Welfare and a West Campus college. Students in the School of Health Technology and Management may earn either a double degree or a double major.

Sequential Bachelor's Degrees

A student who has completed the requirements for and received a bachelor's degree from Stony Brook or another accredited institution and who wishes to earn a second degree from a West Campus program must apply and be accepted as a matriculated student for the second baccalaureate. After completing the first degree, the student must earn at least 36 credits in residence at Stony Brook and complete a new major. Of these 36 credits, 21 must be at the upper-division level (courses numbered 300 or higher), primarily from courses chosen for the major. Students also are required to fulfill the "Expanding Perspectives and Cultural Awareness" portion of the Diversified Education Curriculum described in the Degree Requirements chapter. Coursework completed for the first bachelor's degree, whether taken at Stony Brook or elsewhere, does not count toward completing these requirements. Sequential bachelor's degree students who wish to qualify for degrees with distinction must complete 55 credits in coursework at Stony Brook toward the second degree. All sequential bachelor's degree candidates

must have completed, with a C or higher, courses judged equivalent to Stony Brook's general education requirements in English composition and mathematics or complete these courses at Stony Brook. For purposes of registration and academic standing, matriculated candidates for a second baccalaureate will be treated as seniors.

Transcripts

Students who desire transcripts of their academic record at Stony Brook, either for their own use or to have forwarded to another institution or agency, must submit a written request to the Registrar's Office at least ten days before the transcript is needed. A form for this purpose is available from the Registrar, but requests may also be made by letter or facsimile transmission. Information concerning transcript requests also is available on the University web site at www.sunysb.edu. The charge for transcripts is \$5 per copy; payment should be made to the Bursar's Office. If submitted 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 released unless required by law. Students may, however, request only the undergraduate or only the graduate record. Transcripts will be issued only if the student's financial record shows no outstanding obligation. Students also may view their transcripts using the SOAR system on campus or the World Wide Web.

Academic Honors

Selection of students for honors is based primarily on University records and recommendation and not on application. Some of the disciplinary national honor societies require application and have established criteria for eligibility. Interested students should approach the relevant department or program.

Honor Societies

Besides the annual awards listed in the Scholarships and Awards chapter, induction into an honor society acknowledges the student's outstanding academic performance.

Phi Beta Kappa, the nation's oldest academic honor society, is devoted to fostering the liberal ideal in education and encour-

aging the spirit of critical inquiry. Admission is by election, based on the breadth and balance of a student's career academic program as well as superior performance. The number of initiates is limited by the national body; members of the junior class may constitute only a small fraction of the annual total. The minimum cumulative g.p.a. in recent years has averaged 3.6 for seniors and 3.8 for juniors.

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 most recent fall semester, a 3.5 grade point average as a full-time student using the same criteria as for the Dean's List, below.

Sigma Xi is a national honor society for achievement in pure or applied scientific research. Any student associated with the University who has, through research achievements, shown a marked aptitude that is expected in due course to lead to the fulfillment of the requirements for full membership may be nominated by a faculty member or department 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.

The Golden Key National Honor Society recognizes junior and senior students who have achieved at least a 3.3 g.p.a. at Stony Brook. The campus chapter endeavors to add to the vitality of the University's intellectual and social life through sponsorship of extracurricular events.

Various disciplines have their own honor societies. Those with chapters at Stony Brook include Sigma Gamma Epsilon (Earth Science), Omicron Delta Epsilon (Economics), Eta Kappa Nu (Electrical Engineering), Phi Sigma Iota (Foreign Languages), Delta Phi Alpha (German), Alpha Eta (Health Technology and Management), Phi Alpha Theta (History), Pi Tau Sigma (Mechanical Engineering); Phi Sigma Tau (Philosophy), Sigma Pi Sigma (Physics), Pi Sigma Alpha (Political Science), Alpha

Epsilon Delta (pre-medical curriculum), Psi Chi (Psychology), Dobro Slovo (Slavic Languages), and Alpha Kappa Delta (Sociology).

Dean's List

After each fall and spring semester the dean of each college compiles a Dean's List of undergraduate students who constitute approximately the top 20 percent of their class. 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, F's, or Q's. P grades are not considered to be letter grades. Part-time students must have earned at least six credits in a semester of letter-graded work (not including S or P grades). The grade point average cutoffs are as follows: seniors, 3.40; juniors, 3.30; sophomores, 3.20; and freshmen, 3.10.

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) and attain the requisite grade point average in the class. 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, of all students. 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

Students must declare their intention to seek departmental honors and must carry out required academic activities to earn this distinction. Honors requirements are described in the College of Arts and Sciences Approved Programs chapter in the listing of each department that offers honors. For students who qualify, this honor is indicated on their diploma and on their permanent academic record.

Application for Graduation

To become a candidate for graduation, a student must file an "Application for Degree" form with the Registrar's Office. May, July, and August candidates who wish to be included in the May Commencement Program must file by the previous February.

Deadlines: December and January candidates — end of the third week of the candidate's final semester.

May candidates — end of the second week of the candidate's final semester.

July and August candidates — end of the second week of the last summer term for which they are registered.

Exact deadlines appear in the academic calendars printed in the Class Schedule during the academic year and in the Summer Session Catalog.

Withdrawal from the University

Students who wish to officially withdraw from the University must submit a "Withdrawal from the University" form, available from the Registrar's Office or the Academic Advising Center, to the Academic Advising Center. The date on which the form is filed, not the date of last class attendance, is considered the official date of withdrawal.

Note: Non-attendance does not constitute official withdrawal. Notification of the student's instructors does not constitute official withdrawal. Non-payment of tuition and fees does not constitute official withdrawal.

Students who submit withdrawal forms after the first ten class days but not later than the last day of classes in a semester will be assigned a withdrawal (W) for each course. Withdrawal after the last day of classes does not relieve students of financial obligation.

Foreign students on an F-1 or J-1 visa must consult with International Services before withdrawing from the University.

Leave of Absence and Returning to the University

At the time they withdraw from the University, students have the option of indicating whether they intend to return. This "leave of absence" may be canceled if the student attends another college while on leave from Stony Brook

and fails to maintain a C average at that institution. A student in that situation should consult a Stony Brook admissions counselor at the earliest opportunity.

1. 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 the one in which they withdrew if:
 - a. withdrawal occurs before October 31 in the fall or March 15 in the spring semester;
 - b. there has been no previous withdrawal;
 - c. the student has never been suspended; and
 - d. the student has no disciplinary action pending.
2. Students who withdraw after the dates given above but who otherwise meet the conditions for return detailed above may return after one full semester has elapsed.
3. College of Arts and Sciences students who have not been enrolled at Stony Brook for four consecutive semesters and have not earned any Stony Brook credits will be assigned a new matriculation date and will be responsible for the academic requirements in effect at the time of their return. These re-matriculated students will be required to meet with an academic advisor before registering for classes upon their return. Note: Summer terms are not considered to be semesters and credits earned during the summer do not count toward maintaining matriculation.
4. College of Engineering and Applied Sciences students will be assigned a new matriculation date after one semester of absence from the University and will be responsible for the academic requirements in effect at the time of their return. They will be required to meet with a faculty advisor before registering for classes.
5. Educational Opportunity Program students must obtain clearance for readmission from the EOP/AIM Office and meet with their AIM counselor.
6. Prior to registering for classes, all foreign students returning to the University must obtain a visa clearance from International Services.

Academic Renewal Policy

Students who for financial or personal reasons have not been enrolled at the University for at least ten consecutive semesters and who, after rematriculation, complete at least 12 credit hours (but no more than 24) in good academic standing, may be eligible for academic renewal. Under this policy, the student's cumulative grade point average will be calculated based on course grades earned as of the date of rematriculation, although the original grades and grade point average remain on the transcript. For advice about eligibility, see an advisor in the Academic Advising Center.

Credit Options

Challenge Program for Credit by Examination

The University's Challenge Program permits matriculated undergraduates to meet requirements, earn credit, and receive advanced placement by taking examinations in place of regular courses. Each department determines the courses for which it will offer Challenge examinations.

Certain restrictions apply:

1. No student may take a Challenge examination in a course that is a prerequisite for a course already passed.
2. Credit may be accumulated through the Challenge Program for no more than five courses. (Up to 30 credits by exam may be applied toward the degree through a combination of Challenge and approved external examinations.)
3. Challenge credit:
 - a. may not be used to fulfill the University residence requirement (36 credits earned at the University after achieving U3 standing);
 - b. may not be used to satisfy the 55 credits in residence required of candidates for degrees with distinction;
 - c. may not be used to fulfill Diversified Education Curriculum requirements except for one course in each of the three D.E.C. Disciplinary Diversity categories (E, F, and G).

Written guidelines describing in detail the Challenge Program's procedures, regulations, and fees are available in the Academic Advising Center.

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. 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. More information on this option is available from the Registrar's Office. See also the description of the National Student Exchange and Study Abroad programs in the Special Academic Programs chapter.

Student Participation in University-Sponsored Activities

By their participation in campus-related activities such as research conferences, dramatic or musical performances, intercollegiate athletic competitions, or leadership meetings, students make contributions to the University. In recognition of the students' commitment both to their regular academic programs and to related activities, the University makes every effort to accommodate unique situations.

Students are responsible for presenting a printed copy of semester obligations to all their professors at the beginning of the semester to alert them to activities that may present conflicts. Instructors are required to make arrangements for students to complete examinations, quizzes, or class assignments early or late if the student's participation in a University-related activity results in the student's absence from the class when such work is due. Some events occur only by invitation during the semester, and instructors should make accommodations for these students.

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 educa-

tional records. Unless otherwise legally mandated, written consent of students will be required before personally identifiable information about them will be released from their educational records subject to certain legal exceptions. Specific guidelines and procedures are available from the Office of the Vice President for Administration.

Change of Address

To ensure prompt receipt of registration materials, grade reports, and other important University communications, students should report off-campus mailing address changes to the Registrar's Office either in person by showing appropriate identification or through the Registrar's website. 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 International Services. Degree candidates should inform the Registrar's Office of any address changes.

Equivalent Opportunity/ Religious Absences

Some students may be unable to attend classes on certain days because of religious beliefs. Section 224-a of the New York State 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 his or her religious beliefs, to register or 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 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 his or her religious beliefs, an equivalent opportunity to register for classes or 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 registration, classes, examinations, study, or work requirements are held on Friday after 4:00 p.m. or on Saturday, similar or makeup classes, examinations, study, or work requirements, or opportunity to register 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, or registration 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 student because of his or her availing himself or herself 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. It shall be the responsibility of the administrative officials of each institution of higher education to give written notice to students of their rights under this section, informing them that each student who is absent from school, because of his or her religious beliefs, must be given an equivalent opportunity to register for classes or 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 such student such equivalent opportunity.
8. As used in this section, the term "institution of higher education" shall mean any institution of higher education, recognized and approved by the regents of the university of the state of New

York, which provides a course of study leading to the granting of a post-secondary degree or diploma. Such term shall not include any institution which is operated, supervised, or controlled by a church or by a religious or denominational organization whose educational programs are principally designed for the purpose of training ministers or other religious functionaries or for the purpose of propagating religious doctrines. As used in this section, the term "religious belief" shall mean beliefs associated with any corporation organized and operated exclusively for religious purposes, which is not disqualified for tax exemption under section 501 of the United States code

Research Involving Human Subjects

Experiments conducted by Stony Brook personnel, 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 from the University coordinator for research compliance in the Office of the Vice President for Research. 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 outlines the risks and benefits of participation, enumerates the subject's rights, 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 the Vice President for Research.

Research Involving Safety Considerations

Campus committees also review and approve projects involving 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 or 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 University coordinator for research compliance in the Office of the Vice President for Research.

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 Institutional Animal Care and Use Committee (IACUC) 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 (DLAR) or from the University coordinator for research compliance. 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. Except as stated in provision 2, all vertebrate animals must be ordered through 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. The IACUC may waive the requirement of mandatory acquisition of animals through DLAR in cases where the activity involves fieldwork. Such a waiver is granted when the detailed methods of observation, capture, or tagging of vertebrate animals are determined by the IACUC to be in compliance with applicable regulations governing such work.
3. Use of privately owned animals is prohibited.
4. 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).
5. In the event that the animals must be euthanized, the method of euthanasia must conform to those in the 1986 report of the A.V.M.A. Panel on Euthanasia, or subsequent revisions (available from all chairs, deans, and division heads). Methods of euthanasia for species not covered by this report must be employed as per IACUC recommendation.
6. 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.
7. IACUC approval is required in cases where members of the University propose to engage in collaborative work that involves the use of animals in facilities other than those under the auspices of the University at Stony Brook.

Changes in Regulations and Course Offerings

The courses of study, academic regulations, and other information contained in this *Bulletin* are limited to policies in effect at the date of publication. The University 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 Supplement to the *Undergraduate Bulletin*, published each semester in the Class Schedule booklet.

*You are following
some of the brightest minds
in the country.*

31

STONY
BROOK
STATE UNIVERSITY OF NEW YORK

31

NEW YORK
C57839
OFFICIAL





Special Academic Programs



This chapter details special academic programs available to Stony Brook undergraduates: the Honors College, Internships, Living/Learning Centers, National Student Exchange, RAIRE (summer research fellowships), Study Abroad, URECA (Undergraduate Research and Creative Activities), University Learning Communities, and WISE (Women in Science and Engineering). Students are encouraged to take advantage of these special opportunities to enhance both their personal growth and their educational experience at Stony Brook.

The Honors College

Chair: Ruth S. Cowan
 Assistant to the Chair: Laurie Fiegel
 Office: N-3005 Library
 Phone: 632-4378
 E-mail address: honorscollege@notes.cc.sunysb.edu
 Web site: www.honors.sunysb.edu

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

Honors College admissions decisions are based on both quantitative and qualitative criteria. Among these are a record of high academic and 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 demonstrate overall academic excellence in high school by such accomplishments as achieving high grade averages in major subject areas, a cumulative average of or greater than 93, combined SAT scores equal to or over 1250, a record of advanced or college-level coursework, and evidence of writing ability. Demonstrated talents in the fine and performing arts also serve to qualify a student for admission to the Honors College. Similar criteria are 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 40 credits (16 courses) of honors coursework designed to fulfill the objectives of the Diversified Education Curriculum and distributed as follows:

- A. Interdisciplinary Seminars
 Each student will take a year-long seminar in the first year and three one-semester seminars in succeeding years.

Freshman:	HON 101, 102 Progress and Its Discontents
Sophomore:	HON 201 Brief Lives
Junior:	HON 301 Science, Values, and Society
Senior:	HON 401 Global Issues in the 20th Century
- B. Honors College Seminars
 Each student is required to participate in informal seminars, designed exclusively for the Honors College, offered under the designation HON 110-120 Honors Topics. These variable topic seminars build an academic and scholarly community among Honors College students and the University and community at large. Each student must enroll in one Honors topic seminar each semester during the freshman and sophomore years, for a total of four seminars. Several different topics are offered each semester for students to choose from. Students are encouraged to select topics that give them a broad introduction to academic and community life in the University.

C. Complementary Electives	Each Honors College student will select, with the approval of a college advisor, three additional courses that help to round out a program of honors study.
----------------------------	---
- D. Senior Project
 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 curricular requirements for students entering the college after the freshman year are modified according to the time spent in the program. Those entering as sophomores must complete 32 credits of honors coursework (three one-semester interdisciplinary seminars, two Honors College seminars, six credits of honors course work, nine credits of complementary electives, and the senior project). Those entering as juniors must complete 24 credits (two one-semester interdisciplinary seminars, six credits of honors course work, six credits of complementary courses, and the senior project).

The Honors Lounge

The Honors Lounge includes meeting space for student honor societies and clubs, a computer facility, a library collection of cultural periodicals, and study areas. Seminars, colloquia, and special events scheduled for honors students are held in the Honors Lounge throughout the year. Honors students also have priority for residence in Cardozo College, the Honors Living/Learning Center.

Freshman 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 course descriptions at the back of this *Bulletin*. 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's honors programs receive preference in enrollment.

Internship Program

Internship Manager: Alfreda S. James
 Office: W-0550 Melville Library
 Phone: 632-6810
 E-mail address: ajames@sunysb.edu
 Web site: www.sunysb.edu/career

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. Up to six credits may be earned for semester internships during the academic year; up to six for each summer term.

Internships allow students to test career intentions, to improve intellectual skills in writing, quantitative analysis, research, and administration, to increase understanding of social, political, and economic forces, and to acquire work experience useful for seeking employment or entrance into professional schools.

Credit-bearing internships require the approval of an academic department and the internship manager in the Career Placement Center (CPC) when appropriate. The general guidelines for participation in an internship are:

Completion of 57 credits prior to beginning the internship

Completion of at least one previous semester of coursework at Stony Brook.

Minimum grade point average of 2.5

Submission of Stony Brook internship agreement form to faculty sponsor and CPC when appropriate.

Registration in only one 488 course per semester

Students enrolled in a department's internship course numbered 488 must maintain a journal, have regular contact with the faculty sponsor, and complete a term report. Students enrolled in the Career Placement Center's course EXT 488 may be required to compile a portfolio that includes a resumé, informational interviews with alumni or other professionals, and a written summary of their work experience.

Living/Learning Centers

Director: Mary Scranton
Office: N-3005 Melville Library
Phone: 632-4378
E-mail address: llc@notes.cc.sunysb.edu
Web site: www.sunysb.edu/llc

Living/Learning Centers integrate the student's residence hall experience with academic concerns and enrich both aspects of the college education. Stony Brook offers seven Living/Learning Centers: Environmental Studies in

Dreiser College, Health and Wellness in Mount College, Human Sexual and Gender Development in Eisenhower College, Interdisciplinary Arts in Greeley College, Interdisciplinary Science and Engineering in Keller College, International Studies in Stimson College, and Service Learning for Community-Based Action Research in Douglass College. Many classes are held within the residential buildings and building activities are centered around the living/learning center topic. All Living/Learning Centers offer minors and add an academic component to each student's residential experience. Although the programs are intended primarily for residents of the college housing the Living/Learning Center, other students may participate with permission of that program's director.

Environmental Studies

Minor Coordinator:
Darcy Lonsdale,
Marine Sciences Research Center

The Environmental Studies Living/Learning Center, housed in Dreiser College, offers an environmental studies minor (ENS) as well as activities that emphasize both scientific and social issues encompassed by the broad field of environmental studies. Through this program, motivated natural science and social science students are able to apply their majors specifically to the study of the environment.

The minor in environmental studies is designed to give residents of Dreiser College enhanced exposure to one sub-field of environmental studies—the natural science of the environment.

Human Sexual and Gender Development

Minor Coordinator:
Roberta Karant, Sociology

The Human Sexual and Gender Development Living/Learning Center, housed in Eisenhower College, offers a minor in human sexual and gender development (LHD) and brings an interdisciplinary perspective to the examination of evolving concepts of a gendered, sexual self. Small group seminars focus on sex, gender, and the human life course, while students broaden their understanding with relevant courses in the arts, sciences, and social sciences.

Interdisciplinary Arts

Minor Coordinator:
Randy Thomas, Academic Advising Center

The Interdisciplinary Arts Living/Learning Center, housed in Greeley College, offers a minor in interdisciplinary arts (LIA) and provides an interdisciplinary and collaborative perspective on the fine arts.

Interdisciplinary Program in Science and Engineering

Minor Coordinator:
Thomas G. Robertazzi, Electrical Engineering

The interdisciplinary program in science and engineering (LSE) is designed for the residents of Keller College. The program is intended for motivated students who wish to broaden their exposure to science and engineering beyond that offered by their major department.

Students from all disciplines are invited to apply for admission to the program, but it is expected that most will pursue majors in biology, biochemistry, mathematics, or one of the physical sciences. Participation in the program is particularly valuable for those who plan careers in the sciences or engineering.

The program curriculum consists of two types of courses. The introductory courses are designed to help entering students to select and pursue a successful course of study in the sciences or engineering. The upper-division courses are designed to broaden the student's exposure to all aspects of science and engineering and to prepare students for the issues and events that they will confront in subsequent careers or graduate study.

International Studies

Minor Coordinator:
Olufemi Vaughan, Africana Studies/History

The interdisciplinary program in international studies (LIS) is open to all undergraduates with preference given to residents of Stimson College who wish to add an academic dimension to their residential experience. The Stimson Living/Learning Center provides an integrated view of institutions, ideas, historical traditions, and aspirations of peoples of other countries or regions.

Health and Wellness

Minor Coordinator:
Robert Streb,
School of Health Technology and Management

The interdisciplinary program in health and wellness is designed to give students a foundation in the concepts of healthy living and to help students select future studies and careers in the health professions. The program is intended primarily, but not exclusively, for residents of Mount College Health and Wellness Living/Learning Center.

Service Learning for Community-Based Action Research

Minor Coordinator:

Gregory Ruf, Social Sciences Interdisciplinary

The interdisciplinary program in service learning for community-based action research (LCR) is open to all undergraduates with preference given to residents of Douglass College who wish to add an academic dimension to their residential experience. The program, housed in Douglass College, is designed to use the special educational opportunities available at Stony Brook to create citizens with the depth of commitment to community service that the 21st century will demand. Acquisition of skills and knowledge is combined with a fostering of an appreciation by students of their role as citizens both in the University and in the surrounding communities.

National Student Exchange

Program Director: Barbara Fletcher
Office: W-3519 Melville Library
Phone: 632-6712
E-mail address: bfletcher@sunysb.edu
Web site: www.notes.cc.sunysb.edu/Prov/orientation.nsf.pages.nse

The National Student Exchange (NSE) offers undergraduate students an opportunity to study for up to one year at one of more than 150 state colleges and universities in the United States and its territories. Students return from exchange with new perspectives on their education and a better appreciation of their home regions, families, and campuses, as well as an increased awareness of the differences in ideas and values that exist across the United States.

To qualify for the program students must be studying full time when they apply and have completed a full-time course of study in the semester prior to the exchange semester with a cumulative g.p.a. of 2.5 or higher. The application, which includes recommendations and a personal statement of intent, as well as academic advising and an interview with

the program coordinator, must be completed by February 15.

Students are encouraged to select schools in geographic and cultural settings that provide academic enrichment opportunities not available on the home campus.

NSE brochures, information about tuition and fees, application forms, and interviews are available from the Director of the National Student Exchange Program.

RAIRE Program

Director: Christine Bentley
Office: 407 Administration
Phone: 632-7114
E-mail address:

christine.bentley@sunysb.edu

Web site: www.sunysb.edu/ire/

Stony Brook was one of ten universities nationwide selected by the National Science Foundation for a Recognition Award for the Integration of Research and Education (RAIRE). In conjunction with this award, RAIRE offers summer research fellowships to undergraduates in the sciences (including social sciences), mathematics, and engineering to enable them to engage in research under the supervision of a faculty member for ten weeks during the summer. The RAIRE fellowships provide a stipend of \$1,500 plus free room and board on campus. The deadline for applying for fellowships is March 1.

RAIRE also awards travel grants of up to \$500 for undergraduate researchers to attend a professional meeting or conference. To qualify, an applicant must be a co-author of a paper or poster presented at that meeting. Priority is given to those students who are presenting papers themselves. Travel grant recipients also receive funds to join a professional society as a student member.

Study Abroad

Program Specialist: Mark E. Kehren
Office: E-5340 Melville Library
Phone Number: 632-7030
E-mail address: studyabroad@sunysb.edu
Web site: www.sunysb.edu/studyabroad

The University's Study Abroad Office offers students the opportunity to pursue their academic interests in an overseas location while still earning credits toward the Stony Brook degree. Programs cover an array of disciplines, ranging beyond the humanities and

social sciences, and are taught in a variety of languages, including English. Program length is either a summer, a semester, or an academic year.

Through its affiliation with diverse international institutions Stony Brook is able to provide high quality, low cost programs for its students. Financial aid can frequently be used to help cover the costs of the program, since the credits earned are applied to the student's Stony Brook degree.

Students who have taken advantage of these exciting opportunities report that overseas study is among the most beneficial and important experiences of their lives. In addition to developing a greater level of maturity and confidence, students often expand their academic contacts and intellectual interests, all of which would be viewed favorably by future employers and graduate schools. An often unexpected benefit is that students develop not only a heightened understanding of other cultures, but also of the United States and its role in the world.

Program Selection and Eligibility

Students from all disciplines are encouraged to investigate the feasibility of studying abroad. They may choose from programs directly sponsored by Stony Brook (see below) or from programs administered by other SUNY campuses (over 300 programs in all). Details are available from the Study Abroad Office.

Early investigation is essential to successful overseas study so that it can be properly fitted to the student's curriculum. Through careful consultation with their academic department, the Undergraduate Transfer Office, and the Study Abroad Office, students can determine the applicability of courses and credits earned abroad toward their major and degree requirements, including the fulfillment of general education and upper-division credit requirements. Studying abroad need not delay a student's graduation.

Application deadlines may vary, but are generally in early March for fall, full year, and summer programs and early October for spring semester programs.

Course Load, Credits, and Grading

Students typically earn between 12 and 18 credits during each semester of over-

seas study and six credits during summer programs, although this can vary. Students should ascertain prior to enrollment in overseas academic programs, through careful consultation with their academic department and the Study Abroad Office, the applicability of courses and credits to Stony Brook degree and major requirements. However, final determination of the credit level is made only after return to Stony Brook. Credits awarded through Study Abroad programs are usually recorded on the Stony Brook transcript as S or U and are subject to Stony Brook policies governing S/U grades. A transcript supplement will be attached to the official transcript listing actual courses and grades received overseas. In a few instances, this information will be recorded directly on the Stony Brook transcript.

Some D.E.C. requirements can be fulfilled through overseas study. For example, SUNY Study Abroad programs of six credits or more (except in English speaking Canada) and with no more than three credits in elementary foreign language satisfy the D.E.C. category I or J requirement, depending on their geographical location. Others are evaluated on a case-by-case basis.

Stony Brook Programs

Listed below is a sampling of overseas programs offered by Stony Brook. Programs are continually being added and updated, so check with the Study Abroad Office for a definitive list.

Stony Brook in England: Cambridge

Under this unique fully integrated program, highly qualified students can be directly enrolled as Visiting Students at Cambridge University, with all the rights and privileges of degree-seeking Cambridge students. Participants are housed in a Cambridge college and will be provided with tutors from the Cambridge faculty. Participation is limited to one academic year.

Prerequisites: U3 or U4 standing; minimum GPA of 3.3

Stony Brook in England: Lancaster

Offering courses in the sciences (including a pre-med program) as well as social studies, humanities, and business, this program allows students to enroll directly at Lancaster University. This is one of the few British programs which will allow

students to enroll for only a semester; a full academic year option is also available.

Prerequisites: U3 or U4 standing; good academic standing

Stony Brook in England: Sussex

Students may pursue studies in any discipline offered at the University of Sussex, located in Brighton. This is a full academic year program, designed to integrate students into the British university system.

Prerequisite: U3 or U4 standing

Pharmacology Program in Manchester, England

Fall semester program allowing a pharmacology major to do coursework in England which will equate to courses at Stony Brook.

Prerequisite: Pharmacology major

Stony Brook in France: Paris

Students are enrolled directly in the University of Paris IV (Sorbonne), Paris VII (Denis Diderot), or Paris X (Nanterre). Course instruction is, therefore, in French; lectures are supplemented by tutorial assistance (in French and in English) which is arranged by the Resident Director. The program begins with a four-week intensive language course provided for U.S. students prior to the start of the French academic year and includes a year-long series of cultural events, excursions, and discussions with French scholars. Each student's program of study is arranged and supervised individually. Students can participate for the full academic year, the spring semester, or the fall semester.

Prerequisites: Four semesters of college-level French or the equivalent; good academic standing

Stony Brook in Germany: Konstanz

Through an exchange agreement with the University of Konstanz, students with a background in German are eligible to enroll directly in regular University of Konstanz courses. Students may participate for the academic year or for a semester, although the fall semester in Germany will not end in time for students to return for spring courses at Stony Brook.

Prerequisites: Sufficient background in the German language; good academic standing

Stony Brook in Germany: Tübingen

Offering a good combination of language preparation and regular university integration, the program begins with an optional Intensive German Language Course which helps prepare students for courses at the Eberhard-Karls University of Tübingen. Students may then continue their language study through the university's "German as a Second Language Department" and/or enroll directly in any university course for which they meet the prerequisites. Students may participate for a full academic year or a semester.

Prerequisites: Four semesters of college-level German or the equivalent; good academic standing

Stony Brook in Italy: Summer in Rome

Courses are offered in English and in Italian. Intensive study of Italian language at various levels as well as courses on Italian culture, civilization, and art are provided during this four-week summer program. Completed coursework is recorded on the student's official Stony Brook transcript with assigned letter grades. The academic program is supplemented with weekend excursions around Italy.

Stony Brook in Italy: University of Rome

This program features direct enrollment at the University of Rome and begins with a six-week intensive Italian language and culture course in October-November. During the normal Italian academic year, which begins in November, students attend regular university courses. Students are assisted in selection of their courses by the Resident Director; tutorial assistance is also made available. Academic evaluation is carried out by way of the Italian oral examination system at the end of the academic year (June). Students may participate for the full academic year or for the Spring semester.

Prerequisites: Good academic standing; four semesters of college-level Italian or the equivalent. Spring Only participants need a slightly higher fluency in Italian.

Stony Brook in Japan: Chiba

Two separate programs are offered through Chiba University, near Tokyo. Students who are beginning their study of the Japanese language may enroll in the JPAC Program, which provides language instruction and culture courses in

a mix of English and Japanese, depending on the student's language level. This program is available for either one semester or the full academic year. Students with a more advanced knowledge of Japanese may participate in the short-term exchange program, which is a full year program allowing for direct enrollment in the university supplemented with advanced language courses. Limited scholarship funds are available for each of these programs.

Prerequisites: Good academic standing; language ability as described

Stony Brook in Korea: Seoul

Stony Brook has a number of exchange agreements with universities in Korea, each with its own highlights and features to recommend it. Some specialize in business and management, others in Asian philosophy and religions, and so on. These programs offer a good array of courses taught in English with intensive Korean language study available. Students with sufficient language proficiency may enroll directly in regular university courses, thus broadening further the disciplines they may pursue in Korea.

Prerequisite: Good academic standing

Stony Brook in Madagascar: Ranomafana National Park

This fall semester program allows students to add an experiential learning component to their studies. The program focuses on biodiversity, conservation, ecology, anthropology, wildlife studies, environmental sciences, and primatology. It begins with a two-week intensive orientation on the Stony Brook campus. Participants then travel to Madagascar where they live in the rain forest of the Ranomafana National Park and Research Station, continuing their studies and working with international researchers. Students' independent study projects contribute to the biodiversity survey and ecological monitoring of the park.

Prerequisites: High academic standing; major in a program-related field

Stony Brook in Spain: Leon

This is a total immersion program designed for independent-minded undergraduate and graduate students interested in full integration into Spanish language and culture. This program offers a chance to enhance the language abilities of students who already have a strong

background in Spanish. Participants may spend a semester or a full year in Leon. Courses are taken through the Programa para Estudiantes Extranjeros; students with advanced linguistic ability may also enroll directly in regular University of Leon courses.

Prerequisite: U2, U3, U4, or graduate standing, good academic standing. A minimum of four semesters of college-level Spanish or its equivalent is required, although additional Spanish background is recommended.

Stony Brook in Tanzania:

In this summer program, students visit various locations in northern Tanzania to highlight their course instruction, which is provided by Stony Brook faculty. Generally, visits are made to traditional Maasai boma, Olduvai Gorge, the Serengeti Plain, the Ngorongoro Crater, villages and cities in northern Tanzania, providing a rare and exciting opportunity to integrate classroom instruction with first-hand experience in a part of the world renowned for its natural beauty, diversity of cultures, wild life, and conservation efforts. Coursework emphasizes the history and cultures of the area. Basic instruction is also provided in Swahili. Students typically earn six upper division anthropology credits. Application deadline is usually in early February.

Prerequisites: second semester U2, U3, or U4 students in good academic standing

University Learning Communities

Chair: David Hanson, Chemistry
Office: N-3006 Melville Library
Phone: 632-1213
E-mail address:

dhanson@notes.cc.sunysb.edu

Web site: www.cas.sunysb.edu/lcp

Stony Brook, a pioneer in the development of learning communities throughout the curriculum, offers several learning communities built on the concept that a community of learners and teachers working together enhances the educational and social experience of the University. Learning communities provide many of the advantages of smaller institutions with the resources of a large research university.

Freshman Learning Communities

Freshmen with similar interests take major and general education courses as a

"community." All the courses, usually limited to 25 students, are integrated through faculty collaboration so that what students learn in one course is reinforced by the learning in the others. The courses are anchored by a small linking seminar in which students work together and conduct collaborative research projects. Students develop critical perspectives on their learning while building the skills and abilities necessary to take full advantage of the opportunities of a research university.

The Communities in Science are designed for students interested in biology, chemistry, and the health professions and include all the courses taken by 50% of incoming freshmen at Stony Brook. The Communities of Ideas are specially designed for students who are undecided about a major or who are interested in the humanities and social sciences. The Communities of Ideas include some of the most popular courses among incoming freshmen, allowing students to sample a variety of disciplines while preparing for most majors in the humanities and social sciences.

Advanced-Level Learning Communities

Modeled after the Freshman Learning Communities, advanced-level learning communities are designed to provide sophomores and juniors with the same kind of small-college community experience afforded to freshmen. Advanced-level communities typically link two courses that satisfy both major and general education requirements with a small seminar that fosters the development of writing and communication skills at the upper level and the transposability of skills, methods, and knowledge among different disciplines that is essential to success both at the University and beyond. Stony Brook offers several communities specifically targeted to ease the transition of transfer students to the University. These communities are constructed around the disciplinary courses most popular among incoming students. All advanced-level learning communities provide work in the major with a general education experience that helps students to build the skills and abilities necessary to take full advantage of the opportunities of a research university.

Federated Learning Communities

The Federated Learning Communities

(FLC) creates an academic community based on shared exploration of common intellectual and personal interests. The FLC is unique among Stony Brook's special programs in having a Master Learner.

Master Learner

For each year-long program FLC invites one or two members of the Stony Brook faculty to serve as master learners. They become students for the year, attending all of the program classes, writing term papers, and taking examinations. The master learners serve as models and resources for the FLC students; and direct the program seminars.

Program Theme

Each year-long program focuses on an issue of major importance and interest for special attention and study. FLC programs have considered world hunger, creativity, gender and sexual diversity, and issues in management and business. Information on current program themes is available in the Learning Communities Office.

Program Courses

During each of two consecutive semesters, students who enroll in an FLC program take three regular University courses that have been selected because they provide varied and comprehensive perspectives on the issues studied. These are linked by the program seminar which focuses and integrates the material of the program courses in a small community setting. The program seminar offers opportunities for enhancement of essential skills and abilities, such as oral and written communication, critical thinking and analysis, group interaction, and personal initiative.

The FLC Minor and Program Requirements

Students may choose to enroll in FLC for one or two semesters; but 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 each semester typically involves 12 credits, students are free to take additional courses related to their major. Many departments accept FLC work, including program seminars, toward satisfaction of major requirements. Students should consult with FLC about their individual academic plans and needs.

URECA Program

Director: Christine Bentley
Office: 407 Administration
Phone: 632-7114
E-mail address:

Christine.Bentley@sunysb.edu

Web site: *notes/cc.sunysb.edu/Prov.underresop.nsf*

The goal of the Undergraduate Research and Creative Activities Program (URECA) is to make undergraduate research and creative activity highly visible endeavors on the Stony Brook campus.

The URECA office maintains web sites that inform students about opportunities to become involved in research and creative activities. The pages provide: instructions on how students can become engaged in research; links to every department's undergraduate research web site; and lists of faculty who can assist students in identifying a project and/or a research supervisor. The sites also provide a listing of off-campus research opportunities.

The URECA Program hosts an annual research symposium and publishes a collection of undergraduate research abstracts, providing undergraduate researchers the opportunity to share their work with the campus community. The URECA program also coordinates student participation in national undergraduate research conferences.

Small grants are available for undergraduate students to help pay for supplies and materials relating to their projects. In addition, URECA provides \$2,000 fellowships for students to participate in research and creative activities during the summer.

All matriculated undergraduates, including incoming freshmen and transfer students, are eligible to participate in the URECA Program. URECA Fellows are required to register for credit (0 to 6 credits) with the department in which they are doing research.

Women in Science and Engineering (WISE)

Director: Wendy Katkin
Associate Director: Lois Rowman
Office: 120 Physics
Phone: 632-6947
E-mail address:

wise@datalab2.sbs.sunysb.edu

Web site: *http://www.wise.sunysb.edu*

WISE is a multifaceted program designed to engage women who have ability and interest in mathematics, science, or engineering in the excitement and challenge of research. Identified as a national model program by the National Science Foundation, WISE offers a combination of curricular and extracurricular activities, such as hands-on research experience from the first year on, membership in small study groups led by advanced undergraduate woman "junior mentors," individual academic advising, frequent interaction with faculty, and numerous social activities that range from guest lectures to field trips. Through participation in WISE, students become part of a community of women scientists that also includes women graduate students, faculty, and scientists from Brookhaven National Laboratory, Cold Spring Harbor Laboratory, and industry.

Acceptance

In order to qualify for WISE, applicants must be women who are moving directly from high school to college and have a demonstrated aptitude and interest in science, mathematics, or engineering as evidenced by such factors as four years of mathematics and/or science courses in high school, above-average grades, research or other relevant experience, or above-average scores on the quantitative parts of the SAT or ACT examination or an SAT science or mathematics achievement test. See also the chapter on Scholarships and Awards.

Academic Requirements

WISE participants take classes with other Stony Brook undergraduates; they must satisfy the undergraduate requirements of both the University and their major department. They are eligible for and encouraged to take honors courses, where appropriate. WISE enhances their regular academic program by offering a wide variety of experiences aimed at improving performance and stimulating interest in science, mathematics, and engineering. WISE first-year requirements include:

1. At least one mathematics or science course each semester
2. In the first semester, a special WISE section of USB 101 (1 credit) taught by a faculty member in the sciences or mathematics

3. In the second semester, a special course WSE 187, Women in the Laboratory: Introduction to Research.
4. Participation in small study groups designed to supplement and enhance the student's mathematics and science courses and provide academic and social support.

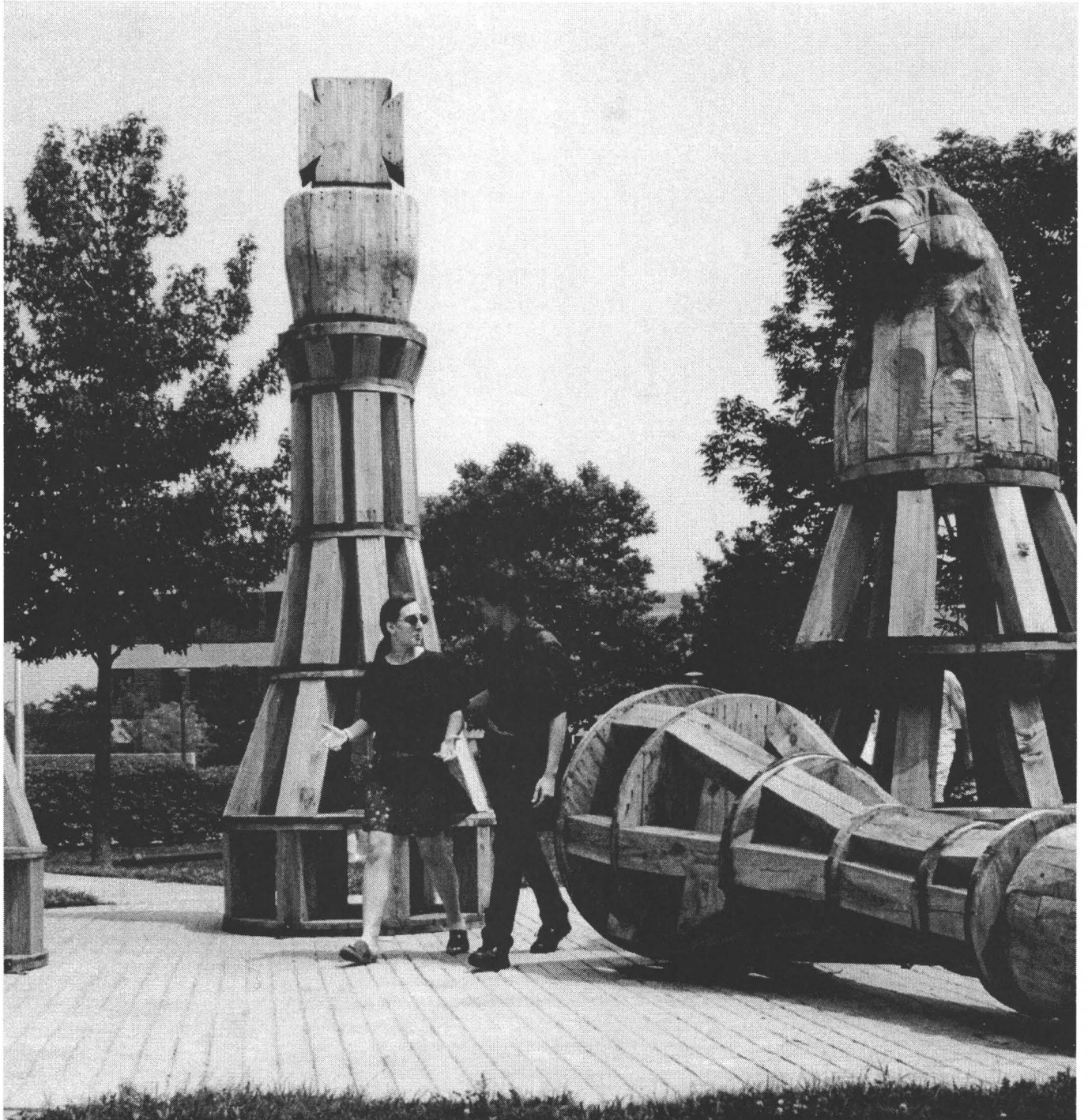
WISE students are encouraged to live in the Whitman or Cardozo Residence Halls. Whitman is the site of the WISE Computer Room and many WISE activities. WISE also has a small library in its office in the Physics Building.





College of Arts and Sciences

Paul Armstrong, Dean



Degree Programs

Students are awarded a Bachelor of Arts (B.A.) or a Bachelor of Science (B.S.). Each academic major description states which degree is awarded. Students wishing to explore possible majors should review in this Bulletin the requirements and descriptions of the ones they are considering and then discuss their academic plans with an advisor in the department sponsoring the major or an advisor in the Academic Advising Center; or, for freshmen enrolled in USB 101, their section instructor.

All majors offered include in their Bulletin entry a definition of the discipline and the goal of the major as well as general information about careers pursued by students who have completed the major. The entry includes a list detailing the requirements for the major plus a suggested sequence of courses over eight semesters that includes majors and general education requirements. "D.E.C." in the sample sequence indicates courses required to complete the Diversified Education Curriculum. "Upper Division" indicates that a course numbered 300 or higher should be taken to apply toward the University's 39 upper-division credit requirement. All course descriptions are listed alphabetically by area of concentration in the back of the Bulletin.

Major departmental programs consist of study concentrated in one of the academic departments of the College of Arts and Sciences, allowing students to explore in some depth the content, methods, and achievements of a given academic discipline. An interdisciplinary or interdepartmental major enables the student to investigate an area of interest that transcends the limits of individual academic departments by combining appropriate courses from two or more disciplines to create an integrated core of study directed toward a special goal.

All majors, minors, and programs offered through the College of Arts and Sciences are described in detail with their requirements and appear in alphabetical order in this chapter. The department chairperson, the undergraduate director, the administrative assistant or undergraduate secretary, the office location, phone number, e-mail address for student questions, and web address are listed in the header to each major program entry. Finally, because Stony Brook offers

many minors appropriate to students in various majors, minors of particular interest to students in each major are listed as well. Minors entries include the name and academic affiliation of the minor coordinator and additional information such as office location, phone number, and e-mail and web addresses where available.

When Major Requirements Change

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 supplements to the *Undergraduate Bulletin* 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 supplements to the *Undergraduate Bulletin* 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.

The Academic Minor

An academic minor, a voluntary option, is a specified sequence of courses totaling between 18 and 24 credits, and requiring at least nine credits of upper-division work. It does not lead to a degree. Participation in a minor is optional and includes not only completing the required sequence, but consulting the minor coordinator initially and as work in the minor proceeds. Although minors are administered by departments or interdisciplinary programs, some include subject matter that spans several departments, programs, and colleges. Interdisciplinary minors are detailed within the alphabetical listings of Arts and Sciences programs. Departmental

minor requirements are described within the department or program descriptions within each college.

Some minors intended for students in the College of Arts and Sciences are offered by the Marine Sciences Research Center and the College of Engineering and Applied Sciences. Students should refer to those sections as well for additional options.

To assist students in selecting optional minors, a listing has been included in the header of each major program, listing minors of particular interest to students with that major. A maximum of three minors may be noted on a student's transcript.

For further information, consult the relevant minor coordinator or the Academic Advising Center.

Independent Study

Within either the B.A. or B.S. degree program, a student may wish to undertake independent study through directed readings and research courses under departmental auspices. Independent study projects may be distributed throughout the undergraduate years, although in most cases, students should complete the freshman year and several general education courses before proposing independent study.

Through procedures established by departments, a student may enroll for up to six credits of directed readings, research, or internship in a single department in a single semester. More than six credits are permissible if they are in more than one department but students may not apply more than 12 credits of internship toward the 120 credits minimum required for the bachelor's degree (128 credits minimum for Bachelor of Engineering). During the summer a student may earn six credits in a single department in each term.

A total of 30 credits of independent work, including all credits in departmental readings, research, and internship courses as well as courses designated EXT (Internship Program courses) may be offered toward the degree requirement of 120 credits. These include Arts and Sciences courses numbered 273, 287, 444-449, and 484-489, similar courses in other units, and transferred independent study credit.

Undergraduate Teaching Assistantships

Recognizing that teaching is itself a valuable component of learning, the College of Arts and Sciences has established undergraduate teaching practica to permit qualified undergraduates to participate under faculty supervision in teaching courses. These teaching practica are intended to enhance the liberal education of the participating students by introducing them, under the guidance of faculty, to some of the aspects of successful teaching. Students receive academic credit for the learning and experience they acquire in undergraduate teaching practica.

Undergraduate teaching assistants must be juniors or seniors (U3 or U4 status). They must have demonstrated mastery of the subject matter by having completed and excelled in the course in which they will be assisting or in a similar but more advanced version of that course.

Undergraduate teaching assistants must not grade any work that contributes to the final course grade, although they may be assigned to read and criticize drafts of work that have already been graded. All evaluations of student performance that contribute to the final course grade are the exclusive responsibility of faculty and cannot be delegated to undergraduate teaching assistants. Undergraduate teaching assistants must not see any version of any quiz, test, or examination or proctor in the course in which they are assisting. Exceptions to this rule may be made only by special permission of the Office of the Dean and College Curriculum Committee.

In order to receive credit for working as undergraduate teaching assistants, students enroll in a department's teaching practicum, numbered 475 or 476. These practica are designed to broaden the students' knowledge of the subject matter of the course and to instruct them in techniques of teaching and evaluation. Students 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.) Only Satisfactory/Unsatisfactory grades are recorded in 475 and 476 courses.

Faculty members with either graduate or undergraduate teaching assistants must inform the students in their classes of the status of each teaching assistant.

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 earned through teaching practica may apply toward a bachelor's degree in the College of Arts and Sciences.

Permission to Take Graduate Courses

Upper-division students with superior academic records may take graduate courses with the permission of the dean of the graduate school, or continuing education courses with the permission of the dean of the School of Professional Development and Continuing Studies (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 Professional Development and Continuing Studies, 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 may be used for certain major requirements. A student may count no more than a total of six graduate (including continuing education) credits toward the bachelor's degree.
- 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 Professional Development and Continuing Studies, and, after obtaining the necessary signatures, submitting that form to the same office for final approval. The approved form SUSB 3065 must then be presented to the Registrar's Office when registering for the appropriate graduate or continuing education course.

AFH/AFS

Department of

Africana Studies

CHAIRPERSON: William McAdoo DIRECTOR OF UNDERGRADUATE STUDIES: Georges Fouron ADMINISTRATIVE ASSISTANT: Esther Traub
OFFICE: S-245 Social and Behavioral Sciences PHONE: 632-7470

Minors of particular interest to students majoring in Africana studies: anthropology (ANT), economics (ECO), English (EGL), history (HIS), political science (POL)

Faculty

Amiri Baraka, *Professor Emeritus*: Playwriting; pan-Africanism; contemporary affairs; literature.

Floris Barnett Cash, *Visiting Assistant Professor, Ph.D., State University of New York at Stony Brook*: Joint appointment with history; U.S. social and political history; African- American history; Latin American history.

Michael Collins, *Instructor/Lecturer, ABD, Columbia University*: Pan-African literature; 20th century American and European literature; journalism; creative writing.

Georges Fouron, *Associate Professor, Ed.D., Columbia University*: Joint appointment with Social Sciences Interdisciplinary Program; Social studies education; bilingual education; identity; Haiti; immigrants' experience in America; transnationalism.

Barbara Frank, *Associate Professor, Ph.D., Indiana University*: Joint appointment with Art and Anthropology; African art history, especially West Africa; arts of the African Diaspora and ancient Mesoamerica.

E. Anthony Hurley, *Associate Professor, Ph.D., Rutgers University*: Joint appointment with European Languages, Literatures, and Cultures; Francophone literature of the Caribbean and Africa; Caribbean poetics; Afro-Caribbean culture; Caribbean American literature.

Aisha Khan, *Assistant Professor, Ph.D., City University of New York*: Joint appointment with Anthropology; Race and ethnicity; theory and method in diaspora studies, social inequality, postcolonial societies, colonialism; Caribbean, Central America, U. S.

William McAdoo, *Associate Professor, Ph.D., University of Michigan*: Joint appointment with History; U.S. urban, social, and institutional history; immigration historiography; labor history; African-American history.

Leslie H. Owens, *Associate Professor, Ph.D., University of California, Riverside*: African-American social history; black family; civil rights movement; slavery.

Olufemi Vaughan, *Associate Professor, Ph.D., University of Oxford*: Joint appointment with History; African politics and history; international relations.

Adjunct Faculty

Estimated number: 2

Teaching Assistants

Estimated number: 3

Interdisciplinary in nature, the Africana Studies department considers the experiences of persons of African descent throughout the world. The major in Africana Studies 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 are examined from both historical and contemporary perspectives. Particular attention is focused on political concepts, cultural development, legal relations, and social theories.

The major in Africana Studies provides students with a thorough background in the history, politics, and social and economic conditions of people of African descent throughout the world. Because of this field's interdisciplinary focus, students are exposed to the critical contributions of scholars representing a variety of theoretical approaches and intellectual perspectives, enhancing the student's knowledge and understanding, while encouraging higher-level thinking and the ability to critically evaluate ideas and information.

Many Africana Studies majors and minors have gone on to graduate and professional schools better prepared in various disciplines and professions including law, medicine, business, engineering, nursing, social work, and education. Africana Studies courses also benefit students who go on to do graduate work in history, politics, anthropology, sociology, literature, and other fields.

Courses in Africana Studies

See the Course Description listing in this Bulletin for complete information.

AFH 206-B Great Books of the Black Experience

AFH 212-G French Caribbean Literature (in Translation)

AFH 213-G Caribbean-American Connections in Literature

AFH 249-K African-American Literature and Music in the 19th and 20th Centuries

AFH 329-J, 330-J Pan-African Literature I, II

AFH 339-G Arts of the African Diaspora

AFH 379-J Philosophy of Race

AFH 421, 422 Topics in Africana Studies

AFH 447 Readings in Africana Studies

AFH 475, 476 Undergraduate Teaching Practicum I, II

AFH 487 Research in Africana Studies

AFS 101-F, 102-F Themes in the Black Experience I, II

AFS 221-J Introduction to Modern African History

AFS 239-J Introduction to the Caribbean Experience

AFS 240-J Issues in Caribbean Society

AFS 277-K The Modern Color Line

AFS 283 Community Service

AFS 300-K Blacks in the City

AFS 310-K American Attitudes Toward Race

AFS 319-F The Politics of Race

AFS 325-K The Civil Rights Movement

AFS 337-J The Politics of Africa

AFS 345-J Culture and Gender: Women in Africa and the Caribbean

AFS 346-J Political and Social History of Africa

AFS 350-J Black Women and Social Change: A Cross-Cultural Perspective

AFS 360-K African-American Social Commentary

AFS 370-K The African-American Family

AFS 372-K Contemporary Political Thought and the Black Community

AFS 375-F Slavery

AFS 380-J Race and Ethnicity in Latin America and the Caribbean

AFS 388-J Slavery in Latin America and the Caribbean

AFS 395-J Religions of the Caribbean

AFS 400 Ancient Egypt (KMT):
Historical and Contemporary Views

AFS 410 Computers and Third World
Social Issues

AFS 418-K Legal Processes and Social
Structure

AFS 421, 422 Topics in Africana Studies

AFS 447 Readings in Africana Studies

AFS 463, 464 The Media and Black
America I, II

AFS 475, 476 Undergraduate Teaching
Practicum I, II

AFS 487 Research in Africana Studies

AFS 488 Internship

AFS 491 Interdisciplinary Seminar in
Africana Studies

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 passed with a letter grade of C or higher. Completion of the major requires 48 credits.

1. Foundation Courses

AFS 101, 102 Themes in the Black
Experience I, II

2. One literature course chosen from the following:

AFH 206 Great Books of the Black
Experience

AFH 212 French Caribbean Literature

AFH/EGL 249 African-American
Literature and Music in the 19th and
20th Centuries

3. Introduction to Themes in Africana Studies

Two courses, chosen in consultation with
the undergraduate director, from the
following:

AFS 221 Introduction to Modern
African History

AFS 239 Introduction to the Caribbean

AFS 240 Issues in Caribbean Society

AFS 277 The Modern Color Line

4. Extended Study

Two courses from the following:
AFH 329, AFS 300, AFS 310, AFS 319,
AFS 325, AFS 337, AFS 345, AFS 350,
AFS 360

5. Focused Study

Sample Course Sequence in the Africana Studies Major

Freshman Fall	Credits
D.E.C. A	3
AFS 101	3
D.E.C.	3
D.E.C.	3
Elective	3
Total	15

Spring	Credits
D.E.C. A	3
AFS 102	3
D.E.C.	3
D.E.C.	3
Elective	3
Total	15

Sophomore Fall	Credits
AFH 206 or 212 or AFH/EGL 249	3
AFS Intro Themes Course	3
D.E.C.	3
D.E.C.	3
D.E.C. or elective	3
Total	15

Spring	Credits
AFS Intro Themes Course	3
AFS Extended Study Course	3
D.E.C.	3
D.E.C.	3
Elective	3
Total	15

Junior Fall	Credits
AFH or AFS 447 or 487	3
AFS Extended Study Course	3
Course in related discipline*	3
D.E.C.	3
Elective	3
Total	15

Spring	Credits
AFS Focused Study Course	3
Course in related discipline*	3
D.E.C.	3
Upper Division elective	3
Elective	3
Total	15

Senior Fall	Credits
AFS 410	4
AFS Focused Study Course	3
Course in related discipline*	3
D.E.C.	3
Elective	3
Total	16

Spring	Credits
AFS 491	3
AFS Focused Study Course*	3
Course in related discipline*	3
Elective	3
Elective	3
Total	15

*Course may not be crosslisted with AFH or AFS.

Three courses from the following:
AFH 379, AFS 346, AFS 370, AFS 372,
AFS 375, AFS 380, AFS 388, AFS 395,
AFS 400, AFS 418, AFS 463, AFS 464

6. Three credits in AFH or AFS 447
Directed Readings or AFH or AFS 487
Directed Research to be taken in the
junior or senior year

7. AFS 410 Computers and Third World
Issues

8. AFS 491 Interdisciplinary Seminar in
Africana Studies

9. Courses in Related Disciplines: Nine
upper-division credits in related disci-
plines (excluding courses crosslisted
with an AFH or AFS course) chosen in
consultation with the undergraduate
director.

Note: Students planning to apply for
provisional teacher certification should
consider taking SSI 327 and 350 toward
this requirement.

10. Upper-Division Writing Requirement
Africana Studies majors must submit
two essay or term paper assignments
with grades of B or higher completed
for two upper-division AFS courses
and must submit an evaluation form
signed by the professor(s) approving
the samples as meeting writing profi-
ciency necessary for the major.
Students must inform the instructor of
the courses in advance of their plan to
use the paper(s)
in fulfillment of the writing require-
ment for the major. Submitted papers
may be of any length but a minimum

of 15 pages of material must be submitted.

Note: No more than 12 of the 36 Africana Studies credits may be taken at another institution (exceptions are made in the case of planned foreign study).

Requirements for the Minor in Africana Studies

The minor in Africana studies is intended for students interested in exploring aspects of the Black Experience in ways that relate to their own major field of study. The sequence of lower- and upper-division courses gives the student a well-balanced analysis of the varied aspects of the black past. All courses for the minor must be passed with a letter grade of C or higher.

Completion of the minor requires 24 credits.

1. AFS 101, 102 Themes in the Black Experience I, II
2. One course from the following:
AFS 221 Introduction to Modern African History
AFS 239 Introduction to the Caribbean
AFS 240 Issues in Caribbean Society
AFS 277 The Modern Color Line
AFS 310 The Politics of Race
AFS 350 Black Women and Social Change: A Cross-Cultural Perspective
3. One AFH or AFS course numbered 200 or higher (other than AFS 283), selected in consultation with the minor coordinator
4. Three courses selected from upper-division courses other than AFH or AFS 447, 475, 476, 487, or 488
5. Either AFH or AFS 447 Directed Readings or AFH or AFS 487 Directed Research to be taken in the junior or senior year

ANT

Department of Anthropology

CHAIRPERSON: David Hicks ADMINISTRATIVE ASSISTANT: Janet Masullo
OFFICE: S-509 Social and Behavioral Sciences PHONE: 632-7620 E-MAIL: JMasullo@ccmail.sunysb.edu
WEB ADDRESS: <http://www.sunysb.edu/anthro>

Minors of particular interest to students majoring in anthropology: biology (BIO), Chinese studies (CNS), history (HIS), Japanese studies (JNS), Judaic studies (JDS), Korean studies (KRS), Middle Eastern studies (MES), psychology (PSY)

Faculty

William Arens, *Professor, Ph.D., University of Virginia*: Africa; social anthropology.

David Bernstein, *Associate Professor and Director of the Institute for Long Island Archaeology, Ph.D., State University of New York at Binghamton*: North American archaeology.

Patricia Crawford, *Adjunct Professor, Ph.D., Boston University*: Archaeology, Egypt, Near East, paleoethnobotany.

Diane Doran, *Associate Professor, Ph.D., State University of New York at Stony Brook*: Behavior and ecology of African apes; primatology.

David Gilmore, *Professor, Ph.D., University of Pennsylvania*: Mediterranean area; social anthropology.

Frederick Grine, *Professor, Ph.D., University of Witwatersrand*: Physical anthropology; human evolution.

Margaret Gwynne, *Adjunct Professor, Ph.D., State University of New York at Stony Brook*: Caribbean area; women in development.

David Hicks, *Professor, Ph.D., University of London; D. Phil., University of Oxford*: Indonesia; social anthropology.

Theodore R. Kennedy, *Associate Professor, Ph.D., Princeton University*: North America; Caribbean area; social anthropology.

Aisha Khan, *Assistant Professor, Ph.D., City University of New York*: Joint appointment with Africana Studies; Caribbean; post-colonial societies; Diaspora studies.

Andreas Koëinig, *Assistant Professor, Ph.D., University of Göttingen*: Primate behavioral ecology.

Curtis Marean, *Associate Professor, Ph.D., University of California, Berkeley*: African prehistory; archaeozoology.

Lawrence Martin, *Professor, Ph.D., University of London*: Ape and human evolution; dental anthropology.

Dolores Newton, *Associate Professor, Ph.D., Harvard University*: South America; cultural anthropology; material culture.

Gregory Ruf, *Assistant Professor, Ph.D., Columbia University*: Joint appointment with Social Sciences Interdisciplinary; Social organization and gender; theory and methodology; rural industrialization; East Asia, China, Overseas Chinese, Japan.

John J. Shea, *Associate Professor, Ph.D., Harvard University*: Lithic technology; Old World paleolithic.

Elizabeth C. Stone, *Professor, Ph.D., University of Chicago*: Near East; Old World archaeology.

Patricia Wright, *Professor and Director of the Institute for the Conservation of Tropical Environments, Ph.D., City University of New York*: Primate ecology; primate behavior; primate conservation; Madagascar.

Adjunct Faculty

Estimated number: 2

Teaching Assistants

Estimated number: 4

Anthropology is a social science that seeks to understand and explain human cultural, behavioral, and biological variation through time and space. This gives anthropology a wide reach and has resulted in the formation of three subdisciplines: social anthropology, archaeology, and physical anthropology. Social anthropology concentrates on modern human culture and behavior. Archaeology examines cultural and behavioral variation over time. Physical anthropology studies the biological evidence for human evolution, encompassing everything from the study of modern non-human primates to the earliest stages of mammalian fossil evolution. The objective of the anthropology major is to train the student in all three subdisciplines while allowing the student to concentrate in a specific subdiscipline.

Students with a degree in anthropology take several post-graduate paths. Some continue their anthropology training in graduate schools, many at the finest graduate schools in the country. Others pursue, for example, medical school or conservation studies.

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 medical anthropology. Students often have the opportunity to pursue coursework in any of the three fields in different cultural settings. Interested students should contact the Director of Undergraduate Studies for details.

Courses in Physical Anthropology

See the Course Description listing in this Bulletin for complete information.

ANP 120-E Introduction to Physical Anthropology

ANP 210-E The Living Primates

ANP 300-E Human Anatomy

ANP 320-E Primate Functional Morphology and Biomechanics

ANP 321-E Primate Evolution

ANP 325-E Primate Behavior

ANP 330-E Human Evolution

ANP 340 Fields Methods in Physical Anthropology

ANP 360-H Primate Conservation

ANP 391-E Topics in Physical Anthropology

ANP 403 Problems in Physical Anthropology

ANP 404 Human Osteology

ANP 447 Readings in Physical Anthropology

ANP 475, 476 Undergraduate Teaching Practicum

ANP 487 Independent Research in Physical Anthropology

ANP 495-496 Senior Honors Project in Anthropology

Courses in Cultural Anthropology

ANT 102-F Introduction to Cultural Anthropology

ANT 104-F Introduction to Archaeology

ANT 160-F The Individual in Society

ANT 201-J Peoples of South America

ANT 203-J Native Peoples of North America

Sample Course Sequence for the Anthropology Major

- ANT 219-J Peoples of the Caribbean
- ANT 230-J Peoples of the World
- ANT 255-F Technology, Art, and Material Culture
- ANT 290-H Science and Technology in Ancient Society
- ANT 310-J Ethnography
- ANT 311-J Immersion in Another Culture
- ANT 321 Archaeological Field Methods
- ANT 333-F Witchcraft and Magic
- ANT 350-F Medical Anthropology
- ANT 351-F Comparative Religion
- ANT 352-F Personality and Culture
- ANT 353 Archaeological Analysis and Interpretation
- ANT 354-F Family, Kinship, and Marriage
- ANT 356-K Urban Archaeology
- ANT 357-F The Agricultural Revolution
- ANT 358-J Ways to Civilization
- ANT 360-J Ancient Mesopotamia
- ANT 361-F Peasants
- ANT 362-J Long Island Archaeology
- ANT 363-F Archaeological Method and Theory
- ANT 364-J African Stone Age
- ANT 366-J Prehistoric and Historic Hunter-Gatherers
- ANT 367-F Male and Female
- ANT 368-F Ice Age Europe
- ANT 370-F Great Archaeological Discoveries
- ANT 379-J Ethnicity and Nation in China
- ANT 380-J Race and Ethnicity in Latin America and the Caribbean
- ANT 381-F Applied Anthropology
- ANT 385-J Prehistoric Peoples of the Americas
- ANT 390-F, 391-F Topics in Social and Cultural Anthropology
- ANT 392-K Topics in American Cultural Alternatives
- ANT 393-F, 394-F Topics in Archaeology
- ANT 395-J Religions of the Caribbean
- ANT 401 Problems in Social and Cultural Anthropology
- ANT 402 Problems in Archaeology
- ANT 418 Lithic Technology
- ANT 419 Zooarchaeology

Freshman Fall	Credits
D.E.C. A	3
ANT 102 or 104 or ANP 120	3-4
D.E.C.	3
D.E.C.	3
D.E.C.	3
Total	15-16

Spring	Credits
D.E.C. A	3
ANT 102 or 104 or ANP 120	3-4
D.E.C.	3
D.E.C.	3
Elective	3
Total	15-16

Sophomore Fall	Credits
Elective	3
D.E.C.	3
D.E.C.	3
D.E.C.	3
Elective	3
Total	15

Spring	Credits
ANT 362	3
ANP 325	3
D.E.C.	3
D.E.C.	3
Elective	3
Total	15

Junior Fall	Credits
ANT 418	3
ANP 300	4
ANT 370	3
Upper Division elective	3
Elective	3
Total	15

Spring	Credits
ANT 357	3
ANP 330	3
ANT 381	3
Upper Division elective	3
Elective	3
Total	15

Senior Fall	Credits
Upper Division elective	3
Upper Division elective	3
Elective	3
Elective	3
Elective	3
Total	15

Spring	Credits
D.E.C.	3
Upper Division elective	3
Upper Division elective	3
Elective	3
Elective	3
Total	15

- ANT 420 Environmental Analysis Using Remote Sensing and Geographic Information Systems
- ANT 447 Readings in Anthropology
- ANT 475, 476 Undergraduate Teaching Practicum
- ANT 487 Independent Research in Anthropology
- ANT 488 Internship
- ANT 495-496 Senior Honors Project in Anthropology

Requirements for the Major in Anthropology

The major in anthropology leads to the Bachelor of Arts degree. Students must take an introductory course in two of the three sub-fields offered and include at least 18 credits of upper-division courses

in the major. All courses offered for the major must be passed with a letter grade of C or higher. No transfer credits with a grade lower than C may be applied toward major requirements.

Completion of the major requires 37 credits.

A. Study within the Area of the Major

1. Two introductory courses chosen from:
 - ANT 102 Introduction to Cultural Anthropology
 - ANT 104 Introduction to Archaeology
 - ANP 120 Introduction to Physical Anthropology

2. One course in social and cultural anthropology at the 200 level or higher
3. One course in archaeology at the 200 level or higher
4. One course in physical anthropology at the 200 level or higher
5. Six additional anthropology courses (one course from another department may be substituted with the approval of the student's faculty advisor)
6. One 400-level seminar chosen from ANT 401, 402, 418, 419, 420, ANP 403 or 404

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.

Subfields of Study

Social and Cultural Anthropology

ANT 102, 160, 201, 203, 219, 230, 255, 310, 311, 333, 350, 351, 352, 354, 356, 361, 367, 379, 380, 381, 390, 391, 392, 395, 401.

Archaeology

ANT 104, 290, 321, 353, 357, 358, 360, 362, 363, 364, 366, 368, 370, 385, 393, 394, 402, 418, 419, 420.

Physical Anthropology

ANP 120, 210, 300, 320, 321, 325, 330, 340, 360, 391, 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 pro-

posal 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 register for ANT or ANP 495 in the first semester of their senior year and conduct research for the project. They register for ANT or ANP 496 during the second semester of their senior year. These two courses must be taken in addition to the total credits required for the major. Students must submit a draft of their thesis to their faculty sponsor by April 1 for May graduation or November 1 for December graduation. They 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 is 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 recommends honors. The program consists of:

1. Completion of all requirements for the major in anthropology with a g.p.a. of 3.5 or higher in anthropology courses
2. ANT 495 and 496, or ANP 495 and 496
3. The honors thesis

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 offered for the minor must be passed with a letter grade of C or higher. No transfer credits with a grade lower than C may be applied to the minor requirements. No more than one directed readings or research course may be used.

Completion of the minor requires 21 or 22 credits.

General Anthropology

1. Two introductory courses chosen from:

ANT 102 Introduction to Cultural Anthropology

ANT 104 Introduction to Archaeology

ANP 120 Introduction to Physical Anthropology

2. Two additional courses chosen from different subfields

3. Three anthropology elective courses

Social and Cultural Anthropology

1. ANT 102 Introduction to Cultural Anthropology

2. Three ethnographic area courses in social and cultural anthropology chosen from:

ANT 201 Peoples of South America

ANT 203 Native Peoples of North America

ANT 219 Peoples of the Caribbean

ANT 230 Peoples of the World

ANT 310 Ethnography

ANT 311 Immersion in Another Culture

ANT 366 Prehistoric and Historic Hunter-Gatherers

ANT 379 Ethnicity and Nation in China

ANT 380 Race and Ethnicity in Latin America and the Caribbean

3. One topical course in social and cultural anthropology to be selected from ANT 160, 255, 333, 350, 351, 352, 354, 356, 361, 367, 379, 380, 381, and also 391 and 401 when the topic is applicable

4. Two elective courses in social and cultural anthropology

Archaeology and Cultural History

1. ANT 104 Introduction to Archaeology

2. Six courses in archaeology, at least five of which must be ANT courses; one may be an HIS course with the approval of the director of undergraduate studies

Physical Anthropology

1. ANP 120 Introduction to Physical Anthropology

2. ANP 210 The Living Primates or ANP 330 Human Evolution

3. ANP 321 Primate Evolution

4. Three additional ANP courses (except 475 or 476)

5. One course chosen from BIO 321, 344, 351, 354, 359, 385; GEO 302, 403; AMS 110

ARH, ARS

Department of Art

CHAIRPERSON: James H. Rubin DIRECTOR OF UNDERGRADUATE STUDIES: Martin Levine
OFFICE: 2225 Staller Center for the Arts PHONE: 632-7250

Minors of particular interest to students majoring in art history: French (FRN), German (GER), interdisciplinary arts (LIA), studio art (ARS)

Minors of particular interest to students majoring in studio art: art history (ARH), interdisciplinary arts (LIA), media arts (MDA), theatre arts (THR)

Faculty

Ilan Averbuch, *Lecturer, M.F.A., Hunter College*: Sculpture.

James Beatman, *Adjunct Lecturer, M.F.A., University of Massachusetts-Amherst*: Sculpture.

Michele H. Bogart, *Professor, Ph.D., University of Chicago*: Art and architectural history; American and 20th-century art.

Toby Buonagurio, *Professor, M.A., City College of New York*: Ceramics; ceramic sculpture; drawing; painting.

Rhonda Cooper, *Adjunct Lecturer, M.A., University of Hawaii*: Oriental art; museum and gallery administration.

Michael Edelson, *Associate Professor, B.A., State University of New York Empire State College*: Photography; photographic criticism; film and television theory and criticism.

Christa Erickson, *Assistant Professor, M.F.A., University of California at San Diego*: Electronic installation, digital media, video art.

Barbara Frank, *Associate Professor, Ph.D., Indiana University*: African art history.

Jacques Guilmain, *Professor Emeritus, Ph.D., Columbia University*: Art and architectural history; medieval art.

Helen Harrison, *Adjunct Lecturer and Director, Pollock-Krasner House and Study Center, M.A., Case Western Reserve University*: American art.

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, *Associate Professor, M.F.A., California College of Arts and Crafts*: Printmaking.

Nicholas Mirzoeff, *Associate Professor, Ph.D., Warwick University*: Modern art and visual culture; history of photography.

Daniel Monk, *Assistant Professor, Ph.D., Princeton University*: Architectural history and criticism.

Anita F. Moskowitz, *Professor, Ph.D., New York University*: Art and architectural history; medieval and Renaissance art.

Melvin H. Pekarsky, *Professor, M.A., Northwestern University*: Drawing; painting; public art.

Howardena Pindell, *Professor, M.F.A., Yale University*: Drawing; painting.

James H. Rubin, *Professor, Ph.D., Harvard University*: Art and architectural history; 18th- and 19th-century European art and criticism.

Adjunct Faculty

Estimated number: 10

Teaching Assistants

Estimated number: 20

The Art Department offers two majors, one in art history and criticism (ARH), and one in studio art (ARS).

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, will also usually fulfill requirements for admission to graduate study or preparation for professional work in the field.

Art history and criticism majors acquire a thorough foundation in the history of Western art and architecture, from ancient to modern, with tracks also in non-Western art, and such practical aspects of the discipline as gallery management.

Studio art majors concentrate on the creative, technical, and practical aspects of the discipline, acquiring a broad-based background in drawing, design, painting, and sculpture, plus specialized tracks in ceramics, printmaking, photography, and computer imaging. In addition majors are expected to acquire a sound foundation in art history and criticism with the emphasis on modernism.

Art Department graduates who go on to work in the discipline usually acquire some post-graduate training, which may include anything from a few additional courses to such advanced graduate degrees as the M.A., M.F.A., or Ph.D. University at Stony Brook studio art graduates hold teaching positions up to and including the college level; others work as commercial artists,

printers, photographers and designers. Art history/criticism graduates hold teaching positions in colleges and universities; others work as gallery or museum administrators, or as art critics.

Courses in Art History

See the Course Description listing in this Bulletin for complete information.

ARH 101-D Art in Culture from Prehistoric Times to the Age of the Cathedrals, ca. 1400 A.D.

ARH 102-D Art in Culture from the Early Renaissance, ca. 1400, to Postmodernism

ARH 201-D Arts of Africa, Oceania, and the Americas

ARH 203-J History of Asian Art

ARH 204-G History of Photography

ARH 205-G Introduction to Architecture

ARH 299 Gallery Management Workshop

ARH 300-I Greek Art and Architecture

ARH 301-I Roman Art and Architecture

ARH 303-I The Art and Architecture of the Early Middle Ages, ca. 400-1050

ARH 304-I The Art and Architecture of the High and Late Middle Ages, ca. 1050-1400

ARH 306-I The Early Renaissance in Italy

ARH 307-I High Renaissance and Mannerism in Central Italy

ARH 310-I Renaissance Art in Venice

ARH 314-I Baroque Painting in the Netherlands

ARH 315-I Spanish Painting, 1560-1700

ARH 316-I Baroque Art in Italy and France

ARH 318-J History of Chinese Painting

ARH 320-I Art of the 18th Century

ARH 322-G American Art Since 1947

ARH 324-G Architecture and Design of the 19th and 20th Centuries

ARH 326-J Arts of Ancient Mesopotamia

ARH 328-J Arts of West Africa
 ARH 329-G Arts of the African Diaspora
 ARH 331-K American Art to 1890
 ARH 332-K Art of the United States, 1890-1930
 ARH 333-K Arts for the Public
 ARH 337-I Northern Renaissance Art
 ARH 341-I Art of the 19th Century
 ARH 342-G Art of the 20th Century
 ARH 360-G Art and Eros
 ARH 400-403 Topics in Art History and Criticism
 ARH 404 Topics in Film Studies and Criticism
 ARH 475, 476 Undergraduate Teaching Practicum I, II
 ARH 485 Projects in Art History and Criticism in New York City
 ARH 487 Independent Readings and Research in Art
 ARH 488 Internship
 ARH 495 Senior Honors Project in Art History

Requirements for the Major in Art History and Criticism

The major in art history and criticism leads to the Bachelor of Arts degree. All courses offered for the major must be passed with a letter grade of C or higher. Completion of the major requires 39 credits.

1. Two introductory art history courses:
 - ARH 101 Art in Culture from Prehistoric Times to the Age of the Cathedrals, ca. 1400 A.D.
 - ARH 102 Art in Culture from the Early Renaissance, ca. 1400, to Postmodernism
2. Twenty-seven additional credits in art history and criticism, of which at least 18 must be upper division
3. The courses in requirement 2 must be distributed to include at least one course in five 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, 315, 316, 320

- e. Modern art and architecture (19th or 20th century): ARH 204, 322, 324, 331, 332, 333, 341, 342
 - f. Asian art and architecture, or African, Oceanic, Native American, and Mesoamerican art and architecture: ARH 201, 203, 318, 326, 328, 329
 - g. Architecture: ARH 205, 324
 - h. Advanced study: ARH 400, 401, 402, 403, 487, 488
3. ARS 154 and one additional ARS course, or— especially for students planning graduate work in art history — a year of French or German at the intermediate level or higher.
 4. Upper-Division Writing Requirement: Students must demonstrate acceptable writing skills before they graduate. Before the end of the second semester of his or her junior year, each student majoring in art history and criticism must submit to the director of undergraduate studies three term papers for art history courses together with each instructor's satisfactory evaluation, confirming that the paper demonstrates advanced writing proficiency suitable for art history majors. At least two of the papers must have been written for upper-division courses and for different instructors. The student must notify the instructor before each paper is turned in 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 of the director of undergraduate studies as soon as possible.

Courses in Studio Art

See the Course Description listing in this Bulletin for complete information.

ARS 154-D Foundations of Drawing
 ARS 208 Technology in the Arts
 ARS 230-G Foundations of Two-Dimensional Design
 ARS 255-D Introductory Painting
 ARS 256-D Fundamentals of Sculpture
 ARS 264-D Ceramics
 ARS 274-D Beginning Printmaking
 ARS 281-D Photography I
 ARS 317 Interactive Performance, Media, and MIDI
 ARS 330 Foundations of Three-Dimensional Design
 ARS 350 Life Drawing and Painting

ARS 351 Painting II: Theory and Practice
 ARS 352 Painting III: Theory and Practice
 ARS 359 Theory and Practice of Conceptual Drawing
 ARS 364 Advanced Theory and Practice of Ceramics
 ARS 365 Theory and Practice of Sculpture: Wood, Metal, and Mixed Media
 ARS 366 Theory and Practice of Sculpture: Modeling, Casting, and Carving
 ARS 374 Theory and Practice of Printmaking: Intaglio Processes
 ARS 375 Theory and Practice of Printmaking: Lithography
 ARS 381 Photography II
 ARS 425 Computer Imaging Workshop
 ARS 452 Advanced Theory and Practice of Painting
 ARS 465 Advanced Theory and Practice of Sculpture: Welding, Construction, and Related Techniques
 ARS 466 Advanced Theory and Practice of Sculpture: Modeling, Carving, and Casting
 ARS 471 Advanced Theory and Practice of Printmaking: Intaglio Processes
 ARS 472 Advanced Theory and Practice of Printmaking: Lithography
 ARS 475, 476 Undergraduate Teaching Practicum: Theory and Practice
 ARS 481 Photography III
 ARS 482 Photography IV
 ARS 487 Advanced Directed Projects in Studio Practice and Theory
 ARS 488 Internship
 ARS 491, 492 Special Topics in Studio/Theory and Practice
 ARS 495 Senior Honors Project in Studio Art

Requirements for the Major in Studio Art

The major in studio art leads to the Bachelor of Arts degree. All courses offered for the major must be passed with a letter grade of C or higher.

Completion of the major requires 57 credits.

1. Two introductory art history courses:
 - ARH 101 Art in Culture from Prehistoric Times to the Age of the Cathedrals, ca. 1400 A.D.

Sample Course Sequence for the Major in Art History/Criticism

Sample Course Sequence for the Major in Studio Art

Freshman Fall	Credits
D.E.C. A	3
ARH 101	3
GER or FRN 111, or ARS 154	3-4
D.E.C.	3
D.E.C.	3
Total	15-16

Spring	Credits
D.E.C. A	3
ARH 102	3
GER or FRN 112, or ARS 255	3-4
D.E.C.	3
D.E.C.	3
Total	15-16

Freshman Fall	Credits
D.E.C. A	3
ARS 154	3
ARH 101	3
D.E.C.	3
D.E.C.	3
Total	15-16

Spring	Credits
D.E.C. A	3
ARS 255	3
ARS 256	3
ARH 102	3
D.E.C.	3
Total	15-16

Sophomore Fall	Credits
One course from list 2.a.	3
One course from list 2.b.	3
GER or FRN 211, or ARS elective	3
D.E.C.	3
D.E.C.	3
Total	15

Spring	Credits
One course list 2.c.	3
One course from list 2.d.	3
GER or FRN 212, or ARS elective	3
D.E.C.	3
D.E.C.	3
Total	15

Sophomore Fall	Credits
ARS 264	3
ARS 274	3
ARS 351	3
ARH 342	3
D.E.C.	3
Total	15

Spring	Credits
ARS 352	3
ARS 365	3
ARS 374	3
ARH 341	3
D.E.C.	3
Total	15

Junior Fall	Credits
One course from list 2.e.	3
One course from list 2.f.	3
D.E.C.	3
Elective (PHI or HIS)	3
Upper Division elective in ARH, ARS, PHI, HIS or language	3
Total	15

Spring	Credits
One course from list 2.g.	3
Upper division electives in ARH, ARS, HIS, PHI, or languages	6
D.E.C.	3
Elective	3
Elective	3
Total	15

Junior Fall	Credits
ARS 395	3
ARS 281	3
ARS 230	3
ARH 322	3
ARH 201	3
Total	15

Spring	Credits
ARS 364	3
ARS 366	3
D.E.C.	3
D.E.C.	3
D.E.C.	3
Total	15

Senior Fall	Credits
Upper Division ARH and other fine arts and humanities courses	6
or social studies courses in areas of special interest	6
or Upper Division independent studies or special topics or internship	3
Total	15

Spring	Credits
Upper Division ARH and other fine arts and humanities courses or social studies courses in areas of special interest or advanced independent studies or special topics or internship	15
Total	15

Senior Fall	Credits
D.E.C.	3
ARH 318 or 326 or 328	3
ARH 331 or 332 or 333	3
ARS and ARH area of special interest	3
D.E.C.	3
Total	15

Spring	Credits
Upper Division ARS and ARH courses in area of special interest: or advanced directed studio project or special topics in studio theory and practice	6
Electives in other department or internship	6
D.E.C.	3
Total	15

- ARH 102 Art in Culture from the Early Renaissance, ca. 1400, to Postmodernism
- Three introductory studio art courses:
 - ARS 154 Foundations of Drawing
 - ARS 255 Introductory Painting
 - ARS 256 Fundamentals of Sculpture
- ARH 342 Art of the 20th Century
- At least six additional credits in art history/criticism, of which at least three must be in modern (i.e., one course from ARH 322, 324, 331, 332, 333, or 341)
- Thirty-three additional credits in studio art, of which 12 credits must be in upper-division courses
- The courses in requirement 5 must be distributed to include at least one course in four of the following areas:

- Painting and drawing: ARS 350, 351, 352, 359, 452
 - Printmaking: ARS 274, 374, 375, 471, 472
 - Ceramics: ARS 264, 364
 - Sculpture: ARS 365, 366, 465, 466
 - Design: ARS 230, 330
 - Photography: ARS 281, 381, 481, 482
 - Computer Imaging: ARS 208, 317, 425
- Upper-Division Writing Requirement: Students must demonstrate acceptable writing skills before they graduate. Before the end of the second semester of his or her junior year, each student majoring in studio art must submit to the director of undergraduate studies three term papers for art history courses together with each instructor's satisfactory evaluation, confirming that

the paper demonstrates advanced writing proficiency suitable for studio art majors. At least two of the papers must have been written for upper-division courses and for different instructors. The student must notify the instructor before each paper is turned in 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 of the director of undergraduate studies as soon as possible.

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 3.5 in the major. The student should apply for the honors program before the beginning

of the 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. Selected students for the program must enroll in ARH or ARS 495 for the semester in which they pursue their project.

In the art history/criticism field, the student's research project is supervised by the honors advisor. In the studio art field, the student is 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 is 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 are conferred.

Minor in Art History

With the minor in art history, 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, Asian/African/Oceanic/Native American/Mesoamerican, Renaissance, Baroque, or Modern.

All courses offered for the minor must be passed with a letter grade of C or higher. Completion of the minor requires 21 credits in art history, of which at least nine credits must be in upper-division courses.

1. Two introductory Art History courses:
 - ARH 101 Art in Culture from Prehistoric Times to the Age of the Cathedrals, ca. 1400 A.D.
 - ARH 102 Art in Culture from the Early Renaissance, ca. 1400, to Postmodernism
2. An ancient, medieval, Asian, African, Oceanic, Native American, or Mesoamerican art course
3. A Renaissance, baroque, or modern art course
4. Nine additional credits in the area of concentration

Minor in Studio Art

All courses offered for the minor must be passed with a letter grade of C or higher.

Completion of the minor in studio art requires 21 credits.

1. ARS 154 Foundations of Drawing
2. Eighteen additional studio credits, of which at least nine must be upper division

Minor in Design

All courses offered for the minor must be passed with a letter grade of C or higher.

Completion of the minor in design requires 21 credits.

1. ARS 230 Foundations of Two-Dimensional Design
2. ARS 330 Foundations of Three-Dimensional Design
3. An additional ARS or ARH lower-division course chosen in consultation with minor advisor
4. ARH 205 Introduction to Architecture
5. ARH 324 Architecture and Design of the 19th and 20th Centuries
6. Six-credits from ARH 485, 487, 488 and ARS 487

AST

Major Program in

Astronomy/Planetary Sciences

ACTING CHAIRPERSON: Janos Kirz DIRECTOR OF UNDERGRADUATE Studies: Peter B. Kahn ASTRONOMY COORDINATOR: Deane Peterson
UNDERGRADUATE SECRETARY: Elaine Larsen

OFFICE: P-110 Graduate Physics PHONE: 632-8100 E-MAIL: dpeterson@astro.sunysb.edu WEB ADDRESS: <http://insti.physics.sunysb.edu/astro/>

Minors of particular interest to students majoring in astronomy: electrical engineering (ESE), electronic, optical, and magnetic materials (EOM), mathematics (MAT), optics (OPT), science and engineering (LSE)

Faculty

Aaron Evans, *Assistant Professor, Ph.D., University of Hawaii: Astronomy.*

Kenneth M. Lanzetta, *Associate Professor, Ph.D., University of Pittsburgh: Astronomy.*

James M. Lattimer, *Professor, Ph.D., University of Texas at Austin: Astronomy.*

Jack J. Lissauer, *Adjunct Professor, Ph.D., University of California, Berkeley: Astronomy.*

Deane M. Peterson, *Associate Professor, Ph.D., Harvard University: Astronomy.*

Michal Simon, *Professor, Ph.D., Cornell University: Astronomy.*

Philip M. Solomon, *Professor, Ph.D., University of Wisconsin: Astronomy.*

Frederick M. Walter, *Associate Professor, Ph.D., University of California, Berkeley: Astronomy.*

Ralph Wijers, *Assistant Professor, Ph.D., University of Amsterdam: Theoretical high energy astrophysics.*

Amos Yahil, *Professor, Ph.D., California Institute of Technology: Astronomy.*

Teaching Assistants

Estimated number: 5

Astronomy is the scientific discipline dedicated to the study of everything in the universe outside the Earth's atmosphere. The undergraduate major leading to the Bachelor of Science degree in astronomy/planetary sciences (AST) prepares a student for graduate and professional work. Graduates with a degree in astronomy teach in secondary schools, work in academic, government, and industrial laboratories, and teach and conduct research at colleges and universities.

Course requirements for the B.S. program are listed below and are summarized in the accompanying chart. When the student declares the AST major, the Director of Undergraduate Studies assigns a faculty advisor to the student. This advisor will assist the student in the selection of courses. 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.

Courses in Astronomy

See the Course Description listing in this Bulletin for complete information.

AST 101-E Introduction to Astronomy

AST 105-E Introduction to the Solar System

AST 111 Astronomy Laboratory A

AST 112 Astronomy Laboratory B

AST 203-E Astronomy

AST 248-H The Search for Life in the Universe

AST 287 Introductory Research in Astronomy

AST 301-H Collisions in the Solar System

AST 341-E Stars and Radiation

AST 342-E The Interstellar Medium

AST 343-E Galaxies

AST 344-E Cosmology

AST 345 Undergraduate Research in Astronomy

AST 351-E Introduction to Planetary Physics

AST 443 Observational Techniques in Optical Astronomy

AST 447 Senior Tutorial in Astronomy

AST 475 Teaching Practicum in Astronomy

AST 487 Senior Research in Astronomy

Requirements for the Major in Astronomy/Planetary Sciences

The major in astronomy leads to the Bachelor of Science degree. All courses offered for the major must be passed with a letter grade of C or higher.

Completion of the major requires 60-63 credits.

A. Required Departmental Courses:

1. AST 203 Astronomy

2. Three courses chosen from the following:

AST 341 Stars and Radiation

AST 342 The Interstellar Medium

AST 343 Galaxies

AST 344 Cosmology

3. At least six credits from additional AST courses numbered 200 or higher (except AST 248). Up to three credits of AST 287, 447, and 487 may be used toward this requirement

B. Required Physics Courses:

1. PHY 131, 132 Classical Physics I, II (See note 1 below)

2. PHY 251/252 Modern Physics with Laboratory

3. PHY 306 Thermodynamics, Kinetic Theory, and Statistical Mechanics

4. At least 12 credits from approved PHY courses numbered 300 or higher, except PHY 306 (PHY 301, 302, 303, 308, and 352 recommended)

C. Mathematics Requirements:

1. MAT 131, 132 Calculus I, II (See note 2 below)

2. One of the following:

MAT 203 Calculus III with Applications

MAT 205 Calculus III

MAT 211 Introduction to Linear Algebra

AMS 261 Applied Calculus III

3. One of the following:

MAT 303 Calculus IV with Applications

MAT 305 Calculus IV

AMS 361 Applied Calculus IV: Differential Equations

D. Upper-Division Writing Requirement:

All students majoring in astronomy/planetary sciences must submit two

papers (term papers, laboratory reports, or independent research papers) to the astronomy coordinator 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.

Notes:

1. The following physics courses are alternatives to PHY 131, 132: PHY 125, 126, 127 or 141, 142.
2. The following alternate beginning calculus sequences may be substituted for MAT 131, 132 in major requirements or prerequisites: 125, 126, 127 or 141, 142. Equivalency for MAT courses achieved by earning the appropriate score on the Mathematics Placement Examination will be accepted as fulfillment of the requirement without the necessity of substituting other credits. For detailed information about the various calculus sequences, see the alphabetical listing for Mathematics, especially "Beginning Mathematics Courses," and the course descriptions.

Honors Program in Astronomy/ Planetary Sciences

Students in the astronomy/planetary sciences major who have maintained a cumulative grade point average of 3.3 through the junior year in courses required for the major may apply to the department to become candidates for departmental honors in astronomy/planetary sciences. Candidates for honors in astronomy/planetary sciences 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 while enrolled in AST 447 or 487. The thesis is 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 3.3 grade point average in all coursework in natural sciences and mathematics, honors are conferred.

Sample Course Sequence in the Astronomy/Planetary Sciences Major

Freshman Fall	Credits
D.E.C. A	3
PHY 131 or 141	4
MAT 131	4
D.E.C.	3
Total	14

Spring	Credits
D.E.C. A	3
PHY 132 or 142	4
MAT 132	4
D.E.C.	3
Total	14

Sophomore Fall	Credits
PHY 251/252	4
MAT 205 or AMS 261	4
AST 203	3
D.E.C.	3
D.E.C.	3
Total	17

Spring	Credits
PHY 306	3
MAT 305 or AMS 361	4
PHY 262	4
D.E.C.	3
Total	14

Junior Fall	Credits
AST 341*	3
MAT elective	3
PHY 301	3
PHY 303	3
D.E.C.	3
Total	15

Spring	Credits
AST 342*	3
PHY 308	3
PHY 302	3
D.E.C.	3
Upper Division elective	3
Total	15

Senior Fall	Credits
AST 343*	3
AST 351*	3
D.E.C.	3
D.E.C.	3
Upper Division elective	3
Total	15

Spring	Credits
AST 344*	3
AST 443	4
D.E.C.	3
Upper Division elective*	3
Elective	3
Total	16

*AST 341, 342 and AST 343, 344 are offered in alternate years. AST 351 is offered in alternate fall semesters and AST 443 is offered in alternate spring semesters.

BIO

Departments of

Biochemistry and Cell Biology

Ecology and Evolution

Neurobiology and Behavior

Minors of particular interest to students majoring in biology and biochemistry: bioengineering (BNG), biomedical engineering (BMG), environmental studies (ENS), health and wellness (LHW), philosophy (PHI), science and engineering (LSE)

Department of

Biochemistry and Cell Biology

CHAIRPERSON: William J. Lennarz

DIRECTOR OF UNDERGRADUATE STUDIES:

Bernard Dudock

Faculty

Paul M. Bingham, *Associate Professor, Ph.D., Harvard University*: Regulation of transcription in and transposon biology of developing multicellular organisms.

Deborah Brown, *Associate Professor, Ph.D., Stanford University*: Trafficking of membrane proteins in polarized epithelial cells.

David Bynum, *Associate Professor, Ph.D., Dartmouth College*: Cell motility. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1988, and the President's Award for Excellence in Teaching, 1988.

Elof Axel Carlson, *Distinguished Teaching Professor, Ph.D., Indiana University*: Mutation and gene structure; history of genetics; human genetics.

Vitaly Citovsky, *Assistant Professor, Ph.D., Hebrew University*: Nuclear targeting and intercellular communication in plants.

Neta Dean, *Associate Professor, Ph.D., University of California, Los Angeles*: Molecular genetics and protein sorting in yeast.

Dale G. Deutsch, *Associate Professor, Ph.D., Purdue University*: Molecular biology of marijuana action.

Bernard S. Dudock, *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.

Martin Freundlich, *Professor, Ph.D., University of Minnesota*: Regulation of gene expression.

J. Peter Gergen, *Associate Professor, Ph.D., Brandeis University*: Molecular biology; genetics of embryonic development in *Drosophila*.

Robert Haltiwanger, *Associate Professor, Ph.D., Duke University*: Glycosylation of nuclear and cytoplasmic proteins.

Bernadette Holdener, *Assistant Professor, Ph.D., University of Illinois-Chicago*: Development and genetic regulation of mouse gastrulation; genome organization.

Nancy Hollingsworth, *Assistant Professor, Ph.D., University of Washington, Seattle*: Analysis of meiotic chromosome recombination, synapsis, and segregation in yeast.

William J. 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.

Harvard Lyman, *Associate Professor, Ph.D., Brandeis University*: Photoregulation of chloroplast development and replication. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1991, and the President's Award for Excellence in Teaching, 1991.

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

Raghupathy Sarma, *Professor, Ph.D., Madras University*: X-ray crystal structure analysis of molecules of biological interest.

Nisson Schechter, *Professor, Ph.D., Western Michigan University*: Molecular basis of nerve growth and regeneration.

C. Hermann Schindelin, *Assistant Professor, Ph.D., Freie Universitaet Berlin*: Protein crystallography; structure and function of metalloenzymes.

Jakob Schmidt, *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.

John Shanklin, *Adjunct Professor, Ph.D., University of Wisconsin-Madison*: Structure and function of fatty acid saturase.

Sanford R. Simon, *Professor, Ph.D., Rockefeller University*: Structure-function relationships in hemoglobin; membrane biochemistry.

Steven O. Smith, *Professor, Ph.D., University of California, Berkeley*: Membrane protein structure and function.

Rolf Sternglanz, *Professor, Ph.D., Harvard University*: DNA replication.

F. William Studier, *Adjunct Professor, Ph.D., California Institute of Technology*: Genetics and physiology of bacterial viruses.

Gerald H. Thomsen, *Assistant Professor, Ph.D., Rockefeller University*: Vertebrate molecular embryology: cell-cell signaling and group factor function.

James S. Trimmer, *Associate Professor, Ph.D., University of California, San Diego*: Molecular neurobiology; structure, function, and regulation of voltage-sensitive ion channels.

Department of

Ecology and Evolution

CHAIRPERSON: James D. Thomson

DIRECTOR OF UNDERGRADUATE STUDIES:

Michael A. Bell

Faculty

Michael A. Bell, *Associate Professor, Ph.D., University of California, Los Angeles*: Evolutionary biology; ichthyology; paleobiology and geographic variation.

Geeta Bharathan, *Assistant Professor, Ph.D., University of Arizona*: Evolution of angiosperms; homeobox genes, genome size.

Daniel E. Dykhuizen, *Professor, Ph.D., University of Chicago*: Population genetics and molecular evolution, especially of bacteria.

Walter F. Eanes, *Professor, Ph.D., State University of New York at Stony Brook*: Population and biochemical genetics of *Drosophila*; molecular evolution.

Douglas J. Futuyma, *Professor, Ph.D., University of Michigan*: Ecological genetics; coevolution of species, especially of plants and insects; evolutionary biology. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1974.

Lev R. Ginzburg, *Professor, Ph.D., Agrophysical Institute, St. Petersburg, Russia*: Theoretical and applied ecology.

Jessica Gurevitch, *Associate 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, *Associate Professor, Ph.D., University of Washington*: Social ecology of vertebrates; plant dispersal strategies.

Manuel T. Lerdau, *Assistant Professor, Ph.D., Stanford University*: Plant ecology and physiology; global change.

Jeffrey S. Levinton, *Professor, Ph.D., Yale University*: Marine benthic ecology; population genetics of bivalve mollusks; paleoecology; State University Chancellor's Award for Excellence in Teaching and President's Award for Excellence in Teaching, 1997.

Dianna Padilla, *Associate Professor, Ph.D., University of Alberta, Canada*: Phenotype plasticity, plant-herbivore functional ecology, ecology of evading species.

Bruce Rannala, *Assistant Professor, Ph.D., Yale University*: Population demography and genetic structure, estimation of population parameters using molecular genetic data.

Rollin C. Richmond, *Professor and Provost and Executive Vice President for Academic Affairs, Ph.D., Rockefeller University*: Molecular evolutionary genetics.

F. James Rohlf, *Professor, Ph.D., University of Kansas*: Multivariate data analysis techniques applied to problems in taxonomy and ecology; computer modeling; applied ecology.

James D. Thomson, *Professor, Ph.D., University of Wisconsin*: Pollination biology; plant reproductive systems; community ecology.

Gregory A. Wray, *Associate Professor, Ph.D., Duke University*: Evolution of developmental mechanisms; evolution and paleobiology of echinoderm larvae; origin and radiation of echinoderm body plans.

Department of

Neurobiology and Behavior

CHAIRPERSON: Lorne M. Mendell

DIRECTOR OF UNDERGRADUATE STUDIES:
Benjamin Walcott

Faculty

Paul R. Adams, *Professor, Ph.D., London University*: Cellular neurobiology; synaptic transmission.

Paul Brehm, *Professor, Ph.D., University of California, Los Angeles*: Cellular neurobiology; synaptic transmission.

John B. Cabot, *Professor, Ph.D., University of Virginia*: Autonomic system.

Albert D. Carlson, *Professor, Ph.D., University of Iowa*: Higher brain function; comparative neurobiology. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1983.

William F. Collins III, *Associate Professor, Ph.D., University of Pennsylvania*: Physiology; neurophysiology. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1997 and President's Award for Excellence in Teaching 1997.

L. Craig Evinger, *Professor, Ph.D., University of Washington*: Sensorimotor integration.

Joseph Fetcho, *Associate Professor, Ph.D., University of Michigan*: Motor systems.

James W. Gnatd, *Associate Professor, Ph.D., University of Alabama*: Systems neurophysiology; sensorimotor integration.

Simon Halegoua, *Professor, Ph.D., State University of New York at Stony Brook*: Molecular neurobiology.

Maurice Kernan, *Assistant Professor, Ph.D., University of Wisconsin-Madison*: Molecular neurobiology.

Mary Kritzer, *Assistant Professor, Ph.D., Yale University*: Neurobiology of cognition.

Joel M. Levine, *Professor, Ph.D., Washington University*: Developmental neurobiology.

Gail Mandel, *Professor, Ph.D., University of California, Los Angeles*: Molecular neurobiology.

Gary G. Matthews, *Professor, Ph.D., University of Pennsylvania*: Cellular neurobiology; synaptic transmission.

David McKinnon, *Associate Professor, Ph.D., Australian National University*: Molecular biology of ion channels.

Susan McLaughlin, *Assistant Professor, Ph.D., University of Florida*: Molecular neurobiology.

Lorne M. Mendell, *Distinguished Professor, Ph.D., Massachusetts Institute of Technology*: Sensorimotor integration.

S. M. Sherman, *Professor, Ph.D., University of Pennsylvania*: Functional organization and plasticity of mammalian visual systems.

Benjamin Walcott, *Associate Professor, Ph.D., University of Oregon*: Physiology.

Lonnie Wollmuth, *Assistant Professor, Ph.D., University of Washington, Seattle*: Physiology and biophysics.

Stephen Yazulla, *Professor, Ph.D., University of Delaware*: Physiology.

Affiliated Faculty

Marian Evinger, *Pediatrics*

Edmund LaGamma, *Pediatrics*

Stuart S. McLaughlin, *Physiology and Biophysics*

Teaching Assistants (all areas)

Estimated number: 58

Courses in Biology

See the Course Description listing in this Bulletin for complete information.

BIO 101-E, 102-E Biology: A Humanities Approach

BIO 111-E The Aquatic World

BIO 113-E General Ecology

BIO 114-E Dinosaur Evolution and Ecology

BIO 115-E Evolution and Society

BIO 150-E The Living World

BIO 201-E Fundamentals of Biology: Organisms to Ecosystems

BIO 202-E Fundamentals of Biology: Molecular and Cellular Biology

BIO 203-E Fundamentals of Biology: Cellular and Organ Physiology

BIO 208-H Cell, Brain, Mind

BIO 232 Physiology Laboratory for Pre-Nursing Students

BIO 241-E General Botany

BIO 242-E Zoology

BIO 300-H Biology of Human Reproduction

BIO 307 Computer Modeling of Biological Systems

BIO 310-E Cell Biology

BIO 311 Techniques in Molecular and Cellular Biology

BIO 314-E Biological Clocks

BIO 315-E Microbiology

BIO 317-E Principles of Cellular Signaling

BIO 320-E General Genetics

BIO 321-E Animal Embryology

BIO 325-E Animal Development

BIO 328-E Mammalian Physiology

BIO 330-E Comparative Physiology

BIO 334-E Principles of Neurobiology

BIO 335 Animal Physiology Laboratory

BIO 343-E Invertebrate Zoology

BIO 344-E Chordate Zoology

BIO 346-E Aquatic Arthropods and Vertebrates

BIO 350-H Darwinian Medicine

BIO 351-H Ecology

BIO 352 Ecology Laboratory

BIO 353-E Marine Ecology

BIO 354-E Evolution

BIO 355 Computer Modeling Techniques in Ecology

BIO 356 Applied Ecology and Conservation Biology

BIO 357-E General Microbial Ecology

BIO 358-H Biology of Human Social and Sexual Behavior

BIO 359-E Behavioral Ecology

BIO 360-E Behavioral Ecology Laboratory

BIO 361-E, 362-E Biochemistry I, II

BIO 365 Biochemistry Laboratory

BIO 374-E Molecular Neurobiology

BIO 379-E Developmental Neurobiology

BIO 380-E Entomology

- BIO 383-E Herpetology
- BIO 385-H Plant Ecology
- BIO 386-H Ecosystem Ecology in a Changing World
- BIO 401-405 Seminars in Biology
- BIO 407 Colloquium in Ecology and Evolution for Biology Majors
- BIO 409 Selected Topics in Biochemistry, Cell Biology, and Developmental Biology
- BIO 430 Approaches to Current Researches in Neuroscience
- BIO 444, 446, 447, 449 Readings in Biological Sciences
- BIO 475, 476 Undergraduate Teaching Practicum in College Biology I, II
- BIO 484, 486, 487, 489 Research in Biological Sciences
- BIO 488 Internship in Biological Sciences

The Biochemistry Program

UNDERGRADUATE DIRECTOR: Bernard Dudock
 OFFICE: 450 Life Sciences Building
 PHONE: 632-8550
 WEB ADDRESS: www.bio.sunysb.edu

The Biochemistry Undergraduate Major Program provides a challenging and exciting introduction to the chemical basis of biological phenomena. The major is designed to prepare students who intend to pursue graduate study, attend health related professional schools and fill entry level positions in private, state, and federal laboratories or in pharmaceutical and biotechnology industries. The undergraduate curriculum provides fundamental background in biology, chemistry, genetics and biochemistry with pertinent courses in mathematics and physics necessary for advanced understanding of this broad field. Students may not declare a double major among biochemistry, biology and pharmacology.

Requirements for the Biochemistry Major

All courses offered for the major must be passed with a letter grade of C or higher. Completion of the major requires approximately 68 to 72 credits.

A. Courses in Related Fields

1. CHE 131, 132 General Chemistry *or* CHE 141, 142 Honors Chemistry
2. CHE 133, 134 General Chemistry Laboratory *or* CHE 143, 144 Honors Chemistry Laboratory

Sample Course Sequence in the Biochemistry Major

Freshman Fall		Credits	Spring		Credits
D.E.C. A	3		D.E.C. A	3	
CHE 131	4		CHE 132	4	
CHE 133	1		CHE 134	1	
MAT 125 or 131	3-4		MAT 126 or 132	3-4	
BIO 150	3		BIO 202	4	
Total	14-15		Total	15-16	

Sophomore Fall		Credits	Spring		Credits
BIO 201	4		BIO 203	4	
CHE 321	3		CHE 322	3	
MAT 127 (if MAT 125, 126 sequence taken)	3		CHE 327	2	
D.E.C.	3		D.E.C.	3	
D.E.C.	3		D.E.C.	3	
Total	16		Total	15	

Junior Fall		Credits	Spring		Credits
BIO 320	3		BIO 310	3	
BIO 361	3		BIO 362	3	
PHY 121/123	4		PHY 122/124	4	
D.E.C.	3		D.E.C.	3	
D.E.C.	3		Elective	3	
Total	16		Total	16	

Senior Fall		Credits	Spring		Credits
BIO elective	3		Upper Division electives selected from the list under Category C (above)	5-6	
BIO 365 or 311	2		D.E.C.	3	
CHE 301 or 312*	3		Electives	6	
D.E.C.	3		Total	14-15	
D.E.C.	3				
Total	14				

*CHE 301 is offered only in the Fall semester; CHE 312 is offered only in the Spring semester.

3. CHE 321, 322 Organic Chemistry *or* CHE 331, 332 Honors Organic Chemistry
4. CHE 327 Organic Chemistry Laboratory A *or* CHE 333 Organic Chemistry Laboratory B
5. CHE 301 *or* 312 Physical Chemistry
6. MAT 125, 126, 127 Calculus A, B, C *or* MAT 131, 132 Calculus I, II *or* level 9 on mathematics placement examination.
7. PHY 121/123, 122/124 Physics for the Life Sciences and laboratories *or* PHY 125, 126, 127 Classical Physics A, B, C *or* PHY 131, 132 Classical Physics I, II *or* PHY 141, 142 Classical Physics I, II: Honors

B. Courses in Biological Sciences

1. BIO 150 The Living World
2. BIO 201 Fundamentals of Biology: Organisms to Ecosystems
3. BIO 202 Fundamentals of Biology: Molecular and Cellular Biology
4. BIO 203 Fundamentals of Biology: Cellular and Organ Physiology
5. BIO 320 General Genetics
6. BIO 310 Cell Biology
7. BIO 361, 362 Biochemistry I, II
8. One of the following laboratories:
 BIO 365: Biochemistry laboratory (Fall only)
 BIO 311: Molecular Biology Laboratory (Fall & Spring)

C. Advanced Electives

Two additional courses, totaling at least five credits, chosen, after consultation with an advisor, from the following list. It is highly recommended that students take more than the suggested minimum number of electives.

BCP 401 Principles of Pharmacology

BCP 402 Advanced Pharmacology

BCP 403 Principles of Pharmacology Laboratory

BCP 404 Advanced Pharmacology Laboratory

BIO 315 Microbiology

BIO 317 Principles of Cellular Signaling

BIO 325 Animal Development

BIO 328 Mammalian Physiology

BIO 334 Principles of Neurobiology

BIO 374 Molecular Neurobiology

BIO 379 Developmental Neurobiology

BIO 409 Selected Topics in Biochemistry, Cell Biology, and Developmental Biology

CHE 345 Structure and Reactivity in Organic Chemistry

CHE 346 Biomolecular Structure and Reactivity

HBP 390 Basic Mechanisms in Pathology

Additional courses to meet requirement C may be allowed each semester. Most of these courses are offered only once a year. A list of those available each semester is posted at the Biochemistry and Cell Biology Department office, together with any additional courses that may be approved.

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 and Cell Biology 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 and Cell Biology 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 February 1 for students graduating in the following May or August, and October 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 is advised to seek help in writing skills from the Writing Center.

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 487, 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 no later than the second week of classes in the last semester. (Acceptance of a project for BIO 487 registration does not imply automatic acceptance of that project for honors). The honors coordinator and the research sponsor appoint a thesis committee consisting of the research sponsor and two additional faculty members. Two members of the thesis committee must be from the Biochemistry and Cell Biology Department and one must be from outside the department. The student must present a copy of the finished thesis to each member of the thesis committee and the honors coordinator at least 28 days before the date of graduation.

The Biology Program

UNDERGRADUATE DIRECTOR: William Collins
STAFF ASSISTANT: Nancy Cammarota
OFFICE: 140 Old Chemistry
PHONE: 632-8530
WEB ADDRESS: www.bio.sunysb.edu

Biology is the study of organisms, including the molecular and cellular basis of life, development of the individual and its genetic basis, maintenance of the individual, and interaction of organisms with their biotic and physical environment.

The biology major introduces students to the concepts and methodologies associated with the multiple levels of biological complexity. Following BIO 150 *The Living World*, an introduction to the

tools, models, and concepts of modern biology, students explore the *Fundamentals of Biology*, a thorough introduction to organisms, ecosystems, cellular and molecular biology, and physiology. These courses also provide a solid background for students interested in the health professions. Students go on to advanced laboratory work and have the opportunity to specialize in any of several areas, including: ecology and evolution, environmental biology, marine biology, and neuroscience. Students may also elect the general biology track. Students may design their own curriculum, in consultation with an advisor, within the context of these tracks, based on individual interest. The biology major requires a strong foundation in chemistry, physics and mathematics.

Majors are encouraged to explore research opportunities in biology, typically beginning in their second or third year.

Most positions for biologists require graduate training. Most students majoring in biology prepare for professional study in the biological or health sciences. Some prepare for secondary school teaching, and others for technical positions in industry, including biotechnology, government agencies, and research institutes.

Students should contact the Biology Undergraduate Studies Office for information and brochures related to the biology major and minor and for the forms mentioned in requirements and some course descriptions. The office receives completed forms and petitions concerning the biology major and minor and all requests for evaluations of transferred biology courses. The office also coordinates advising and processes graduation clearances for major and minor requirements. Students may not declare a double major among biology, biochemistry and pharmacology.

Requirements for the Biology Major

Students must complete a minimum of 32 credits in requirements A and C on pages 100-103. (See note 1). At least 32 credits in requirements A and C must be passed with a grade of C or higher. At least one semester each of calculus, general chemistry lecture, organic chemistry lecture, and physics lecture must be passed with a grade of C or higher. Courses taken under the P/NC option may not be used to satisfy major requirements.

Completion of the major requires approximately 65 to 67 credits.

Sample Course Sequence in the Biology Major

A. Biology Core

- BIO 150 The Living World (see note 2)
- BIO 201, 202, 203 Fundamentals of Biology (see note 3)

B. Courses Required in Related Fields

- MAT 125, 126 Calculus A, B *or* MAT 131, 132 Calculus I, II *or* MAT 141, 142 Calculus I, II Honors *or* level 8 or 9 on the Mathematics Placement Examination.
- CHE 131, 132 General Chemistry *and* CHE 133, 134 General Chemistry Laboratory *or* CHE 141, 142 Honors Chemistry *and* CHE 143, 144 Honors General Chemistry Laboratory
- CHE 321, 322 Organic Chemistry *or* CHE 331, 332 Honors Organic Chemistry
- CHE 327 Organic Chemistry Laboratory *or* CHE 333 Organic Chemistry Laboratory B
- PHY 121/123, PHY 122/124 Physics for Life Sciences and laboratory *or* PHY 125, 126, 127 Classical Physics A, B, C *or* PHY 131, 132 Classical Physics I, II *or* PHY 141, 142 Classical Physics I, II: Honors
- AMS 110 Probability and Statistics in Life Sciences *or* AMS 310 Survey of Probability and Statistics (not required for students completing the Marine Biology Track)

C. Advanced Courses

Students must complete one of the following five tracks using the advanced biology lecture and laboratory courses listed below and courses offered by related departments where specified:

Advanced Lecture Courses:

Area I: Cell Biology and Biochemistry

BIO 310, 314, 315, 317, 361, 362

Area II: Genetics and Development

BIO 320, 321, 325

Area III: Neurobiology and Physiology

BIO 328, 334, 374, 379

Area IV: Organisms

BIO 241, 242, 343, 344, 346, 380, 383

Area V: Ecology and Evolution

BIO 350, 351, 353, 354, 357, 358, 359, 385, 386

Advanced Laboratory Courses:

Area I BIO 311, 365

Area II BIO 321

Area III BIO 335

Area IV BIO 242, 343, 344, 346, 380, 383

Area V BIO 352, 356, MAR 303, 305, 320

Area VI BIO 307, HBM 321

1. General Biology Track

- Advanced Lecture Courses: At least one lecture course in four of

Spring	Credits
D.E.C. A	3
CHE 132	4
CHE 134	1
MAT 126	3
BIO 150	3
Total	14

Sophomore Fall	Credits
CHE 321	3
AMS 110	3
BIO 202	4
D.E.C.	3
D.E.C.	3
Total	16

Spring Credits	Credits
CHE 322	3
CHE 327	2
BIO 203	4
D.E.C.	3
D.E.C.	3
Total	16

Junior Fall	Credits
PHY 121/123	4
BIO 201	4
BIO Area	3
D.E.C.	3
D.E.C.	3
Upper Division elective	3
Total	17

Spring	Credits
PHY 122/124	4
BIO Area	3
BIO Lab	1-3
D.E.C.	3
Upper Division elective	3
Total	14-16

Senior Fall	Credits
BIO Area	3
BIO Lab	1-3
BIO Upper Division Elective	3
D.E.C.	3
Electives	6
Total	16-18

Spring	Credits
BIO Area	3
BIO Upper Division Elective	3
D.E.C. A	3
Electives	6
Total	15

Note: Well-prepared, highly motivated students can do BIO 150 and either BIO 202 or 203 in their first year.

the five areas above. Students in the Biology Teacher Preparation program must take a course in each of the five areas.

b. Advanced Laboratory Courses: Two advanced laboratory courses chosen from any of the five areas above.

c. Study in Depth: a second lecture course in one of the five areas of inquiry *or* any 400-level BIO course for majors *or* SCI 454 (for students enrolled in the Biology Teacher Preparation Program)

d. Biology Electives: Additional advanced biology lecture, laboratory, and independent

research courses, as needed, for a minimum of 32 credits in requirements A and C. See note 1.

2. Ecology and Evolution Track

- a. BIO 351 Ecology
- b. BIO 354 Evolution
- c. Area Lecture/Laboratory Requirement. Students must choose one course from i. Lecture/Laboratory Courses or one course each from ii. Lecture Courses and iii. Laboratory Courses below.
 - i. Lecture/Laboratory Courses
 - BIO 242 Zoology
 - BIO 343 Invertebrate Zoology
 - BIO 344 Chordate Zoology
 - BIO 346 Aquatic Arthropods and Vertebrates
 - BIO 380 Entomology
 - BIO 383 Herpetology
 - ii. Lecture Courses
 - BIO 241 General Botany
 - BIO 353 Marine Ecology
 - BIO 357 General Microbial Ecology
 - BIO 359 Behavioral Ecology
 - BIO 383 Herpetology
 - BIO 385 Plant Ecology
 - BIO 386 Ecosystem Ecology in a Changing World
 - MAR 366 Plankton Ecology
 - iii. Laboratory Courses
 - BIO 352 Ecology Laboratory
 - BIO 356 Applied Ecology and Conservation Biology Laboratory
 - MAR 303 Long Island Marine Habitats
 - MAR 305 Experimental Marine Biology
 - MAR 320 Limnology
- d. Breadth Requirement
 - i. Two advanced biology lecture or lecture/laboratory courses chosen from any area excluding Area V

Ecology and Evolution above.

- ii. One advanced biology laboratory (or lecture with laboratory) course chosen from any area excluding Area V Ecology and Evolution above.

e. Biology Electives

Additional advanced biology lecture, laboratory, and independent research courses, as needed, for a minimum of 32 credits in requirements A and C. See note 1.

3. Environmental Biology Track

- a. BIO 351 Ecology
- b. Area Lecture/Laboratory Requirement: Two courses chosen from the lists below. In choosing courses, students must include at least one course with laboratory. Students may take no more than one course from i. Organisms and no more than one course from iii. The Environment.
 - i. Organisms
 - BIO 241 Botany
 - BIO 242 Zoology (with lab)
 - BIO 343 Invertebrate Zoology (with lab)
 - BIO 344 Chordate Zoology (with lab)
 - BIO 380 Entomology (with lab)
 - BIO 383 Herpetology (with lab)
 - MAR 366 Plankton Ecology
 - ii. Ecology
 - BIO 352 Ecology Lab (with lab)
 - BIO 353 Marine Ecology
 - BIO 359 Behavioral Ecology
 - BIO 385 Plant Ecology
 - BIO 386 Ecosystem Ecology in a Changing World
 - MAR 303 Long Island Marine Habitats (with lab)
 - iii. The Environment
 - ATM 305 Global Atmospheric Change
 - ATM 397 Air Pollution and its Control

MAR 318 Engineering Geology and Coastal Processes
MAR 333 Coastal Oceanography

c. Breadth Requirement

Three advanced biology lecture courses from outside the Environmental Biology track, chosen in consultation with the undergraduate biology advisor. At least one of the courses must include a laboratory component.

d. Biology Electives

Additional advanced biology lecture, laboratory, and independent research courses, as needed, for a minimum of 32 credits in requirements A and C. See note 1.

4. Marine Biology Track

- a. MAR 104 Oceanography
- b. BIO 353 Marine Ecology
- c. Area Lecture/Laboratory Requirement: Three courses. In choosing courses from the lists below, students must include at least one course with a laboratory component.
 - i. One of the following field courses:
 - MAR 303 Long Island Marine Habitats
 - MAR 305 Experimental Marine Biology (with lab)
 - MAR 371 Introduction to Tropical Marine Ecology
 - ii. One of the following courses in organismal diversity:
 - BIO 343 Invertebrate Zoology (with lab)
 - BIO 344 Chordate Zoology (with lab)
 - BIO 346 Aquatic Arthropods and Vertebrates (with lab)
 - iii. One of the following advanced marine biology courses:
 - MAR 302 Marine Microbiology and Microbial Ecology
 - MAR 335 Primary Productivity in the Sea
 - MAR 366 Plankton Ecology
- d. Breadth Requirement
 - i. Two advanced biology lecture courses from outside the Marine Biology track, chosen in

consultation with the undergraduate biology advisor:

- ii. One advanced biology laboratory course from outside the Marine Biology track, chosen in consultation with the undergraduate biology advisor.

e. Biology Electives

Additional advanced biology lecture, laboratory, and independent research courses, as needed, for a minimum of 32 credits in requirements A and C. See note 1.

5. Neuroscience Track

a. Area Lecture/Laboratory Requirement:

- i. BIO 334 Principles of Neurobiology
- ii. BIO 328 Mammalian Physiology
- iii. BIO 335 Animal Physiology Laboratory
- iv. One of the following:
 - BIO 317 Principles of Cellular Signaling
 - BIO 374 Molecular Neurobiology
 - BIO 379 Developmental Neurobiology
 - BCP 401 Principles of Pharmacology

b. Breadth Requirement

- i. Two advanced biology lecture courses chosen from any area excluding Area III Neurobiology and Physiology above.
- ii. One advanced biology laboratory (or lecture with laboratory) course chosen from any area excluding Area III Neurobiology and Physiology above.

c. Biology Electives

Additional advanced biology lecture, laboratory, and independent research courses, as needed, for a minimum of 32 credits in requirements A and C. See note 1.

E. 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

sciences at Stony Brook (including readings and research), or

- b. two laboratory reports from a single upper-division course in biological sciences at Stony Brook.

A list of currently participating courses is available in the Biology Undergraduate Studies Office. Students who wish to use material from a participating course should obtain the necessary form and present it to the course director prior to submission of the material. The course director will provide a special evaluation of the writing (in addition to a grade), and send the completed form to the Biology Writing Committee. Materials from other biology courses may be used if they include a suitable writing component. They must be submitted to the writing committee (through the undergraduate office), together with the form signed by the instructor.

Students are urged to submit appropriate materials in their junior year, or by the end of their next-to-last term, in order to allow for evaluation and possible remedial effort. Later submissions are considered, but may delay graduation. If material is rejected, the student is urged to attend the Writing Center (or to take an appropriate course) before resubmitting the paper or material from another biology course.

Notes

1. Up to 6 credits of electives may be chosen from a list of courses offered outside the department; see the Undergraduate Biology office for the current list.
2. BIO 150 The Living World is waived for students scoring level 4 or higher on the mathematics placement examination who have also taken high school AP biology.
3. Students with documented AP biology scores of 4 or 5 receive a waiver of two of the core courses and 6 transfer credits.
4. Requests for waivers of major requirements must be approved by the Biology Undergraduate Studies Committee. Biology majors must meet the major requirements of the bulletin of their latest matriculation date.

Application of Transfer Credits to Biology Requirements

Biology courses taken elsewhere apply to major requirements only if authorized by the biology transfer evaluator or if listed as equivalent to a Stony Brook course in Stony Brook *Transfer Guides*. Transfer students must take at least 15 of the 32 credits in requirements A and C at Stony Brook in courses for majors at the 200 level or higher. At least 12 of the 15 credits must be in BIO-designator courses. At least two of the advanced laboratory experiences, including one area laboratory, must be taken at Stony Brook. Transfer students may meet Section B requirements with transferred courses, if the courses are approved as being equivalent (even if the number of credits is different).

Biology Secondary Teacher Preparation Program

See the Education and Teacher Certification entry in the alphabetical listings of Arts and Sciences programs.

Honors Programs in Biology and in Biology and Society

Graduation with departmental honors in Biology or in Biology and Society requires:

- i. a cumulative grade point average of 3.5 or higher in all courses for the major and
- ii. presentation of an honors thesis based on a research project (see list of approved research and internship courses for each track below) written in the form of a paper for a scientific journal.

A student interested in becoming a candidate for honors should submit an outline of the proposed thesis research project to the Director of Undergraduate Biology as early as possible but no later than the second week of classes in the last semester. The Director of Undergraduate Biology and the research sponsor appoint a thesis committee consisting of the research sponsor and two additional faculty members, one of them from a different department than that of the research sponsor. The student must present a copy of the finished thesis to each member of the thesis committee and the director of undergraduate biology at least 28 days before the date of graduation.

Approved Research and Internship Courses

- a. General Biology Track
 - BIO 484, 486, 489 Independent Research
 - BIO 488 Internship
- b. Ecology and Evolution Track
 - BIO 489 Research in Ecology and Evolution
 - BIO 488 Internship
- c. Environmental Biology Track
 - One of the following
 - ATM 487, BIO 489, MAR 487 Independent Research
 - BIO 488, MAR 488 Internship
- d. Marine Biology Track
 - BIO 489, MAR 487 Independent Research
 - BIO 488, MAR 488 Internship
- e. Neuroscience Track
 - BIO 486 Research in Neurobiology and Physiology
 - BIO 488 Internship

Requirements for the Minor in Biology

Only students with majors other than biology, biochemistry, or pharmacology may elect the biology minor. All courses for the minor must be taken for a letter grade. (See Note 1 below.) Completion of the minor requires at least 20 credits in those biology courses designed for the biology major, including:

- A. Two of the following courses:
 - BIO 201 Fundamentals of Biology: Organisms to Ecosystems
 - BIO 202 Fundamentals of Biology: Cell and Molecular Biology
 - BIO 203 Fundamentals of Biology: Cellular and Organ Physiology
- B. Nine credits at the 300 level
- C. A lecture course in at least two of the five areas of inquiry (I-V) listed under the biology major.

Notes:

1. All 20 credits of biology courses intended for the biology minor must be passed with a grade of C or higher, including 9 credits at the 300 level. A grade of satisfactory in readings, internship and research courses applies to the quality requirements within credit limitations noted below:
 - Up to two credits of biology internship and research (BIO 484, 486, 487,

488, 489) and one credit of tutorial readings (BIO 444, 446, 447, 449) may be applied toward the minor. The list of substitute electives for the major does not apply to the minor.

2. All credits for the minor, except for those in requirement A, must be in BIO major courses at Stony Brook. Requests for waivers of minor requirements must be approved by the Biology Undergraduate Studies Committee.

CHE

Department of Chemistry

CHAIRPERSON: Iwao Ojima DIRECTOR OF UNDERGRADUATE STUDIES: Robert Kerber STUDENT AFFAIRS COORDINATOR: Diane Godden
OFFICE: 109 Chemistry PHONE: 632-7886 E-MAIL: rkerber@notes.cc.sunysb.edu WEB ADDRESS: <http://www.chem.sunysb.edu>

Minors of particular interest to students majoring in chemistry: biology (BIO), environmental studies (ENS), marine sciences (MAR), science and engineering (LSE)

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*: Reactions between complex nuclei.

Benjamin Chu, *Distinguished Professor, Ph.D., Cornell University*: Light-scattering spectroscopy; X-ray scattering; polymer physics; colloid science, DNA electrophoresis.

Dale G. Drueckhammer, *Associate Professor, Ph.D., Texas A and M University*: Enzyme catalysis in the synthesis of organic and biological compounds; elucidation of enzyme reaction mechanisms; design, synthesis, and evaluation of enzyme inhibitors.

Frank W. Fowler, *Professor, Ph.D., University of Colorado*: Synthetic chemistry.

Joanna S. Fowler, *Adjunct Professor, Ph.D., University of Colorado*: organic synthesis with short-lived positron-emitting isotopes; neuroscience; drug mechanisms.

Theodore D. Goldfarb, *Professor, Ph.D., University of California, Berkeley*: Environmental chemistry; ethics in science. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1979.

Nancy Goroff, *Assistant Professor, Ph.D., University of California, Los Angeles*: Non-natural organic compounds and their properties; organic materials.

Clare Grey, *Associate Professor, D.Phil., University of Oxford*: Materials chemistry; solid-state NMR spectroscopy; catalysis.

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. Recipient of the Stony Brook Alumni Association's Outstanding Professor Award, 1994.

David M. Hanson, *Professor, Ph.D., California Institute of Technology*: Soft X-ray spectroscopy; photochemistry; radiation chemistry.

Benjamin S. Hsiao, *Associate Professor, Ph.D., University of Connecticut*: Fundamentals of structure, morphology, property and processing relationships in polymers; polymer physics.

Takanobu Ishida, *Professor, Ph.D., Massachusetts Institute of Technology*: Chemistry of stable isotopes; isotope separation; electrochemistry.

Philip M. Johnson, *Professor, Ph.D., Cornell University*: Optical molecular spectroscopy.

Marjorie Kandel, *Lecturer and Coordinator of Organic Chemistry Laboratories, M.S., Indiana University*: Organic chemistry; laboratory curriculum development. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1996, and the President's Award for Excellence in Teaching, 1996

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.

Alexei Khokhlov, *Adjunct Professor, Ph.D., Moscow State University*: Physical chemistry of polyelectrolytes and ionomers; polymer physics.

Stephen A. Koch, *Professor, Ph.D., Massachusetts Institute of Technology*: Inorganic, bioinorganic, and solid-state chemistry.

Chirakkal V. Krishnan, *Visiting Professor, part time, Ph.D., University of Bombay*: Chemistry education.

Roy Lacey, *Associate Professor, Ph.D., State University of New York at Stony Brook*: Nuclear chemistry. Recipient of the State University President's Award for Excellence in Teaching, 1998.

Joseph W. Lauher, *Professor, Ph.D., Northwestern University*: Structural chemistry; crystallography. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1990, and the President's Award for Excellence in Teaching, 1990.

William J. Le Noble, *Professor, Ph.D., University of Chicago*: Chemistry of highly compressed solutions; stereochemistry.

Andreas Mayr, *Professor, Ph.D., University of Munich*: Synthesis, reactivity, and physical properties of transition metal compounds; metal-carbon multiple bonds; molecular materials.

Michelle M. Millar, *Associate Professor, Ph.D., Massachusetts Institute of Technology*: Transition metal chemistry; bioinorganic chemistry.

Marshall D. Newton, *Adjunct Professor, Ph.D., Harvard University*: Theoretical chemistry; prediction and analysis of molecular structure and energetics.

Iwao Ojima, *Distinguished Professor, Ph.D., University of Tokyo*: Synthetic, organometallic, and medicinal chemistry.

Daniel P. Raleigh, *Associate Professor, Ph.D., Massachusetts Institute of Technology*: Biological chemistry; protein structure and protein-ligand interactions using NMR.

Nicole S. Sampson, *Assistant Professor, Ph.D., University of California, Berkeley*: Bioorganic chemistry; mechanistic enzymology and molecular recognition; substrate analogs; protein-protein interactions.

Robert F. Schneider, *Associate Professor, Ph.D., Columbia University*: Nuclear quadrupole resonance.

Scott McN. Sieburth, *Associate Professor, Ph.D., Harvard University*: Synthetic and bioorganic chemistry.

Carlos Simmering, *Assistant Professor, Ph.D., University of Illinois at Chicago*: Development of new algorithms and programs for simulation of large biomolecular systems; development of tools for the visualization and analysis of the data generated by such calculations.

Richard Solo, *Adjunct Associate Professor, Ph.D., University of California, Berkeley*: Gas phase kinetics.

Charles S. Springer, *Professor Emeritus and Adjunct Professor, Ph.D., Ohio State University*: Nuclear magnetic resonance, with emphasis on living systems.

George Stell, *Leading Professor, Ph.D., New York University*: Molecular theory of fluids; transport and thermodynamic properties of fluids.

Peter Tonge, *Assistant Professor, Ph.D., University of Birmingham, England*: Biological chemistry and enzyme mechanisms; quantitating substrate strain in enzyme-substrate complexes using vibrational spectroscopy; rational drug design.

Arnold Wishnia, *Associate Professor, Ph.D., New York University*: Physical chemistry of proteins.

Affiliated Faculty

Patrick J. Herley, *Materials Science and Engineering*

Francis Johnson, *Pharmacological Sciences*

Franco P. Jona, *Materials Science and Engineering*

Erwin London, *Biochemistry*

John B. Parise, *Earth and Space Sciences*

Teaching Assistants

Estimated number: 45

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, environmental chemistry, and marine and atmospheric chemistry, in addition to the traditional chemical science option. The B.S. 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 pre-medical 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.

Courses in Chemistry

See the Course Description listing in this Bulletin for complete information.

CHE 108-E The Extraordinary Chemistry of Ordinary Things
 CHE 111-E, 112-E Elementary Chemistry I, II
 CHE 121-E Concepts and Methodologies of General Chemistry
 CHE 131-E, 132-E General Chemistry
 CHE 133, 134 General Chemistry Laboratory
 CHE 141-E, 142-E Honors Chemistry
 CHE 143, 144 Honors Chemistry Laboratory
 CHE 198-E Chemistry for Engineers
 CHE 199 General Chemistry Laboratory for Engineers
 CHE 221-E Introduction to Chemistry of Solids
 CHE 301-E Physical Chemistry I
 CHE 302-E Physical Chemistry II
 CHE 303 Solution Chemistry Laboratory
 CHE 304 Chemical Instrumentation Laboratory
 CHE 305-E Physical Chemistry III

CHE 310-H Chemistry in Technology and the Environment
 CHE 312-E Physical Chemistry (Short Course)
 CHE 321-E, 322-E Organic Chemistry
 CHE 327 Organic Chemistry Laboratory
 CHE 331-E, 332-E Honors Organic Chemistry
 CHE 333, 334 Organic Chemistry Laboratory B
 CHE 344-E Spectroscopy of Organic Compounds
 CHE 345-E Structure and Reactivity in Organic Chemistry
 CHE 346-E Biomolecular Structure and Reactivity
 CHE 351-E Quantum Chemistry
 CHE 353-E Chemical Thermodynamics
 CHE 357 Molecular Structure and Spectroscopy
 CHE 361-E Nuclear Chemistry
 CHE 362 Nuclear Chemistry Laboratory
 CHE 375-E, 376-E Inorganic Chemistry
 CHE 377 Inorganic Chemistry Laboratory
 CHE 461 Selected Topics in Chemistry
 CHE 475, 476 Undergraduate Teaching Practicum I, II
 CHE 487 Research in Chemistry
 CHE 488 Internship
 CHE 490 Current Trends in Biological Chemistry
 CHE 495-496 Senior Research

Requirements for the Chemistry Major (Bachelor of Science Track)

All courses offered for the major must be passed with a letter grade of C or higher, but up to three chemistry courses passed with a C- may be applied to the major. No transferred course with a grade lower than C may be used to fulfill any major requirement.

Completion of the major requires approximately 64 to 67 credits.

A. Core Requirements

1. CHE 131, 132 General Chemistry or CHE 141, 142 Honors Chemistry
2. CHE 133, 134 General Chemistry Lab or CHE 143, 144 Honors Chemistry Laboratory
3. CHE 301, 302 Physical Chemistry I, II

4. CHE 303 Solution Chemistry Laboratory
5. CHE 321, 322 Organic Chemistry or CHE 331, 332 Honors Organic Chemistry
6. CHE 333 Organic Chemistry Laboratory B
7. CHE 375 Inorganic Chemistry I
8. MAT 131, 132 Calculus I, II (See note 1 for possible substitutions)
9. AMS 210 Applied Linear Algebra or MAT 211 Linear Algebra (see note 1 for possible substitutions)
10. PHY 131, 132 Classical Physics I, II (See note 2 for possible substitutions)

B. Area Requirements

One of the following options:

1. Chemical Science Option
 CHE 304 Chemical Instrumentation Laboratory
 CHE 334 Organic Chemistry Laboratory B
 CHE 357 Molecular Structure and Spectroscopy Laboratory
 CHE 377 Inorganic Chemistry Laboratory
 Two electives chosen from CHE 221, 305, 344, 345, 346, 376, PHY 251, or ESG 281
2. Biological Chemistry Option
 CHE 334 Organic Chemistry Laboratory B
 One organic or inorganic chemistry elective chosen from CHE 344, 345, 346, 376, or 377
 BIO 202 Fundamentals of Biology: Cell and Molecular Biology
 BIO 361 Biochemistry I
 BIO 310 Cell Biology or BIO 362 Biochemistry II
3. Chemical Physics Option
 CHE 304 Chemical Instrumentation Laboratory
 CHE 305 Physical Chemistry III
 CHE 357 Molecular Structure and Spectroscopy Laboratory
 MAT 205 Calculus III (See note 1 for possible substitutions)
 PHY 251/252 Modern Physics and Laboratory
 One elective chosen from CHE 377, PHY 262, 301, 303, 306

4. Environmental Chemistry Option
- CHE 304 Chemical Instrumentation Laboratory
- CHE 310 Chemistry in Technology and the Environment
- CHE 334 Organic Chemistry Laboratory B
- CHE 357 Molecular Structure and Spectroscopy Laboratory
- BIO 201 Fundamentals of Biology: Organisms to Ecosystems
or BIO 113 Applied Ecology
- ATM 397 Air Pollution and Its Control
5. Marine and Atmospheric Chemistry Option
- ATM 205 Introduction to Atmospheric Science
- MAR 333 Coastal Oceanography
- MAR 351 Introduction to Ocean Chemistry
- MAR 308 Principles of Instrumental Analysis
- One of the following sets of courses:
- MAR 313 Marine Biochemistry and MAR 410 Marine Geochemistry
or ATM 305 Global Atmospheric Change
and ATM 397 Air Pollution and Its Control

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 director of undergraduate studies 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.

Notes:

1. Alternate Mathematics Sequences

The following alternate sequences may be substituted for major requirements or prerequisites: MAT 125, 126, 127 or 141, 142 for 131, 132; MAT 203 or 205 for AMS 210 or MAT 211. Equivalency for MAT courses as indicated by earning the appropriate score on a placement examination will be accepted as fulfillment of the requirement without the necessity of substituting other credits.

Sample Course Sequence for the Major in Chemistry (Bachelor of Science Track)

Freshman Fall		Credits	
D.E.C. A	3		
MAT 131	4		
CHE 141 or 131	4		
CHE 143 or 133	1		
D.E.C.	3		
Total	15		

Spring		Credits	
D.E.C. A	3		
CHE 142 or 132	4		
CHE 144 or 134	1		
MAT 132	4		
D.E.C.	3		
Total	15		

Sophomore Fall		Credits	
CHE 331 or 321	3		
CHE 333	2		
AMS 210 or MAT 211	3		
PHY 131	4		
D.E.C.	3		
Total	15		

Spring		Credits	
CHE 332 or 322	3		
CHE 334	2		
PHY 132	4		
D.E.C.	3		
Elective	3		
Total	15		

Junior Fall		Credits	
CHE 301	4		
CHE 303	2		
D.E.C.	3		
D.E.C.	3		
Elective	3		
Total	15		

Spring		Credits	
CHE 302	4		
CHE 304	2		
D.E.C.	3		
D.E.C.	3		
Elective	3		
Total	15		

Senior Fall		Credits	
CHE 357	2		
CHE 375	3		
Upper Division CHE elective	3		
D.E.C.	3		
Electives	6		
Total	17		

Spring		Credits	
CHE 377	2		
Upper Division CHE elective	3		
Upper Division CHE elective	3		
Upper Division elective	3		
Elective	3		
Total	14		

2. Alternate Physics Sequences

The following alternate sequences may be substituted for physics requirements or prerequisites: PHY 121/123 and PHY 122/124 or PHY 141, 142 or PHY 125, 126, 127 for PHY 131, 132.

3. Transfer Credit

At least 12 credits of upper-division work in chemistry must be taken at Stony Brook; these must be taken in at least two of the major subdisciplines (inorganic, physical, and organic chemistry).

4. The American Chemical Society's Committee on Professional Training

has set nationally recognized standards for professional preparation in chemistry. The Chemistry 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 must complete one additional elective in chemistry or a related field. Students electing the biological chemistry option must complete one additional elective in chemistry or a related field and the CHE 304, 357, and 377 laboratories. Students electing the chemical physics option must complete the CHE 334 and 377 laboratories.

Students electing the environmental chemistry option must complete one additional chemistry elective and the CHE 304 and 377 laboratories. Students electing the marine and atmospheric chemistry option will need to complete the CHE 334 and 377 laboratories.

5. Additional Areas of Study

**Sample Course Sequence for the
Major in Chemistry (Bachelor of Arts Track)**

Freshman Fall	Credits
MAT 131	4
CHE 131 or 141	4
CHE 133 or 143	1
D.E.C. A	3
D.E.C.	3
Total	15

Spring	Credits
D.E.C. A	3
CHE 132	4
CHE 134 or 144	1
MAT 132	4
D.E.C.	3
Total	15

Sophomore Fall	Credits
CHE 321 or 331	3
CHE 333	2
AMS 210 or MAT 211	3
PHY 131	4
D.E.C.	3
Total	15

Spring	Credits
CHE 322 or 332	3
CHE 334*	2
PHY 132	4
D.E.C.	3
Elective	3
Total	15

Junior Fall	Credits
CHE 301	4
CHE 303	2
D.E.C.	3
D.E.C.	4
Elective	3
Total	16

Spring	Credits
CHE 302	4
CHE 304*	2
D.E.C.	3
D.E.C.	3
Elective	3
Total	15

Senior Fall	Credits
CHE 375	3
D.E.C.	3
Upper Division electives	6
Elective	3
Total	15

Spring	Credits
CHE 377*	2
Upper Division electives	6
Electives	9
Total	17

*Only one of these three laboratory courses is required.

Because knowledge of computer programming is of great value to all chemists, a course in computer programming is recommended.

For those students who plan to pursue graduate studies in chemistry, it is recommended that they attain a reading knowledge of German and of French or Russian.

Requirements for the Chemistry Major (Bachelor of Arts Track)

All courses offered for the major must be passed with a letter grade of C or higher, but up to three chemistry courses passed with a C- may be applied to the major. No transferred course with a grade lower than C may be used to fulfill any major requirement.

Completion of the major requires approximately 52 credits.

A. Study Within the Area of Chemistry

- CHE 131, 132 General Chemistry or CHE 141, 142 Honors Chemistry
- CHE 133, 134 General Chemistry Lab or CHE 143, 144 Honors Chemistry Laboratory
- CHE 301, 302 Physical Chemistry I, II
- CHE 303 Solution Chemistry Laboratory and one additional laboratory course (304, 334, or 377)
- CHE 321, 322 Organic Chemistry or CHE 331, 332 Honors Organic Chemistry
- CHE 327 Organic Chemistry Laboratory or CHE 333 Organic Chemistry Laboratory

7. CHE 375 Inorganic Chemistry I

B. Courses in Related Fields

- MAT 131, 132 Calculus I, II and AMS 210 Applied Linear Algebra or MAT 211 Linear Algebra (See note 1)
- PHY 131, 132 Classical Physics I, II (See note 2)

C. Upper-Division Writing Requirement

Same as for Bachelor of Science Program, requirement C.

Notes:

1. Alternate Mathematics Sequences

The following alternate sequences may be substituted for major requirements or prerequisites: MAT 125, 126, 127 or 141, 142 for MAT 131, 132; MAT 203 or 205 for AMS 210 or MAT 211.

Equivalency for MAT courses as indicated by earning the appropriate score on a placement examination will be accepted as fulfillment of the requirement without the necessity of substituting other credits.

2. Alternate Physics Sequences

The following alternate sequences may be substituted for physics requirements or prerequisites: PHY 121/123 and 122/124 or 125, 126, 127, or 141, 142 for PHY 131, 132.

3. Transfer Credit

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.

Chemistry Secondary Teacher Preparation Program

See the Education and Teacher Preparation entry in the alphabetical listings of Arts and Sciences programs.

B.S./M.S. Program

Students interested in earning a research-oriented M.S. may wish to apply for the five-year program at the end of their junior year.



CFS

Minor in

Child and Family Studies

DIRECTOR: Joan F. Kuchner, Social Sciences Interdisciplinary ADMINISTRATIVE ASSISTANT: Lorraine Geiger

OFFICE: N-533 Social and Behavioral Sciences PHONE: 632-7695

The Child and Family Studies minor (CFS) focuses on children's development and their role in the family and in the wider society. Theoretical and practical issues are explored from an interdisciplinary perspective. Students complement coursework and observations with directed work in campus day care centers and other approved facilities.

Requirements for the Minor in Child and Family Studies

No more than one course may be taken for Pass/No Credit.

Completion of the minor requires 24 credits.

A. Required Courses

SSI 210 Human Development: The Family Context (PSY 220 may be substituted)

SSI 322 The Infant and Young Child

SSI 381 Seminar in Child Development

SSI 283 Practicum in Child Development

B. Four additional SSI courses

At least three courses must be upper division and at least one of these must be an SSI course at the 400 level from the following selection:

SSI 287 Supervised Research in Social Science

SSI 308 Abuse of Women and Children

SSI 320 The Special Child

SSI 321 Early Childhood Environments

SSI 327 Middle Childhood and Adolescent Growth and Development

SSI 339 Children's Play

SSI 345 Parental Roles in a Pluralistic Society

SSI 350 Foundations of Education

SSI 405 Seminar in Children, Law, 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

One of the following courses may be substituted for an SSI course in requirement B:

AFS 370 The African-American Family

PSY 325 Children's Cognitive Development

PSY 338 Behavior Deviation in Children

SOC/WST 304 Sociology of the Family

SOC/WST 340 Sociology of Human Reproduction

SOC 384 Sociology of the Life Course

SOC 387 Sociology of Education

WST 377/PSY 347 Psychology of Women

Notes:

1. No more than six credits of independent work may be used toward fulfillment of the minor requirements.
2. SSI 287, 447, 487, and 488 may be used only if the topics concern child and family studies.
3. Students planning to work in the child 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.

CNS

Minor in Chinese Studies

DIRECTOR: Shi Ming Hu, Social Sciences Interdisciplinary ADMINISTRATIVE ASSISTANT: Lorraine Geiger
OFFICE: N-517 Social and Behavioral Sciences PHONE: 632-7691

Affiliated Faculty

Iona Man-Cheong, *History*

Gregory A. Ruf, *Social Sciences*

Eli Seifman, *Social Sciences Interdisciplinary*

Ban Wang, *Comparative Studies*

The Chinese studies minor (CNS) is designed for students interested in an interdisciplinary study of China that combines coursework in social and behavioral sciences with that in humanities and fine arts. Students design an individualized program of study with the approval of the director of the Chinese studies minor. Consultation with the director is encouraged for those students considering special opportunities for overseas studies programs.

Courses in Chinese Language

See the Course Description listing in this Bulletin for complete information.

CHI 111, 112 Elementary Chinese I, II

CHI 211-J, 212-J Intermediate Chinese I, II

CHI 311-J, 312-J Advanced Chinese I, II

CHI 475 Undergraduate Teaching Practicum I, II

CHI 487 Independent Research

Courses in Chinese Studies

See the Course Description listing in this Bulletin for complete information.

CNS 249-J Chinese Culture and Society: Traditional China

CNS 250-J Chinese Culture and Society: Modern China

CNS 379-J Ethnicity and Nation in China

CNH, CNS 447 Readings in Chinese Studies

CNH, CNS 461 Senior Seminar in Chinese Studies

CNH, CNS 487 Research in Chinese Studies

Requirements for the Minor in Chinese Studies

No more than one course may be taken for Pass/No Credit.

Completion of the minor requires 18 credits.

A. CHI 212 Intermediate Chinese II

B. Two social and behavioral science courses of at least three credits each, chosen from among the following:

CNS 249 Chinese Culture and Society: Traditional China

CNS 250 Chinese Culture and Society: Modern China

CNS/ANT 379 Ethnicity and Nation in China

CNS 447 Readings in Chinese Studies

CNS 487 Research in Chinese Studies

ECO 339 China's Economy Since 1949

HIS 219 Introduction to Chinese History and Civilization

HIS 341 20th-Century China

HIS 431, 432 Colloquia in Asian History (appropriate topics only)

C. Two humanities and fine arts courses of at least three credits each, chosen from among the following:

ARH 203 History of Asian Art

ARH 318 History of Chinese Painting

CHI 311 Advanced Chinese I

CHI 312 Advanced Chinese II

CHI 487 Independent Research

CNH 447 Readings in Chinese Studies

CNH 487 Research in Chinese Studies

CLT 220 Non-Western Literature (appropriate topics only)

CLT 361 Literature and Society (appropriate topics only)

CLT 362 Literature and Ideas (appropriate topics only)

PHI 111 Introduction to Eastern Philosophy

PHI 342 History of Chinese Philosophy

RLS 240 Confucianism and Taoism
RLS 260 Buddhism

D. CNH 461 or CNS 461 Senior Seminar in Chinese Studies

Notes:

1. At least nine credits must be taken in upper-division courses, of which three credits must be in requirement B and three credits in requirement C.
2. No more than six credits of independent work (CNH 447, 487, CNS 447, 487, CHI 487) may be used toward fulfillment of the minor.
3. The humanities and fine arts courses, if they are numbered 300 or higher, may be used to satisfy the social sciences interdisciplinary (SSI) major's "related courses" option with permission of the director of the Chinese studies minor.
4. Students who have proficiency in Chinese through the level of CHI 212 must substitute three credits from other courses acceptable for the minor.

CCS

Interdisciplinary Major in Cinema and Cultural Studies

CHAIR: Krin Gabbard, Comparative Studies DIRECTOR: Robert Harvey, Comparative Studies ADMINISTRATIVE ASSISTANT: Mary Moran-Luba
OFFICE: E-4309 Library PHONE: 632-7460 E-MAIL: rharvey@ccmail.sunysb.edu WEB ADDRESS: ws.cc.sunysb.edu/complit

Minors of particular interest to students majoring in cinema and cultural studies: art history (ARH), interdisciplinary arts (LIA), media arts (MDA), philosophy (PHI), studio art (ARS)

Affiliated Faculty

Michele Bogart, *Art History*
Lee Edelman, *English*
Krin Gabbard, *Comparative Studies*
Robert Harvey, *Comparative Studies*
Izabella Kalinowska-Blackwood, *European Languages, Literatures, and Cultures*
E. Ann Kaplan, *English and Humanities Institute*
Shirley Jennifer Lim, *History*
Ira Livingston, *English*
John Lutterbie, *Theatre Arts*
Nicolas Mirzoeff, *Art History*
Adrienne Munich, *English and Women's Studies*
Jacqueline Reich, *European Languages, Literatures and Cultures*
Nicholas Rzhovsky, *European Languages, Literatures and Cultures*
Jane Sugarman, *Music*
Kathleen Vernon, *Hispanic Language and Literature*
Ban Wang, *Comparative Studies*

Administered by the Department of Comparative Studies, the major in cinema and cultural studies considers film as a form of representation in and of itself and in relation to other disciplines such as literature, art, and theatre. By emphasizing the emerging discipline of cultural studies, the major is designed to show how cultural forms such as cinema and the other arts develop and interact with each other and with social, historical, and economic forces. The major's core courses place strong emphasis on writing skills and critical thinking about film and other cultural forms. Students are also taught "media literacy"—the ability to read the many images we encounter every day in an age when images are being used for manipulation as never before. Students are encouraged to apply knowledge in the classroom to practical situations through internships in film and advertising industries or through independent research.

Students majoring in cinema and cultural studies are prepared to undertake graduate study in many humanistic disciplines and to enter into careers in the motion picture, communications, and advertising industries.

Courses Offered in Cinema and Cultural Studies

See the Course Description listing in this Bulletin for complete information.

CCS 101 Images and Texts
CCS 201 Writing about Culture
CCS 301-G Theorizing Cinema and Culture
CCS 311-G Gender and Genre in Film
CCS 401 Senior Seminar in Cinema and Culture Studies
CCS 487 Independent Research
CCS 488 Internship

Requirements for the Major in Cinema and Cultural Studies

The major in cinema and cultural studies leads to the Bachelor of Arts degree. All courses offered for the major must be passed with a letter grade of C or higher. Twenty-one credits for the major must be earned in courses numbered 300 or higher.

Completion of the major requires 39 credits.

A. Core Courses

CCS 101 Images and Texts
CCS 201 Writing about Culture
CCS 301 Theorizing Cinema and Culture
CCS 401 Senior Seminar in Cinema and Cultural Studies

B. Courses in Cinema

- One course from the following:
HUM 201 Film and Television Studies I
HUM 202 Film and Television Studies II
THR 117 Film, Video, and Audio Narrative
- Two lower-division courses from the following:
CLT 235 American Pluralism in Film and Literature
HUF 211 French Cinema (in English)

HUG 221 German Cinema Since 1945 (in English)
HUI 231 Sex and Politics in Italian Cinema
HUM 201 Film and Television Studies I (if not used to satisfy Requirement 1)
HUM 202 Film and Television Studies II (if not used to satisfy Requirement 1)
HUR 145 Russian Film and Culture (in English)
THR 117 Film, Video, and Audio Narrative (if not used to satisfy Requirement 1)

- Three upper-division courses from the following:

CCS 311 Gender and Genre in Film
CCS 487 Independent Research (see note)
CCS 488 Internship (see note)
CLT 335 Interdisciplinary Study of Film
HIS 326 History of Popular Culture
HUI 338 Images of Italian Americans in Film
HUS 390 Latin American Cinema (in English)
SOC 351 Sociology of the Arts
SPN 420 Topics in Spanish and Latin American Cinema
THR 403 Media Theory and Criticism

C. Courses in Cultural Studies

- Texts and Contexts. One course from the following:
AFH 329/HUF 318 Pan-African Literature I
AFH 330 Pan-African Literature II
AFS 360 African-American Social Commentary
CLT 361 Literature and Society
CLT 362 Literature and Ideas
CLT 363 Literature and the Arts
EGL 369 Topics in Ethnic Studies
EGL 371 Topics in Gender Studies

EGL 373 Literature in English from Non-Western Cultures

EGL 375 Literature in Relation to Other Disciplines

2. Visual Culture. One course from the following:

ARH 322 Art of the United States, 1880-1945

ARH 329/AFH 339 Arts of the African Diaspora

ARH 331 Art of the United States to 1880

ARH 333 Arts for the Public

ARH 342 Twentieth Century Art

ARH 360 Art and Eros

3. Performing Culture. One course from the following:

MUS 313 Cross-Cultural Musics from Stravinsky to World Beat

MUS 314 Women Making Music

THR 312 American Theatre and Drama

THR 313 Asian Theatre and Drama

THR 315 European History and Drama: The Classical Era

THR 316 European History and Drama: The Modern Era

D. Upper Division Writing Requirement

All students are required to write a term paper for CCS 301, which is evaluated by the instructor for its evidence of upper-division writing ability. Students whose writing is judged satisfactory will have fulfilled the upper-division writing requirement. Students who do not fulfill the requirement in CCS 301 must submit to the major advisor, no later than the first semester of the senior year, a portfolio of papers written for subsequent upper-division course taken for the major and must achieve an evaluation of satisfactory on the portfolio.

Notes:

1. Only three credits of CCS 487 Independent Study or CCS 488 Internship may be used to satisfy major requirements.
2. Students should consider the prerequisites to upper-division courses for the major when choosing elective and D.E.C. courses.
3. Other relevant courses may be substituted for major requirements with permission of the director of undergraduate studies.

Sample Course Sequence for the Cinema and Cultural Studies Major

Freshman Fall	Credits
D.E.C. A	3
CCS 101	3
D.E.C.	3
D.E.C.	3
D.E.C.	3
Total	15

Spring	Credits
D.E.C. A	3
Requirement B-1 course	3
D.E.C.	3
D.E.C.	3
Elective	3
Total	15

Sophomore Fall	Credits
Requirement B-2 course	3
D.E.C.	3
D.E.C.	3
Elective	3
Elective	3
Total	15

Spring	Credits
CCS 201	3
Requirement B-2 course	3
D.E.C.	3
Elective	3
Elective	3
Total	15

Junior Fall	Credits
CCS 301	3
Requirement B-3 course	3
D.E.C.	3
Upper Division Elective	3
Elective	3
Total	15

Spring	Credits
Requirement B-3 course	3
Requirement C-1 course	3
D.E.C.	3
Upper Division Elective	3
Elective	3
Total	15

Senior Fall	Credits
Requirement B-3 course	3
Requirement C-2 course	3
D.E.C.	3
CCS 488 (recommended)	3
Elective	3
Total	15

Spring	Credits
CCS 401	3
Requirement C-3 course	3
D.E.C.	3
Upper Division Elective	3
CCS 488 (recommended)	3
Total	15

Minor in Cinema and Cultural Studies

The minor in cinema and cultural studies is designed to provide a broad overview of film and culture and to complement most majors in the arts and sciences.

Requirements for the Minor in Cinema and Cultural Studies

All courses for the minor must be passed with a letter grade of C or higher.

Completion of the minor requires 21 credits.

- A. CCS 101 Images and Texts: Understanding Culture or CCS 201 Writing about Culture
- B. HUM 201 Film and Television Studies I or HUM 202 Film and Television Studies II or THR 117 Film, Video, and Audio Narrative
- C. CCS 301 Theorizing Cinema and Culture

D. Two courses from the following: AFH 329/HUF 318, AFH 330, AFH 329/ARH 339, AFS 350, ARH 322, ARH 331, ARH 332, ARH 333, ARH 342, ARH 360, CLT 361, CLT 362, CLT 363, EGL 360, EGL 371, EGL 373, EGL 375, MUS 313, MUS/WST 314, THR 311, THR 312, THR 313, THR 315, THR 316

E. Six credits from the following: CCS 311, CCS 401, CCS 487, CCS 488, CLT 335, HUI 338, HUI 431, HUS 390, SPN 420

Notes:

1. Only one course from CCS 487 or CCS 488 may be used to satisfy requirement E.
2. Students should consider the prerequisites to upper-division courses for the minor when choosing elective and D.E.C. courses.
3. Other relevant courses may be substituted for minor requirements in consultation of the minor director.

CLS

Minor in

Classical Civilization Minor

MINOR COORDINATOR: Aaron Godfrey, European Languages, Literatures, and Cultures

OFFICE: 124 Humanities PHONE: 632-6546 E-MAIL: agodfrey@ccmail.sunysb.edu

The minor in classical civilization (CLS) 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.

Requirements for the Minor in Classical Civilization

The student must select 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, for a total of 21 credits. 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.

Group IA: GRK 111, 112 Elementary Ancient Greek I, II
GRK 447 Directed Readings in Ancient Greek

Group IB: LAT 111, 112 Elementary Latin I, II
LAT 251, 252 Readings in Latin Literature I, II
LAT 353 Literature of the Roman Republic
LAT 354 Literature of the Roman Empire
LAT 355 Early Medieval Latin
LAT 356 Late Medieval Latin
LAT 447 Directed Readings in Latin

Group II: CLS 113 Greek and Latin Literature in Translation

Group III: CLS 215 Classical Mythology
EGL 260 Mythology in Literature

Group IV: CLS 320 Topics in Classical Civilization
ARH 300 Greek Art and Architecture
ARH 301 Roman Art and Architecture

Group VI: PHI 200 Introduction to Ancient Philosophy
PHI 300 Ancient Philosophy

CLT

Department of Comparative Studies

CHAIRPERSON: Krin Gabbard DIRECTOR OF UNDERGRADUATE STUDIES: Robert Harvey ADMINISTRATIVE ASSISTANT: Mary Moran-Luba
OFFICE: E-4309 Library PHONE: 632-7460 E-MAIL: rharvey@ccmail.sunysb.edu WEB ADDRESS: ws.cc.sunysb.edu/complit

Minors of particular interest to students majoring in comparative studies: Africana studies (AFS), art history (ARH), cinema and cultural studies (CCS), classics (CLS), English (EGL), French (FRN), German (GER), history (HIS), Italian (ITL), interdisciplinary arts (LIA), Judaic studies (JDS), music (MUS), Russian (RUS), Spanish (SPN), theatre arts (THR), women's studies (WST)

Faculty

Thomas J.J. Altizer, *Professor Emeritus, Ph.D., University of Chicago*: Religion and literature; theology.

Ruth S. Bottigheimer, *Adjunct Professor, D.A., State University of New York at Stony Brook*: German literature; fairy tales.

William Chittick, *Professor, Ph.D., Teheran University*: Islamic studies; comparative mysticism.

Sungtaek Cho, *Assistant Professor, Ph.D., University of California, Berkeley*: Buddhist literature and history in east and south Asia.

Krin Gabbard, *Professor, Ph.D., Indiana University*: The arts and their interrelations; film; jazz.

Beverly Haviland, *Associate Professor, Ph.D., Princeton University*: 19th- and 20th-century English, American, and French literature; literary theory and psychoanalysis.

Robert Harvey, *Associate Professor, Ph.D., University of California, Berkeley*: Contemporary French and Maghrebien Francophone literatures; critical theory, film.

Sachiko Murata, *Associate Professor, Ph.D., Teheran University*: Islam; Japanese religions.

Sung-Bae Park, *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.

Ilona Rashkow, *Associate Professor, Ph.D., University of Maryland at College Park*: Literature and politics; Hebrew Bible and literary theory.

Mark Setton, *Assistant Professor, Ph.D., University of Oxford*: East Asian intellectual history; Korean Confucianism.

Michael Sprinker, *Professor, Ph.D., Princeton University*: Literary criticism; 19th- and 20th-century British and American literature.

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.

Ban Wang, *Associate Professor, Ph.D., University of California, Los Angeles*: Chinese and English literature; cultural studies; literary theory; aesthetics.

Affiliated Faculty

Timothy Brennan, *English*

Román de la Campa, *Hispanic Languages and Literature*

E. Ann Kaplan, *English*

Joaquin Martinez-Pizarro, *English*

Mary C. Rawlinson, *Philosophy*

Nicholas Rzhevsky, *European Languages, Literatures and Cultures*

Clifford Siskin, *English*

Adjunct Faculty

Estimated number: 3

Teaching Assistants

Estimated number: 10

The Department of Comparative Studies integrates the efforts of a number of humanities programs centering on comparative literature, language, and culture. In addition to the major in comparative literature, described below, the department offers major programs in humanities and religious studies and minor programs in classical civilization, Japanese 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.

The Major in Comparative Literature

The comparative literature major (CLT) brings the historical and intercultural resources of the department together in a broadly based program for the student interested in comparative and general literature. It stresses the comparative study of world literatures from all historical periods, including the ability to read at least one literature in a language other than English, and emphasizes 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.

Courses in Comparative Literature

See the Approved Courses listing in this Bulletin for complete descriptions.

CLT 211-I Literary Survey: Medieval through Late Renaissance

CLT 212-I Literary Survey: Enlightenment through Modern

CLT 220-J Non-Western Literature

CLT 235-K American Pluralism in Film and Literature

CLT 266-G The 20th-Century Novel

CLT 301-G Theory of Literature

CLT 320-K Multicultural Experience in American Literature

CLT 331-G Literary Genres: Poetry

CLT 332-G Literary Genres: Drama

CLT 333-G Literary Genres: Novel

CLT 334-G Other Literary Genres

CLT 335-G The Interdisciplinary Study of Film

CLT 361-G Literature and Society

CLT 362-G Literature and Ideas

CLT 363-G Literature and the Arts

CLT 475, 476 Undergraduate Teaching Practicum I, II

CLT 487 Independent Reading and Research

CLT 495 Comparative Literature Honors Project

Requirements for the Major in Comparative Studies in Literature

The interdisciplinary major in comparative literature leads to the Bachelor of Arts degree. All courses offered for the major must be taken for a letter grade. All upper-division courses offered for the major must be passed with a grade of C or higher.

Completion of the major requires 36 credits.

A. Introduction: Two courses that survey a literary theme historically

and cross-culturally, selected from the following:

- HUM 109 Philosophy and Literature in Social Context
- HUM 121 Death and Afterlife in Literature
- HUM 122 Images of Women in Literature
- HUM 123 Sexuality in Literature
- RLS 101 World Religions I
- RLS 102 World Religions II

B. Background: Three courses beyond the introductory level, at least two of which must be in literature (group 1) and one of which may be in a related discipline (group 2):

Group 1: CLS 215, CLT 211, 212, 220, 266, or one course per designator from EGL 200-level, FRN 395, 396, ITL 395, 396, GER 344, HUR 241, 242, JDH 261, or one of the following classical language courses: GRK 112, LAT 112, SKT 112

Group 2: JDH/RLS 230, JDS/HIS 225, 226, PHI 200, 206, 208, 264, RLS 240, 246, 250, 260, 270, 280

Note: Requirement B can also be fulfilled by completion of any minor in the department: classics, Japanese, Judaic, Korean, or religious studies.

C. Literature in the Original Language: At least one course in literature in its original language (other than English)

D. Theory: CLT 301 Theory of Literature

E. Advanced Study: Four upper-division courses, at least one from each of groups 1 and 2:

- Group 1:
- CLT 331 Literary Genres: Poetry
 - CLT 332 Literary Genres: Drama
 - CLT 333 Literary Genres: Novel
 - CLT 334 Other Literary Genres

- Group 2:
- CLT 335 Interdisciplinary Study of Films
 - CLT 361 Literature and Society
 - CLT 362 Literature and Ideas
 - CLT 363 Literature and the Arts

F. Senior Project: A directed study project (CLT 487 or, for students in the honors program, CLT 495) for graduating majors, to be arranged with the major advisor and an instructor of the

Sample Course Sequence for the Comparative Studies Major

Freshman Fall	Credits
D.E.C. A	3
One course from among: HUM 100-level, RLS 101 or 102	3
D.E.C.	3
D.E.C.	3
Elective	3
Total	15

Spring	Credits
D.E.C. A	3
One other course from among: HUM 100-level, RLS 101 or 102	3
D.E.C.	3
D.E.C.	3
Elective	3
Total	15

Sophomore Fall	Credits
Group 1 course	3
D.E.C.	3
D.E.C.	3
D.E.C.	3
D.E.C.	3
Total	15

Spring	Credits
Group 1 course	3
Group 1 or Group 2 course	3
Foreign Language Literature course	3
D.E.C.	3
Elective	3
Total	15

Junior Fall	Credits
CLT 301	3
Upper Div. Adv. Study Group 1 course	3
Upper Div. Adv. Study Group 2 course	3
D.E.C.	3
D.E.C.	3
Total	15

Spring	Credits
Upper Division Advanced Study Group 1 or Group 2 course	3
D.E.C.	3
Upper Division elective	3
Upper Division elective	3
Elective	3
Total	15

Senior Fall	Credits
Upper Division Advanced Study Group 1 or Group 2 course	3
CLT 487	3
D.E.C.	3
Upper Division elective	3
Upper Division elective	3
Total	15

Spring	Credits
Upper Division elective	3
Upper Division elective	3
Upper Division elective	3
Elective	3
Elective	3
Total	15

student's choice no later than the end of the first semester of senior standing.

G. Upper-Division Writing

Requirement: For all majors, the term paper for required course CLT 301 is evaluated by the instructor for its quality of writing. Students whose writing is satisfactory fulfill this requirement with that paper. Students who do not fulfill the requirement in CLT 301 must submit to the major advisor a portfolio of papers written for subsequent upper-division courses taken for the major, no later than the first semester of senior standing, and must achieve an evaluation of S (Satisfactory) on the portfolio. For further details consult the director of undergraduate studies or the major advisor.

Honors Program in Comparative Literature

Students who have maintained a grade point average of 3.5 in the major and 3.0 overall may attempt the degree in comparative literature with honors.

The honors program requires one of the following options in addition to the requirements of the major:

- A. A second course in literature in the original language used for requirement C.
- B. Study of a language other than that used for requirement C through the intermediate level.
- C. Fulfillment of the requirements for the minor in a cognate discipline (to be approved by the major advisor; minors in language or literature recommended).

In addition, students seeking the honors major must use CLT 495 to fulfill major requirement F.

Requirements for the Minor in Comparative Literature

The minor in comparative literature is designed especially to interest students majoring in a foreign language, English, and other humanities fields. It provides a broad overview of the theory and techniques of comparative study, and an opportunity for the student to bring comparative breadth to his or her major field of study.

Completion of the minor requires 21 credits.

A. Introduction: One course that surveys a literary theme historically and cross-culturally, selected from the following:

HUM 109 Philosophy and Literature in Social Context

HUM 121 Death and Afterlife in Literature

HUM 122 Images of Women in Literature

HUM 123 Sin and Sexuality in Literature

RLS 101 World Religions I

RLS 102 World Religions II

B. Background: Two courses beyond the introductory level, at least one of which must be in literature (group 1) and one of which may be in a related discipline (group 2):

Group 1:

CLS 215, CLT 211, 212, 220, 266, or one course per designator from EGL 200-level, FRN 395, 396, ITL 395, 396, GER 344, HUR 241, 242, JDH 261, or one of the following classical language courses: GRK 112, LAT 112, SKT 112

Group 2:

JDH/RLS 230, JDS/HIS 225, 226, PHI 200, 206, 208, 264, RLS 240, 246, 250, 260, 270, 280

C. Literature in the Original Language: At least one course in literature in its original language (other than English)

D. Theory: CLT 301 Theory of Literature

E. Advanced Study: Two upper-division courses, one from group 1, and one from group 2:

Group 1:

CLT 331 Literary Genres: Poetry

CLT 332 Literary Genres: Drama

CLT 333 Literary Genres: Novel

CLT 334 Other Literary Genres

Group 2:

CLT 335 Interdisciplinary Study of Film

CLT 361 Literature and Society

CLT 362 Literature and Ideas

CLT 363 Literature and the Arts

DAN

**Minor in
Dance**

MINOR COORDINATOR: Amy Sullivan, Theatre Arts ADMINISTRATIVE ASSISTANT: Ed Quinn
OFFICE: 3046 Staller Center for the Arts PHONE: 632-7300

The minor in dance (DAN) provides an approach to the educational experience of dance that integrates movement, thought, sensation, and feeling. The minor offers a foundation for further study in choreography, performance, education, and criticism.

**Requirements for the
Minor in Dance**

All courses offered for the minor must be passed with a letter grade of C or higher. At least 12 of the 24 credits must be taken at Stony Brook.

Completion of the minor requires 24 credits.

1. THR 102 Dance Appreciation
2. THR 168 World Dance
3. Three of the following:
 - THR 165 Modern Dance Technique I
 - THR 166 Ballet Technique I
 - THR 167 Jazz Dance Technique I
 - THR 365 Modern Dance Technique II
 - THR 366 Ballet Technique II
 - THR 367 Jazz Dance Technique II
 - THR 353 Special Topics in Dance Performance
4. THR 368 Dance Improvisation
5. THR 464 Choreography
6. THR 400 Performance Dance Ensemble

ECO

Department of Economics

CHAIRPERSON: Warren Sanderson DIRECTOR OF UNDERGRADUATE STUDIES: William Dawes

OFFICE: S-601 Social and Behavioral Sciences PHONE: 632-7540 WEB ADDRESS: walras.economics.sunysb.edu

Minors of particular interest to students majoring in economics: applied mathematics and statistics (AMS), business management (BUS), computer science (CSE), international studies (LIS)

Faculty

Olivier Armantier, *Assistant Professor, Ph.D., University of Pittsburgh*: Econometrics, experimental economics.

Robert J. Aumann, *Professor, Ph.D., Massachusetts Institute of Technology*: Game theory; mathematical economics.

William Dawes, *Lecturer, Ph.D., Purdue University*: Econometrics; economic history. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1974.

Pradeep Dubey, *Professor, Ph.D., Cornell University*: Game theory; mathematical economics.

Debra Dwyer, *Assistant Professor, Ph.D., Cornell University*: Microeconomics, health economics.

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.

Takashi Kamihigashi, *Assistant Professor, Ph.D., University of Wisconsin*: Macroeconomics; international economics; economic theory.

Mark Montgomery, *Associate Professor, Ph.D., University of Michigan*: Economic demography; development economics.

Thomas Muench, *Professor, Ph.D., Purdue University*: Mathematical economics; econometrics; urban economics.

Egon Neuberger, *Professor Emeritus, Ph.D., Harvard University*: Comparative systems; Soviet and East European economics.

Abraham Neyman, *Professor, Ph.D., Hebrew University*: Game theory; mathematical economics.

Sangin Park, *Assistant Professor, Ph.D., Yale University*: Industrial organizations; econometrics; microeconomics.

Warren Sanderson, *Professor, Ph.D., Stanford University*: Joint appointment with History; Economic history; economic demography.

Yair Tauman, *Professor, Ph.D., Hebrew University*: Industrial organization; game theory.

Dieter Zschock, *Professor, Ph.D., Tufts University*: Development economics; labor economics.

Michael Zweig, *Professor, Ph.D., University of Michigan*: Political economy; labor economics. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1991, and the President's Award for Excellence in Teaching, 1991.

Adjunct Faculty

Estimated number: 6

Teaching Assistants

Estimated number: 20

Economics is the study of production, distribution, and exchange of goods and services. It investigates such questions as price formation, degree of employment of labor and other resources, efficient use of scarce resources, and the basis and effects of government policies in the economy. Economics also analyzes, compares, and contrasts different economic systems in the world, and studies the international economic relations among countries.

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.

The undergraduate economics program is designed to give students a beginning sense of what economists do as well as how they think. After taking the introductory combination of ECO 107 and 109, students acquire a more thorough background in economic theory by taking

ECO 303 and ECO 305. The remaining economics courses used to satisfy the major requirements focus on particular aspects of economics (e.g., labor markets, industrial organization, money and banking, economic development, finance) showing how economists analyze the theoretical and empirical issues. Some upper division courses apply statistical methods, which are taught (but not required) in the program.

Students with a degree in economics can pursue graduate studies leading to an M.A. or Ph.D. in economics, or to a Master of Business Administration degree. The major is also especially useful for students interested in graduate studies in such areas as law, human resources, public policy and health economics. The majority of graduating economics majors who continue their education either go to law school or pursue an M.B.A. A small number of graduates go to graduate school in economics. More than half the graduating seniors go directly into the job market. The great majority find entry-level positions in finance, marketing, sales, and various forms of business analysis and research. Many M.B.A. programs require applicants to have had work experience before applying to their program, so many students enter the job market temporarily and eventually return to school for an advanced degree.

Students are urged to consider enrolling in ECO 488, Internship. Internships provide opportunities for students to integrate work experience into the Economics major by doing related readings, keeping a daily journal, and writing an analytical paper under the supervision of a faculty member. In order to register for ECO 488, students must have the permission of the Internship Coordinator in the Economics Department and the Internship Manager in the Career Placement Center. For further information, students should contact the Internship Coordinator in the department.

Courses Offered in Economics

See the Course Description listing in this Bulletin for complete information.

ECO 107-F Introduction to Economic Reasoning
 ECO 109-F Introduction to Analytical Economics
 ECO 255 Strategic Thinking for Business
 ECO 303-F Intermediate Microeconomic Theory
 ECO 305-F Intermediate Macroeconomic Theory
 ECO 310 Basic Computational Methods in Economics
 ECO 317-F Marxist Political Economy
 ECO 318-F Labor Economics
 ECO 320 Mathematical Statistics
 ECO 321-F Econometrics
 ECO 326-F Industrial Organization
 ECO 334-J Demographic Economics of Developing Countries
 ECO 335-F Economic Development
 ECO 337-F Advanced Labor Theory
 ECO 339-J China's Economy Since 1949
 ECO 340-J Japanese Economy
 ECO 341-I European Economic Integration
 ECO 343-F Transformation in Economic Systems
 ECO 345-F Law and Economic Issues
 ECO 348-F Analysis for Managerial Decision Making
 ECO 351-357-F Special Topics in Economics
 ECO 355 Game Theory
 ECO 358-J Topics in Developing Economics
 ECO 360-F Money and Banking
 ECO 373-H Economics of Environmental and Natural Resources
 ECO 383-F Public Finance
 ECO 389-F Corporate Finance
 ECO 475, 476 Undergraduate Teaching Practicum in Economics I, II
 ECO 487 Independent Research
 ECO 488 Internship

Requirements for the Major in Economics

The major in economics leads to the Bachelor of Arts degree. All courses offered for the major must be passed with a letter grade of C or higher.

Sample Course Sequence for the Economics Major

Freshman Fall	Credits
D.E.C. A	3
ECO 107 or ECO 109	4
MAT 122 or 123 or AMS 151	4
D.E.C.	3-4
USB 101	1
Total	14-15

Spring	Credits
D.E.C. A	3
ECO 109 or 107	4
MAT	3-4
D.E.C.	3
Elective	3
Total	16-17

Sophomore Fall	Credits
ECO 303	4
D.E.C.	3
D.E.C.	3
Elective	3
Elective	3
Total	16

Spring	Credits
ECO 305	4
D.E.C.	3
D.E.C.	3
Upper Division elective	3
Elective	3
Total	16

Junior Fall	Credits
Upper Division ECO	3
Upper Division ECO	3
D.E.C.	3
D.E.C.	3
Upper Division elective	3
Total	15

Spring	Credits
Upper Division ECO	3
ECO elective or other approved course	3
D.E.C.	3
Upper Division elective	3
Elective	3
Total	15

Senior Fall	Credits
Upper Division ECO	3
Upper Division ECO	3
D.E.C.	3
Upper Division elective	3
Upper Division elective	3
Total	15

Spring	Credits
Upper Division ECO	3
ECO elective or other approved course	3
D.E.C.	3
Upper Division elective	3
Elective	3
Total	15

Completion of the major requires 39 to 46 credits.

A. A minimum of 12 courses, at least 10 of them in Economics, distributed as follows:

1. Introductory economics courses:

ECO 107 Introduction to Economic Reasoning

ECO 109 Introduction to Analytical Economics

(Note that one semester of calculus with a grade of C or higher is a prerequisite for ECO 109. See note 1.)

2. Intermediate economics courses:

ECO 303 Intermediate Microeconomic Theory

ECO 305 Intermediate Macroeconomic Theory

3. Six additional courses in economics at the 300 level and above. Each of

these must be taken for a minimum of three credits.

4. Two additional courses, either in economics or from a list of preapproved electives in other departments, each with a minimum of three credits.
5. No more than two 400-level courses will count toward fulfillment of major requirements.

B. MAT 122 Overview of Calculus with Applications

or MAT 123 Introduction to Calculus

or AMS 151 Applied Calculus I

or level 4 on the mathematics placement examination

or any higher level calculus course (See Note 2.)

C. Upper-Division Writing Requirement:

Students should meet the upper-division writing requirement before the

end of the junior year, demonstrating their competence in writing for the discipline by obtaining a satisfactory evaluation of their writing from the faculty instructor of any upper-division ECO course except ECO 320. Where a term paper or other major writing assignment is a required part of the course, this work will form the basis of evaluation. When the course involves no major writing assignment, the instructor will assign a special paper for those students in the class seeking to satisfy the writing requirement. In these cases, the number of students who will be permitted to seek evaluation may be limited.

Students must request permission from the instructor at the beginning of the semester to use the course for this evaluation. Only students with a declared major in economics or with an economics concentration in either the multidisciplinary studies major or the social sciences major may apply to have their writing evaluated. Students who fail to fulfill the requirement on their first effort must do so in a subsequent semester before graduation.

Notes:

1. Students who need to take MAP 103 will be unable to take ECO 107 or 109 in the first semester of the freshman year and will have to adjust their schedule accordingly.
2. Economics is a quantitative social science. Students planning to use their background in economics for graduate studies or in their careers should take additional courses in mathematics and applied mathematics.
3. A maximum of four courses in economics taken at other institutions may be applied toward the major.

Honors in Economics

Qualified students can graduate with honors in Economics. As specified below, the requirements include an honors thesis approved by the department's Director of Undergraduate Studies. Qualified students interested in graduation with honors are urged to enroll in upper division economics courses that provide them with the opportunity to write research papers which may be submitted for consideration as an honors thesis. For further information, students should contact the Director of Undergraduate Studies for the

Economics Department.

Honors in Economics will be awarded to graduating seniors who have achieved the following:

1. A grade point average of at least 3.25 in the four required courses (A 1., 2.), with no less than a B in any one of these courses.
2. A grade point average of at least 3.5 in any four electives in economics at the 300 level
3. Six credits in economics at the 400 level
4. An honors thesis, submitted to the Director of Undergraduate Studies for honors evaluation.

EGL, FLA, MAE, SCI, SSI

Programs in Education and Teacher Certification

Secondary Education Certification in Biology, Chemistry, Earth Sciences, English, French, General Science with a discipline, German, Italian, Mathematics, Physics, Russian, Spanish, Social Studies

Kindergarten through Grade 12 Certification in Teaching English to Speakers of Other Languages

Director:

Eli Seifman, *Social Sciences Interdisciplinary Program*

Teaching Certification Officer:

Marvin Glockner, *School of Professional Development*

Affiliated Faculty:

Catherine Bennett, *Science*
 Jacqueline Grennon Brooks, *Science*
 Albert D. Carlson, *Science*
 Elsa Emeneiser, *English*
 Paul Ferrotti, *Foreign Languages*
 Marie Fitzgerald, *Social Studies*
 Georges Fouron, *Social Studies*
 Fred Horstmann, *Social Studies*
 Andrea Mandel, *English*
 Dorit Kaufman, *TESOL, Linguistics*
 Lester Paldy, *Science*

Adjunct Faculty:

Estimated number: 4

Teaching Assistants:

Estimated number: 1

The Center for Excellence and Innovation in Education offers programs to prepare students to become teachers of academic subjects in secondary schools (grades 7 through 12) and to become teachers of English to speakers of other languages (TESOL) in grades Pre-K through 12. Stony Brook's teacher certification programs are registered and approved by the New York State Education Department.

Students complete the requirements of either a departmental major or an interdisciplinary major in addition to teacher certification. Students should consult their planned major department as early as the second semester of the freshman year to determine if the major includes the teacher education option and to obtain guidance in completing teacher education program requirements along with requirements for their major program.

Teacher preparation programs are offered in the following subject areas:

1. Certification Grades 7 Through 12:
 - Biology and General Science
 - Chemistry and General Science
 - Earth Science and General Science
 - English
 - Foreign Languages: French, German, Italian, Russian, and Spanish
 - Mathematics
 - Physics and General Science
 - Social Studies
2. Certification Grades Pre-K Through 12:
 - Teaching English to Speakers of Other Languages (TESOL)

Major Components of the Teacher Preparation Programs

Students applying for certification must satisfy the following requirements:

1. Completion of the requirements of the academic major.
2. Completion of 13-15 credits in professional study in education (depending on the specific certification program).
3. Completion of one semester of supervised student teaching.
4. Additional requirements set by the academic department in charge of the certification area.

University-Wide Coordination of the Programs

The various programs, each of which is registered and approved by the New York State Education Department, are coordinated by the Center for Excellence and Innovation in Education. This Center performs a major role in the Long Island region by coordinating, supporting, strengthening, and developing 1. undergraduate (pre-service) and graduate (in-service) teacher certification and teacher education; 2. educational research and development; and 3. school-university partnership programs. The Center has had a significant positive impact upon the Long Island region, and is widely recognized as a symbol of the University at

Stony Brook's commitment to teacher education, educational research and development, and partnership programs with schools in the Long Island region.

Special Assets of Teacher Preparation at Stony Brook

The university-wide approach to teacher education adopted by Stony Brook provides graduates of our teacher preparation programs with the intellectual rigor of an academic major as well as a valuable professional credential that qualifies them to teach in New York State and many other states in the country. Stony Brook students have consistently scored higher than the state average on each of the subtests of the New York State Teacher Certification Examinations (NYSTCE).

Stony Brook students preparing for teacher certification take their courses with the same faculty who teach undergraduate and graduate students in the academic departments and interdisciplinary programs, and have the same opportunity for experience with renowned professors in each teaching field.

Clinical placements for Stony Brook students are available in an interesting cross-section of cooperating school districts that draw upon school populations with a wide range of socio-economic backgrounds, including culturally diverse students, students with disabilities, and gifted and talented students. Many schools are engaged in innovative and experimental programs in education.

The teacher preparation programs are closely monitored by an active and dedicated Teacher Education Committee and a Teacher Education Advisory Council consisting of university faculty and representatives from public school districts on Long Island.

The Office of Teacher Certification advises prospective teacher certification candidates in Stony Brook programs on procedures for obtaining New York State teacher certification. Clearance and applications for the certificate are processed by

the Office of Teacher Certification, which keeps all documentation pertaining to these services on file and makes it available to students for in-state and out-of-state certification purposes, and to prospective employers.

Certification is not automatic. Upon successful completion of the University's program, the student must apply for state certification by completing the necessary application forms available from the Office of Teacher Certification, completing the certificate requirements for Training in Child Abuse Recognition and Reporting, and passing the New York State Teacher Certification Examinations (NYSTCE).

The Career Placement Center helps students in three ways. Through its credentials service, recommendations supporting students in their application for jobs are kept on file. Copies of these recommendations are sent to prospective employers upon request. The center also posts announcements for teaching jobs available locally and in schools around the country. Students seeking employment in school districts off Long Island are invited to participate in the Long Island Teachers Recruitment Consortium. For more information, contact the Career Placement Center at 682-6810 (Voice/TDD).

The following sections describe specific requirements for each of the University's Teacher Preparation Programs.

English Secondary Teacher Preparation Program

PROGRAM COORDINATOR: Elsa Emenheiser,
Department of English

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

Note: The University is in the process of revising its teacher education curriculum to bring it into compliance with the new standards approved by the New York State Board of Regents. Students should consult an English Secondary Teacher Preparation advisor for further details.

- A. All requirements for the major in English.

- B. A 3.0 grade point average.
C. A writing sample.
D. Professional educational requirements:

1. SSI 327 Middle Childhood and Adolescent Growth and Development
2. SSI 350 Foundations of Education
3. EGL 398 Methods of Instruction in Literature and Composition
4. EGL 451 Supervised Student Teaching, Grades 7-9
5. EGL 452 Supervised Student Teaching, Grades 10-12
6. EGL 454 Student Teaching Seminar

Note: Courses taken for Pass/No Credit may not be used to satisfy the professional education component of the teacher preparation program.

Foreign Languages Secondary Teacher Preparation Program

PROGRAM COORDINATOR: Joseph Tursi,
European Languages, Literatures, and Cultures

Requirements for Provisional Certification

Note: The University is revising its teacher education curriculum to bring it into compliance with the new standards approved by the New York State Board of Regents. Students should consult a Foreign Language Secondary Teacher Preparation advisor for further details.

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 New York State provisional certification:

- A. SSI 327 Middle Childhood and Adolescent Growth and Development
- B. SSI 350 Foundations of Education
- C. FLA 339 Methods and Materials in the Teaching of Foreign Languages
- D. FLA 340 Curriculum Development and Micro-Teaching
- E. FLA 451 Supervised Student Teaching, Grades 7-9
- F. FLA 452 Supervised Student Teaching, Grades 10-12
- G. FLA 454 Student Teaching Seminar

Notes:

1. Courses taken for Pass/No Credit may not be used to satisfy the professional education component of the teacher preparation program.
2. Students should consider FLA 439, Introduction to Technology for Language Teaching, in choosing electives for their major.
3. Prospective student teachers are 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.

French, German, Italian, or Russian Secondary Teacher Preparation Program

Students who wish to prepare for certification as secondary school teachers of French, German, Italian, or Russian or any combination of two languages, including Spanish, should consult appropriate departmental advisors concerning requirements and procedures for the teacher preparation program. All students are required to take FLA 339 and FLA 340 among the four courses in education required by the State Education Department. Those seeking certification in German are urged to take GER 411, 412, and 438 in addition to the courses required for the major and certification. Students seeking certification in Russian are urged to take RUS 439. See the course descriptions for the Foreign Languages Secondary Teacher Preparation Program (FLA).

Spanish Secondary Teacher Preparation 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.5. They should consult appropriate departmental advisors concerning additional requirements and procedures in 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 the course descriptions for the Foreign Languages Secondary Teacher Preparation Program (FLA).

Mathematics Secondary Teacher Preparation Program

PROGRAM COORDINATOR: Paul Kumpel,
Department of Mathematics

This program prepares students to be teachers of mathematics in the secondary schools. It satisfies all requirements for New York State provisional certification for teaching mathematics, grades 7-12.

Students wishing to enroll in the program should register with the director of mathematics teacher preparation by the end of the freshman year, if possible, and at the latest before registering for the junior year.

Requirements for Provisional Certification

Note: The University is revising its teacher education curriculum to bring it into compliance with the new standards approved by the New York State Board of Regents. Students should consult a Mathematics Secondary Teacher Preparation advisor for further details.

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 or 318; MAT 320; MAT 360 or MAT 364
 - AMS 310
 - MAE 301, 302, 311, 312, 447, 451, 452, 454
 - SSI 327, 350

The program includes three semesters of practical work in the teaching of mathematics. In the fall of the junior year, students begin the study of methods of teaching and visit schools to observe mathematics classes (MAE 311). In the spring they continue their study of methods (MAE 302) and engage in a supervised program of limited classroom participation (MAE 312). In one semester of the senior year, students carry out supervised student teaching (MAE 451, 452) and participate in an associated student teaching seminar (MAE 454).

Students in the program are strongly encouraged to include AMS 301 as an elective and to take a one-year sequence that uses mathematics in physics, chemistry, biology, engineering science, or economics.

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 203 or 205 or AMS 261; Fall AMS 310; MAT 303 or 305 or AMS 361; Spring MAT 313

Junior: Fall MAE 301 and 311, MAT 320; Spring MAE 302 and 312, MAT 360; MAE 447; SSI 327 and 350 offered Fall and Spring

Mathematics electives required for MAT or AMS major

Senior: MAE 451, 452 and 454

Mathematics electives required for MAT or AMS major

Science, Mathematics, and Technology Education

DIRECTORS: Albert D. Carlson, *Neurobiology and Behavior* Lester G. Paldy, *Technology and Society*

Faculty

Catherine Bennett, *Lecturer, M.A.L.S., State University of New York at Stony Brook.*

Jacqueline Grennon Brooks, *Associate Professor, Ed.D., Columbia University: Science education.*

Lester G. Paldy, *Distinguished Service Professor, M.S., Hofstra University: Arms control verification and negotiation; science education policy.*

Affiliated Faculty

David Bynum, *Biochemistry and Cell Biology*

William F. Collins III, *Neurobiology and Behavior*

Bernard S. Dudock, *Biochemistry and Cell Biology*

Theodore D. Goldfarb, *Chemistry*

George J. Hechtel, *Ecology and Evolution*

Donald Lindsley, *Geosciences*

Robert C. Kerber, *Chemistry*

Chirakkal V. Krishnan, *Chemistry*

Thomas T. Liao, *Technology and Society*

Eli Seifman, *Social Sciences Interdisciplinary*

Clifford E. Swartz, *Physics*

Alan Tucker, *Applied Mathematics and Statistics*

The Center for Science, Mathematics, and Technology Education (CSMTE) 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 CSMTE advisor and establish their 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 Provisional Certification in Any of the Sciences

Note: The University is in the process of revising its teacher education curriculum to bring it into compliance with the new standards approved by the New York State Board of Regents. Students should consult a Science Secondary Teacher Preparation advisor for further details.

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, totaling 27 credits, in order to satisfy current requirements for New York State provisional certification:

SCI 410 Introduction to Science Teaching

SCI 420 Science Instructional Strategies and Techniques

SCI 451 Supervised Teaching—Science

SCI 452 Supervised Teaching—Science

SCI 454 Student Teaching Seminar

SSI 327 Middle Childhood and Adolescent Growth and Development

SSI 350 Foundations of Education

Note: Courses taken for Pass/No Credit may not be used to satisfy the professional education component of the teacher preparation program.

Biology Secondary 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. Guidelines used by the teacher selection committee include a minimal overall g.p.a. of 2.7. Consult the director of undergraduate biology for further details about appropriate biology courses. Consult the CSMTE for further details about professional development courses.

Chemistry Secondary Teacher Preparation Program

This program is designed for students 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 in chemistry for more details about appropriate chemistry courses. Consult the CSMTE for more details about professional development courses.

Earth Sciences Secondary Teacher Preparation Program

This program is designed for the student who is preparing to teach earth sciences in secondary schools. Professional courses are provided through the Center for Science, Mathematics, and Technology Education. Consult the director of undergraduate studies in the Department of Geosciences for further details about appropriate disciplinary courses. Consult the CSMTE for further details concerning professional development courses.

Physics Secondary Teacher Preparation Program

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. Consult the director of undergraduate studies in physics for further details about appropriate physics courses. Consult the CSMTE for further details concerning professional development courses.

Social Studies Secondary Teacher Preparation Program

DIRECTOR: Eli Seifman, *Social Sciences Interdisciplinary*

Through this program students may prepare for a teaching career and 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 advising folder prior to the beginning of the junior year. Failure to do so may result in a delay in meeting the certification requirements. The program requires 75 credits, many of which also satisfy major requirements.

Requirements for Provisional Certification

Note: The University is revising its teacher education curriculum to bring it into compliance with the new standards approved by the New York State Board of Regents. Students should consult a Social Studies Secondary Teacher Preparation advisor for further details.

A. Preparation in Social Science

A minimum of 48 credits in social science departments or interdisciplinary programs, excluding psychology and linguistics.

1. 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

2. Completion of one of the following majors: Africana 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.

B. Preparation in Professional Education

27 credits distributed as follows:

- SSI 327 Middle Childhood and Adolescent Growth and Development
- SSI 350 Foundations of Education
- SSI 397 Teaching Social Studies
- SSI 398 Social Studies Teaching Strategies
- SSI 451 Supervised Student Teaching, Grades 7-9
- SSI 452 Supervised Student Teaching, Grades 10-12
- SSI 454 Student Teaching Seminar

Notes:

1. Courses taken for Pass/No Credit may not be used to satisfy the 48 credit Requirement A Preparation in Social Science.
2. Courses taken for Pass/No Credit may not be used to satisfy the 27 credit

Requirement B Preparation in Professional Education.

3. Neither BUS 114 nor BUS 214 can be used to satisfy the requirements of this program.

Teaching English to Speakers of Other Languages (TESOL) Preparation Program

DIRECTOR: Dorit Kaufman, *Department of Linguistics*

The program outlined below is restricted to students majoring in Linguistics; it leads to provisional certification in teaching English to Speakers of Other Languages (TESOL) from pre-kindergarten to grade 12. Students must consult with the program director as soon as they decide to seek certification.

Requirements for Provisional Certification

Note: The University is revising its teacher education curriculum to bring it into compliance with the new standards approved by the New York State Board of Regents. Students should consult a TESOL advisor for further details.

- A. All requirements for the major in Linguistics.
- B. A 3.0 major grade point average and 2.75 grade point average overall.
- C. Courses in linguistics, social, and anthropological aspects of language: LIN 101, 201, and 307.
- D. Courses in professional preparation: SSI 350 Foundations of Education, SSI 327 Middle Childhood and Adolescent Growth and Development, LIN 375, 378, 451, 452, 454.
- E. Language Study: 12 college-level credits of a modern foreign language (e.g., Chinese, French, German, Hindi, Italian, Japanese, Russian, Spanish) or American Sign Language.

Note: Courses taken for Pass/No Credit may not be used to satisfy the preparation in professional education component of the teacher preparation program.

ECM

Interdisciplinary Program in Engineering Chemistry

CO-DIRECTORS: Patrick Herley, Materials Science and Engineering, and Robert Kerber, Chemistry OFFICE: 109 Chemistry PHONE: 632-7886 E-MAIL: rkerber@notes.sunysb.edu STUDENT AFFAIRS COORDINATOR: Diane Godden

Minors of particular interest to students majoring in engineering chemistry: science and engineering (LSE)

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 central 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 helps 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, contact the directors of the program in Engineering Chemistry.

Diversified Education Curriculum Requirements

Students majoring in engineering chemistry must meet the D.E.C. requirements of the College of Arts and Sciences, with the following exceptions:

- A. An elementary foreign language course numbered 101 or 112, if taken to fulfill the entry skill in foreign language requirement, may also be used for one

of the two courses needed to fulfill the D.E.C. category G requirement.

- B. Only one course need be taken from D.E.C. category F.

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; P/NC grades are not acceptable. All chemistry and engineering courses must be passed with a grade of C or higher with the exception of three courses for which the grade may be C-. No transferred course with a grade lower than C may be used to fulfill any major requirement.

Completion of the major requires approximately 65 to 67 credits.

A. Mathematics and Basic Science Requirements

- MAT 131, 132 Calculus I, II (see note, below)
- One of the following pairs of courses: AMS 261 and 361 Engineering Mathematics I, II; or MAT 205 and 305 Calculus III, IV; or MAT 203 and 303 Calculus III, IV with Applications
- MEC 111 Computer Science for Engineers
- CHE 131, 132 General Chemistry or CHE 141, 142 Honors Chemistry (CHE 198 Chemistry for Engineers acceptable with permission)
- CHE 133, 134 General Chemistry Laboratory or CHE 143, 144 Honors Chemistry Laboratory (CHE 199 General Chemistry Laboratory for Engineers acceptable with permission)
- PHY 131, 132 Classical Physics I, II or PHY 141, 142 Classical Physics I, II: Honors or PHY 125, 126, 127 Classical Physics A, B, C

- PHY 251/252 Modern Physics and Laboratory or ESG 281 An Engineering Introduction to the Solid State

Note: The following alternate calculus sequences may be substituted for MAT 131, 132: MAT 141, 142 or 125, 126, 127.

B. Core Program

- CHE/ESM 221 Introduction to Chemistry of Solids
- CHE 301, 302 Physical Chemistry I, II
- CHE 303 Solution Chemistry Laboratory
- CHE 304 Chemical Instrumentation Laboratory
- CHE 321 Organic Chemistry or CHE 331 Honors Organic Chemistry
- ESG 332 Materials Science I: Structure and Properties of Materials
- ESG 333 Materials Science II: Electronic Properties
- ESM 302 Introduction to the Crystalline State

C. Upper-Division Writing Requirement

Each student majoring in engineering 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 or materials science 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.

Electives

Selection of technical and open electives to give a total 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 profes-

Sample Course Sequence for the Major in Engineering Chemistry

Freshman Fall	Credits
D.E.C. A	3
MAT 131	4
CHE 141 or 131	4
CHE 143 or 133	1
D.E.C.	3
Total	15

Spring	Credits
D.E.C. A	3
CHE 142 or 132	4
CHE 144 or 134	1
MAT 132	4
MEC 111	3
Total	15

Sophomore Fall	Credits
CHE 221 or ESM 221	3
CHE 301	4
CHE 303	2
AMS 261	3
PHY 131	4
Total	16

Spring	Credits
CHE 302	4
AMS 361	3
PHY 132	4
D.E.C.	4
Total	15

Junior Fall	Credits
CHE 331 or 321	3
ESG 281 or PHY 251/252	4
ESG 332	4
D.E.C.	3
Total	14

Spring	Credits
CHE 304	2
ESG 333	4
D.E.C.	3
D.E.C.	3
Elective	3
Total	15

Senior Fall	Credits
ESM 302	3
D.E.C.	3
D.E.C.	3
Upper Division elective	3
Elective	3
Total	15

Spring	Credits
D.E.C.	3
D.E.C.	3
Electives	9
Total	15

sional 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 Chemistry Society certification requirements must take, in addition to the above, CHE 322, 333, and 334 (organic chemistry), and 375 (inorganic chemistry).

EGL

Department of English

CHAIRPERSON: Lee Edelman UNDERGRADUATE DIRECTOR: Patricia Belanoff ADMINISTRATIVE ASSISTANT: Clare Logan
OFFICE: 254 Humanities PHONE: 632-7400 WEB ADDRESS: www.sunysb.edu/english/index.html

Minors of particular interest to students majoring in English: cinema and cultural studies (CCS), comparative studies (CLT), foreign languages, journalism (JRN), media arts (MDA)

Faculty

Ursula Appelt, *Assistant Professor, Ph.D., University of Virginia*: Renaissance.

Paul B. Armstrong, *Professor, Ph.D., Stanford University*: Modern fiction.

Bruce W. Bashford, *Associate Professor, Ph.D., Northwestern University*: Literary criticism; rhetoric and composition.

Patricia A. Belanoff, *Associate Professor, Ph.D., New York University*: Composition; Old English; Middle English; rhetoric.

Timothy Brennan, *Associate Professor, Ph.D., Columbia University*: Cross-cultural literary studies; history and theory of criticism.

Helen Cooper, *Associate Professor, 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.

Lee Edelman, *Professor, Ph.D., Yale University*: Literary theory, queer theory, film, 20th-century American literature.

Elsa Emeneiser, *Lecturer, Ph.D., State University of New York at Stony Brook*: Modern British and American literature; secondary education.

Diane Fortuna, *Associate Professor, Ph.D., The Johns Hopkins University*: 20th-century British and American literature; 19th-century American literature.

Eric Haralson, *Assistant Professor, Ph.D., Columbia University*: American studies.

Laura Henigman, *Assistant Professor, Ph.D., Columbia University*: Early American literature.

Clifford C. Huffman, *Professor, Ph.D., Columbia University*: Renaissance literature; Shakespeare. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1993, and the President's Award for Excellence in Teaching, 1993.

Heidi Hutner, *Assistant Professor, Ph.D., University of Washington*: 18th century literature, women writers, women's studies, colonial and post-colonial discourse.

E. Ann Kaplan, *Professor and Director of the Humanities Institute, Ph.D., Rutgers University*: 19th- and 20th-century British and American literature; women's studies; film.

Shirley Strum Kenny, *Professor, Ph.D., University of Chicago*: Restoration and 18th-century British drama.

Johnathan Levy, *Distinguished Teaching Professor, Ph.D., Columbia University*: Playwriting, dramatic literature.

Ira Livingston, *Assistant Professor, Ph.D., Stanford University*: Romanticism; literary theory.

Kay M. Losey, *Associate Professor and Director of Writing Program, Ph.D., University of California, Berkeley*: Composition, rhetoric, literacy.

Thomas E. Maresca, *Professor, Ph.D., The Johns Hopkins University*: Restoration and 18th-century literature; the epic; satire.

Joaquin Martinez-Pizarro, *Professor, Ph.D., Harvard University*: Old English; Middle English.

Carolyn McGrath, *Lecturer, M.A., State University of New York at Stony Brook*: Creative writing; composition.

Adrienne Munich, *Professor, Ph.D., City University of New York*: Victorian literature; women's studies.

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.

Carol Rosen, *Professor, Ph.D., Columbia University*: Theory; criticism; modern drama.

Walter Scheps, *Associate Professor, Ph.D., University of Oregon*: Old English; Middle English; the history of the English language.

David Sheehan, *Associate Professor, Ph.D., University of Wisconsin*: Restoration and 18th-century literature; Native American literature.

Clifford H. Siskin, *Associate Professor, Ph.D., University of Virginia*: British romanticism; critical theory.

Stephen J. Spector, *Professor, Ph.D., Yale University*: Old English; Middle English; the history of the English language.

Adjunct Faculty

Estimated number: 12

Teaching Assistants

Estimated number: 50

Courses offered by the Department of English seek to develop students' understanding of important works of literature written in English, 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.

Students who graduate with a major in English pursue careers as writers, lawyers, journalists, librarians, academic and governmental administrators, and publishers, for example, publish "in-house" newsletters and magazines, as well as material for the general public. Newspapers seek copy editors able to write clear, accurate prose. The legal profession requires people skilled in the language arts. Many English majors go on to graduate or professional schools to educate themselves for professional careers.

The department regularly offers courses in creative writing (EGL 285, 286, 385, 386), journalism (JRN 287, 288, 387, 388, 389, 390, 394, 395; see the Journalism entry in the alphabetical listing of Arts and Sciences programs), and secondary education leading to provisional New York State certification (EGL 398, 451, 452, 454).

Courses Offered in English

See the Approved Courses section of the Bulletin for complete course descriptions.

EGL 191-B Introduction to Poetry

EGL 192-B Introduction to Fiction

EGL 193-B Introduction to Drama

EGL 199-G Freshman Honors Seminar

EGL 204 Literary Analysis and Argumentation

EGL 205-I Survey of British Literature I

EGL 206-I Survey of British Literature II

EGL 207-G The English Language

EGL 217-K American Literature I
 EGL 218-K American Literature II
 EGL 224-G 20th-Century American Literature
 EGL 226-K Contemporary American Literature: 1945-Present
 EGL 231-I Saints and Fools
 EGL 235-G World Literature in Translation
 EGL 243-I Shakespeare: The Major Works
 EGL 249-K African-American Literature and Music in the 19th and 20th Centuries
 EGL 260-G Mythology in Literature
 EGL 261-B The Bible as Literature
 EGL 266-G The 20th-Century Novel
 EGL 274-K Black American Literature
 EGL 276-B Feminism: Literature and Cultural Contexts
 EGL 285 Writing Workshop: Fiction
 EGL 286 Writing Workshop: Poetry
 EGL 300-G Old English Literature
 EGL 302-G Medieval Literature in English
 EGL 304-G Renaissance Literature in English
 EGL 306-G English Literature of the 17th Century
 EGL 308-G The Age of Dryden
 EGL 310-G Neoclassical Literature in English
 EGL 312-G Romantic Literature in English
 EGL 314-G Victorian Literature
 EGL 316-G Early American Literature
 EGL 318-G 19th-Century American Literature
 EGL 320-G Literature of the 20th Century
 EGL 340-G Chaucer
 EGL 342-G Milton
 EGL 344-G Major Writers of the Renaissance Period in England
 EGL 345-G Shakespeare I
 EGL 346-G Shakespeare II
 EGL 347-G Major Writers of the Neoclassical Period in England
 EGL 348-G Major Writers of the Romantic Period in England
 EGL 349-G Major Writers of the Victorian Period in England
 EGL 350-G Major Writers of American Literature, Colonial Period to 1900

EGL 352-G Major Writers of 20th-Century Literature in English
 EGL 354-Major Writers of Contemporary British and American Literature
 EGL 361-G Poetry in English
 EGL 362-G Drama in English
 EGL 363-G Fiction in English
 EGL 364-G Prose in English
 EGL 365-G Literary Criticism and Theory
 EGL 366-G Topics in Literary Criticism and Theory
 EGL 367-G Contemporary African-American Literature
 EGL 369-K Topics in Ethnic Studies
 EGL 371-G Topics in Gender Studies
 EGL 372-G Topics in Women and Literature
 EGL 373-J Literature in English from Non-Western Cultures
 EGL 374-G Literature in English in Relation to Other Literatures
 EGL 375-G Literature in English in Relation to Other Disciplines
 EGL 376-G The Literature of Imperialism
 EGL 378-J Contemporary Native American Fiction
 EGL 379-J Native American Texts and Contexts
 EGL 385 Advanced Fiction Writing
 EGL 386 Advanced Poetry Writing
 EGL 398 Methods of Instruction in Literature and Composition
 EGL 451 Supervised Student Teaching: Middle School Grade Levels 7-9
 EGL 452 Supervised Student Teaching: High School Grade Levels 10-12
 EGL 454 Student Teaching Seminar
 EGL 475, 476 Undergraduate Teaching Practicum I, II
 EGL 487 Independent Project
 EGL 488 Internship
 EGL 490 Honors Seminar
 EGL 496 Senior Honors

Requirements for the Major in English

The major in English leads to the Bachelor of Arts degree. All courses offered for A. Study within the Area of the Major must be passed with a C or higher.

Completion of the major requires 54 credits.

A. Study within the Area of the Major

1. EGL 204 Literary Analysis and Argumentation
2. EGL 207 The English Language
3. Three survey courses from among the following:
 - EGL 205 Survey of British Literature I
 - EGL 206 Survey of British Literature II
 - EGL 217 American Literature I
 - EGL 218 American Literature II
 - EGL 224 20th-Century Literature in English
 - EGL 226 Contemporary American Literature, 1945 to the Present
 - EGL 235 World Literature in Translation
 - EGL 243 Shakespeare: The Major Works
 - EGL 274 Black American Literature
4. Six 300-level courses from among courses numbered EGL 300-381
5. One elective course from among courses numbered EGL 200-400 (excluding EGL 398); EGL 490 and 496 may also be used.

Notes on Section A:

1. 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, 385, 398, 451, 452, 454, 488, or any JRN course.
2. Appropriate EGL 490 seminars may be used to satisfy the above requirements by permission of the director of undergraduate studies.
3. Students must complete 9 credits in one of the following four concentrations:
 - British Literature
 - EGL 205
 - EGL 206
 - EGL 243
 - EGL 300-314
 - EGL 340-349
 - EGL 352
 - EGL 361-364
 - American Literature
 - EGL 217
 - EGL 218

EGL 226
 EGL 274
 EGL 316-318
 EGL 350-352
 EGL 361-364

Modern and Contemporary Literature

EGL 224
 EGL 226
 EGL 274
 EGL 318-320
 EGL 350-352
 EGL 361-364

Issues and Topics in the Study of Literature

EGL 224
 EGL 226
 EGL 274
 EGL 276
 EGL 365-369
 EGL 371-376

B. Study in Related Areas

1. Six credits (or the equivalent of one year) of college study of a foreign language at the intermediate level or beyond. All coursework taken to satisfy this requirement must be taken for a letter grade and passed with a grade of C- or higher.
2. Six credits of study of British, American, Medieval, or Renaissance history
3. Six credits of study in the humanities and fine arts (excluding English courses) and in addition to the foreign language requirement above

Notes on Section B:

1. Six of the twelve credits used to satisfy requirements 2 and 3 may be taken under the P/NC option unless they also are being used to satisfy general education requirements.
2. Only six of the twelve credits used to satisfy requirements 2 and 3 may be passed with grades below C-.

C. Upper-Division Writing Requirement

In the semester preceding the semester in which the student expects to graduate, he or she 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

Sample Course Sequence for the English Major

Freshman Fall	Credits
D.E.C. A	3
D.E.C.	3
D.E.C.	3
D.E.C.	3
Elective	3
Total	15

Spring	Credits
D.E.C. A	3
D.E.C.	3
D.E.C.	3
D.E.C.	3
D.E.C.	3
Total	15

Sophomore Fall	Credits
EGL 204	3
EGL 200-level survey*	3
Foreign language (elementary)	3-4
D.E.C.	3
Upper Division elective	3
Total	15-16

Spring	Credits
EGL 200-level survey*	3
EGL 200-level survey*	3
Foreign language (elementary)	3-4
EGL 200-400 level elective**	3
Upper Division elective	3
Total	15-16

Junior Fall	Credits
EGL 207	3
Foreign language (intermediate)	3
History (U.S., British, medieval or Renaissance)	3
D.E.C.	3
Upper Division elective	3
Total	15

Spring	Credits
EGL 300-level elective***	3
EGL 300-level elective***	3
Foreign language (intermediate)	3
D.E.C.	3
Upper Division elective	3
Total	15

Senior Fall	Credits
EGL 300-level elective***	3
EGL 300-level elective***	3
History (U.S., British, medieval or Renaissance)	3
D.E.C.	3
Upper Division elective	3
Total	15

Spring	Credits
EGL 300-level elective***	3
EGL 300-level elective***	3
Upper Division elective	3
Upper Division elective	3
Upper Division elective	3
Total	15

* See requirement A-3. **See requirement A-5. ***See requirement A-4.

written confirmation that the paper demonstrates suitably advanced writing proficiency. The departmental course descriptions for the forthcoming semester 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 of the director of undergraduate studies no later than the beginning of the semester before the one in which the student expects to graduate.

English Secondary Teacher Preparation Program

See the entry for Education and Teacher Preparation in this chapter.

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 496. The thesis topic

must be approved by the undergraduate program committee before the last week of the semester prior to taking EGL 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 in English allows students to pursue, within a framework of general requirements, their specific interests in one of three areas: British literature, American literature, or 20th-century 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 offered for the minor must be taken for a letter grade.

Completion of the minor requires 18 credits.

A. Courses required of all minors:

EGL 204 Literary Analysis and Argumentation

Shakespeare: EGL 243 or 345 or 346

One elective from EGL 300-496, exclusive of 385, 451, 452, 454, and JRN courses

B. One of the following options:

1. Emphasis on British literature:

One survey course appropriate to the student's interest: EGL 205 or 206 or 224

One course in a period of British literature: EGL 300-314

One course in a genre or major author in British literature: EGL 340-349, 352, 361-364

2. Emphasis on American literature:

One survey course appropriate to the student's interest: EGL 217 or 218 or 226

One course in a period of American literature: EGL 316 or 318

One course in a genre or major author in American literature: EGL 350 or 352, or 361-364

3. Emphasis on 20th-century literature:

One survey course appropriate to the student's interest: EGL 224 or 226

One course in the study of 20th-century literature: EGL 320 or 352

One course in the study of a genre treating 20th-century writers: EGL 361-364

ENS

Living/Learning Center Interdisciplinary Minor in Environmental Studies

MINOR COORDINATOR: Darcy Lonsdale, Marine Science Research Center

OFFICE: 207 Endeavour Hall PHONE: 632-8712 E-MAIL: dlonsdale@notes.cc.sunysb.edu

The Environmental Studies Living/Learning Center, housed in Dreiser College offers a minor in environmental science (ENS) as well as activities that emphasize both scientific and social issues encompassed by the broad field of environmental studies. Through this program, motivated natural science and social science students are able to apply their majors specifically to the study of the environment. In addition, participation in the program adds an academic component to each student's residential experience.

The minor in environmental science is designed primarily, but not exclusively, for residents of Dreiser College and provides enhanced exposure to one subfield of environmental studies—the natural science of the environment.

Requirements for the Minor

No more than one three-credit course in the minor may be taken for Pass/No Credit. All upper-division courses offered for the minor must be passed with a letter grade of C or higher.

Completion of the minor requires 19 credits.

1. One introductory course chosen from the following:
 - ATM/EST 102 Weather and Climate
 - BIO 113 General Ecology
 - BIO 201 Principles of Biology: From Organisms to Ecosystems
 - GEO 101 Environmental Geology
 - MAR 101 Long Island Sound: Science and Use
 - MAR 104 Oceanography
2. ENS 101 Prospects for Planet Earth
3. ENS 102 Opportunities in Environmental Studies
4. ENS 301 Seminar in Environmental Studies
5. Two advanced courses chosen from the following:
 - ATM 397 Air Pollution and Its Control
 - BIO 351 Ecology

- BIO 352 Ecology Laboratory
- BIO/GEO 353 Marine Ecology
- BIO 356 Applied Ecology and Conservation Biology Laboratory
- CHE 310 Chemistry in Technology and the Environment
- GEO 304 Energy, Mineral Resources, and the Environment
- GEO 315 Groundwater Hydrology
- MAR 320 Limnology
- MAR 333 Coastal Oceanography
- MAR 340 Environmental Problems and Solutions

6. At least three credits of independent study or research in any department, approved by the minor coordinator.

Note: Students participating in the minor are encouraged to take ENS 190, Forum in Environmental Issues.

Declaration of the Minor

Students must declare the environmental science minor no later than the middle of their junior year, at which time they must consult with the minor coordinator and plan their course of study for fulfillment of the requirements.

FRN / GER / ITL / RUS

Department of

European Languages, Literatures, and Cultures

CHAIRPERSON: Charles Franco DIRECTOR OF UNDERGRADUATE STUDIES: Thomas Kerth UNDERGRADUATE SECRETARY: Marie Sweatt
OFFICE: N-4004 Melville Library PHONE: 632-7440 E-MAIL: tkerth@ccmail.sunysb.edu or msweatt@notes.cc.sunysb.edu
WEB ADDRESS: www.sunysb.edu/cis/eu

Minors of particular interest to students majoring in French, German, Italian, or Russian: business management (BUS), classics (CLS), comparative literature (CLT), economics (ECO), English (EGL), German for business (GBS), history (HIS), international studies (LIS), linguistics (LIN), medieval studies (MVL), philosophy (PHI), political science (POL), other languages

Faculty

Harriet Allentuch, *Professor and Undergraduate Coordinator in French, Ph.D., Columbia University*: 17th-century French literature; French women writers. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1990, and the President's Award for Excellence in Teaching, 1990.

Robert K. Bloomer, *Assistant Professor, Ph.D., University of Michigan*: Germanic linguistics; morphology; etymology.

Russell E. Brown, *Professor Emeritus, Ph.D., Harvard University*: Modern German literature; Expressionist poetry; Trakl; Brecht; Jahn.

Carol Blum, *Research Professor of Humanities, 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.

Stana Dolezal, *Adjunct Lecturer, D.A., State University of New York at Stony Brook*: Eastern European literature and culture; Czech language.

Barbara Elling, *SUNY Distinguished Teaching Professor and Graduate Studies Director, Ph.D., New York University*: Romanticism; German cultural studies. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1973.

Andrea Fedi, *Assistant Professor, Dottore in Lettere e Filosofia, University of Florence; Ph.D., University of Toronto*: Italian Renaissance literature; historiography.

Luigi Fontanella, *Professor, Ph.D., Harvard University*: Modern Italian literature.

Charles Franco, *Associate Professor and Coordinator of Medieval Studies minor, Ph.D., Rutgers University*: Medieval Italian literature.

Fred Gardaphe, *Professor and Coordinator of Italian American Studies minor, Ph.D., University of Illinois, Chicago*: Italian American Studies.

Aaron W. Godfrey, *Lecturer and Coordinator of Classical Studies minor, M.A., Hunter College*: Latin, medieval studies.

Eva Gold, *Lecturer, Ph.D., New York University*: Modern Italian literature, cultural studies.

Birgit Grosse-Middledorf Viola, *Adjunct Lecturer, D.A., State University of New York at Stony Brook*: Business German.

Izabella Kalinowska-Blackwood, *Assistant Professor, Ph.D., Yale University*: Russian and Polish literature, culture, and film.

Thomas A. Kerth, *Associate Professor and German Program Director, Ph.D., Yale University*: Medieval literature; Middle High German; German poetry. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1992, and the President's Award for Excellence in Teaching, 1992.

Mikle Ledgerwood, *Assistant Professor and Director of Language Learning Center, Ph.D., University of North Carolina-Chapel Hill*: Education and technology; semiotics; French civilization; Quebec.

Mario B. Mignone, *Professor and Italian Program Director, Ph.D., Rutgers University*: Contemporary Italian literature.

Charles Pooser, *Lecturer, Ph.D., Indiana University*: French language, foreign language teaching methodology.

Jacqueline Reich, *Assistant Professor, Ph.D. University of California, Berkeley*: Italian cinema; film theory; gender studies.

Anthony Rizzuto, *Associate Professor, Ph.D., Columbia University*: 19th- and 20th-century French literature.

Nicholas Rzhovsky, *Associate Professor and Russian Program Director, Ph.D., Princeton University*: Russian and Soviet literature; Russian theatre; Russian intellectual history.

Joseph Tursi, *Emeritus Professor, Ph.D., City University of New York*: Foreign language teaching methodology.

Monique Watts, *Adjunct Lecturer, State University of New York at Stony Brook*: French language.

Ruth Plaut Weinreb, *Associate Professor, Ph.D., Columbia University*: Pedagogy and 18th-century French literature.

Timothy Westphalen, *Assistant Professor, Ph.D., Harvard University*: Russian poetry; Russian Symbolism; Russian literature of the 19th century; Bakhtin.

Eléonore M. Zimmermann, *Professor Emerita, Ph.D., Yale University*: 17th-, 19th-, and 20th-

century French literature; comparative literature.

Affiliated Faculty

John F. Bailyn, *Linguistics*

Christina Y. Bethin, *Linguistics*

Robert Harvey, *Comparative Studies*

E. Anthony Hurley, *Africana Studies*

Sandy Petrey, *Comparative Studies*

Lori Repetti, *Linguistics*

Adjunct Faculty

Estimated number: 5

Teaching Assistants

Estimated number: 3

The Department of European Languages, Literatures, and Cultures fosters teaching and research in modern and classical European languages, literatures, and cultures at the undergraduate and graduate levels. Many courses in English translation also offer access to this field to students with a general interest in the Western tradition. The department prepares students for post-graduate professional training, graduate study, and for a global market in which knowledge of other languages and cultures is increasingly essential. In addition, the department promotes the training of secondary school language teachers in European languages through a program that conforms to the requirements in the New York State Regents Guidelines.

Placement in Language Courses for Incoming Students

The prerequisites for courses 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 believe the recommended course is inappropriate.

Study Abroad

The department encourages both majors

and minors to complete some of their coursework abroad in the junior or senior year. The University maintains exchange programs during the academic year and in the summer in Paris, France; Konstanz, Germany; Rome, Italy; and there are several other programs in Germany, Poland, and Russia sponsored by other SUNY colleges and universities. See the Special Academic Programs chapter in this Bulletin and the Study Abroad Office for further details.

Secondary Teacher Preparation Program

The majors in French, German, Italian, and Russian all provide the foundation for secondary teacher certification in the individual language or a combination of languages. See the Education and Teacher Certification entry in the alphabetical listings of Arts and Sciences programs for information on certification requirements.

French

Pursuing French as an academic field means mastering the language and studying the literature and the social and political culture of France and French-speaking countries. French is spoken all around the globe — in Europe, Africa, Asia, Canada, and the Caribbean where it has produced rich national literatures and diverse cultures over the span of many centuries. Command of the language is the first prerequisite to entrance into the discipline which depends upon linguistic, literary and analytical skills. On a more practical level, French is the language of government, law, management, and business in many regions of the international community, and the study of French as used in these areas is an applied field within the discipline.

The principal objectives of the French major are:

1. To achieve a high level of competence in reading, writing, speaking, and understanding French
2. To acquire broad knowledge of French literature and culture in the context of international culture
3. To sharpen literary, analytical, and expressive skills.

Students who graduate with a major in French pursue diverse careers and employment. Many become teachers or

take positions in international commerce, marketing, banking, or travel (e.g., airlines, travel agencies, Club Med). Others work in fields of government, publishing, journalism, or international relations. As a liberal arts major, French is also the choice of some who go on to professional schools in law, management and business, library science, computer technology, or medicine.

Courses Offered in French

See the Course Description listing in this Bulletin for complete information.

FRN 101 Intensive Elementary French

FRN 111, 112 Elementary French I, II

FRN 201-I Intensive Intermediate French

FRN 211-I, 212-I Intermediate French I, II

FRN 311-I Conversation and Composition

FRN 312-I Introduction to Stylistics

FRN 313 Vocabulary Through Music

FRN 331-G The French Novel

FRN 332-G The French Comedy from Molière to Ionesco

FRN 395-G, 396-G Readings in French Literature: Analysis and Interpretation I, II

FRN 410 Business French

FRN 411 Phonetics and Diction

FRN 412 Stylistics

FRN 413 Advanced French Composition

FRN 432-G Studies in Renaissance Literature

FRN 433-G Studies in 17th-Century Literature

FRN 434-G Studies in 18th-Century Literature

FRN 435-G Studies in 19th-Century Literature

FRN 436-G Studies in 20th-Century Literature

FRN 438-J Caribbean and African Literature in French

FRN 441-I French Civilization

FRN 442-G Free Seminar

FRN 447 Directed Readings in French

FRN 475 Undergraduate Teaching Practicum

FRN 495 Senior Honors Project in French

Courses Offered in French Literature and Culture Taught in English

See the Course Description listing in this Bulletin for complete information.

HUF 111-B French Masterpieces in Translation

HUF 211-D French Cinema

HUF 212-J French Caribbean Literature in Translation

HUF 213-G Caribbean and American Connections in Literature

HUF 216-G French Civilization Through the Ages

HUF 219-I Modern France

HUF 235-G The "Stranger" in World Literature

HUF 236-G Passion and Reason in French Enlightenment

HUF 311-G French Literature in Translation

HUF 318-J Pan-African Literature I

Requirements for the Major in French Language and Literature

The major in French language and literature leads to the Bachelor of Arts degree. Students must complete Concentration A or Concentration B. These concentrations are designed to allow maximum flexibility in the students' programs and to fulfill their varying needs and interests. Both require as a basis a solid preparation in French. Concentration A provides preparation for teaching at the secondary school level or for graduate study in literature; Concentrations A and B both provide appropriate background for students preparing for work in law, government, international relations, business, banking, hotel management, or translation and interpretation (Concentration A or B).

All students should consult with a French advisor. 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. All courses offered for the major, excluding those graded S/U, must be passed with a letter grade of C or higher. Transfer students must take at least 12 credits of French in residence at Stony Brook.

Completion of the major requires 36 credits (Concentration A) or 42 credits (Concentration B).

**Sample Course Sequence for the French Major:
Concentration in Language and Literature (A)**
**Sample Course Sequence for the French Major:
Concentration in French and a Second Discipline (B)**

Freshman Fall	Credits
D.E.C. A	3
FRN 211 or 311 (depending on placement)	3
D.E.C.	3
D.E.C.	3
D.E.C.	3
Total	15

Spring	Credits
D.E.C. A	3
FRN 212 or FRN 312	3
D.E.C.	3
D.E.C.	3
Elective	3
Total	15

Freshman Fall	Credits
D.E.C. A	3
FRN 211	3
D.E.C.	3
D.E.C.	3
D.E.C.	3
Total	15

Spring	Credits
D.E.C. A	3
FRN 212	3
D.E.C.	3
D.E.C.	3
Elective	3
Total	15

Sophomore Fall	Credits
FRN 311 or FRN 395	3
D.E.C.	3
D.E.C.	3
Upper Division elective	3
Upper Division elective	3
Total	15

Spring	Credits
FRN 312 or FRN 396	3
D.E.C.	3
D.E.C.	3
Upper Division elective	3
Upper Division elective	3
Total	15

Sophomore Fall	Credits
FRN 311	3
D.E.C.	3
D.E.C.	3
D.E.C.	3
Elective	3
Total	15

Spring	Credits
FRN 312	3
2nd discipline course	3
D.E.C.	3
D.E.C.	3
Upper Division elective	3
Total	15

Junior Fall	Credits
FRN 395 (if not taken fall of sophomore year)	3
FRN 411	3
One 300-level literature course	3
D.E.C.	3
Elective	3
Total	15

Spring	Credits
FRN 396 (if not taken spring of sophomore year)	3
FRN 412	3
FRN 441 or one 300-level literature course	3
D.E.C.	3
Upper Division elective	3
Upper Division elective	3
Total	18

Junior Fall	Credits
FRN 395	6
FRN 411	3
2nd discipline course	3
Upper Division elective	3
Total	15

Spring	Credits
FRN 396	3
FRN 412	3
Upper Division French lit. course	3
HUF course	3
Elective	3
Total	15

Senior Fall	Credits
FRN 413 (or 410)	3
One or two 300-level literature courses	3-6
Upper Division elective	3
Elective	3
Elective	3
Total	15-18

Spring	Credits
FRN 441 (if not taken spring junior year)	3
One 300-level literature course	3
Elective	3
Elective	3
Elective	3
Total	15

Senior Fall	Credits
FRN 410	3
300-level FRN literature course	3
2nd discipline Upper Division course	3
D.E.C.	3
Upper Division elective	3
Elective	3
Total	18

Spring	Credits
HUF course	3
2nd discipline Upper Division course	3
Upper Division electives	6
Elective	3
Total	15

A. Concentration in Language and Literature

1. Required courses:

a. Language courses:

FRN 311 Conversation and Composition

FRN 312 Introduction to Stylistics

FRN 411 Phonetics and Diction

FRN 412 Stylistics

b. Literature courses:

FRN 395 Readings in French Literature: Analysis and Interpretation I

FRN 396 Readings in French Literature: Analysis and Interpretation II

2. Elective courses:

18 additional credits in FRN courses beyond FRN 395, 396, of which 12 credits must be in literature (Two courses from among HUF 211, 216, 219, and HUL 424 are also acceptable)

 3. Upper-division writing requirement:
See C below

B. Concentration in French and a Second Discipline

1. Required courses:

FRN 311 Conversation and Composition

FRN 312 Introduction to Stylistics

FRN 395, 396 Readings in French Literature: Analysis and Interpretation I, II

FRN 411 Phonetics and Diction

FRN 412 Stylistics

One course in French literature numbered 300 or higher

FRN 441 French Civilization or HUF 216 or 219

Two additional FRN or HUF courses

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 normally choose a sequence of four courses in a department or program other than French.

C. Upper-Division Writing Requirement

In order to demonstrate proficiency in writing English, students majoring in French must present a dossier of a

minimum of two papers of at least three to five pages each. The dossier must be submitted before the end of the second semester of the junior year to the designated faculty advisor for French. The dossier consists of papers previously composed for upper-division courses in the department. Since these were originally written in French, they must be rewritten in English. The papers are judged by a faculty committee for clarity, accuracy, and appropriateness of style. If the dossier is found to be unsatisfactory, the student will be asked to rewrite and resubmit the work in the senior year.

Notes:

1. Students whose language proficiency is such that they can be exempted from FRN 311, 312 may, and are strongly urged to, apply to have courses in art, music, history, or another language count for major credit.
2. Students who wish to offer their native language as the main area of concentration are asked to replace FRN 311, 312, 410, and 411 by English courses appropriate to their level of proficiency in that language.
3. All students majoring in French are automatically considered to have chosen Concentration A unless they obtain approval from the advisor for French.

Requirements for the Minor in French

All courses for the minor must be taken for a letter grade, excluding those graded S/U. All upper-division courses offered for the minor must be passed with a grade of C or higher. Students must complete either A. Emphasis on Language or B. Emphasis on Literature. Transfer students must take at least six credits of upper-division French or Italian courses in residence at Stony Brook.

Completion of the minor requires 24 credits.

A. Emphasis on Language

Required courses:

FRN 212 Intermediate French II

FRN 311 Conversation and Composition

FRN 312 Introduction to Stylistics

FRN 395 or 396 Readings in French Literature

FRN 410 Business French

FRN 411 Phonetics and Diction

Sample Course Sequence for the German Major

Freshman Fall	Credits
D.E.C. A	3
GER 111	4
HUG 229*	3
D.E.C.	3
D.E.C.	3
Total	16

Spring	Credits
D.E.C. A	3
GER 112	4
D.E.C.	3
D.E.C.	3
Total	13

Sophomore Fall	Credits
GER 211	3
HIS 311* or HUG course	3
D.E.C.	3
D.E.C.	3
Elective	3
Total	15

Spring	Credits
GER 212	3
HIS 312* or HUG course	3
D.E.C.	3
D.E.C.	3
Upper Division elective	3
Total	15

Junior Fall	Credits
GER 311*	3
GER 343*	3
D.E.C.	3
Upper Division elective.	3
Upper Division elective	3
Total	15

Spring	Credits
GER 312*	3
GER 344*	3
Upper Division elective	3
Upper Division elective	3
Elective	3
Total	15

Senior Fall	Credits
GER 401*	3
GER 403*	3
D.E.C.	3
Upper Division elective	3
Upper Division elective	3
Total	15

Spring	Credits
GER 402*	3
GER 404*	3
GER 438*	3
Elective	3
Elective	3
Total	15

*Fulfills requirement for the major.

FRN 412 Stylistics

FRN 441 French Civilization
or HUF 216 Modern France

Note: A French literature course or HUL 424 may be substituted for FRN 410

B. Emphasis on Literature

Required courses:

FRN 212 Intermediate French II

FRN 311 Conversation and Composition

FRN 312 Introduction to Stylistics

FRN 395 Readings in French Literature I

FRN 396 Readings in French Literature II

Electives: Three literature courses at the 300 level

German

This discipline is part of a liberal education and concerns itself primarily with the language, literature, and culture of the German-speaking countries. In a time of continuing political transformation in Europe and increasing cooperation between these nations in trade and commerce, technology and science, the environment, and the arts, a mastery of German and a deeper understanding of its societies and cultures can open opportunities for personal development and prepare students for diverse professional careers. It sets the study of German and its literature in the context of its culture, including its political, historical, and economic aspects.

The major in German is flexibly designed to permit emphasis on language, literature, or area studies. Students graduate

ing with a major in German have found careers and job opportunities in international transportation, tourism, foreign trade and banking, government, science and technology, as well as in teaching and library sciences. For majors in the sciences, humanities, and social sciences, knowledge of German is important in international science and in areas of employment within the expanding East-West trade. It is often desired for admission to graduate school and for advanced graduate study in many disciplines.

Courses Offered in German

See the Course Description listing in this Bulletin for complete information.

GER 101 Intensive Elementary German
 GER 111, 112 Elementary German I, II
 GER 211-I, 212-I Intermediate German I, II
 GER 311-I, 312-I German Conversation and Composition I, II
 GER 343-G Introduction to German Studies
 GER 344-G Survey of German Literature
 GER 401-G German Drama
 GER 402-G German Prose
 GER 403-G German Poetry
 GER 404-G Goethezeit
 GER 411, 412 Advanced German Conversation and Composition I, II
 GER 420 Special Topics in German Literature
 GER 431, 432 Business German I, II
 GER 438 Structure of German
 GER 447 Directed Readings in German
 GER 488 Internship
 GER 495 Senior Honors Project in German

Courses Offered in German Literature and Culture Taught in English

See the Course Description listing in this Bulletin for complete information.

HUG 221-D German Cinema Since 1945
 HUG 229-I Germany Today
 HUG 321-G Topics in the Literature of Germany

Requirements for the Major in German Language and Literature

The major in German language and literature leads to the Bachelor of Arts degree. No previous knowledge of the

language is required. All courses offered for the major must be passed with a letter grade of C or higher. Transfer students must complete at least 18 credits toward the major at Stony Brook.

Completion of the major requires 36 credits.

1. HUG 229 Germany Today (in English)
2. GER 343 Introduction to German Studies
3. GER 344 Survey of German Literature
4. GER 311, 312 German Conversation and Composition I, II
5. GER 438 Structure of German
6. 18 additional credits to be chosen from among: GER 401 or higher; ECO 341; HUG 221, 321; HIS 311, 312; MVL 241; or POL 307
7. 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.

Requirements for the Minor in German

The department offers a minor in German for Business (GBS) for students majoring in German or in other disciplines. See the separate entry for the GBS minor for requirements.

For students majoring in other disciplines, a German minor, below, is available with two choices of emphasis. Students must complete Emphasis A or Emphasis B.

All upper-division courses in German offered to fulfill minor requirements

below must be passed with a grade of C or higher. At least nine of the upper-division credits must be earned at Stony Brook. Completion of the minor requires 24 credits.

A. Emphasis on German Language and Literature

1. HUG 229 Germany Today (in English)
2. GER 343 Introduction to German Studies
3. GER 344 Survey of German Literature
4. GER 311, 312 German Conversation and Composition I, II
5. GER 438 Structure of German
6. Two additional German literature courses at the 400 level or above

B. Emphasis on German Language and Area Studies

1. HUG 229 Germany Today (in English)
2. GER 311, 312 German Conversation and Composition I, II
3. GER 438 Structure of German
4. POL 307 Politics in Germany
5. HIS 311 The Rise of Imperial Germany, 1806-1890
6. HIS 312 From Empire to Third Reich: Germany, 1890-1945
7. One additional course in German studies with a GER or HUG designator

Italian Studies

Italian Studies at Stony Brook is a versatile program that allows the student to concentrate on the study of Italian language, culture, and literature. Students may choose an individualized course of study to fit their needs. A student interested in teaching Italian should concentrate on courses taught in the Italian language, while a student interested in other careers should choose courses in culture, film studies, and Italian-American social issues.

The Italian Studies major consists of an intensive study of the Italian language along with the study of the culture that has shaped Italian society and its interaction with American society through the study of literature, culture, and film studies.

The undergraduate program in Italian

provides training for secondary language teachers and for graduate studies in Italian. In conjunction with other disciplines, the Italian program also provides a basis for other careers such as international business, law, and economics.

Courses Offered in Italian

See the Course Description listing in this Bulletin for complete information.

- ITL 101 Intensive Elementary Italian
- ITL 111, 112 Elementary Italian I, II
- ITL 201-I Intensive Intermediate Italian
- ITL 211-I, 212-I Intermediate Italian I, II
- ITL 311-I Italian Conversation and Composition I
- ITL 312-I Italian Conversation and Composition II
- ITL 313 Italian Vocabulary
- ITL 395-G, 396-G Readings in Italian Literature I, II
- ITL 410 Business Italian
- ITL 411 Advanced Conversation and Composition
- ITL 412 Advanced Conversation and Syntax
- ITL 424 History of the Italian Language
- ITL 425 Italian and Its Dialects
- ITL 430-G, 431-G Studies in 13th- and 14th-Century Literature
- ITL 432-G Studies in 15th- and 16th-Century Literature
- ITL 433-G Studies in 17th- and 18th-Century Literature
- ITL 434-G Studies in 19th-Century Literature
- ITL 435-G Studies in Contemporary Literature
- ITL 440-I The Italian Scene
- ITL 441-G Free Seminar
- ITL 447 Directed Readings in Italian
- ITL 475 Undergraduate Teaching Practicum in Italian
- ITL 488 Italian Internship
- ITL 495 Senior Honors Project in Italian

Courses Offered in Italian Literature and Culture Taught in English

See the Course Description listing in this Bulletin for complete information.

- HUI 216-G Italian Civilization Through the Ages

Sample Course Sequence for the Italian Studies Major Concentration in Language and Literature

Freshman Fall	Credits
D.E.C. A	3
ITL 201 or ITL 211	6
HUI or ITL elective	3
D.E.C.	3
Total	15

Spring	Credits
D.E.C. A	3
ITL 311 or ITL 212	3
D.E.C.	3
D.E.C.	3
D.E.C.	3
Total	15

Sophomore Fall	Credits
ITL 395	3
HUI or ITL elective	3
D.E.C.	3
D.E.C.	3
Elective	3
Total	15

Spring	Credits
ITL 396	3
ITL 411	3
ITL Upper Division Elective	3
Elective	3
Elective	3
Elective	1-3
Total	16-18

Junior Fall	Credits
ITL 412	3
HUI or ITL Upper Division elective	3
D.E.C.	3
Upper Division elective	3
Elective	3
Total	15

Spring	Credits
ITL Upper-Division elective	3
HUI or ITL Upper Division elective	3
Upper Division elective	3
Elective	3
Elective	3
Total	15

Senior Fall	Credits
ITL 432	3
HUI or ITL Upper Division elective	3
ITL Upper Division Elective	3
D.E.C.	3
Upper Division Elective	3
Total	15

Spring	Credits
ITL 495 (Honors Project)	3
ITL Upper Division Elective	3
D.E.C.	3
Elective	3
Elective	3
Total	15

- HUI 231-D Sex and Politics in Italian Cinema
- HUI 234-G Introduction to Twentieth-Century Drama
- HUI 235-G Sex, Love, and Tragedy in Early Italian Literature
- HUI 236-K The Italian-American Scene
- HUI 239-I Modern Italy
- HUI 331-G Italian Literature in Translation
- HUI 333-K The Italian-American Experience in Literature
- HUI 336-K Italian Americans and Ethnic Relations
- HUI 338-K Images of Italian Americans in Film
- HUI 431 Special Topics in Italian Cinema
- HUI 439-K The Emigrant Experience in Italian Literature

- HUI 447 Directed Readings
- HUI 475, 476 Undergraduate Teaching Practicum in Italian Studies I, II

Requirements for the Major in Italian Studies

The major in Italian Studies leads to the Bachelor of Arts degree. Students must complete Concentration A or Concentration B. These concentrations are designed to allow maximum flexibility in the students' programs and to fulfill their varying needs and interests. Both require as a basis a solid preparation in the language of the major. Concentration A provides preparation for teaching at the secondary school level or for graduate study in literature; Concentrations A and B both provide appropriate background for students preparing for work in law, government, international relations, busi-

ness, banking, hotel management, or translation and interpretation.

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.

All courses offered for the major, excluding those graded S/U, must be passed with a letter grade of C or higher. Transfer students must take at least 12 credits of the major language in residence at Stony Brook.

Completion of the major requires 36 credits for Concentration A. More credits may be required for Concentration B.

A. Concentration in Language and Literature

1. Required courses:

ITL 311 Italian Conversation and Composition I

ITL 395 Readings in Italian Literature I

ITL 396 Readings in Italian Literature II

ITL 411 Advanced Conversation and Composition

ITL 412 Advanced Conversation and Syntax

2. Elective courses

a. Two additional courses chosen among the following: additional ITL courses numbered 200 or above or HUI courses numbered 100 or 200

b. 6 additional courses in ITL or HUI (HUL 424 may also be used) numbered 300 or above, of which at least three courses must be taken with the ITL designator (See Note 4 below)

3. Upper-Division Writing

Requirement: see C below.

B. Concentration in Italian and a Second Discipline

1. Required courses:

ITL 311 Italian Conversation and Composition I

ITL 395 Readings in Italian Literature I

ITL 396 Readings in Italian Literature II

ITL 411 Advanced Conversation and Composition

ITL 412 Advanced Conversation and Syntax

2. Elective courses

a. 6 additional ITL or HUI courses chosen in consultation with the student's advisor, of which 4 must be numbered 300 or higher

b. 4 additional courses in a discipline other than Italian chosen in consultation with the student's advisor and approved by the department, of which 3 must be numbered 300 or higher. (See Note 4 below)

3. Upper-Division Writing

Requirement: see C below.

C. Upper Division Writing Requirement

In order to demonstrate proficiency in writing English, students majoring in Italian must present a dossier of a minimum of two papers of at least three to five pages each. The dossier must be submitted before the end of the second semester of the junior year to the designated faculty advisor for Italian. The dossier consists of papers previously composed for upper-division courses in the department. If these papers were originally written in Italian, they must be rewritten in English. The papers are judged by a faculty committee for clarity, accuracy, and appropriateness of style. If the dossier is found to be unsatisfactory, the student will be asked to rewrite and resubmit the work in the senior year.

Notes:

1. Credits for ITL 411 and 412 cannot be transferred from any other institution without prior permission of the department.

2. Students whose language proficiency is such that they can be exempted from ITL 311, 312 may, and are strongly urged to, apply to have a course in art, music, history, or another language count for major credit.

3. Students who wish to offer their native language as the main area of concentration are asked to replace ITL 311 and 312 by English courses appropriate to their level of proficiency in that language.

3. Students in the foreign language teacher preparation program should include FLA 439 when choosing electives and should take no more than one additional course taught in English.

5. ITL 475 and HUI 475, 476 cannot be applied toward the requirements for the major in Italian.

Requirements for the Minor in Italian

The department offers a minor in Italian American Studies (IAM) for students majoring in Italian or in other disciplines. See the separate entry for the IAM minor for requirements.

For students majoring in other disciplines, an Italian minor, below, is available with two choices of emphasis. Students must complete either Emphasis A Language or Emphasis B Italian Studies.

All courses for the minor must be taken for a letter grade, excluding those graded S/U. All upper-division courses for the minor must be passed with a grade of C or higher.

Transfer students who wish to graduate with a minor in Italian must take at least six credits of upper-division Italian courses in residence at Stony Brook.

Completion of the minor with either emphasis requires 21 credits.

A. Emphasis on Language

Required courses:

ITL 311 *or* 312 Italian Conversation and Composition

ITL 395 *or* 396 Readings in Italian Literature

ITL 411 Advanced Conversation and Composition

ITL 412 Advanced Conversation and Syntax

Elective courses:

Three additional courses with the designator ITL or HUI, at least one of which must be 300 level or higher

B. Emphasis on Italian Studies

Required courses:

ITL 311 *or* 312 Italian Conversation and Composition

ITL 395 *or* 396 Readings in Italian Literature

Elective courses:

1. Two HUI courses at the 100 or 200 level

2. Three additional courses at the 300 level or higher in Italian Studies chosen in consultation with the student's advisor

Note: Credits for ITL 411 and 412 cannot be transferred from any other institution without prior permission of the department.

Russian Language and Literature

Russian language, literature, and culture studies are part of a broad humanistic education. The works of Tolstoy, Dostoevsky, Chekhov, and Bulgakov stand among the best in world literature. Russian cultural studies is a multi-disciplinary approach to Russian civilization that combines cultural theory and methodology with a broad historical survey of the evolution of Russian culture. This discipline is predicated on the eventual mastery of the language and it includes the study of history, linguistics, literature, drama, film, and theater.

The Russian major is flexible and gives students the opportunity to select a particular area of emphasis. A student who successfully completes a major in Russian attains a broadly-based background in Russian culture; depending on which electives are chosen, the major also acquires a more specialized knowledge of language, literature, or cultural studies. The Department offers courses in Russian as well as in translation, and the Russian major may be combined with work in other disciplines.

Russian majors have found employment in teaching, government service, foreign trade and banking, communications, translating and interpreting. The expansion of East-West trade and the new business ventures in Russia seeking cooperation with Europe, Asia, and Africa offer creative career opportunities. Some Russian majors have continued graduate work in Russian or Slavic Studies at Yale, Harvard, Northwestern, Berkeley, and American University. Others have become certified as secondary school teachers. Science, social science, and pre-med majors have found the study of Russian to be particularly useful in their careers.

Courses Offered in Russian

See the Approved Courses Section in this Bulletin for complete course descriptions.

RUS 111, 112 Elementary Russian I, II

RUS 211-I, 212-I Intermediate Russian I, II

RUS 213-I Intermediate Russian for Students of Russian-Speaking Background

Sample Course Sequence for the Russian Major

Freshman Fall	Credits
D.E.C. A	3
RUS 111	4
HUR 141*	3
D.E.C.	3
Total	13

Spring	Credits
D.E.C. A	3
RUS 112	4
HUR 142*	3
D.E.C.	3
D.E.C.	3
Total	15

Sophomore Fall	Credits
RUS 211	3
HUR 249*	3
D.E.C.	3
D.E.C.	3
D.E.C.	3
Total	15

Spring	Credits
RUS 212	3
HUR 241 or HUR 235 or HIS 210	3
D.E.C.	3
D.E.C.	3
Upper Division elective	3
Total	15

Junior Fall	Credits
RUS 311*	3
Upper Division RUS/HUR or HIS*	3
D.E.C.	3
D.E.C.	3
Upper Division elective	3
Elective	1-3
Total	16-18

Spring	Credits
RUS 312*	3
Upper Division RUS/HUR*	3
D.E.C.	3
Upper Division elective	3
Upper Division elective	3
Total	15

Senior Fall	Credits
Upper Division HUR/RUS literature course*	3
RUS 439	3
Upper Division elective	3
Upper Division elective	3
D.E.C.	3
Total	15

Spring	Credits
Upper Division HUR/RUS course	3
Upper Division literature course*	3
Upper Division elective	3
D.E.C.	3
Elective	3
Total	15

*Fulfills major requirement.

RUS 311-I, 312-I Russian Conversation and Composition I, II

RUS 423-G Russian Literary Texts

RUS 439 Structure of Russian

RUS 447 Directed Readings in Russian

RUS 491-G Special Author

RUS 492-G Special Genre or Period

RUS 495 Senior Honors Project in Russian

Courses Offered in Russian Literature and Culture Taught in English

See the Course Description listing in this Bulletin for complete information.

HUR 141-B Russian Literature and Empire

HUR 142-B Russian Literature and Revolution

HUR 145-D Russian Film and Culture

HUR 231-I Saints and Fools

HUR 232-B Rebels and Tyrants

HUR 235-G Crime and Punishment in World Literature

HUR 241-I Special Russian Author in Translation

HUR 242-I Special Genre or Period of Russian Literature in Translation

HUR 249-I Russia Today

HUR 341-G Russian Literature in Translation

HUR 393-G Literary Analysis of Russian Texts in Translation

Requirements for the Major in Russian Language and Literature

The major in Russian language and literature leads to the Bachelor of Arts degree.

No previous knowledge of the language is required. Completion of the major requires 33 credits.

1. HUR 249 Russia Today (in English)
2. HUR 141,142 Introduction to Russian Literature I, II
3. RUS 311, 312 Russian Conversation and Composition I, II
4. RUS 439 Structure of Russian
5. Three credits to be chosen from among: 200-level HUR/HUE courses, HIS 209 Imperial Russia, HIS 210 Soviet Russia
6. Twelve credits to be chosen from among: RUS 423, 491, 492; HUR 341, 393. HIS 395 or one 300-level CLT course may be substituted for a RUS/HUR course, with the approval of the undergraduate advisor.
7. 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.

Notes:

One course offered to fulfill major requirements may be taken P/NC. All other courses used for the major in Russian must be passed with a grade of C or higher

Requirements for the Minor in Russian

The minor in Russian requires 18 credits in RUS/HUR courses above the intermediate level, nine of which must be in upper-division RUS/HUR courses. Students should consult with the undergraduate director in planning a minor concentration.

Departmental Honors

To be eligible to participate in the honors program, departmental majors must have a cumulative grade point average of 3.0 and an average of 3.5 in the language of the major 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 is determined by an honors committee of the department. Students selected for the program must enroll in the appropriate honors project course (numbered 495) for the semester in which the thesis is written. The thesis is evaluated by the thesis advisor, another member of the department, and a third reader from outside the department. For further information consult the director of undergraduate studies.

GEO

Department of Geosciences

CHAIRPERSON: Robert C. Liebermann DIRECTOR OF UNDERGRADUATE STUDIES: Daniel M. Davis ADMINISTRATIVE ASSISTANT: Barbara Siemsen

OFFICE: 255 Earth and Space Sciences PHONE: 632-8200 WEB ADDRESS: pbisotopes.ess.sunysb.edu/geo

Minors of particular interest to students majoring in geology and earth and space sciences: environmental studies (ENS), marine sciences (MAR), engineering minors

Faculty

Daniel M. Davis, *Associate Professor, Ph.D., Massachusetts Institute of Technology:* Geophysics.

Robert T. Dodd, Jr., *Emeritus Professor, Ph.D., Princeton University:* Geochemistry.

Gilbert N. Hanson, *Professor, Ph.D., University of Minnesota:* Geochemistry.

William E. Holt, *Associate Professor, Ph.D., University of Arizona:* Geophysics.

Robert C. Liebermann, *Professor and Distinguished Service Professor, Ph.D., Columbia University:* Geophysics.

Donald H. Lindsley, *Professor, Ph.D., The Johns Hopkins University:* Geochemistry; petrology.

Scott M. McLennan, *Professor, Ph.D., Australian National University:* Geochemistry.

William J. Meyers, *Emeritus Professor, Ph.D., Rice University:* Sedimentology.

Hanna Nekvasil, *Associate Professor, Ph.D., Pennsylvania State University:* Geochemistry; petrology.

John B. Parise, *Professor, Ph.D., James Cook University:* Crystallography; mineral physics.

Richard J. Reeder, *Professor, Ph.D., University of California, Berkeley:* Geochemistry; sedimentology.

Martin A. Schoonen, *Associate Professor, Ph.D., Pennsylvania State University:* Geochemistry.

Donald J. Weidner, *Distinguished Professor, Ph.D., Massachusetts Institute of Technology:* Geophysics.

Teng-fong Wong, *Professor, Ph.D., Massachusetts Institute of Technology:* Geophysics.

Steven C. Eglebright, *M.S., Curator, State University of New York at Stony Brook:* Geology.

Affiliated Faculty

Robert C. Aller, *Marine Sciences Research Center*

Henry J. Bokuniewicz, *Marine Sciences Research Center*

J. Kirk Cochran, *Marine Sciences Research Center*

Marvin Geller, *Marine Sciences Research Center*

David W. Krause, *Anatomical Sciences*

Charles Nittrouer, *Marine Sciences Research Center*

Teaching Assistants

Estimated number: 12

The Department of Geosciences offers two undergraduate programs: the Geology major, leading to a Bachelor of Science degree, and the Earth and Space Sciences major, leading to a Bachelor of Arts degree. Minimum course requirements for both the B.S. program in geology and the B.A. program in earth and space sciences are detailed below. Upon declaring a major, the student is assigned a faculty advisor in the appropriate area who 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.

Geology

The science of geology is concerned with the physical and chemical nature of the earth (and other planets) and the evolution of the earth over the vast expanse of geological time. The B.S. program in geology (GEO) includes four tracks: geological science, environmental geoscience, engineering geology, and geological oceanography. The major aims at providing the student with maximum preparation to carry out graduate and professional work in each of these fields. Students graduating with a B.S. in geology typically go on to graduate school or obtain professional employment with environmental consulting firms or various government organizations.

Courses in Geology

See the Course Description listing in this Bulletin for complete information.

GEO 101-E Environmental Geology
 GEO 102-E The Earth
 GEO 103-E The Earth Through Time
 GEO 106-E Planetary Geology
 GEO 107-E Natural Hazards
 GEO 111 Environmental Geology Laboratory
 GEO 112 Physical Geology Laboratory
 GEO 113 Historical Geology Laboratory
 GEO 122-E Physical Geology
 GEO 133 Methods and Ethics in Science Research
 GEO 201-H Environmental Geology of Long Island and Metropolitan New York
 GEO 287 Introductory Research in Geology
 GEO 302-E Paleontology
 GEO 304-H Energy, Mineral Resources, and the Environment
 GEO 305 Field Geology
 GEO 306-E Mineralogy and Petrology I
 GEO 309-E Structural Geology
 GEO 310-E Introduction to Geophysics
 GEO 311-H Geoscience and Global Concerns
 GEO 315-E Groundwater Hydrology
 GEO 316-E Geochemistry of Surficial Processes
 GEO 318-E Engineering Geology and Coastal Processes
 GEO 353-E Marine Ecology
 GEO 401 Optical Mineralogy
 GEO 403-E Stratigraphy
 GEO 407-E Mineralogy and Petrology II
 GEO 420 Environmental Analysis Using Remote Sensing and Geographic Information Systems
 GEO 447 Senior Tutorial in Geology
 GEO 452-E Seismology
 GEO 475, 476 Teaching Practicum in Geology
 GEO 487 Senior Research in Geology
 GEO 488 Internship

Requirements for the Major in Geology

The major in geology leads to the Bachelor of Science degree. All geology courses offered for the major must be passed with a letter grade of C or higher.

Completion of the major requires 66 to 68 credits.

Geology and Environmental Geoscience Tracks

A. Required departmental courses

Geology Track

GEO 103 The Earth Through Time
 GEO 113 Historical Geology Laboratory
 GEO 122 Physical Geology
 or GEO 102 The Earth and GEO 112 Physical Geology Laboratory
 GEO 305 Field Geology
 GEO 306 Mineralogy and Petrology I
 GEO 309 Structural Geology
 GEO 310 Introduction to Geophysics
 GEO 401 Optical Mineralogy
 GEO 403 Stratigraphy
 GEO 407 Mineralogy and Petrology II

Environmental Geoscience Track

GEO 101 Environmental Geology
 GEO 111 Environmental Geology Laboratory
 GEO 122 Physical Geology
 or GEO 102 The Earth and GEO 112 Physical Geology Laboratory
 GEO 306 Mineralogy and Petrology I
 GEO 315 Groundwater Hydrology
 GEO 316 Geochemistry of Surficial Processes
 GEO 401 Optical Mineralogy
 GEO 403 Stratigraphy
 Any two of the following:
 GEO 305, 309, 310, 407, ATM 397,
 AMS 210, 321

B. Required courses in the related sciences:

MAT 131, 132 Calculus I, II
 (See note 1 below)
 CHE 131, 132 General Chemistry
 or CHE 141, 142 Honors Chemistry
 PHY 131, 132 Classical Physics I, II
 (See note 2 below)

C. Related science electives:

A coherent set of upper-division science courses, totaling 12 credits, that has been approved by the department.

D. Upper-Division Writing Requirement

All students majoring in geology 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.

Engineering Geology Track

A. Required courses

GEO 101 Environmental Geology
 GEO 111 Environmental Geology Laboratory
 GEO 122 Physical Geology
 or GEO 102 The Earth and GEO 112 Physical Geology Laboratory
 GEO 306 Mineralogy and Petrology I
 GEO 309 Structural Geology
 GEO 315 Groundwater Hydrology
 GEO/MAR 318 Engineering Geology and Coastal Processes
 GEO 401 Optical Mineralogy
 GEO 403 Stratigraphy
 MEC 260 Engineering Statics
 MEC 363 Mechanics of Solids

B. Required courses in the related sciences:

MAT 131, 132 Calculus I, II
 (See note 1 below)
 MAT 203 Calculus III with Applications
 or AMS 261 Applied Calculus III
 CHE 131, 132 General Chemistry
 or CHE 141, 142 Honors Chemistry
 PHY 131, 132 Classical Physics I, II
 (See note 2 below)

C. Related science and engineering electives:

A coherent set of science and engineering courses, totaling at least six credits, approved by the department.

D. Upper-Division Writing Requirement

See D under "Geology and Environmental Geoscience Tracks," above.

Geological Oceanography Track

A. Required courses

GEO 122 Physical Geology
 or GEO 102 The Earth and GEO 112 Physical Geology Laboratory
 GEO 306 Mineralogy and Petrology I
 GEO/BIO 353 Marine Ecology
 GEO 401 Optical Mineralogy
 GEO 403 Stratigraphy
 MAR 104 Oceanography
 MAR 304 Waves, Tides and Beaches
 MAR 333 Coastal Oceanography
 MAR 346 Marine Sedimentology
 MAR 350 Introduction to Ocean Physics

B. Required Courses in related sciences:

MAT 131, 132 Calculus I, II (see Note I below)
 AMS 361 Applied Calculus IV: Differential Equations
 BIO 150 The Living World
 BIO 201 Fundamentals of Biology: Organisms to Ecosystems
 CHE 131, 132 General Chemistry
 or CHE 141, 142 Honors Chemistry
 PHY 131, 132 Classical Physics I, II
 or PHY 125, 126, 127 Physics A,B,C
 or PHY 141, 142 Classical Physics I, I: Honors

C. Upper Division Writing Requirement

See D under "Geology and Environmental Geoscience Tracks" at left.

Notes:

- The following alternate beginning calculus sequences may be substituted for MAT 131, 132 in major requirements or prerequisites: MAT 125, 126, 127 or 141, 142. Equivalency for MAT courses achieved by earning the appropriate score on a University mathematics placement examination will be accepted as fulfillment of the requirement without the necessity of substituting other credits. For detailed information about the various calculus sequences, see "Beginning Mathematics Courses" under the entry for the Department of Mathematics and the individual course descriptions.
- In the Geology, Environmental Geoscience, and Engineering Geology tracks, the following physics courses are alternatives to PHY 131, 132: PHY

SAMPLE COURSE SEQUENCES IN THE GEOLOGY MAJOR

Track	Geology	Environmental Geoscience	Engineering Geology	Geological Oceanography
Freshman				
Fall:	D.E.C. A (3cr)	D.E.C. A (3cr)	D.E.C. A (3cr)	D.E.C. A (3cr)
	CHE 131 (4cr)	CHE 131 (4cr)	CHE 131 (4cr)	BIO 150 (3cr)
	GEO 102 (3cr)	GEO 102 (3cr)	GEO 102 (3cr)	CHE 131 (4cr)
	GEO 112 (1cr)	GEO 112 (1cr)	GEO 112 (1cr)	GEO 102 (3cr)
	D.E.C. (3cr)	D.E.C. (3cr)	D.E.C. (3cr)	GEO 112 (1cr)
Credits	14	14	14	15
Spring:	D.E.C. A (3cr)	D.E.C. A (3cr)	D.E.C. A (3cr)	D.E.C. A (3cr)
	CHE 132 (4cr)	CHE 132 (4cr)	CHE 132 (4cr)	CHE 132 (4cr)
	MAT 131 (4cr)	MAT 131 (4cr)	MAT 131 (4cr)	MAT 131 (4cr)
	GEO 103 (3cr)	GEO 101 (3cr)	GEO 101 (3cr)	MAR 104 (3cr)
	GEO 113 (1cr)	GEO 111 (1cr)	GEO 111 (1cr)	D.E.C. (3cr)
Credits	15	15	15	17
Sophomore				
Fall:	MAT 132 (4cr)	GEO Elec (3cr)	MAT 132 (4cr)	BIO 201 (4cr)
	PHY 131 (4cr)	MAT 132 (4cr)	PHY 131 (4cr)	MAT 132 (4cr)
	D.E.C. (3cr)	PHY 131 (4cr)	D.E.C. (3cr)	PHY 131 (4cr)
	D.E.C. (3cr)	D.E.C. (3cr)	D.E.C. (3cr)	D.E.C. (3cr)
		D.E.C. (3cr)		
Credits	14	17	17	15
Spring:	GEO 306 (4cr)	GEO Elec (3cr)	AMS 261 (4cr) or	GEO 306 (4cr)
	PHY 132 (4cr)	GEO 306 (4cr)	MAT 203 (4cr)	PHY 132 (4cr)
	D.E.C. (3cr)	PHY 132 (4cr)	GEO 306 (4cr)	D.E.C. (3cr)
	D.E.C. (3cr)	D.E.C. (3cr)	PHY 132 (4cr)	D.E.C. (3cr)
	D.E.C. (3cr)			D.E.C.
Credits	14	14	15	17
Junior				
Fall:	GEO 401 (1cr)	GEO 401 (1cr)	MEC 260 (3cr)	AMS 361 (4cr)
	GEO 407 (3cr)	GEO 403 (4cr)	GEO 401 (1cr)	GEO 401 (1cr)
	GEO 403 (4cr)	GEO 316 (4cr)	GEO 403 (4cr)	GEO 403 (4cr)
	D.E.C. (3cr)	D.E.C. (3cr)	D.E.C. (3cr)	D.E.C. (3cr)
	D.E.C. (3cr)	D.E.C. (3cr)	D.E.C. (3cr)	UpperDiv Elec (3cr)
			UpperDiv Elec (3cr)	
Credits	14	15	17	15
Spring:	GEO 309 (4cr)	ATM 397 (3cr) or	MEC 363 (4cr)	MAR 333 (3cr)
	GEO Elec (3cr)	GEO 309 (4cr)	GEO 315 (3cr)	D.E.C. (3cr)
	D.E.C. (3cr)	GEO 315 (3cr)	D.E.C. (3cr)	D.E.C. (3cr)
	UD D.E.C. (3cr)	D.E.C. (3cr)	D.E.C. (3cr)	UpperDiv Elec (3cr)
	D.E.C. (3cr)	D.E.C. (3cr)	UpperDiv Elec (3cr)	UpperDiv Elec (3cr)
	UpperDiv Elec (3cr)			
Summer:	GEO305 (3cr)			
Credits	19(3 Summer)	15 or 16	16	15
Senior				
Fall:	GEO 310 (3cr)	AMS 210 (3cr) or	GEO 318 (3cr)	MAR 304 (3cr)
	GEO Elec (3cr)	GEO 310 (3cr)	GEO 310 (3)	MAR 346 (3cr)
	D.E.C. (3cr)	GEO Elec (3cr)	D.E.C. (3cr)	MAR 350 (2cr)
	UpperDiv Elec (3cr)	D.E.C. (3cr)	UpperDiv Elec (3cr)	D.E.C. (3cr)
	UpperDiv Elec (3cr)	UpperDiv Elec (3cr)	UpperDiv Elec (3cr)	UpperDiv Elec (3cr)
	UpperDiv Elec (3cr)			
Credits	15	15	15	14
Spring:	GEO Elec (3cr)	GEO Elec (3cr)	GEO 309 (4cr)	GEO/MAR 353 (3cr)
	UpperDiv Elec (3cr)	UpperDiv Elec (3cr)	GEO/MEC Elec (3)	D.E.C. (3cr)
	UpperDiv Elec (3cr)	UpperDiv Elec (3cr)	D.E.C. (3cr)	UpperDiv Elec (3cr)
	UpperDiv Elec (3cr)	Elective (3cr)	UpperDiv Elec (3cr)	Elective (3cr)
	D.E.C. (3cr)	Elective (3cr)	UpperDiv Elec (3cr)	Elective (3cr)
Credits	15	15	15	15

121/123 and 122/124, or PHY 125, 126, 127 or PHY 141, 142.

Honors Program in Geology

Students in the geology major 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 by applying to the department.

In addition to the academic program, the student must complete an honors thesis, which is 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 are 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 with two distinct tracks—geology and environmental geoscience—is available. The geology track acquaints students with earth materials, the origin and evolution of life on earth, and physical processes that have shaped the earth through time. The environmental geoscience track acquaints students with the fundamental environmental problems that are dealt with by geoscientists.

All courses offered for the minor must be passed with a letter grade of C or higher. Completion of the minor requires 20 credits.

Geology Track

GEO 103 The Earth Through Time

GEO 113 Historical Geology Laboratory

GEO 122 Physical Geology
or GEO 102 The Earth and GEO 112 Physical Geology Laboratory

Twelve additional credits from among GEO courses numbered 300 or higher

Environmental Geoscience Track

GEO 101 Environmental Geology

GEO 111 Environmental Geology Laboratory

GEO 122 Physical Geology
 or GEO 102 The Earth and GEO 112
 Physical Geology Laboratory
 GEO 315 Groundwater Hydrology
 Nine additional credits chosen from
 GEO 304, 306, 307, 309, 310, 311, 316,
 318, 401, 403

**Sample Course Sequence in the
 Earth and Space Sciences Major**

Earth and Space Sciences

Earth and space sciences is a broadly-based multidisciplinary field combining geology, astronomy, atmospheric science and marine science. The major in earth and space sciences is a diversified program in the natural sciences and mathematics aimed at fostering a basic understanding of the earth and space sciences; it also includes concentrated study in any one of the natural sciences or mathematics or interdisciplinary studies in environmental geoscience. Intended for those seeking a science-related career, the program is 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, environmental science, secondary education, or research in private industry and government.

**Requirements for the
 Major in Earth and Space Sciences**

The major in earth and space sciences leads to the Bachelor of Arts degree. All geology courses offered for the major must be passed with a letter grade of C or higher.

Completion of the major requires approximately 58 to 68 credits.

- A. Introductory earth and space sciences courses:
 - GEO 122 Physical Geology
 or GEO 102 The Earth and GEO 112
 Physical Geology Laboratory
 - AST 101 Introduction to Astronomy
 - AST 112 Astronomy Laboratory B
 - ATM 205 Introduction to
 Atmospheric Sciences
- B. Upper-division earth and space sciences courses:
 - At least four upper-division GEO, AST, ATM courses; at least one should include a laboratory
- C. Introductory related science courses:
 - 1. MAT 131, 132 Calculus I, II (See notes 1 and 2 below)

- 2. PHY 121/123 Physics for Life Sciences
 or PHY 125 Classical Physics A
 or PHY 131 Classical Physics I
 or PHY 141 Classical Physics I: Honors
- 3. Any two of the following groups (see notes 3, 4, and 5 below):
 - a. PHY 122/124 Physics for Life Sciences
 or PHY 132 Classical Physics II
 or PHY 142 Classical Physics II: Honors
 or PHY 126, 127 Classical Physics B and C
 - b. CHE 111, 112 Elementary Chemistry I, II
 or CHE 131, 132 General Chemistry

or CHE 141, 142 Honors Chemistry

c. BIO 150, 201 Principles of Biology

D. Specific science concentration:

At least 12 credits in courses acceptable for one of the following concentrations: astronomy, atmospheric sciences, biology, chemistry, geology, environmental geoscience, marine sciences, mathematics, or physics. Students must obtain departmental approval of courses chosen to satisfy the specific science concentration.

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

Freshman Fall	Credits
D.E.C. A	3
CHE 131	4
GEO 102	3
GEO 112	1
D.E.C.	3
Total	14

Spring	Credits
D.E.C. A	3
CHE 132	4
MAT 125 or 131	3-4
AST 101	3
AST 112	1
Total	14-15

Sophomore Fall	Credits
MAT 126 or 132	3-4
PHY 131	4
BIO 150 or D.E.C.	3-4
D.E.C.	3
Total	13-15

Spring	Credits
BIO 201 or PHY 121/123 or 131	4
GEO/AST/ATM Elective	3
D.E.C. or MAT 127	3
D.E.C.	3
Upper Division D.E.C. or elective	3
Total	16

Junior Fall	Credits
ATM 205	3
Upper Division Concentration elective	3
D.E.C.	3
D.E.C.	3
Upper Division elective	3
Total	15

Spring	Credits
Upper Division Concentration elective	3
GEO/AST/ATM Elective	4
D.E.C.	3
Upper Division D.E.C.	3
Upper Division elective	3
Total	16

Senior Fall	Credits
Upper Division Concentration elective	3
Upper Division GEO/AST/ATM elective	3
D.E.C.	3
Upper Division elective	3
Upper Division elective	3
Total	15

Spring	Credits
Upper Division Concentration elective	3
GEO/AST/ATM Elective	3
D.E.C.	3
Upper Division elective	3
Upper Division elective	3
Total	15

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.

Notes:

1. The following alternate beginning calculus sequences may be substituted for MAT 131, 132 in major requirements or prerequisites: 125, 126, 127 or 141, 142. Equivalency for MAT courses achieved by earning the appropriate score on a University mathematics placement examination will be accepted as fulfillment of the requirement without the necessity of substituting other credits.
2. For biology, chemistry, geology, and marine sciences concentrations, MAT 132 or 127 may be waived under requirement C.1.
3. For concentration in chemistry, CHE 111, 112 are not acceptable under requirement C.3.
4. For astronomy, atmospheric sciences, mathematics, and physics concentrations, PHY 121/123, and PHY 122/124 are not acceptable under requirements C.2 and C.3.
5. For concentration in physics, MAT 205 or 203 or AMS 261 and MAT 305 or 303 or AMS 361 are required, and two semesters under requirement C.3 may be waived.

Earth Science Secondary Teacher Preparation Program

See the Education and Teacher Certification entry in this section.

GBS

Interdisciplinary Minor in German for Business

MINOR COORDINATOR: Thomas Kerth, European Languages, Literatures, and Cultures UNDERGRADUATE SECRETARY: Marie Sweatt
OFFICE: N-4004 Melville Library PHONE: 632-6946 E-MAIL: tkerth@ccmail.sunysb.edu or msweatt@notes.cc.sunysb.edu

Majors or other minors of particular interest to students minoring in German for business: economics (ECO), German (GER), international studies (LIS)

The multidisciplinary minor in German for Business (GBS) provides students with the opportunity to combine academically their facility in the German language with a professional interest in economics or international commerce. Students completing the minor are expected to take the examination that leads to the certificate "Wirtschaftsprüfung Deutsch International," for which Stony Brook is a regional testing site.

Requirements for the Minor in German for Business for Students with Majors other than German

All upper-division courses offered to fulfill minor requirements must be passed with a letter grade of C or higher. At least nine upper-division credits must be earned at Stony Brook.

Completion of the minor requires 24 credits.

1. HUG 229 German Today (in English)
2. GER 311, 312 German Composition and Conversation I, II
3. GER 431, 432 Business German I, II
4. Two courses in business chosen from among:
 - BUS 340 Management Information Systems
 - BUS 348 Principles of Marketing
 - BUS 440 International Management
5. ECO 341 European Economic Integration

Requirements for the Minor in German for Business for Students Majoring in German (GER)

All upper-division courses offered to fulfill minor requirements must be passed with a letter grade of C or higher. At least nine upper-division credits must be earned at Stony Brook.

Completion of the minor requires 24 credits.

1. HUG 229 German Today (in English)
2. GER 431, 432 Business German I, II
3. Three courses in business management:
 - BUS 340 Management Information Systems
 - BUS 348 Principles of Marketing
 - BUS 440 International Management
4. Two courses in economics:
 - ECO 341 European Economic Integration
 - One additional course in economics numbered 310 or higher

LHW

Living/Learning Center Interdisciplinary Minor in Health and Wellness

MINOR COORDINATOR: Robert Streb, Physical Therapy

OFFICE: Health Sciences Center, Level 2, Room 052 PHONE: 444-3254 E-MAIL: rstreb@epo.hsc.sunysb.edu

The interdisciplinary minor in health and wellness is designed to give students a foundation in the concepts of healthy living and to help students select future studies/careers in the health professions. The minor is intended primarily but not exclusively for residents of Mount College Health and Wellness Living/Learning Center.

Requirements for the Minor in Health and Wellness

Before declaring the health and wellness minor, each student should plan his or her program in consultation with the minor coordinator. All courses offered for the minor must be passed with a letter grade of C or higher.

Completion of the minor requires 19 credits.

1. LHW 102 Introductory Seminar to the Health Professions
2. 6 credits chosen from the following:
 - BIO 201 Fundamentals of Biology: Organisms to Ecosystems
 - BIO 202 Fundamentals of Biology: Molecular and Cellular Biology
 - BIO 203 Fundamentals of Biology: Cellular and Organ Physiology
 - HMC/SOC 200 Medicine and Society
 - MEC 280 Pollution and Human Health
 - PSY 103 Introduction to Psychology
 - PSY 220 Developmental Psychology
3. 6 credits chosen from the following:
 - ANP 300 Human Anatomy
 - ANT 350 Medical Anthropology
 - BCP/MAR 394 Environmental Toxicology and Public Health
 - BIO 320 General Genetics
 - BIO 328 Mammalian Physiology
or HBY 350 Physiology
 - BIO 350 Darwinian Medicine
 - CBN 340/PSY 356 Physiological Psychology
 - ECO 354 Special Topics (when topic is Health Economics)

HBP 310 Pathology

PSY 326 Children's Social and Emotional Development

SOC 392 Special Topics (when topic is Health Care Delivery)

4. LHW 301 Issues in Health and Wellness

5. LHW 488 Internship in Health and Wellness

Note:

At least 13 credits of coursework for the minor must be in courses that are outside the student's major.

SPN

Department of

Hispanic Languages and Literature

CHAIRPERSON: Román de la Campa DIRECTOR OF UNDERGRADUATE STUDIES: Victoriano Roncero-López

UNDERGRADUATE SECRETARY: Esperanza Morris

OFFICE: N-3017 Library PHONE: 632-6959

Minors of particular interest to students majoring in Spanish: comparative literature (CLT), international studies (LIS), Latin American and Caribbean Studies (LAC)

Faculty

Román de la Campa, *Professor, Ph.D., University of Minnesota*: Latin American and Caribbean literature; contemporary critical theory.

Lou Charnon-Deutsch, *Professor, Ph.D., University of Chicago*: 18th- and 19th-century Peninsular literature; feminist theory. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1990, and the President's Award for Excellence in Teaching, 1990.

Flora Klein-Andreu, *Associate Professor, Ph.D., Columbia University*: Linguistic meaning; language evolution and variation; standardization; research methods.

Cora Lagos, *Assistant Professor, Ph.D., University of Michigan*: Colonial Latin American literature.

Pedro Lastra, *Professor Emeritus, University of Chile*; (*University Professor, University of Chile, 1960-1973*): Colonial, modern, and contemporary Spanish-American literature.

James B. McKenna, *Associate Professor, Ph.D., Harvard University*: 20th-century Hispanic culture and literature.

Elizabeth Monasterios, *Assistant Professor, Ph.D., University of Toronto*: Modern and contemporary Spanish-American literature; Latin American poetry.

Maria Luisa Nunes, *Professor Emerita, Ph.D., City University of New York*: 19th- and 20th-century Luso-Brazilian literatures; women's studies.

Malcolm K. Read, *Professor, Ph.D., University of Wales*: Spanish Golden Age literature and linguistics; Marxist and psychoanalytic literary criticism.

Elias L. Rivers, *Professor Emeritus, Ph.D., Yale University*: 16th- and 17th-century literature of Spain; sociolinguistic theory of literature.

Victoriano Roncero-López, *Associate Professor, Ph.D., University of Illinois at Urbana-Champaign and Universidad Complutense*: 16th- and 17th-century literature of Spain.

Georgina Sabat-Rivers, *Professor Emerita, Ph.D., The Johns Hopkins University*: Spanish Golden Age and Spanish-American colonial literature.

Benigno Trigo, *Visiting Assistant Professor, Ph.D., Yale University*: Nineteenth century Latin

American literature.

Antonio Vera-León, *Associate Professor, Ph.D., Princeton University*: 19th- and 20th-century Caribbean literatures; literary theory; interdisciplinary study of narrative.

Kathleen Vernon, *Associate Professor, Ph.D., University of Chicago*: 20th-century Hispanic narrative and film.

Affiliated Faculty

Temma Kaplan, *History and Women's Studies*

Mikle Ledgerwood, *French and Italian*

Louise Vasvari, *Comparative Studies*

Adjunct Faculty

Estimated number: 8

Teaching Assistants

Estimated number: 24

Spanish studies involves language, literature, cultural history, and linguistics as applied to Spain, Spanish America, and Latino communities in the United States. The field combines the humanities and the social sciences to give the student an understanding of the diverse aspects of Hispanic culture.

Because so many facets of American life—business, industry, commerce, communications media, the arts, science, and technology—have become truly international in scope, many career opportunities exist for persons with language skills and knowledge of other cultures. A student majoring in Spanish could begin preparation for a career in any of these fields as well as in teaching. A student minoring in Spanish could combine such studies with plans for governmental service, international business, the health professions, or a major in another language and literature.

The department offers a major program leading to the Bachelor of Arts degree in Spanish language and literature, a minor in Spanish, and courses in Portuguese. Students wishing to major in Spanish should consult with a departmental advisor to choose individual programs.

Placement

Entering students who wish to continue the study of Spanish started in high school should consult a departmental advisor to help them choose the appropriate course.

Courses Offered in Spanish

See the Course Description listing in this Bulletin for complete information.

SPN 111, 112 Elementary Spanish I, II

SPN 190-I Intermediate Spanish I (Emphasis on Spain)

SPN 191-J Intermediate Spanish I (Emphasis on Latin America)

SPN 192-I Intermediate Spanish II

SPN 193-J Intermediate Spanish for Speakers of Spanish

SPN 220-J Spanish Grammar and Composition for Students of Hispanic-American Background

SPN 221-I Spanish Conversation and Composition

SPN 222-G Introduction to Literary Studies

SPN 301 Advanced Spanish Grammar and Composition

SPN 303 Practical Spanish

SPN 323 Advanced Spanish Grammar

SPN 391-I The Culture and Civilization of Spain

SPN 392-G The Culture and Civilization of Spanish America

SPN 396-J Introduction to Spanish-American Literature

SPN 397-I Introduction to Spanish Literature I

SPN 398-I Introduction to Spanish Literature II

SPN 405 Issues in Hispanic Cultural Studies

SPN 410 Theory in Contexts

SPN 415 Hispanic Cultures in Contact

Sample Course Sequence for the Spanish Major (Advanced Language Preparation)

Sample Course Sequence for the Spanish Major (High School Preparation)

Freshman Fall	Credits
D.E.C. A	3
SPN 220 or 221	3
D.E.C.	3
D.E.C.	3
D.E.C.	3
Total	15

Spring	Credits
D.E.C. A	3
SPN 222	3
D.E.C.	3
D.E.C.	3
Elective	3
Total	15

Freshman Fall	Credits
D.E.C. A	3
SPN 211 (not accepted for major credit)	3
D.E.C.	3
D.E.C.	3
D.E.C.	3
Total	15

Spring	Credits
D.E.C. A	3
SPN 212 (not accepted for major credit)	3
D.E.C.	3
D.E.C.	3
Elective	3
Total	15

Sophomore Fall	Credits
SPN 301	3
SPN 396 or 397	3
D.E.C.	3
D.E.C.	3
Elective	3
Total	14-15

Spring	Credits
SPN 398	3
SPN 392	3
D.E.C.	3
Elective	3
Elective	3
Total	15

Sophomore Fall	Credits
SPN 220 or 221	3
D.E.C.	3
D.E.C.	3
Elective	3
Elective	3
Total	15

Spring	Credits
SPN 222	3
D.E.C.	3
D.E.C.	3
Elective	3
Elective	3
Total	15

Junior Fall	Credits
SPN 391 or Upper Division elective	3
SPN 400-level elective	3
Elective	3
D.E.C.	3
D.E.C.	3
Total	15

Spring	Credits
SPN 462 or 463 or 465	3
SPN Upper Division elective	3
D.E.C.	3
D.E.C.	3
Elective	3
Elective	3
Total	18

Junior Fall	Credits
SPN 301	3
SPN 396 or 397	3
D.E.C.	3
D.E.C.	3
Elective	3
Elective	3
Total	18

Spring	Credits
SPN 398	3
SPN 392	3
SPN Upper Division elective	3
D.E.C.	3
Elective	3
Total	15

Senior Fall	Credits
SPN 400-level elective	3
Upper Division elective	3
Elective	3
Elective	3
Elective	3
Total	15

Spring	Credits
SPN 400-level elective	3
Upper Division elective	3
Upper Division elective	3
Elective	3
Elective	3
Total	15

Senior Fall	Credits
SPN 391 or Upper Division elective	3
SPN 400-level elective	3
SPN 400-level elective	3
Upper Division elective	3
Elective	3
Total	15

Spring	Credits
SPN 462* or 463* or 465	3
SPN 400-level elective	3
Upper Division elective	3
Upper Division elective	3
Elective	3
Total	15

*Students preparing for secondary education certification in Spanish should choose SPN 462 or 463. See the section entitled "Education and Teacher Certification" in the alphabetical listing of Approved Programs.

SPN 420 Topics in Spanish and Latin American Cinema

SPN 435 Topics in Latin American Literature from the Colonial Period to the Present

SPN 445 Topics in Spanish Literature from the Middle Ages to the Present

SPN 447 Directed Individual Studies
SPN 462 Contrastive Spanish-English Phonology

SPN 463 Contrastive Spanish-English Grammar

SPN 465 Topics in Hispanic Linguistics
SPN 475 Undergraduate Teaching Practicum in Spanish

SPN 495 Spanish Senior Honors

Courses Offered in Spanish Literature and Culture Taught in English

See the Course Description listing in this Bulletin for complete information.

HUS 254-J Latin America Today

HUS 255-I Modern Spain

HUS 361-G Latin American Literature in Translation

HUS 371-G United States Latino Literature in Translation

HUS 390-J Latin American Cinema

Requirements for the Major in Spanish Language and Literature

The major in Spanish language and literature leads to the Bachelor of Arts degree. All courses offered for the major 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 letter grade of C or higher. Completion of the major requires 36 credits.

A. Required Basic Courses

1. a. SPN 221 Spanish Conversation and Composition or SPN 220 Spanish Grammar and

Composition for Students of Hispanic-American Background

b. SPN 222 Introduction to Literary Studies

(Note: Challenge examinations are given in SPN 221 and 222, but not in SPN 220. See notes 1 and 2, below)

2. SPN 301 Advanced Spanish Grammar and Composition

3. SPN 391 The Culture and Civilization of Spain
or SPN 392 The Culture and Civilization of Spanish America

4. Two courses from:

SPN 396 Introduction to Spanish-American Literature

SPN 397 Introduction to Spanish Literature I

SPN 398 Introduction to Spanish Literature II

5. One course from:

SPN 462 Contrastive Spanish-English Phonology

SPN 463 Contrastive Spanish-English Grammar

SPN 465 Topics in Hispanic Linguistics

B. Advanced Courses in Hispanic Linguistics, Literature, and Culture

Fifteen additional credits in upper-division SPN courses chosen in consultation with the departmental advisor. (HUL 424 is also acceptable. A maximum of three credits of SPN 447 is applicable toward this requirement.)

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 consist of translations of essays submitted as part of the work for upper-division courses. Papers are judged for clarity, accuracy, and appropriateness of style by a faculty committee. Students may resubmit in their senior year.

Notes:

1. Students of Spanish-speaking background may take the Challenge examination for SPN 221.
2. The department requires transfer students to take at least 18 credits of

Spanish courses in residence at Stony Brook to complete a Spanish major:

The Honors Program in Spanish

To be awarded honors, a department major must 1. maintain a cumulative 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 is 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. the same as requirement 1, above; 2. senior standing; and 3. permission of department. Application to the honors program must be made during Prime Time the semester prior to registering for the program.

Spanish Secondary Teacher Preparation Program

See the Education and Teacher Certification entry in the alphabetical listings of Arts and Sciences programs.

Minor in Spanish Language, Culture, and Literature

All upper-division courses in Spanish offered to fulfill minor requirements must be passed with a letter grade of C or higher. At least nine credits of upper-division Spanish courses must be earned at Stony Brook to complete the minor.

Completion of the minor requires 24 credits.

A. Basic Language

1. SPN 221 Spanish Conversation and Composition

or SPN 220 Spanish Grammar and Composition for Students of Hispanic-American Background

2. SPN 222 Introduction to Literary Studies

B. Advanced Courses

1. SPN 301 Advanced Spanish Grammar and Composition

2. Five other upper-division SPN courses, two of which must be at the

400 level and one of which may be HUL 424

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 prior to going abroad. See also the Study Abroad entry in the chapter entitled "Special Academic Programs."

HIS

Department of History

CHAIRPERSON: Gary Marker DIRECTOR OF UNDERGRADUATE STUDIES: Wilbur R. Miller STAFF ASSISTANT: Susan Grumet
OFFICE: S-301 Social and Behavioral Sciences PHONE: 632-7500 WEB ADDRESS: <http://www.sunysb.edu/history>

Minors of particular interest to students majoring in history: Africana studies (AFS), international studies (LIS), political science (POL), women's studies (WST), program in teacher certification (SSI), foreign languages

Faculty

Michael Barnhart, *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.

Karl S. Bottigheimer, *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.

Floris Cash, *Assistant Professor, Ph.D., State University of New York at Stony Brook*: Joint appointment with Africana Studies; U.S. social and political history; African-American history; Latin American history.

Ruth Schwartz Cowan, *Professor, Ph.D., The Johns Hopkins University*: History of biology and technology; women in modern society.

Elizabeth Garber, *Associate Professor, Ph.D., Case Western Reserve University*: History of physics and thermodynamics; European intellectual and social.

Robert Goldenberg, *Professor, Ph.D., Brown University*: History of religion, history of Judaism, Talmudic literature, ancient history.

Paul Gootenberg, *Associate Professor, Ph.D., University of Chicago*: 19th-century Latin America; Andean; Mexican; economic.

Young Sun Hong, *Assistant Professor, Ph.D., University of Michigan, Ann Arbor*: Modern Germany.

Temma Kaplan, *Professor, Ph.D., Harvard University*: Spain; comparative women's history; popular culture.

Richard F. Kuisel, *Professor, Ph.D., University of California, Berkeley*: Modern Europe; France.

Ned Landsman, *Professor, Ph.D., University of Pennsylvania*: Colonial U.S. history.

Brooke Larson, *Associate Professor, Ph.D., Columbia University*: Andean history; colonial and modern Latin America.

Herman E. Lebovics, *Professor, Ph.D., Yale University*: Modern European intellectual and social history.

Helen Rodnite Lemay, *Professor, Ph.D., Columbia University*: Medieval and Renaissance intellectual; paleography. Recipient of the President's Award for Excellence in Teaching, 1984.

Shirley Lim, *Assistant Professor, Ph.D.,*

University of California at Los Angeles: Asian-American immigration, women and culture, film.

Sara Lipton, *Assistant Professor, Ph.D., Yale University*: Medieval Europe, Judaism, women and culture.

William McAdoo, *Associate Professor, Ph.D., University of Michigan*: Joint appointment with Interdisciplinary Program in Africana Studies; U.S. urban, social, and institutional history; immigration historiography; labor history; African-American history.

Iona Man-cheong, *Assistant Professor, Ph.D., Yale University*: Modern China and Japan; modern Chinese women.

Gary Marker, *Professor, Ph.D., University of California, Berkeley*: 18th- and 19th-century Russian social.

Wilbur R. Miller, *Professor, Ph.D., Columbia University*: 19th-century U.S.; Civil War and Reconstruction; crime and police.

Donna J. Rilling, *Assistant Professor, Ph.D., University of Pennsylvania*: U.S. early national; legal; economic; urban; labor.

Joel T. Rosenthal, *Professor, Ph.D., University of Chicago*: Medieval Europe; England.

Ian Roxborough, *Professor, Ph.D., University of Wisconsin-Madison*: Joint Appointment with Sociology; Comparative social structures; development; Latin American politics; social change; Latin American labor movements.

Warren Sanderson, *Professor, Ph.D., Stanford University*: Joint appointment with Economics; Economic history; economic demography.

Wolf Schafer, *Professor, Ph.D., University of Bremen*: Social history of the sciences and science policy.

Christopher Sellers, *Associate Professor, Ph.D., Yale University*: Medical history, environmental history, science and technology.

Nancy Tomes, *Professor, Ph.D., University of Pennsylvania*: U.S. social, medical, and women's history.

Olufemi Vaughan, *Associate Professor, Ph.D., University of Oxford*: Joint appointment with Interdisciplinary Program in Africana Studies; African politics and history; international relations.

Barbara Weinstein, *Professor, Ph.D., Yale University*: Brazil; colonial and modern Latin America; slave societies.

Fred Weinstein, *Ph.D. University of California,*

Berkeley: Psychohistory; Russia.

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

Kathleen Wilson, *Associate Professor, Ph.D., Yale University*: Modern British social and intellectual history.

Judith Wishnia, *Associate Professor, Ph.D., State University of New York at Stony Brook*: Joint appointment with Interdisciplinary Program in Social Sciences; Women's history; labor history; European history.

Roger Wunderlich, *Research Associate Professor, Ph.D., State University of New York at Stony Brook*: Long Island history.

Affiliated Faculty

Leslie H. Owens, *Africana Studies*

Eli Seifman, *Social Sciences Interdisciplinary*

Adjunct Faculty

Estimated number: 3

Teaching Assistants

Estimated number: 20

History is the systematic study of peoples, states, and societies from antiquity to our current times. Using both written records and material artifacts, historians attempt to reconstruct and interpret change over time in every facet of human experience, from political and economic systems to family life and gender roles, to name a few. The study of history is not only intrinsically interesting, but also contributes useful insights into the contemporary world and its problems.

History majors develop an in-depth knowledge of a specific region of the world, including its history, geography, and culture. In the process, they also learn how to conduct historical research, and to develop convincing arguments based on the evidence they uncover. Effective oral and written communication skills are strongly emphasized in all history courses.

Many history majors choose careers in law, teaching, archival or library science, or museum work. Because it emphasizes research and writing, history is also excel-

lent preparation for many fields, including journalism, diplomacy, and international business. Combined with a concentration in science, the history major is also a good background for medicine or other health science professions.

The department's offerings range over many eras, regions, and topics, concentrating on the United States, Europe, Latin America, East Asia, the history of science, and women's history. Surveys of these fields are offered at the 100 level for the United States and Europe and the 200 level for other areas. Students interested in the study of history should take these survey courses first, as prerequisites for more advanced coursework. American and European courses at the 200 level customarily examine a specific period, while 300-level courses typically examine specific topics (such as social or political history) or countries (such as Germany, Brazil, or China). History colloquia at the 400 level are small classes offering intensive reading and discussion on closely focused themes. The study of history emphasizes the mastery of large amounts of information and the ability to demonstrate that mastery through skillful writing.

Each semester the department issues a booklet with detailed descriptions of its offerings. Students interested in history, whether as a major, a minor, a social science course related to their major, 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.

Courses Offered in History

See the Course Description listing in this Bulletin for complete information.

HIS 101-F Early Modern European History: From Renaissance to Revolution
 HIS 102-F Modern European History from 1789 to 1945
 HIS 103-F American History to 1877
 HIS 104-F United States Since 1877
 HIS 109-F History through Documents
 HIS 110-H Introduction to the Social History of Medicine
 HIS 208-I Ireland from St. Patrick to the Present
 HIS 209-I Imperial Russia
 HIS 210-I Soviet Russia
 HIS 213-J Colonial Latin America

HIS 214-J Modern Latin America
 HIS 216-J History of U.S.-Latin American Relations
 HIS 219-J Introduction to Chinese History and Civilization
 HIS 220-J Introduction to Japanese History and Civilization
 HIS 221-J Introduction to Modern African History
 HIS 225-J The Formation of the Judaic Heritage
 HIS 226-F The Shaping of Modern Judaism
 HIS 235-I The Early Middle Ages
 HIS 236-I The Late Middle Ages
 HIS 237-H, 238-H Science, Technology, and Medicine in Western Civilization I, II
 HIS 241-I The Holocaust: The Destruction of European Jewry--Causes and Consequences
 HIS 248-I Europe, 1815-1914
 HIS 249-I Modern Europe, 1914-1945
 HIS 250-F The Second World War, 1939-1945
 HIS 251-I Europe Since 1945
 HIS 261-K Change and Reform in the United States, 1877-1919
 HIS 262-K American Colonial Society
 HIS 263-K Age of the American Revolution
 HIS 264-K The Birth of Modern America
 HIS 265-K Civil War and Reconstruction
 HIS 268-K Recent U.S. History, 1919 to the Present
 HIS 277-K The Modern Color Line
 HIS 300-F Global History
 HIS 301 Reading and Writing History
 HIS 307-I European Radicalism from the Protestant Reformation to the Russian Revolution
 HIS 309-I Modern France, 1815-1900
 HIS 310-I Modern France, 1900 to the Present
 HIS 311-I The Rise of Imperial Germany, 1806-1890
 HIS 312-I From Empire to Third Reich: Germany, 1890-1945
 HIS 316-F The Healer and the Witch
 HIS 317-F Expansion of Europe
 HIS 318-I Social and Intellectual History of Europe
 HIS 321-F Long Island History
 HIS 325-K The Civil Rights Movement

HIS 326-F History of Popular Culture
 HIS 327-K Origins of American Society
 HIS 333-K Women in U.S. History
 HIS 336-I Women, Work, and Family in Modern European History
 HIS 341-J 20th-Century China
 HIS 343-J Roots of Modern Japan
 HIS 344-J 20th-Century Japan
 HIS 345-J Women and Gender in Chinese History
 HIS 346-J Politics and Social History of Africa
 HIS 348-J History of British India
 HIS 349-F History of South Africa
 HIS 360-I Women in Premodern Europe
 HIS 361-K American History/American Film
 HIS 362-K Making Peace with the Sixties
 HIS 365-F Environmental History of North America
 HIS 369-K American Social History to 1860
 HIS 370-K U.S. Social History, 1860-1930
 HIS 374-K Historical Perspectives on Gender Orientation
 HIS 375-K History of U.S. Foreign Relations to 1920
 HIS 376-F History of U.S. Foreign Relations Since 1920
 HIS 382-J Politics and Political Change in Latin America
 HIS 385-J History of Aztec and Inca Societies
 HIS 386-J Modern Brazil
 HIS 387-J Women, Development, and Revolution in Latin America
 HIS 388-J Slavery in Latin America and the Caribbean
 HIS 389-J Modern Mexico
 HIS 390-I Topics in Ancient and Medieval Europe
 HIS 391-I Topics in Early Modern Europe
 HIS 392-I Topics in 18th-Century Europe
 HIS 393-I Topics in Modern British History
 HIS 394-H Topics in History of Medicine and Reproduction
 HIS 395-I Topics in Russian History
 HIS 396-F Topics in U.S. Economic History
 HIS 397-K Topics in History of U.S. Immigration and Ethnicity

Sample Course Sequence in the History Major

Freshman Fall	Credits
D.E.C. A	3
HIS 101 or 103 or 109	3
D.E.C.	3
D.E.C.	3
D.E.C.	3
Total	15

Spring	Credits
D.E.C. A	3
HIS 102 or 104 or 110	3
D.E.C.	3
D.E.C.	3
Elective	3
Total	15

Sophomore Fall	Credits
Primary Field Course #1 (200 level)	3
D.E.C.	3
D.E.C.	3
Elective	3
D.E.C.	3
Total	15

Spring	Credits
Primary Field Course #2 (200 level)	3
Elective	3
D.E.C.	3
D.E.C.	3
Upper Division elective	3
Total	15

Junior Fall	Credits
Primary Field Course #3 (300 level)	3
HIS 200-level outside primary field	3
Upper Division elective	3
Upper Division elective	3
Elective	3
Total	15

Spring	Credits
Primary Field course #4 (300 level)	3
HIS 300-level outside primary field	3
Related discipline 300-level course	3
Upper Division elective	3
Upper Division elective	3
Elective	1-2
Total	16-17

Senior Fall	Credits
Primary Field course #5 (400-level special topics seminar)	3
HIS 300-level outside primary field	3
D.E.C.	3
Elective	3
Elective	3
Total	15

Spring	Credits
Related discipline course (300 or 400-level)	3
Upper Division elective	3
Upper Division elective	3
Elective	3
Elective	3
Total	15

HIS 398-H Topics in History of Science and Technology

HIS 399-F Topics in Crime, Law, and Justice in the U.S.

HIS 401, 402, 403 Colloquia in European History

HIS 404 Colloquium in the History of the Social and Behavioral Sciences

HIS 411-414 Colloquia in American History

HIS 421, 422 Colloquia in Latin American History

HIS 431, 432 Colloquia in Asian History

HIS 441 Colloquium in World History

HIS 447 Independent Readings in History

HIS 451 Colloquium in Medieval History

HIS 461 Colloquium in History of Science

HIS 487 Supervised Research

HIS 488 Internship

HIS 495-496 Senior Honors Project in History

Requirements for the Major in History

The major in history leads to the Bachelor of Arts degree. All courses taken to meet requirements A and B must be taken for a letter grade. No grade lower than C may be applied toward requirement A. At least 12 credits in requirement A must be taken within the Department of History at Stony Brook.

Completion of the major requires 36 credits.

A. Study within the Area of the Major

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 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.

B. Courses in a Related Discipline

Two upper-division courses in one discipline, the discipline to be selected with department approval no later than the end of the first semester after declaring the major. Courses that are crosslisted with a history course do not satisfy this requirement.

C. Upper-Division Writing Requirement

Students are 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 must 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 makes a second evaluation of writing competency in the field of history. If the second evaluation is favorable, the student will have fulfilled this requirement.

Notes:

1. No transferred course with a grade lower than C may be applied toward requirement A.
2. No more than six credits of HIS 447, 487, 488 may be applied toward requirement 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 is 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 recommends honors.

The Minor in History

The minor 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 offered for the minor must be taken for a letter grade. Upper-division courses offered for the minor must be passed with a grade of C or higher.

Completion of the minor requires 18 credits. 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:

- A. One two-semester survey course in the period of the student's interest (100 or 200 level)
- B. One (additional) course at the 200 level
- C. Three courses at the 300 or 400 level, at least one of which must be at the 400 level

Note: HIS 447, 487, 488 may not be used to satisfy minor requirements.

LHD

Living/Learning Center Interdisciplinary Minor in Human Sexual and Gender Development

MINOR COORDINATOR: Roberta Karant, Sociology

OFFICE: 008 Eisenhower College PHONE: 632-7664 E-MAIL: rkarant@ccmail.sunysb.edu

The minor in human sexual and gender development (LHD) is designed primarily, but not exclusively, for residents of Eisenhower College who wish to add an academic dimension to their residential experience. The minor in this living/learning center brings an interdisciplinary perspective to the examination of evolving concepts of a gendered, sexual self. Small group seminars focus on sex, gender, and the human life course, while students broaden their understanding with relevant courses in the arts, sciences, and social sciences.

Requirements for the Minor

No more than one three-credit course in the minor may be taken P/NC. All other courses, except S/U graded courses, must be passed with a letter grade of C or higher.

Completion of the minor requires 20 credits.

1. LHD 101 Human Development Seminar for First-Year Students *or* LHD 301 Human Sexual and Gender Development Issues
2. Twelve credits in social and behavioral sciences selected from the approved list of courses (available from the minor coordinator), including:
 - a. two three-credit phase of life courses
 - b. two three-credit gender studies courses
3. Four credits in Human Sexual and Gender Development coursework chosen from the following:
 - LHD 302 Colloquium in Human Sexual and Gender Development
 - LHD 305 HIV Risk Reduction in the Campus Context
 - LHD 307 HIV Risk Reduction in the Campus Context Laboratory
 - LHD 401 Advanced Seminar in Human Sexual and Gender Development

4. Three credits of Independent Study coursework chosen from the following:

LHD 475 Undergraduate Teaching Practicum I

LHD 487 Independent Study in Human Sexual and Gender Development

LHD 488 Internship

Note: At least 10 credits for the minor must be in upper-division courses.

Declaration of the Minor

Students must declare the human sexual and gender development minor no later than the middle of their third year, at which time they consult with the director of the minor and plan their course of study for fulfillment of the requirements.

HUM

Interdisciplinary Program in Humanities

DIRECTOR OF UNDERGRADUATE STUDIES: Robert Harvey, Comparative Studies ADMINISTRATIVE ASSISTANT: Mary Moran-Luba
OFFICE: E-4322 Library PHONE: 632-7460 E-MAIL: rharvey@ccmail.sunysb.edu WEB ADDRESS: ws.cc.sunysb.edu/complit

Minors of particular interest to students majoring in humanities: art history (ARH), classics (CLS), comparative literature (CLT), English (EGL), French (FRN), German (GER), history (HIS), Italian (ITL), interdisciplinary arts (LIA), Judaic studies (JDS), medieval studies (MVL), music (MUS), Russian (RUS), Spanish (SPN), theatre arts (THR), women's studies (WST)

The interdisciplinary program in the Humanities, which currently is housed in the Department of Comparative Studies, 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. All courses offered for the major must be passed with a letter grade of C or higher. In choosing courses to satisfy requirement B, the student should be careful to consider the relevant prerequisites for the epochs chosen to satisfy requirement D.

Completion of the major requires 48 credits. 24 of the 48 credits must be at the upper division level.

A. Basic Humanities Courses.

Six credits (two courses) of 100-level Humanities (HUM) courses.

B. Introductory Coursework.

Twelve credits of introductory coursework (four courses numbered in the 100s or 200s) chosen from three of the following six areas:

1. Literature and Culture (CLT, EGL, HUF, HUG, HUI, HUM, HUR and other courses in literatures and cultures)
2. Cinema and Cultural Studies (CCS and courses which apply to the CCS minor)
3. Fine Arts: Art History (ARH), Music (MUS), Theatre Arts (THR)

4. History (HIS)

5. Philosophy (PHI)

6. Religious Studies (RLS and pertinent courses under other designators)

C. Language Study.

Six credits (or the equivalent of one year) of college study of a language other than English at the intermediate level or beyond. Courses in literature or culture taught in the language may also apply.

D. Advanced Studies.

Twenty-one upper-division credits (seven courses numbered 300 or higher) in courses with the listed designators, to be distributed as follows: three courses in one of the following epochs and two courses in each of two other epochs:

1. Ancient Worlds

[ANT, ARH, CLS, CLT, EGL, HIS, JDH, JDS, LAT, PHI, RLS]

2. The Middle Ages

[ARH, CLT, EGL, FRN, GER, HIS, ITL, LAT, MUS, MVL, PHI, RLS, RUS, SPN]

3. The Renaissance

[ARH, CLT, EGL, FRN, GER, HIS, ITL, MUS, PHI, RUS, SPN, THR]

4. Neo-Classicism and Enlightenment

[ARH, CLT, EGL, FRN, GER, HIS, ITL, MUS, PHI, RUS, SPN]

5. The Nineteenth-Century Frameworks

[AFS, ARH, CLT, EGL, FRN, GER, HIS, ITL, MUS, PHI, RUS, SPN]

6. Modern and Postmodern Societies and Cultures

[AFS, ARH, CCS, CLT, EGL, FRN, GER, HIS, ITL, HUF, HUG, HUI, HUM, HUR, JDH, JDS, MUS, PHI, RLS, RUS, SPN, THR]

E. HUM 435 Senior Seminar or HUM 447 Directed Readings

F. Upper-Division Writing Requirement

No later than seven weeks after the start of the first semester of the senior year, students majoring in Humanities must submit, to the Director of Undergraduate Studies, two papers (totalling at least ten pages altogether) written in two different areas or epochs for upper-division courses pertaining to the major. 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.

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 48 required for the major. These three additional credits are 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 for the project in writing to the director of undergraduate studies by the last day of classes of the first semester of the senior year. Students who have

Sample Course Sequence for the Humanities Major

Freshman Fall	Credits	Spring	Credits
D.E.C. A	3	D.E.C. A	3
Elementary Foreign Language	3-4	Area A course	3
Area A course	3	Elementary Foreign Language	3-4
D.E.C.	3	D.E.C.	3
D.E.C.	3	D.E.C.	3
Total	15-16	Total	15-16

Sophomore Fall	Credits	Spring	Credits
Area B course	3	Area B course	3
Area B course	3	Area B course (same dept. as another)	3
Intermediate Foreign Language	3	Intermediate Foreign Language	3
D.E.C.	3	D.E.C.	3
D.E.C.	3	D.E.C.	3
Total	15	Total	15

Junior Fall	Credits	Spring	Credits
Area D epoch 1	3	Area D epoch 1 (course #2)	3
Area D epoch 2	3	Area D epoch 2 (course #2)	3
D.E.C.	3	Upper Division elective	3
D.E.C.	3	Upper Division elective	3
Elective	3	Elective	3
Total	15	Total	15

Senior Fall	Credits	Spring	Credits
Area D epoch 1 (course #3)	3	Area D epoch 3 (course #2)	3
Area D epoch 3	3	HUM 435	3
Upper Division elective	3	D.E.C.	3
Upper-Division elective	3	Upper-Division elective	3
Elective	3	Elective	3
Total	15	Total	15

obtained permission from the chairperson to pursue the project must enroll in HUM 495 while writing the thesis.

The thesis is evaluated by the thesis advisor and two members of the humanities faculty chosen by the student with the approval of the thesis advisor.

LIA

**Living/Learning Center Interdisciplinary Minor in
Interdisciplinary Arts**

MINOR COORDINATOR: Randy Thomas, Theatre Arts / Academic Advising Center

OFFICE: E-3310 Melville Library PHONE: 632-7082 E-MAIL: rthomas@notes.cc.sunysb.edu

The minor in Interdisciplinary Arts (LIA) provides an interdisciplinary and collaborative perspective on the fine and performing arts. The minor is designed to explore the factors that unify the arts in modern culture and society. The Interdisciplinary Arts minor is also for students who would like to gain insight into the arts or to broaden their involvement in and knowledge of these exciting fields. It is designed primarily, but not exclusively, for residents of Greeley College who wish to add an academic dimension to their residential experience.

Requirements for the Minor

All courses for the minor must be passed with a letter grade of C or higher. Nine of the 22 credits required for the minor must be in courses numbered 300 or higher.

Completion of the minor requires 22 credits.

1. LIA 101 Introduction to the Interdisciplinary Arts
LIA 102 Opportunities in the Arts
LIA 401 Senior Seminar
2. Six credits each in two of the following disciplines:
Art History and Criticism/
Studio Art
Music
Theatre Arts/Dance
3. Three credits chosen from the following:
ARH 102 Art in Culture, ca. 1400 A.D. to Postmodernism
PHI 110 Arts and Ideas
PHI 264 Philosophy and the Arts
SOC 351 Sociology of the Arts
THR 110 Public Speaking

Notes:

1. Students majoring in art history and criticism, studio art, music, or theatre arts may not use courses in their major to fulfill requirement #2.
2. No more than three credits from ARH 487, ARS 487, MUS 487, or THR 487 may be applied to the minor.

LIS

Living/Learning Center Interdisciplinary Minor in International Studies

MINOR COORDINATOR: Olufemi Vaughan, Africana Studies

OFFICE: S-239 Social and Behavioral Sciences PHONE: 632-7408 E-MAIL: ovaughan@notes.cc.sunysb.edu

The interdisciplinary minor in international studies (LIS) is open to all undergraduates with preference given to residents of Stimson International College who wish to add an academic dimension to their residential experience. Stimson, a living/learning center, provides an integrated view of institutions, ideas, historical traditions, and aspirations of peoples of other countries or regions. Students are also urged to spend at least one semester abroad.

Requirements for the Minor

No more than one three-credit course offered for the minor may be taken Pass/No Credit. All other courses must be passed with a letter grade of C or higher. At least 12 elective credits for the minor must be in courses numbered 300 or higher.

Completion of the minor requires 24 credits.

1. Students must select a world region for specialization from among the following: western Europe, eastern Europe (including the former Soviet Union), southern Europe, the Middle East, east Asia, south Asia, Africa, or Latin America.
2. One course from the following:
 - ANT 102 Introduction to Cultural Anthropology
 - ANT 230 Peoples of the World
 - EGL 224 20th-Century Literature in English
 - PHI 105 Politics and Society
 - POL 101 World Politics
 - POL 103 Introduction to Comparative Politics
3. Fifteen credits selected from courses in the social and behavioral sciences and humanities and fine arts that relate to the world region the student has chosen to study, to be distributed as follows:
 - 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 additional course from either of the above two sets of topics.

4. LIS 301 Introductory Seminar in International Studies
5. LIS 302 Colloquium in International Studies
6. LIS 401 Advanced Seminar in International Studies
7. LIS 487 Independent Study for three credits
or a three-credit independent study course in any department approved by the director

Notes:

1. With the approval of the director, up to 15 credits may be taken as part of the Study Abroad program. See the Study Abroad entry in the chapter entitled "Special Academic Programs."
2. 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 should declare the international studies minor during their sophomore year or the beginning of the junior year, at which time they consult the director and plan their course of study.

IAM

Interdisciplinary Minor in Italian American Studies

MINOR COORDINATOR: Fred Gardaphe, European Languages, Literatures, and Cultures UNDERGRADUATE SECRETARY: Marie Sweatt
OFFICE: N-4004 Melville Library PHONE: 632-6946 E-MAIL: mswlatt@notes.cc.sunysb.edu WEB ADDRESS: www.sunysb.edu/cis/iam

Majors or other minors of particular interest to students minoring in Italian American studies: comparative literature (CLT), English (EGL), history (HIS), international studies (LIS), Italian (ITL), political science (POL), psychology (PSY), sociology (SOC)

Affiliated Faculty

Andrea Fedi, *Italian Studies*

Luigi Fontanella, *Italian Studies*

Charles Franco, *Italian and Medieval Studies*

Eva Gold, *Italian and Cultural Studies*

Mario Mignone, *Italian Studies*

Jacqueline Reich, *Italian and Cultural Studies*

Minor in Italian American Studies

Interdisciplinary in nature, Italian American studies considers the experiences of persons of Italian descent in North and South America with particular attention to experiences in the United States. The minor is designed to assist students in exploring the ways in which Italian and American cultures have combined to form a distinctive ethnic culture.

The minor in Italian American Studies offers students the opportunity to survey developments in the field of Italian American studies as well as to examine it in relation to the fields of history, literature, media, and language study.

Students are encouraged to approach Italian American studies from the perspective of their major. Combined with a major in political science, history, or psychology, the minor provides students with an in-depth exploration of the role of ethnicity in the definition of what it means to be American. The study of the Italian American experience will assist students with a major in sociology to understand the theoretical approaches to the study of urban and suburban cultures. Students of American literature or culture may use the minor to develop a specialty in the study of a specific ethnic American culture. Students intending careers in law and the health professions may use the minor to further their understanding of the community in which they may ultimately serve.

Under the direction of an advisor, students must establish an advising folder with the minor coordinator who supervises students in fulfilling the requirements.

Requirements for the Minor in Italian American Studies

All courses offered to for the minor must be passed with a letter grade of C or higher.

Completion of the minor requires 21 credits.

1. HUI 236 The Italian-American Scene
2. One of the following:
HUI 216 Italian Civilization through the Ages
HUI 239 Modern Italy
3. ITL 311 Italian Conversation and Composition I
or ITL 312 Italian Conversation and Composition II
4. HUI 333 The Italian-American Experience
5. HUI 336 Italian Americans and Ethnic Relations
6. HUI 338 Images of Italian Americans in Film
7. HUI 439 The Emigrant Experience in Italian Literature

JNS

Minor in Japanese Studies

DIRECTOR: Sachiko Murata, Comparative Studies OFFICE: 131-B Old Chemistry PHONE: 632-9364

In completing the minor in Japanese studies (JNS), students take a series of courses centering on the history and civilization of Japan while keeping in view Japan's close ties with China and Korea. Students choose courses for the minor with the approval of the director of the minor.

Courses Offered in Japanese Studies

See the Approved Courses listing in this Bulletin for complete course descriptions.

JNH 240-J Introduction to Japanese Studies

JNH 251-J Japanese Literature in Translation

JNH, JNS 331-J, 332-J Topics in Japanese Studies

JNH 351-J Studies in Japanese Literature (in English)

JNH, JNS 447 Independent Study

JPN 111, 112 Elementary Japanese I, II

JPN 211-J, 212-J Intermediate Japanese I, II

JPN 311-J, 312-J Advanced Japanese I, II

JPN 475, 476 Undergraduate Teaching Practicum I, II

Requirements

All courses offered for the minor must be passed with a letter grade of C or higher.

Completion of the minor requires 18 credits.

1. JPN 211 Intermediate Japanese I

2. Five of the following:

ECO 340 Japanese Economy

HIS 220 Introduction to Japanese History and Civilization

HIS 343 Roots of Modern Japan

HIS 344 20th-Century Japan

HIS 431 Colloquium in Asian History (appropriate topic only)

JNH 240 Introduction to Japanese Studies

JNH 251 Japanese Literature in Translation

JNH, JNS 331 Topics in Japanese Studies

JNH, JNS 332 Topics in Japanese Studies

JNH 351 Studies in Japanese Literature (in English)

JNH, JNS 447 Independent Study

JPN 311 Advanced Japanese I

JPN 312 Advanced Japanese II

KRH 346 Philosophy of Education in Korea and Japan

PHI 344 Japanese Thought and Philosophy

RLS 246 Korean and Japanese Religions

RLS 406 Japanese Buddhism

Notes:

1. Students excused from JPN 211 because of previous Japanese language proficiency are required to take an extra course from requirement 2.
2. Independent study may fulfill only three credits.

JRN

**Minor in
Journalism**

MINOR COORDINATOR: Paul Schreiber, English

OFFICE: 254 Humanities PHONE: 632-7400

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 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.

Courses Offered in Journalism

See the Course Description listing in this Bulletin for complete information.

JRN 287 Basic News Reporting and Writing

JRN 288 Feature Writing

JRN 387 Advanced News Reporting and Writing

JRN 388 Advanced Feature and Magazine Writing

JRN 389 Investigative Reporting

JRN 390 Computer-Assisted Reporting

JRN 394 Journalism Practicum

JRN 395 News Editing

JRN 488 Internship

**Requirements for the
Minor in Journalism**

All courses offered for the minor must be taken for a letter grade. Students interested in minoring in journalism should consult the minor coordinator.

Completion of the minor requires 18 credits.

A. Required Courses:

JRN 287 Basic News Reporting and Writing

JRN 288 Feature Writing

JRN 387 Advanced News Reporting and Writing

JRN 388 Advanced Feature and Magazine Writing

JRN 395 News Editing

B. One course to be chosen from:

JRN 389 Investigative Reporting

JRN 390 Computer-Assisted Reporting

JRN 394 Journalism Practicum

JRN 488 Internship

JDS

Minor in Judaic Studies

DIRECTOR: Robert Goldenberg, History MINOR COORDINATOR: Ilona Rashkow, Comparative Studies

Affiliated Faculty

Robert Goldenberg, *History*
Robert Hoberman, *Linguistics*
Sara Lipton, *History*
Ilona Rashkow, *Comparative Studies*
Stephen Spector, *English*

Adjunct Faculty

Estimated number: 1

The minor in Judaic studies (JDS) offers students an opportunity to acquire background in Hebrew 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 helps to assure that the student's program has a curricular focus; courses from other departments suiting that focus may be included.

Courses Offered in Judaic Studies

See the Course Description listing in this Bulletin for complete information.

JDH 230-G Judaism
JDH 261-B The Bible as Literature
JDH 320-G The Rabbinic Tradition
JDH 366-G The American Jewish Experience in Fiction
JDH 369-G Topics in Biblical Interpretation
JDH 390-G Topics in Judaic Studies
JDH 415-G Judaic Responses to Catastrophe
JDH 447 Readings in Judaic Studies
JDS 225-J The Formation of the Judaic Heritage
JDS 226-F The Shaping of Modern Judaism
JDS 241-I The Holocaust: The Destruction of European Jewry—Causes and Consequences
JDS 327-F Women in Judaism
JDS 390-F Topics in Judaic Studies
JDS 447 Readings in Judaic Studies

Requirements for the Minor in Judaic Studies

No more than one course offered for the minor may be taken for Pass/No Credit. All other courses for the minor must be taken for a letter grade. Students interested in enrolling in the minor must consult with the coordinator of the minor in Judaic studies and select an advisor from the Judaic studies program faculty. Completion of the minor requires at least 21 credits.

1. One year of Hebrew at a level appropriate to the student's previous background
2. Two of the following:
 - JDH/RLS 230 Judaism
 - JDS/HIS 225 The Formation of the Judaic Heritage
 - JDS/HIS 226 The Shaping of Modern Judaism
3. Three courses numbered 300 or higher approved in advance by the minor advisor.

Requirement 3 may be satisfied by courses in the Judaic studies program itself or by related courses in other programs, 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
- RLS 301 Sources and Methods
- RLS 402 Contemporary Theologies
- RLS 450 Philosophical Theology

Appropriate topics from any directed readings course and from the following:

- ANT 310 Ethnography
- EGL 375 Literature in English in Relation to Other Disciplines
- RLS 430 Special Topics

KRH

Minor in Korean Studies

DIRECTOR: Sung Bae Park, Comparative Studies UNDERGRADUATE SECRETARY: Carmela Basirico
OFFICE: 143A Old Chemistry; E-4309 Library PHONE: 632-7311 E-MAIL: SBPark@notes.cc.sunysb.edu
WEB ADDRESS: ws.cc.sunysb.edu/complit

Teaching Assistants

Estimated number: 2

Students who undertake the Korean studies minor (KRH) design an individual program that combines coursework in Korean history, literature, art, religion, and philosophy. The director of the Korean studies program advises and oversees each student's program. For those considering overseas exchange programs with Korean universities, consultation with the director is encouraged.

Courses Offered in Korean Studies

See the Course Description listing in this Bulletin for complete information.

KOR 111, 112 Elementary Korean I, II
KOR 211-J, 212-J Intermediate Korean I, II
KOR 311-J Advanced Korean
KOR 351-J Studies in Korean Literature
KOR 475, 476 Undergraduate Teaching Practicum in Korean I, II
KRH 240-J Introduction to Korean Culture
KRH 251-J Korean Literature in Translation
KRH, KRS 331-J, 332-J Topics in Korean Studies
KRH 346-J Philosophy of Education in Korea and Japan
KRH 400 Seminar in Korean Studies
KRH, KRS 447 Directed Readings in Korean Studies
KRH 475, 476 Undergraduate Teaching Practicum in Korean Studies I, II

Requirements for the Minor in Korean Studies

Only one course offered for the minor may be taken for Pass/No Credit. All other courses for the minor must be taken for a letter grade.

Completion of the minor requires 21 credits (18 credits for those who fulfill requirement 1 by examination).

1. KOR 211 Intermediate Korean I or higher (or equivalent by examination)
2. One course chosen from among:
 - KRH 240 Introduction to Korean Culture
 - KRH 251 Korean Literature in Translation
 - RLS 246 Korean and Japanese Religions
3. Three courses chosen from among:
 - KOR 351 Studies in Korean Literature
 - KRH, KRS 331 Topics in Korean Studies
 - KRH, KRS 332 Topics in Korean Studies
 - KRH, KRS 447 Directed Readings in Korean Studies
 - KRH 346 Philosophy of Education in Korea and Japan
4. One course chosen from among the following:
 - ARH 203 History of Asian Art
 - ARH 318 History of Chinese Painting
 - HIS 219 Introduction to Chinese History and Civilization

HIS 220 Introduction to Japanese History and Civilization

HIS 341 20th-Century China

HIS 344 20th-Century Japan

PHI 342 History of Chinese Philosophy

PHI 344 Japanese Thought and Philosophy

RLS 240 Confucianism and Taoism

RLS 260 Buddhism

RLS 270 Christianity

RLS 341 Meditation and Enlightenment

5. KRH 400 Seminar in Korean Studies
Appropriate special topics from these or other departments may also be offered to fulfill minor requirements with permission of the program director.

Note:

Students with advanced proficiency in Korean are urged to take courses in an additional Asian language.

LAC

Minor in Latin American and Caribbean Studies

DIRECTOR: Kathleen Vernon, Hispanic Languages and Literature

OFFICE: N-335 Social and Behavioral Sciences PHONE: 632-7517/7569 E-MAIL: lacc@ic.sunysb.edu WEB ADDRESS: www.sinc.sunysb.edu/lacc

Affiliated Faculty

Timothy Brennan, *English*

Jonathan Cohen, *Surgery*

Helen Cooper, *English*

Román de la Campa, *Hispanic Languages and Literature*

Georges Fournon, *Social Sciences Interdisciplinary*

Barbara Frank, *Art*

Paul Gootenberg, *History*

Anthony E. Hurley, *French*

Temma Kaplan, *Women's Studies and History*

Aisha Khan, *Africana Studies*

Cora Lagos, *Hispanic Languages and Literature*

Brooke Larson, *History*

Elizabeth Monasterios, *Hispanic Languages and Literature*

Dolores Newton, *Anthropology*

Malcolm Read, *Hispanic Languages and Literature*

Ian Roxborough, *Sociology*

Antonio Vera-León, *Hispanic Languages and Literature*

Barbara Weinstein, *History*

Dieter Zschock, *Economics*

The minor in Latin American and Caribbean studies (LAC) allows students to pursue an interdisciplinary course of study that provides them with a broad overview of Latin America and the Caribbean. Students are introduced to the principal historical, social, and cultural themes in the region, and through their electives, they are also able to develop more detailed knowledge of specific subjects in the region, such as the history of a particular country or the literature of a particular period.

Requirements

All courses offered for the minor must be passed with a letter grade of C or higher.

Completion of the minor requires 24 credits.

1. LAC 200 Latin American Society and Culture
2. SPN 191 Intermediate Spanish I (Emphasis on Latin America) (or SPN

190 Intermediate Spanish [Emphasis on Spain])

3. One literature or culture course, to be chosen from those listed in Group A
4. Two history or social science courses, to be chosen from those listed in Group B
5. Two additional upper-division courses to be chosen from Groups A and B
6. One 400-level seminar or three-credit upper-division independent study course in any department, approved by the director

Notes:

1. Relevant special topics given in any department are acceptable for the minor with the approval of the director.
2. An expanded list of acceptable courses for groups A and B is available in the program office.

Group A: Literature and Culture

AFH/HUF 212 French Caribbean Literature (in Translation)

AFH/HUF 213 Caribbean and American Connections in Literature (in English)

ARH 326 Arts of Ancient Mesoamerica

ARH 329 Arts of the African Diaspora

EGL 376 The Literature of Imperialism

HUS 254 Latin America Today (in English)

SPN 392 The Culture and Civilization of Spanish America

SPN 396 Introduction to Spanish-American Literature

SPN 410 Theory in Contexts

SPN 415 Hispanic Cultures in Contact

SPN 420 Topics in Latin American Cinema

SPN 435 Topics in Latin American Literature from the Colonial Period to the Present

The following topics courses may also be used when the topic is appropriate:

EGL 372 Topics in Women and Literature

EGL 374 Literature in English in Relation to Other Disciplines

HUS 361 Latin American Literature in Translation

HUS 390 Latin American Cinema (in English)

MUS 311 Topics in Non-Western Music (when topic is appropriate)

SPN 405 Issues in Hispanic Cultural Studies

Group B: Social Sciences

AFH 329, 330 Pan-African Literature I, II

AFS 239 Introduction to the Caribbean Experience

AFS 240 Issues in Caribbean Society

AFS/HIS 350 Black Women and Social Change: A Cross-Cultural Perspective

AFS/ANT 380 Race and Ethnicity in Latin America and the Caribbean

AFS/HIS 388 Slavery in Latin America and the Caribbean

ANT 201 Peoples of South America

ANT 219 Peoples of the Caribbean

ANT 361 Peasants

ECO 358 Topics in Developing Economies (when topic is appropriate)

HIS 213 Colonial Latin America

HIS/POL 214 Modern Latin America

HIS/POL 216 History of U.S.-Latin American Relations

HIS/POL 382 Politics and Political Change in Latin America

HIS 385 History of Aztec and Inca Societies

HIS 386 Modern Brazil

HIS 387 Women, Development, and Revolution in Latin America

HIS 389 Modern Mexico

HIS 421, 422 Colloquia in Latin American History

POL 372 Politics in the Third World

SOC 364 Sociology of Latin America

LIN

Department of Linguistics

CHAIRPERSON: Ellen Broselow DIRECTOR OF UNDERGRADUATE STUDIES: Robert Hoberman UNDERGRADUATE SECRETARY: Helen Humphreys
OFFICE: S-201 Social and Behavioral Sciences PHONE: 632-7777 E-MAIL: ling@semlab1.sbs.sunysb.edu
WEB ADDRESS: semlab2.sbs.sunysb.edu/General/dept.html

Minors of particular interest to students majoring in linguistics: anthropology (ANT), computer science (CSE), foreign languages, international studies (LIS), philosophy (PHI)

Faculty

Frank Anshen, *Associate Professor and Graduate Studies Director, Ph.D., New York University*: Sociolinguistics.

Mark Aronoff, *Professor, Ph.D., Massachusetts Institute of Technology*: Morphology, writing systems.

John Bailyn, *Assistant Professor, Ph.D., Cornell University*: Syntax, language acquisition, Slavic linguistics.

Christina Y. Bethin, *Professor, Ph.D., University of Illinois*: Slavic linguistics, phonology, Russian, Polish, and Ukrainian.

Ellen Broselow, *Professor, Ph.D., University of Massachusetts-Amherst*: Phonetics, phonology, applied linguistics.

Aaron S. Carton, *Professor Emeritus, Ph.D., Harvard University*: Psycholinguistics; teaching English to speakers of other languages.

Daniel L. Finer, *Associate Professor, Ph.D., University of Massachusetts-Amherst*: Syntax; semantics; language acquisition.

Robert D. Hoberman, *Associate Professor, Ph.D., University of Chicago*: Phonology, morphology, Semitic linguistics, Hebrew, Aramaic, and Arabic.

Marie Huffman, *Assistant Professor, Ph.D., University of California, Los Angeles*: Phonetics; phonology.

Dorit Kaufman, *Research Associate Professor, Ph.D., State University of New York at Stony Brook*: TESOL; language attrition.

Richard Larson, *Professor, Ph.D., University of Wisconsin-Madison*: Syntax; semantics.

Recipient of the State University Chancellor's Award for Excellence in Teaching and the President's Award for Excellence in Teaching.

Lori D. Repetti, *Associate Professor, Ph.D., University of California, Los Angeles*: Romance linguistics, phonology, Italian dialectology.

Kamal K. Sridhar, *Associate Professor, Ph.D., University of Illinois at Urbana-Champaign*: Teaching English to speakers of other languages; bilingualism; English around the world.

S. N. Sridhar, *Professor, Ph.D., University of Illinois at Urbana-Champaign*: Psycholinguistics; sociolinguistics; second language acquisition; Indian linguistics.

Adjunct Faculty

Estimated number: 2

Teaching Assistants

Estimated number: 6

Linguistics is the science of language. Language is at once the most diverse and the most clearly structured aspect of human behavior. It distinguishes humans from other species and much of human culture depends on it. Understanding the nature of human language is therefore a key to understanding human nature. Linguistics seeks to discover the common features of the languages of the world's peoples, to understand how languages change over time, and how language relates to other aspects of human society.

The major in linguistics is designed to provide graduates with a set of skills and a body of knowledge. A graduate will have the skills to analyze the most important features of language: sounds, words, sentences, and conversation, using both formal and experimental methods. Students will also learn what linguists know about the languages of the world, their history and structure, and how language interacts with many facets of all cultures.

The department also prepares its majors for provisional certification as teachers of English to speakers of other languages in New York State (TESOL) from kindergarten through grade 12. Candidates for TESOL certification must follow a specific track within the major that is included in the sample course sequence given below, which includes a semester of student teaching. Approximately half of linguistics majors elect this track in the major. It is also quite common for our majors to have a second major, either in a language or in an adjacent field such as psychology or computer science.

Options for further education that are taken by our graduates include professional school in such areas as speech pathology and law, and graduate school in linguistics, philosophy, psychology, and

computer science. A few of our graduates have gone on to technical positions in industry that involve speech engineering.

Instruction in uncommonly taught languages not offered elsewhere in the university is provided by the Department of Linguistics.

Courses Offered in Linguistics

See the Course Description listing in this Bulletin for complete information.

ESL 475, 476 Undergraduate Teaching Practicum I, II

LIN 101-F Introduction to Linguistics

LIN 121-F The Structure of English Words and Sentences

LIN 200-K Language in the United States

LIN 201-F Phonetics

LIN 211-F Syntax

LIN 300 Writing in Linguistics

LIN 301-F Phonology

LIN 307-K Sociolinguistics

LIN 330-F Language Acquisition

LIN 340-F Historical Linguistics

LIN 345-J Writing Systems of the World

LIN 346-F Language and Meaning

LIN 355-J Language and Life in a Selected Area of the World

LIN 370 Methods of Teaching ESL to Adults

LIN 375, 378 Methods and Materials of Teaching English as a Second Language I, II

LIN 385-K Language and Science: A Multicultural Perspective

LIN 425, 426, 427 Special Topics in Linguistics

LIN 431 The Structure of an Uncommonly Taught Language

LIN 447 Directed Readings in Linguistics

LIN 451 Supervised Student Teaching in English as a Second Language: Primary Grades N-6

LIN 452 Supervised Student Teaching in English as a Second Language: Secondary Grades 7-12

LIN 454 Student Teaching Seminar in English as a Second Language

LIN 464 Morphology and Word Formation

LIN 475, 476 Undergraduate Teaching Practicum I, II

LIN 487 Directed Research

LIN 488 Internship

LIN 495-496 Senior Honors Project in Linguistics

Requirements for the Major in Linguistics

The major in linguistics leads to the Bachelor of Arts degree. All linguistics courses offered for the major must be passed with a letter grade of C or higher. Completion of the major requires 35 credits in linguistics and one year of a foreign language beyond the University's entry skill requirement.

1. LIN 201 Phonetics
2. LIN 211 Syntax
3. LIN 301 Phonology
4. LIN 431 The Structure of an Uncommonly Taught Language (see Note 1)
5. Seven additional linguistics courses, of which at least six must be upper division
6. One year of a modern foreign language beyond the entry skill in foreign language requirement
7. Upper-Division Writing Requirement:

In the junior or senior year, students must successfully complete LIN 300 Writing in Linguistics, a one-credit course.

Notes:

1. A course on the structure of a language offered by a foreign language department may be substituted for LIN 431 with the permission of the director of undergraduate studies.
2. LIN 121 and LIN 370 may not be counted toward the major.
3. The attention of students majoring in linguistics is directed to the following

Sample Course Sequence in the Linguistics Major (including TESOL Certification Track)

Freshman Fall	Credits
D.E.C. A	3
LIN 101@	3
LIN 201*	4
Foreign language 111*	4
D.E.C.	3
Total	17

Spring	Credits
D.E.C. A	3
LIN 211*	4
LIN 301*	3
Foreign language 112*	4
D.E.C.	3
Total	17

Sophomore Fall	Credits
LIN 307#@	3
LIN 345@	3
Foreign language 211*	3
D.E.C.	3
D.E.C.	3
Total	15

Spring	Credits
LIN 330@	3
LIN 375#@	3
Foreign language 212*	3
D.E.C.	3
D.E.C.	3
Total	15

Junior Fall	Credits
LIN 345@	3
LIN 340@	3
SSI 327#	3
D.E.C.	3
D.E.C.	3
Total	15

Spring	Credits
LIN 346@	3
SSI 350#	3
LIN 300	1
D.E.C.	3
D.E.C.	3
Upper Division Elective	3
Total	16

Senior Fall	Credits
LIN 378#@	3
LIN 431*	3
Upper Division D.E.C.	3
Upper Division Elective	3
Total	12

Spring	Credits
LIN 451#	6
LIN 452#	6
LIN 454#@	3
or Upper Division Elective	3
Electives	12
Total	15

* Course must be taken for the major.

Course must be taken for certification.

@ Course fulfills the major requirement but is not obligatory.

courses of interest to them in other departments:

ANT 102, 203, 354
 CSE 110, 113, 114
 EEL 111, 112
 EGL 207, 300, 302
 FLA 339, 439
 GER 438
 HBW 415
 HUL 424
 PHI 220, 325
 RUS 439
 PSY 365
 SPN 462, 463, 465

4. Students electing to complete only the required major (without TESOL) will need to take 15 additional upper-division credits. Those electing TESOL may not take any courses required for certification for Pass/No Credit. Requirements for TESOL certification are detailed following the linguistics minor and honors program listings.

Requirements for the Minor in Linguistics

The minor requires 20 credits.

LIN 201 Phonetics

LIN 211 Syntax

Four additional linguistics courses, of which at least three must be upper division.

Notes:

1. One of the courses required for the minor may be taken for Pass/No Credit.
2. 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.
3. Students must consult with the director of undergraduate studies in linguistics to enroll in the minor.

Honors Program

The honors program is open to seniors majoring in linguistics who have maintained a g.p.a. of 3.5 in the major and a 3.0 overall. Students should apply to the honors program before the beginning of their senior year. With the approval of a 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 approval of the proposal by the department.

Students enroll in LIN 495 in the first semester of their senior year and in LIN 496 in the following semester, for a total of six credits. These courses must be taken in addition to the total credits required for the major. The student's project paper or research report must be completed and submitted no later than April 1 for May graduation and November 1 for December graduation. The paper or report is read and evaluated by a committee consisting of the student's sponsor, one other Linguistics Department member, and one faculty member from another department.

If the honors program is completed with distinction and the student retains a 3.5 for all linguistics courses taken in the senior year, honors are conferred.

Teaching English to Speakers of Other Languages (TESOL) Preparation Program

Note: The University is in the process of revising its teacher education curriculum to bring it into compliance with the new

standards approved by the New York State Board of Regents. Students should consult a TESOL advisor for further details.

The program outlined below, which is restricted to students majoring in Linguistics, leads to provisional certification in teaching English to Speakers of Other Languages (TESOL) from Pre-Kindergarten to grade 12. Students must consult with the program director as soon as they decide to seek certification.

Requirements

- A. All requirements for the major in Linguistics.
- B. A 3.0 major grade point average and 2.75 grade point average overall.
- C. Courses in linguistics, social, and anthropological aspects of language: LIN 101, 201, and 307.
- D. Courses in professional preparation: SSI 350 Foundations of Education, SSI 327 Adolescent Growth and Development, LIN 375, 378, 451, 452, 454.
- E. Language Study: 4 college semesters of modern foreign language (e.g., Chinese, French, German, Italian, Hindi, Japanese,) or American Sign Language.

Note: Courses taken for Pass/No Credit may not be used to satisfy the preparation in professional education component of the teacher preparation program.

MAT

Department of Mathematics

CHAIRPERSON: Anthony Phillips DIRECTOR OF UNDERGRADUATE STUDIES: Dusa McDuff ADMINISTRATIVE ASSISTANT: Lucille Meci
OFFICE: Mathematics P143 PHONE: 632-8250 E-MAIL: lmecci@ccmail.sunysb.edu WEB ADDRESS: www.math.sunysb.edu

Minors of particular interest to students majoring in mathematics: applied mathematics and statistics (AMS), computer science (CSE), economics (ECO)

Faculty

Michael Anderson, *Professor, Ph.D., University of California, Berkeley*: Differential geometry.

Alexandra Barcus, *Lecturer, Director of Mathematics Learning Center, Ph.D. Harvard University*: Mathematics proficiency instruction.

William Barcus, *Professor, D. Phil, University of Oxford, England*: Algebraic topology.

Christopher Bishop, *Professor, Ph.D., University of Chicago*: Complex Analysis.

Andrew Comech, *James H. Simons Instructor, Ph.D., Columbia University*: Partial differential equations, micro-local analysis.

David Ebin, *Professor, Ph.D., Massachusetts Institute of Technology*: Global analysis; mathematics of continuum mechanics; partial differential equations.

Serge Ferleger, *James H. Simons Instructor, Ph.D., The Pennsylvania State University*: Dynamical systems; differential geometry.

Daryl Geller, *Professor, Ph.D., Princeton University*: Partial differential equations; harmonic analysis; several complex variables; Lie groups.

James Glimm, *Distinguished Professor, Ph.D., Columbia University*: Applied mathematics; numerical analysis.

Detlef Gromoll, *Professor, Ph.D., University of Bonn, Germany*: Differential geometry.

C. Denson Hill, *Professor, Ph.D., New York University*: Partial differential equations; several complex variables.

Lowell Jones, *Professor, Ph.D., Yale University*: Topology.

Alexander Kirillov, Jr., *Assistant Professor, Ph.D., Yale University*: Representation theory.

Irwin Kra, *Distinguished Service Professor, Ph.D., Columbia University*: Complex analysis; Kleinian groups, Riemann surfaces; Teichmüller theory; applications to mathematical physics and number theory.

Paul Kumpel, *Professor, Ph.D., Brown University*: Algebraic topology. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1990, and the President's Award for Excellence in Teaching, 1990.

H. Blaine Lawson, Jr., *Distinguished Professor, Ph.D., Stanford University*: Differential geometry; topology; algebraic geometry.

Claude LeBrun, *Professor, D. Phil, University of*

Oxford, England: Complex analysis; mathematical physics; differential geometry; algebraic geometry.

Mikhail Lyubich, *Professor, Ph.D., Tashkent State University, former Soviet Union*: Dynamical systems.

Bernard Maskit, *Professor, Ph.D., New York University*: Riemann surfaces; Kleinian groups and deformation spaces.

Mikhail Matveyev, *James H. Simons Instructor, Ph.D., Michigan State University*: Geometric topology of low-dimensional manifolds.

Dusa McDuff, *Distinguished Professor, Ph.D., Cambridge University, England*: Symplectic topology.

Marie-Louise Michelsohn, *Professor, Ph.D., University of Chicago*: Differential geometry.

John Milnor, *Distinguished Professor and Director of the Institute for Mathematical Sciences, Ph.D., Princeton University*: Dynamical systems.

Yair Minsky, *Associate Professor, Ph.D., Princeton University*: Low-dimensional geometry and topology.

Mikhail Movshev, *James H. Simons Instructor, Ph.D.: University of Pennsylvania*: Mathematical physics.

Anthony Phillips, *Professor, Ph.D., Princeton University*: Differential topology.

Bradley Plohr, *Professor, Ph.D., Princeton University*: Applied mathematics; partial differential equations.

Dennis Sullivan, *Distinguished Professor, Ph.D., Princeton University*: Dynamical systems; topology; fluid mechanics.

Scott Sutherland, *Associate Professor and Director of Computing, Ph.D., Boston University*: Dynamical systems; root finding algorithms; computing.

Leon Takhtajan, *Professor, Ph.D., Leningrad Branch of the Steklov Mathematical Institute, Russia*: Mathematical physics.

Tonghai Yang, *Assistant Professor, Ph.D., University of Maryland*: Number theory; algebraic geometry; algebra.

Affiliated Faculty

Abraham Neyman, *Applied Mathematics and Statistics*

Michael Taksar, *Applied Mathematics and Statistics*

Teaching Assistants

Estimated number: 60

Mathematics is an essential element in a wide range of human activities. It is the language of the physical sciences, and as such is an indispensable tool in the formulation of the laws of nature. In the social and biological sciences, it plays an increasingly important role in modeling complicated, large-scale phenomena. In addition, mathematics has an aesthetic side: awareness of the possibility of elegance and beauty in mathematical arguments has been a significant feature of human culture throughout history. Today more mathematics is being done, and more needs to be done, than ever before.

The undergraduate course offerings in mathematics allow students to set up individualized programs of study consistent with their academic interests and career plans. Students should consider majoring in mathematics even if they do not plan to become mathematicians or teachers of mathematics. The training in abstract reasoning and problem-solving is an excellent foundation for many different careers, such as law, graduate health professions, and business. Completion of a major in mathematics points to a thinking person.

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 career options. Mathematics majors can use their training as the foundation for advanced professional study, leading to research and teaching in universities or research in industrial research laboratories; they can use it also in secondary school teaching. In industry, undergraduate training in mathematics is excellent preparation for the important task of liaison work between the technological arm of a company and its marketing arm. A major in mathematics is particularly appropriate for work in computer applications, operations research, and actuarial science.

Double majors in mathematics and another field, such as physics, computer science, applied mathematics and statistics, or economics, are common and are encouraged.

The secondary teacher preparation option is designed for students planning a career teaching mathematics in a secondary school. This option is described in detail in the "Education and Teacher Certification" entry in the alphabetical listings of Arts and Sciences programs.

The Department of Mathematics offers tutorial help to all undergraduate students in its 100-level courses. The Mathematics Learning Center focuses on precalculus mathematics, and the Calculus Resource Room focuses on calculus courses.

The department encourages students to seek information and advice on appropriate mathematics courses, programs, and career goals. Professors in mathematics are available as advisors in the Undergraduate Mathematics Office to help with these matters. Advising hours can be obtained by calling the Department of Mathematics.

Courses Offered in Mathematics

See the Course Description listing in this Bulletin for complete information.

- MAP 101 Fundamentals of Arithmetic and Algebra
- MAP 103 Proficiency Algebra
- MAT 118-C Mathematical Thinking
- MAT 122-C Overview of Calculus with Applications
- MAT 123-C Introduction to Calculus
- MAT 125-C Calculus A
- MAT 126-C Calculus B
- MAT 127-C Calculus C
- MAT 130 Trigonometric Functions
- MAT 131-C Calculus I
- MAT 132-C Calculus II
- MAT 141-C Honors Calculus I
- MAT 142-C Honors Calculus II
- MAT 160 Mathematical Problems and Games
- MAT 203 Calculus III with Applications
- MAT 205 Calculus III
- MAT 211 Introduction to Linear Algebra
- MAT 260 Problem Solving in Mathematics
- MAT 303 Calculus IV with Applications
- MAT 305 Calculus IV

- MAT 310 Linear Algebra
- MAT 311 Number Theory
- MAT 312 Applied Algebra
- MAT 313 Abstract Algebra
- MAT 316 Invitation to Modern Mathematics
- MAT 318 Classical Algebra
- MAT 320 Introduction to Analysis
- MAT 322 Analysis in Several Dimensions
- MAT 331 Computer-Assisted Mathematical Problem Solving
- MAT 341 Applied Real Analysis
- MAT 342 Applied Complex Analysis
- MAT 351 Differential Equations: Dynamics and Chaos
- MAT 360 Geometric Structures
- MAT 362 Differential Geometry of Surfaces
- MAT 364 Topology and Geometry
- MAT 371 Logic
- MAT 373 Analysis of Algorithms
- MAT 401, 402 Seminars in Mathematics
- MAT 475 Undergraduate Teaching Practicum in Mathematics
- MAT 487 Independent Study in Special Topics
- MAT 495 Honors Thesis

Requirements for the Major in Mathematics

The major in mathematics leads to the Bachelor of Science degree. Every student majoring in mathematics is expected to complete some form of a one-variable calculus sequence, which is a prerequisite for some of the courses listed below. Appropriate sequences at Stony Brook total 8 to 12 credits.

Completion of the major requires 33 to 37 credits.

- A. Mathematics and Mathematics-Related Courses
 1. One course in multivariate calculus: MAT 203 or AMS 261 or MAT 205; *and* one course in linear algebra: MAT 211 or AMS 210
 2. One course in differential equations: MAT 303 or AMS 361 or MAT 305
 3. One course in computer literacy: MAT 331 or MEC 111 or 114. MAT 331 may be used both here and in requirement #6
 4. Two courses in algebra: MAT 310 and either MAT 312 or 313 or 318

5. Analysis: Students must satisfy either a. or b.:
 - a. Two courses in analysis: MAT 320 and either MAT 322, 341 or 342
 - b. for students graduating in the Secondary Teacher Preparation Option: MAT 320
6. Five mathematics-related courses beyond those taken to satisfy requirements 4 and 5 (four will suffice if all of them are MAT courses), to be chosen from the following:
 - MAE 301
 - MAT courses numbered 310 or above except 475
 - AMS courses numbered 301 or above except 361 and 475
 - CSE courses numbered 301 or above except 475
 - Selected upper-division courses in chemistry, economics, philosophy, and physics from a list of acceptable courses, available in the Undergraduate Mathematics Office

B. Upper-Division Writing Requirement

In order to satisfy the departmental writing requirement, each student majoring in mathematics, including double majors, must submit an acceptable portfolio of three pieces of writing from upper-division MAT or MAE coursework. Students should aim for completion of the portfolio early in their next-to-last semester to allow time to resolve any difficulties. Late completion may delay graduation. Each portfolio must be submitted no later than the beginning of the final semester, and each piece in it must have been approved by a Mathematics faculty member as being mathematically correct and well written.

Notes:

1. Under special circumstances a student may request the director of undergraduate studies to allow substitution of an equivalent program for some or all of these requirements.
2. 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.
3. Students whose scores on the College Entrance Examination Board (CEEB) Advanced Placement Examination are documented earn credits as follows:

**Sample Course Sequence in the
Mathematics Major**

Freshman Fall	Credits
D.E.C. A	3
MAT 131 or 141 or 125*	3-4
D.E.C.	3
D.E.C.	3
Elective	3
Total	15-16

Spring	Credits
D.E.C. A	3
MAT 132 or 142 or 126*	3-4
D.E.C.	3
D.E.C.	3
Elective	3
Total	15-16

Sophomore Fall	Credits
MAT 203 or 205 or AMS 261	3
MAT 211 or AMS 210	3
D.E.C.	3
D.E.C.	3
Elective	3
Total	15

Spring	Credits
MAT 303 or 305 or AMS 361	3
MAT 260 or 312	3
D.E.C.	3
D.E.C.	3
Elective	3
Total	15

Junior Fall	Credits
MAT 310	3
MAT 320	3
D.E.C.	3
D.E.C.	3
Elective	3
Total	15

Spring	Credits
MAT 322 or 341 or 342	3
MAT 331	3
D.E.C.	3
Upper Division electives	6
Total	15

Senior Fall	Credits
Upper Division MAT electives	9
D.E.C.	3
Elective	3
Total	15

Spring	Credits
Upper Division MAT electives	9
Electives	6
Total	15

* Students who take MAT 125, 126 also must complete MAT 127.

4 or 5 on BC examination: credit for MAT 131, 132 (8 credits)

4 or 5 on AB examination: credit for MAT 131 (4 credits)

3 on either examination: 3 credits applicable to graduation but not the major.

4. Students who learned some linear algebra or multivariate calculus before entering Stony Brook should see an advisor in the Undergraduate Mathematics Office. For a student who has had some linear algebra, it may be appropriate to skip MAT 211 and to enroll directly in MAT 310.

5. Six credits of graduate MAT courses may be used in place of undergraduate courses in requirement A.6.

Honors Program in Mathematics

The honors program is open to junior and senior mathematics majors who have completed at least two upper-division MAT courses with grades of B or higher and who have maintained a 3.0 overall grade point average. A prospective honors major must declare to the director of undergraduate studies an intention to participate in the program, sometime before registering for the senior year.

The program consists of a set of six MAT courses, at least three of which are not used to fulfill the MAT major requirements. These courses must include: MAT 316, MAT 322, MAT 401, a course in algebra other than MAT 310 and MAT 318; and MAT 495. Substitution of appropriate graduate courses is permitted, and

other substitutions are possible at the discretion of the undergraduate director. Conferral of honors is contingent upon:

1. Completion of the set of six courses with a grade point average of at least 3.5.
2. Approval for honors by the faculty member or members who supervise MAT 495.

Mathematics Secondary Teacher Preparation Program

See the Education and Teacher Certification entry in the alphabetical listings of Arts and Sciences programs.

Requirements for the Minor in Mathematics

The minor in mathematics is available for those students who want their formal university records to emphasize a serious amount of upper-division work in mathematics. Although a one-variable calculus sequence is not a requirement, it is a prerequisite for some of the courses listed below. The minor requires 21 to 23 credits.

1. MAT 211 or AMS 210
2. MAT 203 or AMS 261 or MAT 205
3. MAT 310 or 312 or 313 or 318
4. MAT 320 or 341 or 342
5. Three additional MAT courses numbered 310 or above (excluding 475)

All courses used to fulfill the requirements for the minor must be passed with a letter grade of C or higher.

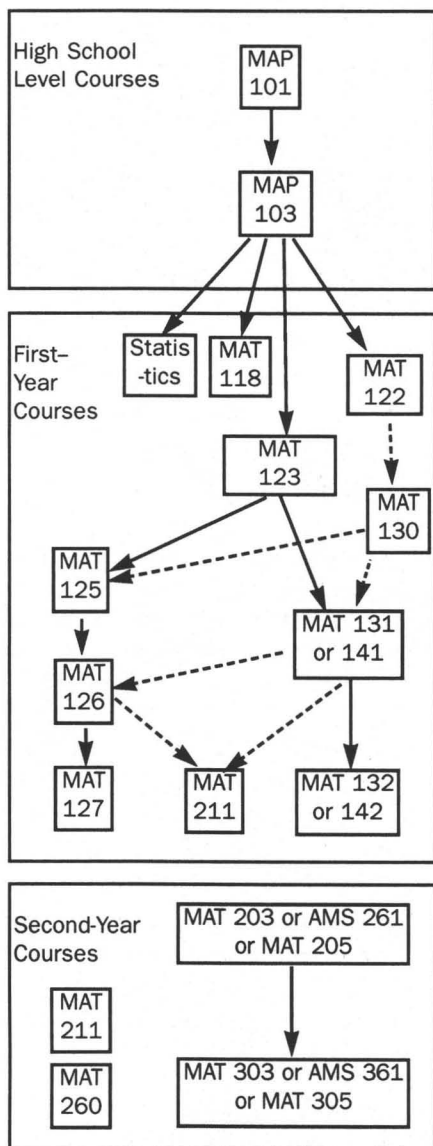
Beginning Mathematics Courses

The MAT curriculum begins with a choice of calculus sequences, some including preparatory material from 12th-year mathematics in high school and some not. The three first-term calculus courses that assume knowledge of 12th-year mathematics are MAT 125, MAT 131, and MAT 141. A student may start any of these with the same background.

The three-semester sequence of one-variable calculus, MAT 125, 126, 127, is academically equivalent to the two-semester sequence MAT 131, 132. Engineering students normally take the faster-paced MAT 131, 132 rather than MAT 125, 126, 127 because of the many requirements they must meet. MAT 141, 142 is an enriched version of MAT 131, 132.

MAT 122 and MAT 123 combine precalculus and calculus for students who have

Beginning Mathematics Courses



not had 12th-year mathematics in high school. A student who completes MAT 122 will have learned some precalculus material and will have a good idea of what calculus is and how it is used. MAT 123 is designed to lead into MAT 125 or MAT 131. Students who begin with MAT 122 may follow that course with MAT 125 or MAT 131 if they take the one-credit course MAT 130 in the same semester as MAT 125 or MAT 131.

For students whose high school preparation is insufficient to begin the MAT curriculum, or to enroll in another course applicable to the D.E.C. category C requirement, Mathematical and Statistical Reasoning, there are two review courses numbered MAP 101 and 103. These courses do not carry gradua-

tion credit. MAP 103, a skills course, is for students who need further work in high school algebra and related topics before continuing with calculus or other mathematics. Some students, upon completing MAP 103, are able to pass the Mathematics Placement Examination at a level that allows them to go directly into MAT 125 or 131.

Placement

The Mathematics Department offers a placement examination which indicates the level of mathematics a student is ready to take. It tests the student's skills at the time the test is taken; students are advised to study beforehand. The examination is given at orientation, during the first two weeks of the semester, and during Prime Time.

Currently, all incoming freshmen are required to take the placement examination. Transfer students should also take the examination under any of the following circumstances:

1. If they have not met the entry skill requirement (basic mathematics competence).
2. If they have not satisfied D.E.C. category C (mathematical and statistical reasoning).
3. If they have been or wish to be accepted into a major in the College of Engineering and Applied Sciences.
4. If they have chosen or are considering choosing a major in a department that requires mathematics.
5. If they intend to take any mathematics courses at Stony Brook.

In taking the placement examination, a student chooses whether to take Parts I-II or Parts II-III. Part I deals with high school algebra, Part II with 12th-year high school mathematics, and Part III with calculus. Students who have had at least one semester of calculus should take Parts II-III; others should take Parts I-II. Students who score 7 or higher on Parts II-III will be invited to take Part IV to determine placement beyond MAT 132. The outcome of the test is one of nine levels:

Outcome	Placement
Level 4	MAT 125 or 131 or 141, with 125 recommended
Level 5	MAT 125 or 131 or 141, with 131 or 141 recommended
Level 6	MAT 126
Level 7	MAT 132 or 142
Level 8	MAT 127
Level 9	Beyond 100-level calculus

Levels 1-3 can be achieved by a sufficiently high score on Part I, and levels 4-5 can be achieved by a sufficiently high score on Parts I-II. To achieve level 6 or higher, a student must take Parts II-III, and to achieve level 8 or 9, a student must score 7 on Parts II-III, and then take Part IV. The entry skill in mathematics requirement may be satisfied by attaining a score of level 3 or higher. The general education requirement for Mathematics (D.E.C. category C) may be satisfied by attaining a score of level 6 or higher. A student who achieves a particular level is free to begin with a mathematics course corresponding to a lower level, so long as taking the course does not mean that credit is given for the same material twice.

Transfer Credit

When they enter, transfer students automatically receive credit toward graduation at Stony Brook for any courses they have already successfully completed at accredited institutions of higher education and that count there toward graduation. The number of credits transferred appears on the Stony Brook transcript with no courses or grades indicated, and the number of transferred credits is unaffected by the student's score on the Mathematics Placement Examination. In addition, transferred mathematics courses are automatically evaluated by title for applicability to the entry skill in mathematics requirement and the D.E.C. category C requirement; this evaluation does not depend on the result of the placement examination.

Outcome	Placement
Level 1	MAP 101
Level 2	MAP 103
Level 3	MAT 118 or 122 or 123 or statistics

MDA

Minor in Media Arts

MINOR COORDINATOR: Norm Prusslin, Theatre Arts ADMINISTRATIVE ASSISTANT: Ed Quinn
OFFICE: 3046 Staller Center for the Arts PHONE: 632-7300 WEB ADDRESS: <http://i-lab-pc.theatre.sunysb.edu/>

Other minors of particular interest to students minoring in media arts: dance (DAN), interdisciplinary arts (LIA), journalism (JRN), music (MUS), political science (POL), theatre arts (THR)

Students seeking a coordinated set of courses that examine media technology, theory, and practice may elect the minor in media arts (MDA). The minor prepares students for specialized studies in any one of the media. Media skills 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 in Media Arts

All courses offered for the minor must be passed with a letter grade of C or higher. At least 12 of the 21 credits must be taken at Stony Brook.

Completion of the minor requires 21 credits.

A. Required Courses:

THR 117 Film, Video, and Audio Narrative

THR 277 The Media Industry

THR 378 Introduction to Radio Broadcasting

THR 403 Media Theory and Criticism

One of the following courses:

THR 480 Projects in Media

THR 488 Internship (appropriate topic only)

B. Six credits to be chosen from among:

AFS 463, 464 The Media and Black America I, II

EST 100 Societal Impact of Computers

HUF 211 French Cinema (in English)

HIS 361 American History/American Film

HUG 221 German Cinema Since 1945 (in English)

HUI 231 Sex and Politics in Italian Cinema

HUI 338 Images of Italian Americans in Film

HUI 431 Special Topics in Italian Cinema

HUM 201, 202 Film and Television Studies, I, II

HUR 145 Russian Film and History (in English)

POL 367 Mass Media in American Politics

THR 372 Introduction to Television

THR 295 Special Workshop (appropriate topic only)

THR 298 Student Media Leadership

THR 325 Scriptwriting for Film and Television

THR 375 Television Production

THR 379 Radio News

THR 462 Acting for the Camera

THR 480 Projects in Media (see note 3)

THR 488 Internship (appropriate topic only; see note 3)

Notes:

1. No more than six credits required for the media arts minor may be counted toward the theatre arts major.
2. Either THR 480 or 488 may be taken for requirement B when not used to fulfill requirement A.
3. No more than a total of six credits from THR 295, 480, and 488 may be applied to the minor.

MVL

Minor in Medieval Studies

MINOR COORDINATOR: Charles Franco, European Languages, Literatures, and Cultures SECRETARY: Marie Sweatt
OFFICE: N-4006 Melville Library PHONE: 632-7440 WEB ADDRESS: www.sunysb.edu/cis/mvlistudies.html

Affiliated Faculty

Sarah Fuller, *Music*

Aaron W. Godfrey, *Comparative Studies*

Jacques Guilmain, *Art*

Thomas Kerth, *European Languages, Literatures, and Cultures*

Helen Rodnite Lemay, *History*

Joaquin Martinez-Pizarro, *English*

Clyde Lee Miller, *Philosophy*

Joel Rosenthal, *History*

Walter Scheps, *English*

Stephen Spector, *English*

Louise Vasvari, *Comparative Studies*

The minor in medieval studies (MVL) offers students the opportunity to acquire an understanding of the historical, cultural, and social forces that shaped Western civilization during the European Middle Ages. Under the direction of an advisor from the medieval studies program faculty, the student must establish an advising folder with the minor coordinator.

Requirements for the Minor in Medieval Studies

All courses offered for the minor must be passed with a letter grade of C or higher.

Completion of the minor requires at least 24 credits.

1. MVL 141 The Legend of King Arthur
2. Two courses chosen from the following:
 - HIS 235 The Early Middle Ages
 - HIS 236 The Late Middle Ages
 - HIS 360 Women in Premodern Europe
 - MVL 241 Heroes and Warriors
3. Three of the following courses, including at least two different designators, in medieval philosophy, art, music, or literature. At least two of the courses must be numbered 300 or above.
 - ANT 361 Peasants
 - ARH 101 Art in Culture from Prehistoric Times to the Age of the Cathedrals, c. 1400 A.D.

ARH 303 The Art and Architecture of the Early Middle Ages, c. 400-1050

ARH 304 The Art and Architecture of the High and Late Middle Ages, c. 1050-1400

CLT 211 Literary Survey: Medieval through Late Renaissance

EGL 300 Old English Literature

EGL 302 Medieval Literature in English

EGL 340 Chaucer

HUI 235 Themes in Western European Literature: Sex, Love and Tragedy in Early Italian Literature

HUL 424 The Linguistics of Romance Languages (in English)

ITL 396 Readings in Italian Literature, II

ITL 424 History of the Italian Language

ITL 430, 431 Studies in 13th- and 14th-century Literature

LAT 355 Early Medieval Latin

LAT 356 Late Medieval Latin

MUS 350 Western Music before 1600

MVL 241 Heroes and Warriors (if not used for requirement 2)

PHI 304 Medieval Philosophy

RLS 270 Christianity

RLS 310 Biblical Theology

Additional relevant courses may become available. Check with the Medieval Studies Coordinator.

4. HIS 451 Colloquium in Medieval History
or MVL 447 Directed Readings in Medieval Studies
5. Completion of intermediate level Latin (LAT 252) or a relevant intermediate-level European foreign language (course numbered 192 or 201 or 212 or higher).

MES

Minor in

Middle Eastern Studies

MINOR COORDINATOR: Robert Hoberman, Linguistics

OFFICE: S-201 Social and Behavioral Sciences PHONE: 632-7777

Affiliated Faculty

Said Arjomand, *Sociology*
 Ellen Broselow, *Linguistics*
 William Chittick, *Comparative Studies*
 Robert Goldenberg, *History*
 Robert Hoberman, *Linguistics*
 Nilufer Isvan, *Sociology*
 Daniel Monk, *Art*
 Sachiko Murata, *Comparative Studies*
 John Shea, *Anthropology*
 Elizabeth Stone, *Anthropology*
 Jane Sugarman, *Music*

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

All courses offered for the minor must be taken for a letter grade. Failure to obtain prior approval of the program may result in denial of credit for the minor.

Completion of the minor requires 18 credits.

1. SOC 264 Introduction to Middle Eastern Studies
2. 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:
 - a. 12 credits in courses on the student's approved topic
 - b. Three credits in a related course from another minor topic area in Middle Eastern studies

Note:

Besides the required courses, it is strongly recommended that students take a year of language related to their chosen topic area.

Sample Programs

The following programs are suggested as examples only. Students should consult an advisor about 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.

Near Eastern Religions

ANT 360 Ancient Mesopotamia
 JDH/RLS 230 Judaism
 JDH/RLS 320 The Rabbinic Tradition
 JDS/HIS 225 The Formation of the Judaic Heritage
 JDS/HIS 226 The Shaping of Modern Judaism
 RLS 280 Islam
 RLS 408 Islamic Classics
 SOC 264 Introduction to Middle Eastern Society
 SOC 386 State and Society in the Middle East
 (ARB 111, 112 Elementary Arabic or HBW 111, 112 Elementary Hebrew)

Ancient Near East

ANT 290 Science and Technology in Ancient Society
 ANT 358 Ways to Civilization
 ANT 360 Ancient Mesopotamia
 JDS/HIS 225 The Formation of the Judaic Heritage
 SOC 264 Introduction to Middle Eastern Society
 SOC 386 State and Society in the Middle East
 (ARB 111, 112 Elementary Arabic or HBW 111, 112 Elementary Hebrew)

Middle Eastern Culture and Politics

ANT 310 Ethnography (appropriate topic only)
 ANT 311 Immersion in Another Culture (appropriate topic only)
 RLS 280 Islam
 RLS 408 Islamic Classics
 SOC 264 Introduction to Middle Eastern Society
 SOC 386 State and Society in the Middle East
 (ARB 111, 112 Elementary Arabic or HBW 111, 112 Elementary Hebrew)

MTD

Major in

Multidisciplinary Studies

ADMINISTRATOR: William Wiesner, Undergraduate Academic Affairs

OFFICE: E-2360 Melville Library PHONE: 632-7080 E-MAIL: wwiesner@notes.cc.sunysb.edu

Affiliated Faculty:

Judith Wishnia, *Social Sciences*

Interdisciplinary, History

Robert Harvey, *French and Italian*

The Multidisciplinary Studies major (MTD), which offers no courses of its own, allows students who are interested in more than one discipline to design their own programs by drawing on courses from two or three different areas of study. For example, students who wish to enter the health professions frequently combine biology with psychology, English, or sociology. Others with interests in the social or physical sciences may choose courses from those areas in conjunction with study in art, music, or theatre. Courses from different departments may also be used to pursue career interests in environmental studies or journalism. Studies may be pursued to suit individual interests in one subject or time period such as international affairs or the colonial era. A minor such as Business Management, Chinese Studies, Women's Studies, Latin American Studies, Child and Family Studies, and the Federated Learning Community program may also fulfill one of the student's areas.

In addition to careers in journalism and environmental studies, MTD majors frequently enter graduate or professional school or seek careers in business, education, or government agencies. Since the course of study requires careful planning, students choosing this major should see one of the MTD advisors to plan their individual courses of study.

Requirements for the Multidisciplinary Studies Major

The major in multidisciplinary studies leads to the Bachelor of Arts degree.

Completion of the major requires 45 credits.

A. Course Distribution

Courses from two or three departments or areas distributed as follows:

15 credits in department or area A

15 credits in department or area B

15 credits in department or area C (or 15 credits in additional courses from department or area A, B, or both)

B. Upper-Division Writing Requirement

All students majoring in multidisciplinary studies must satisfy the upper-division writing requirement established in one of the two or three departments chosen for distribution of multidisciplinary studies major credit. Students must report the department in which they will meet the upper-division writing requirement to the director of the multidisciplinary studies major by the start of the final semester of their junior year. Details of the writing requirement for each major are listed among the major requirements in each department. In cases where there is no clearly identified department, the student should consult with the director of the multidisciplinary studies major.

Further Stipulations

1. At least 30 credits offered to fulfill major requirements must be in courses numbered 300 and above. Of these at least nine credits in concentration A and nine credits in concentration B must be in upper-division courses.
2. A maximum of 15 credits may be used in courses from departments outside the College of Arts and Sciences.
3. The 45 credits must include at least 15 upper-division credits taken at Stony Brook.
4. At least 39 of the 45 credits must be passed with a letter grade of C or higher. No grade lower than C- may be used toward the major.
5. No more than one course may be taken for Pass/No Credit.
6. No more than three credits of activity-related courses, teaching methods courses, student teaching, undergraduate teaching practica,

research courses, directed readings, or internships may be used in each concentration.

7. Students in the Multidisciplinary Studies major may not declare a second major.

**Sample Course Sequence for the
Multidisciplinary Studies Major**

Freshman Fall	Credits
D.E.C. A	3
Lower Division Area A course	3
D.E.C.	3
D.E.C.	3
D.E.C.	3
Total	15

Spring	Credits
D.E.C. A	3
Lower Division Area B course	3
Lower Division Area C course	3
D.E.C.	3
D.E.C.	3
Total	15

Sophomore Fall	Credits
Lower Division Area B course	3
Lower Division Area C course	3
D.E.C.	3
D.E.C.	3
D.E.C.	3
Total	15

Spring	Credits
Upper Division Area A course	3
D.E.C.	3
D.E.C.	3
Elective	3
Elective	3
Total	15

Junior Fall	Credits
Upper Division Area A course	3
Upper Division Area B course	3
Upper Division Area C course	3
D.E.C.	3
D.E.C.	3
Total	15

Spring	Credits
Upper Division Area A course	3
Upper Division Area B course	3
Upper Division Area C course	3
Upper Division elective	3
D.E.C.	3
Total	15

Senior Fall	Credits
Upper Division Area A course	3
Upper Division Area B course	3
Upper Division Area C course	3
Elective	3
Elective	3
Total	15

Spring	Credits
Upper Division elective	3
Upper Division elective	3
Upper Division Elective	3
Elective	3
Elective	3
Total	15

MUS

Department of Music

CHAIRPERSON: David Lawton DIRECTOR OF UNDERGRADUATE STUDIES: Joseph Auner UNDERGRADUATE SECRETARY: Theresa Berndt
OFFICE: 3304 Staller Center for the Arts PHONE: 632-7330/5475 E-MAIL: jauner@notes.cc.sunysb.edu WEB ADDRESS: www.sunysb.edu/music

Minors of particular interest to students majoring in music: anthropology (ANT), art history (ARH), cinema and cultural studies (CCS), dance (DAN), English (EGL), history (HIS), philosophy (PHI), theatre arts (THR)

Faculty

Joseph Auner, *Assistant Professor, Ph.D., University of Chicago*: 19th- and 20th-century history and theory.

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 and theory. Recipient of the President's Award for Excellence in Teaching, 1984.

Perry Goldstein, *Assistant Professor, D.M.A., Columbia University*: Musicianship.

Lazar Gosman, *Professor, Diploma, Moscow State Conservatory*; *pupil of David Oistrakh*: Violin; chamber music.

Gilbert Kalish, *Professor and Codirector of Contemporary Chamber Players, B.A., Columbia University*: Piano; chamber music.

David Lawton, *Professor and Graduate Studies Director, Ph.D., University of California, Berkeley*: Orchestral and opera conducting; 19th-century history.

Julius Levine, *Professor Emeritus, B.S., Juilliard School of Music*: String bass; chamber music.

Judith Lochhead, *Associate Professor, Ph.D., State University of New York at Stony Brook*: 20th-century theory and history.

Timothy Mount, *Associate Professor and Director of Choral Music, D.M.A., University of Southern California*: Choral conducting.

Joyce Robbins, *Professor Emerita, B.S., Juilliard School of Music*: Violin; viola; pedagogy; chamber music.

Daria Semegen, *Associate Professor and Director of Electronic Music Studio, M.Mus., Yale University*: Composition; theory; electronic music.

Sheila Silver, *Associate Professor, Ph.D., Brandeis University*: Composition; theory.

Jane Sugarman, *Assistant Professor, Ph.D., University of California, Los Angeles*: Ethnomusicology; world music cultures. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1995, and the President's Award for Excellence in Teaching, 1995.

Daniel Weymouth, *Assistant Professor and Director of Computer Music Studio, Ph.D., University of California, Berkeley*: Composition; computer music and technology.

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

Elaine Bonazzi, *B. Mus., Eastman School of Music*: Voice; opera workshop.

Miriam Burns, *Director of the University Orchestra, M.M., Mannes College of Music*: Conducting.

Richard Cross, *B.A., Cornell University*: Voice; opera workshop.

Christina Dahl, *M.M., Peabody Conservatory*: Piano, accompaniment, chamber music.

Raymond Des Roches, *Co-director of Contemporary Chamber Players, M.Mus., Manhattan School of Music*: Percussion; chamber music.

Bruce Engel, *Director of the University Wind Ensemble, M.M., Juilliard School of Music*: Conducting.

Dennis Godburn, *B.Mus., Hartt School of Music*: Bassoon; chamber music.

Arthur Haas, *M.A., University of California, Los Angeles*: Harpsichord; performance of early music.

Timothy Long, *M.M., Eastman School of Music*: Vocal coach.

Gustav Meier, *Director of the Stony Brook Symphony Orchestra, Diploma, Zurich Conservatory of Music*: Conducting.

Thomas Muraco, *M.Mus., Eastman School of Music*: Vocal coach.

Charles Neidich, *B.A., Yale University; Diploma, Moscow State Conservatory*: Clarinet; chamber music.

Michael Powell, *B. Mus., Wichita State*: Trombone.

William Purvis, *B.A., Haverford College*: Horn; chamber music.

Mitchell Stern, *Curtis Institute, Juilliard School of Music*: Violin, viola.

Stephen Taylor, *Diploma, Juilliard School of Music*: Oboe, chamber music.

Jerry Willard, *Cleveland Institute of Music; study with John Williams and Misha Mishakoff*: Guitar; chamber music.

Teaching Assistants

Estimated number: 42

The study of music entails training in performance, theory, musicianship, and history in the context of a liberal arts degree. Technical study on an instrument or in voice and in music theory is coupled with broad historical and critical study of music.

The undergraduate major in music at Stony Brook is designed as a balanced educational program that serves as preparation for professional careers and advanced training in performance, composition, scholarship, teaching, and other arts-related careers.

Students graduating with a major in music pursue graduate study in musical performance, composition, history, and theory, teach music in private and public schools, take jobs in arts-related industries, and pursue advanced study in non-music fields, often in the health professions.

Courses Offered in Music

See the Course Description listing in this Bulletin for complete information.

MUS 101-D Introduction to Music

MUS 105-G, 106-G Musics of the World I

MUS 109-G Rock Music

MUS 119-D Elements of Music

MUS 120 Elementary Sight-Singing and Diction

MUS 121 Musicianship I

MUS 131, 132 Keyboard Harmony I, II

MUS 161-187 Performance Study in Piano, Harpsichord, Violin, Viola, Cello, String Bass, Classical Guitar, Flute, Oboe, Clarinet, Bassoon, Horn, Trumpet, Trombone, Percussion, Voice, and Other Instruments

MUS 208 Technology in the Arts

MUS 220 Musicianship II

MUS 221 Musicianship III

MUS 222 Modal Counterpoint I

MUS 231, 232 Keyboard Harmony III, IV

MUS 261 Stony Brook Chorale
 MUS 262 University Orchestra
 MUS 263 University Wind Ensemble
 MUS 264 Jazz Ensemble
 MUS 265 Workshop in Performance
 MUS 290 Vocal Repertory
 MUS 301-I Music of the Baroque
 MUS 302-I The Music of J.S. Bach
 MUS 303-I The Music of Beethoven
 MUS 304-K Contemporary Traditions in American Music: 1900 to Present
 MUS 305-G Music in the Romantic Era
 MUS 306-G The Symphony
 MUS 307-I Music and Drama
 MUS 308-K History of Jazz
 MUS 309-G Music of the 20th Century
 MUS 310-K Music and Culture in the 1960s
 MUS 311-J Topics in Non-Western Music
 MUS 312-J Music in the Middle East
 MUS 313-G Cross-Cultural Musics from Stravinsky to World Beat
 MUS 314-G Women Making Music
 MUS 315, 316 The Structural Principles of Music I, II
 MUS 317 Interactive Performance, Media, and MIDI
 MUS 318 Music and the Moving Image
 MUS 321, 322 Tonal Harmony I, II
 MUS 323 Techniques of Late 19th- and 20th-Century Music
 MUS 331 Musicianship IV
 MUS 339 Beginning Composition
 MUS 350-G Western Music Before 1600
 MUS 351-I Western Music from 1600 to the Early 19th Century
 MUS 352-G Western Music of the 19th and 20th Centuries
 MUS 355 Special Topics in Music
 MUS 361-387 Advanced Performance Study in Piano, Harpsichord, Violin, Viola, Cello, String Bass, Classical Guitar, Flute, Oboe, Clarinet, Bassoon, Horn, Trumpet, Trombone, Percussion, Voice, and Other Instruments
 MUS 388 Fundamentals of Accompanying
 MUS 389 Jazz Improvisation
 MUS 391 Chamber Music
 MUS 393 Chamber Chorus
 MUS 421 Analysis of Tonal Music

MUS 422 Analysis of 20th-Century Works
 MUS 432 Tonal Counterpoint
 MUS 434 Orchestration
 MUS 437 Electronic Music
 MUS 439 Composition
 MUS 450 Seminar in the History of Music
 MUS 475, 476 Undergraduate Teaching Practicum I, II
 MUS 487 Independent Project
 MUS 488 Internship
 MUS 491 Conducting

Requirements for the Major in Music

The major in music leads to the Bachelor of Arts degree. All courses offered for the major must be passed with a letter grade of C or higher.

Completion of the major requirements entails 63 to 67 credits.

A. Admittance to the Major

Any student wishing to major in music must pass an audition in voice or instrument and a musicianship examination that tests aural skills and musical literacy (elementary theory, interval recognition, simple melodic and rhythmic dictation, and sight singing). The undergraduate musicianship examination is given three times each year: the first or second day of each semester and at the end of April. Auditions are held in the first week of classes. Students should consult the department office to sign up for the undergraduate musicianship examination and to make an appointment for an audition.

B. Study within the Area of the Major

1. Theory:

MUS 121 Musicianship I
 MUS 131, 132 Keyboard Harmony I, II
 MUS 220 Musicianship II
 MUS 221 Musicianship III
 MUS 222 Modal Counterpoint
 MUS 231, 232 Keyboard Harmony III, IV
 MUS 321, 322 Tonal Harmony I, II
 MUS 323 Techniques of Late 19th- and 20th-Century Music
 MUS 331 Musicianship IV
 MUS 421 Analysis of Tonal Music

- MUS 422 Analysis of 20th-Century Music
2. History and Literature:
 MUS 101 Introduction to Music
 MUS 350 Western Music before 1600
 MUS 351 Western Music from 1600 to the Early 19th Century
 MUS 352 Western Music of the 19th and 20th Centuries
- Two additional history courses numbered 450 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 semester of MUS 450.
3. Performance:
- A minimum of four semesters from courses in the series MUS 161-187 Performance Study (2 credits each) or MUS 361-387 Advanced Performance Study (4 credits each).
 - Mandatory co-registration in a performance ensemble for each semester of lessons. Instrumentalists should enroll in MUS 262 University Orchestra, MUS 263 University Wind Ensemble, or MUS 264 Jazz Ensemble. Vocalists should enroll in MUS 261 Stony Brook Chorale or MUS 393 Chamber Chorus. Pianists and guitarists should enroll in MUS 391 Chamber Music.
 - Study for a minimum of four semesters from the following: MUS 261 Stony Brook Chorale or MUS 262 University Orchestra or MUS 263 University Wind Ensemble or MUS 264 Jazz Ensemble or MUS 393 Chamber Chorus. MUS 391 Chamber Music may be used to satisfy two semesters of the four semester requirement. Pianists and guitarists who do not pass the audition for one of the ensembles may fulfill the four semesters with MUS 391 Chamber Music; pianists may also substitute MUS 388 Fundamentals of Accompanying.
- 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.

Sample Course Sequence in the Music Major

Freshman Fall	Credits
D.E.C. A	3
MUS 121	2
MUS 131	1
MUS 222	3
MUS 101	3
Performance Study	2
Ensemble	1-2
Total	15-16

Spring	Credits
D.E.C. A	3
MUS 220	2
MUS 132	1
MUS 321	3
Performance Study	2
Ensemble	1-2
D.E.C.	3
Total	15-16

Sophomore Fall	Credits
MUS 221	2
MUS 231	1
MUS 322	3
MUS 350	4
Performance Study	2
Ensemble	1-2
D.E.C.	3
Total	16-17

Spring	Credits
MUS 331	2
MUS 232	1
MUS 323	3
MUS 351	4
Performance Study	2
Ensemble	1-2
D.E.C.	3
Total	16-17

Junior Fall	Credits
MUS 421	3
MUS 342	4
Performance Study	2-4
Ensemble	1-2
D.E.C.	3
D.E.C.	3
Total	16-19

Spring	Credits
MUS 422	3
Performance Study	2-4
Ensemble	1-2
D.E.C.	3
D.E.C.	3
Total	12-15

Senior Fall	Credits
MUS 450 (or 434 or 432)	3
Performance Study	2-4
Ensemble	1-2
D.E.C.	3
D.E.C.	3
D.E.C.	3
Total	15-18

Spring	Credits
MUS 450 (or 434 or 432)	3
Performance Study	2-4
Ensemble	1-2
D.E.C. (Upper Division)	3
D.E.C. (Upper Division)	3
Upper Division Elective	3
Total	12-18

C. 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 350, 351, 352 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 humanities or fine arts, such as English, Theatre Arts, or foreign languages. 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 reads the papers and assesses the quality of writing. The committee communicates the results of its assessments by the end of the student's junior year. If writing skills are judged deficient, the committee recommends a course of action for the improvement of such skills and reviews examples of writing during the senior year. Students must demonstrate acceptable writing skills before they graduate.

D. 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 entry skill in foreign language requirement, language courses may be taken under the P/NC option.)

Honors Program in Music

Candidates for honors in music must be nominated by a faculty member who agrees to act as sponsor for the honors project. An eligible student may submit a proposal for a project to the proposed sponsor, who forwards 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 is 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 from the Director of Undergraduate Studies.

Minor in Music

The music minor, which has a general track and a theory track, 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.

Requirements for the Minor in Music

All courses offered for the minor must be passed with a letter grade of C or higher. At least three credits from requirement 2 or 3 in either track must be upper division. The general track requires 20 to 22 credits; the theory track requires 24 credits.

General Track

1. Theory:

MUS 119 Elements of Music

MUS 315, 316 Structural Principles
of Music

2. History:

Three courses chosen from the fol-
lowing: MUS 105, 106, 301-314

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 Jazz Ensemble

MUS 391 Chamber Music

MUS 393 Chamber Chorus

Theory Track

1. Theory:

MUS 121 Musicianship I

MUS 220 Musicianship II

MUS 221 Musicianship III

MUS 222 Modal Counterpoint

MUS 321 Tonal Harmony I

MUS 322 Tonal Harmony II

2. History:

Two courses from the following:
MUS 105, 106, 301-314

3. Performance:

Three credits from the following:

MUS 261 Stony Brook Chorale

MUS 262 University Orchestra

MUS 263 University Wind
Ensemble

MUS 264 Jazz Ensemble

MUS 391 Chamber Music

MUS 393 Chamber Chorus

OPT

Minor in Optics

MINOR COORDINATOR: Harold J. Metcalf, Physics and Astronomy UNDERGRADUATE SECRETARY: Elaine Larsen
 OFFICE: Room P-110 Graduate Physics PHONE: 632-8100 E-MAIL: pkahn@mathlab.sunysb.edu
 WEB ADDRESS: <http://insti.physics.sunysb.edu/Physics>

The minor in optics (OPT), which is housed in the Department of Physics and Astronomy, is intended for students outside the physics major who wish to obtain a thorough understanding of the nature of light and its interactions with matter. After learning the basic principles of optics in PHY 352, students may pursue their scientific or professional interests by taking further courses in the Department of Physics and Astronomy or the College of Engineering and Applied Sciences.

Requirements for the Minor in Optics

All courses offered for the minor must be passed with a letter grade of C or higher.

Completion of the minor requires 21 credits.

A. Basic courses:

PHY 132 or 142 Classical Physics II
 PHY 251/252 Modern Physics and Laboratory
or ESG 281 An Engineering Introduction to Solid State
 PHY 301 Electromagnetic Theory
or ESE 319 Introduction to Electromagnetic Fields and Waves
 PHY 352 Optics and Waves

B. At least two of the following:

ESE 321 Electromagnetic Waves and Fiber Optics
 ESE 362 Optoelectronic Devices and Optical Imaging Techniques
 ESE 441 Engineering Design I*
 ESE 499 Research in Electrical Sciences*
 ESG 441 Engineering Science Design IV*
 ESM 499 Research in Materials Science*
 MEC 342 Introduction to Experimental Stress
 MEC 441 Mechanical Engineering Design II*

MEC 499 Research in Mechanical Engineering*

PHY 302 Electromagnetic Theory

PHY 452 Lasers

PHY 455 Principles of Microscopy

PHY 487 Research*

*These courses may be used if the research project is in optics. Each such course must be taken for three credits and the student must obtain written approval of the Department of Physics and Astronomy for his or her research proposal before starting research.

BCP

Department of Pharmacology

CHAIRPERSON: Arthur A. Grollman DIRECTOR OF UNDERGRADUATE STUDIES: Jean M. Devlin PROGRAM ADMINISTRATOR: Janice Kito
OFFICE: T7-166, Health Sciences Center PHONE: 444-3027 E-MAIL: janice@pharm.sunysb.edu WEB ADDRESS: www.pharm.sunysb.edu

Minors of particular interest to students majoring in pharmacology: biomedical engineering (BME), bioengineering (BNG), chemistry (CHE), English (EGL), philosophy (PHI), political science (POL)

Faculty

Paul R. Adams, *Professor, Ph.D., London University, England*: Ion channels and synaptic transmission.

Miguel Berrios, *Assistant Professor, Ph.D., Rockefeller University*: Characterization of the nucleoskeleton; nuclear pore complexes.

Daniel Bogenhagen, *Professor, M.D., Stanford University*: Mitochondrial molecular biology; 5S RNA gene expression.

Carlos de los Santos, *Research Assistant Professor, Ph.D. University of Buenos Aires, Argentina*. NMR solution structure of nucleic acids and proteins.

Jean M. Devlin, *Assistant Professor, B.S., London University, England*: Physiological and molecular pharmacology.

Colin Dingwall, *Assistant Professor, Ph.D. University of Cambridge, England*: Nuclear protein transport and the biochemistry of the nuclear pore complex.

Moises Eisenberg, *Associate Professor, Ph.D., California Institute of Technology*: Molecular modeling of biomolecules.

JoAnne Engebrecht, *Assistant Professor, Ph.D., University of California, San Diego*: Mechanism of meiotic chromosome segregation.

Paul A. Fisher, *Associate Professor, M.D., Ph.D., Stanford University*: The extrachromosomal karyokeleton/eukaryotic DNA replication.

Michael Frohman, *Assistant Professor, M.D., Ph.D., University of Pennsylvania*: Control of gene expression during mammalian embryogenesis.

Arthur P. Grollman, *Professor, M.D., The Johns Hopkins University*: Molecular mechanism of carcinogenesis and DNA repair.

Charles R. Iden, *Associate Professor, Ph.D., The Johns Hopkins University*: DNA damage produced by genotoxic substances.

Francis Johnson, *Professor, Ph.D., Glasgow University*: Inhibition of HIV-1 (AIDS) using rationally designed drugs; effects of chemical carcinogens on DNA.

Caroline F. Kisker, *Assistant Professor, Ph.D., Freie Universitat Berlin*: Structural biology; x-ray crystallography in combination with biochemical methods.

Craig C. Malbon, *Leading Professor, Ph.D., Case Western Reserve University*: Signal transduction during differentiation and development: roles of G-proteins.

Andrew J. Morris, *Assistant Professor, Ph.D., University of Birmingham*: Roles of phospholipids in cellular signaling.

Joav Prives, *Associate Professor, Ph.D., McGill University*: Regulation of surface receptors in muscle cells.

Edward Reich, *Distinguished Professor, M.D., Ph.D. The Johns Hopkins University*: Biochemistry of plasma proteins; new therapeutic systems.

Thomas A. Rosenquist, *Research Assistant Professor, Ph.D., University of Wisconsin*: Genetic analysis of mammalian DNA repair; genetic analysis of fibroblast growth factors.

Shinya Shibutani, *Research Associate Professor, Ph.D., Toyama Medical and Pharmaceutical University*: Mechanisms of translesional DNA synthesis.

Sidney Strickland, *Professor, Ph.D., University of Michigan*: Protease function in mammalian memory and neuronal degeneration; Genetics of early development.

Joel L. Sussman, *Research Professor, Ph.D. Massachusetts Institute of Technology*: 3-D structural studies of proteins and nucleic acid.

Stella-Anna E. Tsirka, *Research Assistant Professor, Ph.D., Aristotelian University of Thessaloniki*: Extracellular proteolysis in hippocampal function and degeneration.

William Van der Kloot, *Professor, Ph.D., Harvard University*: Acetylcholine; quanta; neuromuscular junction; synapse; neurotransmitter.

David Williams, *Professor, Ph.D., University of Illinois at Urbana-Champaign*: Hormonal regulation of mRNA stability; molecular biology of carcinogenesis and DNA repair.

Pharmacology is an interdisciplinary science which investigates the actions of drugs and chemicals on biological systems. It requires a knowledge of the sources, chemical properties, biological effects, and therapeutic uses of drugs. It is a science that is basic not only to medicine but also to pharmacy, nursing, dentistry, and veterinary medicine. Pharmacological studies range from those that determine the effects of chemical agents upon sub-cellular mechanisms, to those that deal with the potential hazards of drug therapy for major diseases. By unlocking mysteries of drug action, discovering new therapies, and developing new medicinal

products, pharmacology inevitably touches upon all of our lives.

The curriculum in pharmacology, leading to the Bachelor of Science degree, is designed to prepare students for careers in drug research and development and to provide a solid background for those students who choose to pursue graduate studies in the pharmacological sciences. Focusing on cellular, molecular, and human pharmacology, the program allows students to develop an understanding of this discipline in a basic science teaching and research environment.

Students majoring in pharmacology have the conceptual and practical knowledge to pursue technical and professional careers in all areas of drug research and development within the pharmaceutical and biotechnology industry, research institutes and government agencies. The program provides an excellent foundation for graduate programs in pharmacology, toxicology and molecular biology. The pharmacology curriculum teaches students the principles of pharmacology and toxicology and mechanisms of drug action to students whose career interests lie in medicine, pharmacy and other branches of health care and life sciences. Current career objectives in order of choice are Ph.D. programs in pharmacology, M.D./Ph.D. and M.D. degrees, and entry level scientist positions in industry.

Courses Offered in Pharmacology

See the Course Description listing in this Bulletin for complete information.

BCP 394 Environmental Toxicology and Public Health

BCP 400 Writing in Pharmacology

BCP 401 Principles of Pharmacology

BCP 402 Advanced Pharmacology

BCP 403 Principles of Pharmacology Laboratory

BCP 404 Advanced Pharmacology Laboratory

BCP 406 Pharmacology Colloquium

BCP 475 Undergraduate Teaching
Practicum in Pharmacology
BCP 487 Research in Pharmacology
BCP 488 Internship

Requirements for the Major

The major in pharmacology leads to the Bachelor of Science degree. All courses offered for the major must be taken for a letter grade. In requirements A and B below, a minimum grade point average of 3.0 must be obtained for all 100-level and upper-division courses.

Completion of the major requires approximately 66-67 credits.

A. Courses in Related Fields

- CHE 131, 132 General Chemistry
or CHE 141, 142 Honors Chemistry
- CHE 133, 134 General Chemistry
Laboratory
or CHE 143, 144 Honors Chemistry
Laboratory
- CHE 321, 322 Organic Chemistry
or CHE 331, 332 Honors Organic
Chemistry
- CHE 327 Organic Chemistry
Laboratory A
or CHE 333 Organic Chemistry
Laboratory B
- MAT 131, 132 Calculus I, II (See note
1)
- PHY 121/123, 122/124 Physics for the
Life Sciences (See note 1)

B. Courses in Biological Sciences

- BIO 202 and 203 Fundamentals of
Biology
- BIO 310 Cell Biology
- HBY 350 Physiology
- BIO 361, 362 Biochemistry I, II
- BIO 365 or BIO 311 Biochemistry
Laboratory

C. Pharmacology

- BCP 400 Writing in Pharmacology
- BCP 401 Principles of Pharmacology
- BCP 402 Advanced Pharmacology
- BCP 403 Principles of Pharmacology
Laboratory
- BCP 404 Advanced Pharmacology
Laboratory
- BCP 406 Pharmacology Colloquium
- BCP 487 Pharmacology Research
(for at least 3 credits)

Sample Course Sequence for the Pharmacology Major

Freshman Fall	Credits
D.E.C. A	3
CHE 131	4
CHE 133	1
MAT131	4
D.E.C.	3
Total	15

Spring	Credits
D.E.C. A	3
CHE 132	4
CHE 134	1
MAT 132	4
D.E.C.	3
Total	15

Sophomore Fall	Credits
CHE 321	3
BIO 202	4
D.E.C.	3
D.E.C.	3
D.E.C.	3
Total	16

Spring	Credits
BIO 203	3
CHE 322	3
CHE 327	2
D.E.C.	4
D.E.C.	3
Total	15

Junior Fall	Credits
PHY 121/123	4
BIO 361	3
BIO 365 or 311	2
HBY 350	3
D.E.C.	3
Total	15

Spring	Credits
PHY 122/124	4
BIO 362	3
BIO 310	3
D.E.C.	3
D.E.C.	3
Total	16

Senior Fall	Credits
BCP 401	3
BCP 403	2
Upper Division Elective	3
Elective	3
Elective	3
Total	14

Spring	Credits
BCP 402	3
BCP 404	2
BCP 406	1
BCP 487	3
Elective	3
Elective	3
Total	15

D. Upper-Division Writing Requirement

To fulfill the upper-division writing requirement in pharmacology, a sample of writing from an upper-division course in biological sciences must be submitted to the Department of Pharmacological Sciences for evaluation by the Pharmacology Writing Committee. This writing sample can be a laboratory report, a term paper, or a report for a reading or research course, and it must contain at least 750 words of text. It is to be accompanied by a form (available in the Department of Pharmacological Sciences office) signed by the student and the instructor of the course for which the material was written. The student must enroll in BCP 400 Writing in Pharmacology for the semester in which the upper-division writing requirement is being at-

tempted. 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 is advised to seek help in writing skills from the Writing Center and must pass a writing examination administered by the Department of Pharmacological Sciences at a scheduled time prior to graduation.

E. Courses Recommended but not Required for the Major

BCP/MAR 394 Environmental
Toxicology and Public Health

BCP 475 Undergraduate Teaching
Practicum I

BCP 488 Internship

BIO 320 General Genetics

CHE 301 Physical Chemistry I

CHE 302 Physical Chemistry II

CHE 305 Physical Chemistry III

CHE 312 Physical Chemistry

(Short Course)

Note:

The following alternate sequences may
be substituted for major requirements:

MAT 125, 126, 127 or 141, 142 for MAT

131, 132; PHY 131, 132 or 141, 142 or

125, 126, 127 for PHY 121/123, 122/124.

Honors Program in Pharmacology

Graduation with honors in pharmacology requires 1. a cumulative grade point average of 3.5 or higher in all courses in requirements A, B, and C above, and 2. presentation of an acceptable thesis based on a research project performed under BCP 487, 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 BCP 487 registration does not imply automatic acceptance of that project for honors.) The honors coordinator in consultation with the student then appoints a thesis committee consisting of the research sponsor and two additional faculty members. Two members of the thesis committee must be members of the Department of Pharmacological Sciences and one must 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 then submits the thesis for final approval to the other two members of the thesis committee.

PHI

Department of Philosophy

CHAIRPERSON: Edward S. Casey DIRECTOR OF UNDERGRADUATE STUDIES: Gary Mar ADMINISTRATIVE ASSISTANT: Virginia Massaro
OFFICE: 213 Harriman Hall PHONE: 632-7580 E-MAIL: ldunn@notes.sunysb.edu WEB ADDRESS: www.sunysb.edu/philosophy/

Minors of particular interest to students majoring in philosophy: art history (ARH), studio art (ARS), biology (BIO), comparative literature (CLT), English (EGL), mathematics (MAT), political science (POL), women's studies (WST)

Faculty

David B. Allison, *Associate Professor, Ph.D., Pennsylvania State University*: Contemporary European philosophy.

Kenneth Baynes, *Associate Professor, Ph.D., Boston University*: Social and political philosophy; moral theory; modern and contemporary German philosophy.

Edward S. Casey, *Professor, Ph.D., Northwestern University*: Psychoanalysis; aesthetics; phenomenology; philosophy of mind; philosophy of place and space.

Harvey Cormier, *Assistant Professor, Ph.D., Harvard University*: American philosophy, William James and Pragmatism, philosophy and culture.

Robert Crease, *Associate Professor, Ph.D., Columbia University*: Philosophy of science; aesthetics; modern philosophy.

David A. Dilworth, *Professor, Ph.D., Fordham University, Ph.D., Columbia University*: History of philosophy; Chinese and Japanese philosophy.

Jeffrey Edwards, *Assistant Professor, Ph.D., Universität Marburg*: History of modern philosophy; Kant and German idealism; ethics and political philosophy.

Patrick Grim, *Professor, Ph.D., Boston University*: Ethics; logic; contemporary analytic philosophy. Recipient of the State University President's and Chancellor's Award for Excellence in Teaching, 1988, Academy of Teacher-Scholars, 1996.

Dick Howard, *Professor, Ph.D., University of Texas*: Political and social philosophy.

Don Ihde, *Professor, Ph.D., Boston University*: Phenomenology; philosophy of technology; hermeneutics.

Eva Feder Kittay, *Professor, Ph.D., City University of New York*: Philosophy of language; philosophy and literature; feminism; ethics; political and social philosophy.

Peter Ludlow, *Associate Professor, Ph.D., Columbia University*: Philosophy of linguistics; philosophy of cognitive science; philosophy of language.

Peter Manchester, *Associate Professor, Ph.D., Graduate Theological Union*: History of Greek philosophy, phenomenology, philosophical theology.

Gary Mar, *Associate Professor, Ph.D., University of California, Los Angeles*: Logic; philosophy of mathematics; contemporary analytic philoso-

phy; Asian American studies; philosophy of religion. Recipient of the State University President's and Chancellor's Award for Excellence in Teaching, 1993, Alumni Association Outstanding Professor Award, 1995, the Pew Foundation Fellowship, 1995-1996, Academy of Teacher-Scholars, 1996.

Clyde Lee Miller, *Associate Professor, Ph.D., Yale University*: History of philosophy. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1980, NY State/UUP Excellence Award, 1991, and the SPD Bentley Glass Great Teacher Award, 1996.

Rita D. Nolan, *Professor, Ph.D., University of Pennsylvania*: Theory of knowledge; philosophy of language; foundations of cognitive science; Wittgenstein; feminism.

Mary C. Rawlinson, *Associate Professor, Ph.D., Northwestern University*: 19th-century philosophy; philosophy of medicine; aesthetics and literary theory; Hegel, philosophical psychology. Recipient of the State University President's and Chancellor's Award for Excellence in Teaching, 1994.

Hugh J. Silverman, *Professor, Ph.D., Stanford University*: Continental philosophy, cultural and aesthetic theory, philosophy and literature. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1977.

Michael A. Simon, *Professor, Ph.D., Harvard University, J.D., Cardozo School of Law*: Social and legal philosophy; philosophy of science.

Lorenzo Simpson, *Professor, Ph.D., Yale University*: Contemporary continental philosophy; philosophy of the social sciences; philosophy of science and technology; neopragmatism and post analytic philosophy; philosophy and race. Recipient of commonwealth of Virginia's Outstanding Faculty Award, 1990; University of Richmond's Distinguished Educator Award, 1984.

Marshall Spector, *Professor, Ph.D., The Johns Hopkins University*: Philosophy of science; philosophy of technology, and environmental issues.

Donn Welton, *Associate Professor, Ph.D., Southern Illinois University*: Phenomenology; theories of meaning and truth, philosophical psychology, and Husserl studies.

Peter Williams, *Associate Professor, J.D., Ph.D., Harvard University*: Philosophy of law; ethics. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1978.

Affiliated Faculty

Donald Kuspit, *Art*

Kelly Oliver, *Women's Studies*

Adjunct Faculty

Estimated number: 2

Teaching Assistants

Estimated number: 17

Philosophy explores and critically examines the deeper meanings of human life and the world in which we live. It studies the foundations of all forms of knowledge and human activity, and the interconnections among them. Its studies include the nature of existence, knowledge, and value; human reasoning and its limits; art, science, literature, and the human condition; and justice and the nature of the good. It unifies these diverse topics by concentrating on the fundamental nature of human experience and cognition as well as the conceptual foundations of the sciences.

A major in philosophy gives students access to the fruits of 2500 years of thought on matters of ultimate concern. It encourages and provides the means of thinking effectively about timeless questions through a study of important writings on these topics. A successful student of philosophy is equipped to engage in intellectual conversation on a range of topics of both classical and contemporary concern. The study of philosophy encourages breadth and depth of understanding and promotes the ability to think cogently and rigorously.

Philosophy majors prepare themselves for a wide range of professional and business occupations that value highly developed skills of analysis, comprehensive thinking, and communication. Students majoring in philosophy commonly pursue careers in law, medicine, business, technology, public service, teaching, and editing and publishing. In addition to its focus on the broader intellectual aspects of liberal studies, the Philosophy Department stresses interdisciplinary

studies in emerging fields such as feminism, computation and consciousness, environmentalism, philosophy of technology, and cross-cultural philosophies from a global perspective.

Courses Offered in Philosophy

See the Course Description listing in this Bulletin for complete information.

PHI 100-B Concepts of the Person (II)
 PHI 103-B Philosophic Problems (II)
 PHI 104-B Moral Reasoning (II)
 PHI 105-G Politics and Society (II)
 PHI 108-B Logical and Critical Reasoning (II)
 PHI 109-B Philosophy and Literature in Social Context (III)
 PHI 110-B Arts and Ideas (IIII)
 PHI 111-B Introduction to Eastern Philosophy (I)
 PHI 150-G Honors Introduction to Philosophy (I,II,III)
 PHI 200-G Introduction to Ancient Philosophy (I)
 PHI 206-G Introduction to Modern Philosophy (I)
 PHI 208-G Introduction to 19th-Century Philosophy (I)
 PHI 215-B Argumentative Writing (II)
 PHI 220-C Introduction to Symbolic Logic (II)
 PHI 230-H The Nature and Practice of Science (III)
 PHI 247-G Existentialism (I)
 PHI 249-G Marxism (I)
 PHI 264-D Philosophy and the Arts (III)
 PHI 277-G Political Philosophy (II)
 PHI 284-G Introduction to Feminist Theory (III)
 PHI 285-G The Uses of Philosophy (III)
 PHI 300-I Ancient Philosophy (I)
 PHI 304-I Medieval Philosophy (I)
 PHI 306-I Modern Philosophy (I)
 PHI 308-I 19th-Century Philosophy (I)
 PHI 309-G 20th Century Philosophy (I)
 PHI 310-K American Philosophy (I)
 PHI 312-I Topics in Contemporary European Thought (I)
 PHI 320-G Metaphysics (II)
 PHI 323-G Philosophy of Perception (II)
 PHI 325-G Contemporary Philosophies of Language (II)
 PHI 330-C Advanced Symbolic Logic (II)

PHI 332-G Theories of Knowledge (II)
 PHI 335-G Philosophy of Time (II)
 PHI 336-G Philosophy of Religion (II)
 PHI 342-J History of Chinese Philosophy (I)
 PHI 344-J Japanese Thought and Philosophy (I)
 PHI 347-G Hermeneutics and Deconstruction (II)
 PHI 353-G Philosophy of Mind (II)
 PHI 360-G Philosophy of Education (III)
 PHI 363-G Philosophy of the Social Sciences (III)
 PHI 364-H Philosophy of Technology (III)
 PHI 365-H Philosophy and Computers (III)
 PHI 366-G Philosophy and the Environment (III)
 PHI 368-H Philosophy of Science (III)
 PHI 369 Philosophy of Mathematics (III)
 PHI 370 Philosophical Psychology (III)
 PHI 372-G Ethical Inquiry (II)
 PHI 374-G Philosophy in Relation to Other Disciplines (III)
 PHI 375-G Philosophy of Law (III)
 PHI 376-G Philosophy and Medicine (III)
 PHI 377 Contemporary Political Philosophy (II)
 PHI 378-K Philosophical Topics in Asian American Studies (III)
 PHI 379-J Philosophy of Race (III)
 PHI 380-G Literature and Philosophy (III)
 PHI 381-G Aesthetics (II)
 PHI 384-G Advanced Topics in Feminist Philosophy (III)
 PHI 400-G, 401-G Individual Systems of the Great Philosophers (I)
 PHI 402-G Analysis of Philosophic Texts (I)
 PHI 420 Advanced Topics in Philosophy (I,II,III)
 PHI 421 Research Tracks in Philosophy (I,II,III)
 PHI 435 Senior Seminar
 PHI 475, 476 Undergraduate Teaching Practicum I, II
 PHI 487 Readings and Research in Philosophy (II)
 PHI 489 Readings and Research in the History of Philosophy (I)

PHI 490 Readings and Research in Philosophical Investigations of Other Disciplines (III)

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. Courses offered for the major must be passed with a letter grade of C or higher. No more than two 100-level philosophy courses may be used to satisfy major requirements.

Completion of the major requires 36 credits.

1. PHI 300 Ancient Philosophy *and* PHI 306 Modern Philosophy
2. PHI 400 Individual Systems of the Great Philosophers *or* PHI 401 Individual Systems of the Great Philosophers *or* PHI 402 Analysis of Philosophic Texts
3. Two courses in Category I, Styles and Systems of Philosophy in Historical Perspective, excluding those in requirements 1 and 2 above.
4. Three courses in Category II, Basic Skills and Problem Areas of Philosophy
5. Three courses in Category III, Philosophy in Relation to Other Arts and Sciences. Two upper-division courses in another discipline, if appropriately related to a student's major program, may be substituted for one Category III course. Approval for such a substitution must be obtained from the Undergraduate Director prior to course election.
6. PHI 435 Senior Seminar
7. 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 the semester, so that the student's essays for the course may be given special appraisal for advanced writ-

Sample Course Sequence for the Major in Philosophy

Freshman Fall	Credits
D.E.C.A	3
PHI Category I course	3
D.E.C.	3
D.E.C.	3
D.E.C.	3
Total	15

Spring	Credits
D.E.C. A	3
PHI Category I course	3
PHI Category II course	3
D.E.C.	3
D.E.C.	3
Total	15

Sophomore Fall	Credits
PHI Category II course	3
PHI Category II course	3
PHI Cat. III course	3
D.E.C.	3
D.E.C.	3
Total	15

Spring	Credits
PHI 300	3
PHI Category III elective	3
D.E.C.	3
Upper Division Elective	3
Elective	3
Total	15

Junior Fall	Credits
PHI Category III course	3
PHI elective	3
Upper Division elective	3
Upper Division elective	3
Upper Division elective	3
Total	15

Spring	Credits
PHI 306	3
PHI Upper Division elective	3
Upper Division elective	3
Upper Division elective	3
Elective	3
Total	15

Senior Fall	Credits
PHI 400 or 401 or 402	3
D.E.C.	3
D.E.C.	3
D.E.C.	3
Upper Division elective	3
Total	18

Spring	Credits
PHI 435	3
D.E.C.	3
Upper Division elective	3
Elective	3
Elective	3
Total	15

ing 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.

Notes:

1. PHI 200 and 206 may not be counted for the major if taken after 300 and 306, respectively.
2. Students who expect to pursue graduate study should include PHI 220 in their programs.
3. No more than six philosophy courses may be used to satisfy D.E.C. requirements.

Honors Program in Philosophy

To qualify for the honors program, a student must be a junior or a senior major

with an overall g.p.a. of at least 3.0 and a g.p.a. 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 consists 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 is reviewed by the advisor and one other member of the philosophy faculty and by a faculty member from outside the department. The senior paper is then the focus of an oral examination. Honors are awarded upon passage of the examination.

Minor in Philosophy

The minor in philosophy requires 18 credits, which must include at least nine credits in upper-division courses. The minor must be approved by the Director of Undergraduate Studies. Students anticipating a minor may select one of the following emphases: history of philosophy; logic, science, and technology; moral, political, and legal issues; literature and the arts. Alternatively, a student may design a minor in philosophy tailored to his or her own interest, subject to approval by the Director of Undergraduate Studies. Courses offered for the minor must be passed with a letter grade of C or higher. No more than one 100-level course can be counted toward satisfying the minor requirements.

Undergraduate Research Tracks in Philosophy

The Undergraduate Research Tracks in Philosophy offer an opportunity to do sophisticated and concentrated research, while still an undergraduate, on a particular topic in philosophy. Seven courses are required over a three-year period. The first five courses provide important skills and background. In the third year, the research team—consisting of a faculty member and a small group of students—spends two semester-long research courses on a philosophical project of professional caliber, doing work that may even lead to publication. Some examples are: Research Track in Philosophical Logic; Research Track in Philosophy and Literature; Research Track in Race, Class, and Gender. More specific information on Undergraduate Research Tracks, including particular topics beginning each year and the courses designed for them, are available from the Undergraduate Office.

Study Abroad

Philosophy majors and other interested students who would like to spend a semester or a year studying in France, Germany, England, Spain, Italy, or other countries, should consult the Department's director of undergraduate studies. With the permission of the department, philosophy majors may also use credits from other study abroad programs to satisfy major requirements. See also the section on Study Abroad in chapter entitled "Special Academic Programs."

PEC

Department of Physical Education

CHAIRPERSON: John DeMarie SECRETARY: Joan Mertz

OFFICE: Sports Complex, Main Office PHONE: 632-7047 WEB ADDRESS: www.sinc.sunysb.edu/dept/physed/

Faculty

David B. Alexander, *Instructor, part time, M.S., Adelphi University*: Swimming.

Peter G. Angelo, *Associate Professor, Ph.D., State University of New York at Stony Brook*: Aquatics; first aid and cardiopulmonary resuscitation. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1998, and the President's Award for Excellence in Teaching, 1998.

Norman Berhannan, *Lecturer, M.A.L.S., State University of New York at Stony Brook*: General physical education.

David Caldiero, *Instructor, M.S., University of Bridgeport*: Football; general physical education.

John DeMarie, *Associate Professor, M.A., Adelphi University*: General physical education.

Scott Dean, *Lecturer, B.S., Green Mountain College*: Men's soccer coach.

Susan DiMonda, *Associate Professor and Director of Intramurals, M.A., Adelphi University*: General physical education.

Paul J. Dudzick, *Associate Professor, M.A., State University of New York at Stony Brook*: General physical education.

John Espey, *Associate Professor, M.A., University of North Carolina at Chapel Hill*: Lacrosse; general physical education.

Nobuyoshi Higashi, *Associate Professor, part time, M.A., New York University*: Self-defense; judo.

Diane Hobin, *Lecturer, M.S., Hofstra University*: Softball.

Samuel B. Kornhauser, *Associate Professor, M.S., Southern Illinois University*: Football; general physical education.

Kathryn Ann Koshansky, *Associate Professor, M.S., University of Illinois at Urbana-Champaign*: Athletic training. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1989, and the President's Award for Excellence in Teaching, 1989.

Richard Laskowski, *Professor, Ed.D., St. John's University*: General physical education.

Gregory Laub, *Lecturer, part time, M.B.A., Adelphi University*: First aid and cardiopulmonary resuscitation.

Nell Lee, *Lecturer, part time, M.A.L.S., University at Stony Brook*: Women's tennis; general physical education.

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.

James Meegan, *Lecturer, part time, M.A., Adelphi University*: Track and cross country; general physical education.

Jeannean Mercuri, *Lecturer, part time, B.A., State University of New York at Stony Brook*: General physical education.

Richard B. Miekley, Jr., *Instructor, M.S., Ohio University*: Athletic training; general physical education.

Susan Ryan, *Assistant Professor, M.A., State University of New York at Stony Brook*: Soccer; general physical education.

Matthew Senk, *Lecturer, part time, B.S., State University College at Cortland*: Baseball; general physical education.

Eric Seremet, *Lecturer, B.A., University of North Carolina, Chapel Hill*: Soccer; general physical education.

Jessica Starcher, *Lecturer, part-time, B.S., State University of New York at Stony Brook*: First aid and cardiopulmonary resuscitation.

Mansour Tabibnia, *Lecturer, part time, B.A., St. John's University*: Men's tennis.

Shu Takahashi, *Lecturer, B.F.A., Tokyo National University*: Karate.

Eric Teepe, *Lecturer, B.S., Averett College*: Soccer; general physical education.

Theresa Tiso, *Associate Professor, M.S., State University College at Cortland*: Volleyball; wellness; general physical education.

Bernard Tomlin, *Lecturer, B.A., Hofstra University*: Men's basketball.

David Villano, *Lecturer, part time, Certificate, Dance Educators of America*: General physical education.

Sandra Weeden, *Associate Professor and Director of Athletics, M.Ed., University of North Carolina at Greensboro*: General physical education.

Bill Zatulskis, *Lecturer, M.E., Springfield College*: Women's basketball coach.

Adjunct Faculty

Estimated number: 5

Teaching Assistants

Estimated number: 20

The Department of Physical Education seeks to incorporate the concept of the whole person into the fabric of the undergraduate experience. The department strives to educate and instill in all students an appreciation of a physically fit, active, and healthy lifestyle through a curriculum that incorporates a wide variety of lifetime sports and activities. Additional academic content courses are provided leading to personal, professional, and teacher-training certifications and credentials in areas of safety, emergency response care, athletic training, and aquatics.

Facilities

Indoor sports facilities are housed in the Indoor Sports Complex, which has a main arena that seats 4,000 for basketball and volleyball and 5,000 for special events such as lectures, concerts, and graduation ceremonies. The complex contains a four-lane, five-sprint-lane track (177 meters in distance); six glass, back-walled squash courts, locker room facilities including six team rooms, and a training room with capacity for hydrotherapy and electrotherapy.

The complex also includes a gymnasium that seats 1,800 for basketball or volleyball. When not in use for competition, the gymnasium contains three multipurpose courts suitable for basketball, volleyball, badminton, and indoor soccer. The facility also houses a six-lane, 25-yard pool, eight racquetball courts, a Nautilus weight room, a dance studio, and an exercise room.

Outdoor physical education and athletic facilities extend over 25 acres and include the 2,500-seat Seawolves Field, which is the home of football and lacrosse; a six-lane, 400-meter running track; four single-wall handball/paddleball courts; tennis courts; and fields for varsity soccer, baseball, and softball. Intramural fields are available for softball, touch football, soccer, beach volleyball, and many other sports.

Most facilities may be used for recre-

ational purposes when they are not scheduled for classes, intercollegiate athletics, intramural competitions, or special events. Current schedules of 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.

Neither the Department of Physical Education nor the State University of New York maintains liability insurance coverage associated with the activities or events sponsored by the department, the Sports Complex and related sports facilities, or the University. Students assume full and complete responsibility for obtaining proper health and accident insurance coverage. All students are required to sign an Assumption of Risk form at the beginning of each semester.

A maximum of ten PEC credits, including no more than four credits of 100-level courses, may be used toward the 120 credits required for the Bachelor of Arts or Bachelor of Science degrees or the 128 credits required for the Bachelor of Engineering degree.

Areas of Activity

Individual and Team Sports, Self-Defense, Physical Conditioning

- PEC 101 Racquetball
- PEC 102 Racquetball II
- PEC 103 Beginning Squash
- PEC 104 Power Walking
- PEC 105 Introduction to Fitness
- PEC 106 Basic Karate
- PEC 107 Intermediate Karate
- PEC 108 Judo
- PEC 109 Self-Defense
- PEC 110 Basic Aikido (Tomiki Style)
- PEC 113 Basic Fencing
- PEC 133 Aerobic Dancing
- PEC 134 Step Aerobics
- PEC 135 Yoga
- PEC 136 Basic Social Dance

- PEC 137 Intermediate Social Dance
- PEC 145 Basic Physical Conditioning
- PEC 146 Advanced Physical Conditioning
- PEC 147 Aerobic Running
- PEC 148 Advanced Aerobic Running
- PEC 151 Tennis/Badminton
- PEC 152 Tennis/Volleyball
- PEC 153 Basic Golf
- PEC 159 Badminton
- PEC 164 Volleyball
- PEC 240 Introduction to Wellness

Swimming and Water Safety

- PEC 120 Basic Swimming
- PEC 121 Intermediate Swimming
- PEC 122 Advanced Swimming and Basic Rescue
- PEC 125 Aerobic Swimming
- PEC 127 Hydro-Aerobics
- PEC 221 Lifeguard Training I
- PEC 222 Lifeguard Training II
- PEC 223 Water Safety Instructor
- PEC 225, 226 Instructor of Adapted Aquatics I, II
- PEC 227, 228 Instructor of Lifeguard Training I, II
- PEC 229 Fieldwork in Adapted Aquatics Instruction

Horsemanship

- PEC 180 Horsemanship I
- PEC 181 Horsemanship II
- PEC 182 Riding

First Aid and Athletic Training

- PEC 270 First Aid and Cardiopulmonary Resuscitation
- PEC 271 Instructor of Cardiopulmonary Resuscitation
- PEC 272 Instructor of First Aid
- PEC 310 Basic Athletic Training
- PEC 311 Advanced Athletic Training
- PEC 312, 313, 314 Athletic Training Practicum

Participation in Intercollegiate Athletics

- PEC 188 Softball
- PEC 189 Basketball
- PEC 190 Baseball
- PEC 191 Cross-Country
- PEC 192 Football
- PEC 193 Lacrosse
- PEC 194 Soccer

- PEC 196 Swimming
- PEC 197 Tennis
- PEC 198 Volleyball
- PEC-199 Track and Field

PHY

Department of Physics and Astronomy

CHAIRPERSON: Janos Kirz DIRECTOR OF UNDERGRADUATE STUDIES: Peter B. Kahn ASTRONOMY COORDINATOR: Deane M. Peterson
 UNDERGRADUATE SECRETARY: Elaine Larsen
 OFFICE: P-110 Physics PHONE: 632-8100 E-MAIL: pkahn@mathlab.sunysb.edu WEB ADDRESS: <http://insti.physics.sunysb.edu/Physics/>
Minors of particular interest to students majoring in physics: astronomy (AST), electrical engineering (ESE), mathematics (MAT), optics (OPT), science and engineering (LSE)

Faculty

- Igor Aleiner, *Assistant Professor, Ph.D., University of Minnesota*: Theoretical condensed matter physics.
- Philip B. Allen, *Professor, Ph.D., University of California, Berkeley*: Theoretical solid-state physics; superconductors and superconductivity.
- Dimitri Averin, *Associate Professor, Ph.D., Moscow State University*: Solid-state physics.
- Ilan Ben-Zvi, *Adjunct Professor, Ph.D., Weizmann Institute*: Accelerator and beam physics.
- Thomas Bergeman, *Research Professor, Ph.D., Harvard University*: Theoretical atomic physics.
- Gerald E. Brown, *Distinguished Professor, Ph.D., Yale University; D.Sc., University of Birmingham*: Theoretical nuclear physics. Member, Institute for Theoretical Physics.
- Robert L. deZafra, *Professor, Ph.D., University of Maryland at College Park*: Experimental atmospheric sciences: remote sensing, stratospheric dynamics and trace constituent measurements, millimeter-wave spectroscopy.
- Klaus Axel Drees, *Assistant Professor, Ph.D., University of Heidelberg*: Experimental nuclear physics; relativistic ions.
- Roderich Engemann, *Professor, Ph.D., University of Heidelberg*: Experimental elementary particle physics.
- Aaron Evans, *Assistant Professor, Ph.D., University of Hawaii*: Astronomy.
- Miriam Forman, *Adjunct Professor, Ph.D., State University of New York at Stony Brook*: Cosmic rays.
- David B. Fossan, *Professor, Ph.D., University of Wisconsin-Madison*: Experimental nuclear physics; nuclear structure and reactions.
- Marvin Geller, *Adjunct Professor, Ph.D., Massachusetts Institute of Technology*: Atmospheric dynamics.
- Alfred S. Goldhaber, *Professor, Ph.D., Princeton University*: Theoretical physics; nuclear theory; particle physics. Member, Institute for Theoretical Physics.
- Vladimir J. Goldman, *Professor, Ph.D., University of Maryland at College Park*: Experimental condensed matter physics.
- Erlend H. Graf, *Associate Professor, Ph.D., Cornell University*: Experimental low-temperature physics.
- Paul D. Grannis, *Distinguished Professor, Ph.D., University of California, Berkeley*: Experimental high-energy physics; elementary particle reactions.
- Michael Gurvitch, *Professor, Ph.D., State University of New York at Stony Brook*: Experimental solid-state physics.
- Thomas Hemmick, *Associate Professor, Ph.D., University of Rochester*: Experimental relativistic heavy-ion nuclear physics. Recipient of the State University President's Award for Excellence in Teaching, 1996. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1996.
- John Hobbs, *Assistant Professor, Ph.D., University of Chicago*: Experimental high-energy physics.
- Barbara Jacak, *Professor, Ph.D., Michigan State University*: Experimental nuclear physics; relativistic heavy ions.
- Chris Jacobsen, *Associate Professor, Ph.D., State University of New York at Stony Brook*: X-ray physics.
- Jainendra Jain, *Professor, Ph.D., State University of New York at Stony Brook*: Theoretical solid-state physics.
- Chang Kee Jung, *Associate Professor, Ph.D., Indiana University*: Experimental high-energy physics.
- Peter B. Kahn, *Professor, Ph.D., Northwestern University*: Theoretical physics; nonlinear dynamics.
- Janos Kirz, *Distinguished Professor, Ph.D., University of California, Berkeley*: X-ray optics. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1976.
- Peter M. Koch, *Professor, Ph.D., Yale University*: Experimental atomic physics; quantum chaos; nonlinear dynamics.
- Vladimir Korepin, *Professor, Ph.D., Leningrad University*: Exactly solvable models in quantum field theory. Member, Institute for Theoretical Physics.
- T.T.S. Kuo, *Professor, Ph.D., University of Pittsburgh*: Nuclear theory.
- Kenneth M. Lanzetta, *Associate Professor, Ph.D., University of Pittsburgh*: Formation and evolution of galaxies; evolution of the intergalactic medium.
- James Lattimer, *Professor, Ph.D., University of Texas*: Astronomy.
- Linwood L. Lee, Jr., *Professor, Ph.D., Yale University*: Experimental nuclear structure.
- Juliet Lee-Franzini, *Adjunct Professor, Ph.D., Columbia University*: Experimental high-energy physics.
- Konstantin Likharev, *Professor, Ph.D., Moscow State University*: Solid-state physics.
- Jack J. Lissauer, *Adjunct Professor, Ph.D., University of California, Berkeley*: Astronomy.
- Robert Lourie, *Adjunct Professor, Ph.D., Massachusetts Institute of Technology*: Experimental nuclear physics; relativistic heavy ions.
- 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 and former President of the University at Stony Brook, Ph.D., Stanford University*: Laser theory.
- Michael Marx, *Professor, Ph.D., Massachusetts Institute of Technology*: Experimental high-energy and relativistic heavy ion physics.
- Emilio Mendez, *Professor, Ph.D., Director of the Institute for Interface Phenomena, Massachusetts Institute of Technology*: Solid-state experimental physics.
- Harold J. Metcalf, *Professor, Ph.D., Brown University*: Atomic physics; laser cooling and trapping; atom optics, precision Stark spectroscopy, lasers and optics teaching. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1974.
- Laszlo Mihalý, *Professor, Ph.D., University of Budapest*: Experimental low-temperature physics.
- Richard A. Mould, *Emeritus Associate Professor, Ph.D., Yale University*: Theoretical physics; general relativity; quantum theory of measurements.
- Herbert R. Muether, *Emeritus 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*: Energy; policy planning.

Luis Orozco, *Associate Professor, Ph.D., University of Texas at Austin*: Experimental atomic physics.

Peter Paul, *Distinguished Service Professor, Ph.D., University of Freiburg*: Experimental nuclear physics.

Stephen G. Peggs, *Adjunct Professor, Ph.D., Cornell University*: Accelerator physics.

Deane M. Peterson, *Associate Professor, Ph.D., Harvard University*: Stellar atmospheres; radiative transfer; Bp stars; lunar and asteroid occultations; high-time resolution photometry.

Madappa Prakash, *Research Assistant Professor, Ph.D., University of Bombay, India*: Theoretical nuclear physics.

Michael Rijssenbeek, *Professor, Ph.D., University of Amsterdam*: Experimental high-energy physics.

Martin Rocek, *Professor, Ph.D., Harvard University*: Theoretical physics. Member, Institute for Theoretical Physics.

Vasili Semenov, *Research Associate Professor, Ph.D., Moscow State University*: Experimental condensed matter physics.

Robert Shrock, *Professor, Ph.D., Princeton University*: Theoretical physics; gauge theories, statistical mechanics. Member, Institute for Theoretical Physics.

Edward Shuryak, *Professor, Ph.D., Novosibirsk Institute of Nuclear Physics*: Theoretical nuclear physics.

Warren Siegel, *Professor, Ph.D., University of California, Berkeley*: Theoretical physics; strings. Member, Institute for Theoretical Physics.

Michal Simon, *Professor, Ph.D., Cornell University*: Astronomy.

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.

Peter W. Stephens, *Professor, Ph.D., Massachusetts Institute of Technology*: Experimental solid-state physics.

George Serman, *Professor, Ph.D., University of Maryland at College Park*: Theoretical physics; elementary particles. Member, Institute for Theoretical Physics.

Arnold A. Strassenburg, *Professor, Ph.D., California Institute of Technology*: Curriculum development; pre-college teacher enhancement.

Clifford E. Swartz, *Professor Emeritus, Ph.D., University of Rochester*: School curriculum revision.

Peter Van Nieuwenhuizen, *Professor, Ph.D., Utrecht University*: Theoretical physics. Member, Institute for Theoretical Physics.

Jacobus Verbaarschot, *Associate Professor, Ph.D., University of Utrecht*: Nuclear theory.

Frederick M. Walter, *Associate Professor, Ph.D., University of California, Berkeley*: Astronomy.

William I. Weisberger, *Professor, Ph.D., Massachusetts Institute of Technology*: Theoretical physics. Member, Institute for Theoretical Physics.

Ralph Wijers, *Assistant Professor, Ph.D., University of Amsterdam*: Theoretical high-energy astrophysics.

Amos Yahil, *Professor, Ph.D., California Institute of Technology*: Astronomy.

Chiaki Yanigasawa, *Research Assistant Professor, Ph.D., Toyko University*: High energy physics.

Chen Ning Yang, *Einstein Professor, 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, *Professor, Ph.D., Massachusetts Institute of Technology*: Theoretical nuclear physics.

Teaching Assistants

Estimated number: 38

Physics is the study of the basic physical principles that govern our universe. This study uses the language of mathematics and is applied in all other natural sciences (astronomy, chemistry, biology, geology, etc.) and engineering.

The objective of the major in physics is to teach students how to think in a scientific manner about the world.

This basic education is applicable to many fields (physics, engineering, computer programming, astronomy, geology, biophysics, medicine, medical technology, teaching, law, business, etc.). Since the basic principles of physics do not go out of style, and will be the basis for all new technology, the physics major provides knowledge of permanent value, hence the ability to adapt to new conditions. After graduation approximately half of our physics majors go on to graduate school, either in physics or in a related field (such as those mentioned above). The other half initially take positions in industry (in areas such as those mentioned above), but many of these return to graduate school at a later time.

Astronomy

See the AST Astronomy entry in the College of Arts and Sciences Approved Programs chapter for Astronomy courses and major requirements.

Courses Offered in Physics

See the Approved Course listing in this Bulletin for complete course descriptions.

PHY 111-E The Physics of Musical Sound

PHY 112-E Light, Color, and Vision

PHY 117-E, 118-E Physics and Biological Systems

PHY 119-E Physics for Environmental Studies

PHY 121-E, 122-E Physics for Life Sciences

PHY 123, 124 Physics for Life Sciences Laboratory

PHY 125-E Classical Physics A

PHY 126-E Classical Physics B

PHY 127-E Classical Physics C

PHY 131-E Classical Physics I

PHY 132-E Classical Physics II

PHY 141-E, 142-E Classical Physics I, II: Honors

PHY 191, 192 Transitional Study

PHY 237-H Current Topics in World Climate and Atmosphere

PHY 251-E Modern Physics

PHY 252 Modern Physics Laboratory

PHY 262-E An Introduction to Solid-State Physics

PHY 287 Introduction to Research

PHY 291 Transitional Study

PHY 301-E, 302-E Electromagnetic Theory

PHY 303-E Mechanics

PHY 306-E Thermodynamics, Kinetic Theory, and Statistical Mechanics

PHY 308-E Quantum Physics

PHY 311 Connections in Science

PHY 335 Electronics and Instrumentation Laboratory

PHY 352-E Optics and Waves

PHY 403 Nonlinear Dynamics

PHY 405 Advanced Quantum Physics

PHY 407 Physics of Continuous Media

PHY 408 Relativity

PHY 431 Nuclear and Particle Physics

PHY 445, 446 Senior Laboratory I, II

PHY 447 Tutorial in Advanced Topics

PHY 452 Lasers

PHY 455 Principles of Microscopy

PHY 472 Solid-State Physics

PHY 475 Undergraduate Teaching Practicum

PHY 487 Research

Requirements for the Major in Physics

The major in physics leads to the Bachelor of Science degree. All courses must be taken for a letter grade.

Completion of the major requires approximately 64 credits.

A. Courses in Physics

PHY 131, 132 Classical Physics I, II (see note)

PHY 251 Modern Physics

PHY 262 An Introduction to Solid-State Physics

PHY 301 Electromagnetic Theory

PHY 303 Mechanics

PHY 306 Thermodynamics, Kinetic Theory, and Statistical Mechanics

PHY 308 Quantum Physics

PHY 335 Electronics and Instrumentation Laboratory

PHY 352 Optics and Waves

PHY 445 Senior Laboratory I

Each course numbered above 300 must be completed with a grade of C or higher. At least four of these courses numbered above 300 must be taken at Stony Brook.

Note: PHY 125, 126, 127 or 141, 142 may be substituted for PHY 131, 132.

B. Courses in Mathematics

Equivalency for MAT courses achieved on the Mathematics Placement Examination is accepted as fulfillment of the corresponding requirements without the necessity of substituting other credits.

- One of the following sequences:
MAT 131, 132 Calculus I, II
or MAT 141, 142 Honors Calculus I, II
or MAT 125, 126, 127 Calculus A, B, C
- One of the following:
MAT 205 Calculus III
or MAT 203 Calculus III with Applications
or AMS 261 Applied Calculus III
- One of the following:
MAT 305 Calculus IV
or MAT 303 Calculus IV with Applications
or AMS 361 Applied Calculus IV: Differential Equations

C. Courses in Related Fields

Twelve credits of acceptable physics-related courses that complement a physics major's education. A list of acceptable courses is posted in the Physics and Astronomy Undergraduate Office.

D. Upper-Division Writing Requirement

Students satisfy this requirement in conjunction with their laboratory work in PHY 262, 335, 352, or 445. The student's proficiency in writing according to standards of acceptable scientific communication is 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 is certified independently of the course grade.

Notes: Students taking the PHY 125, 126, 127 sequence will have to delay portions of this program by one semester. For the choices of physics electives, see the 400-level physics courses. Students are encouraged to include biology (BIO 201, 202) and chemistry (CHE 198 or CHE 131, 132) among their electives.

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 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 131 Classical Physics I or 141 Classical Physics I: Honors

PHY 132 Classical Physics II or 142 Classical Physics II: Honors

MAT 131 Calculus I

MAT 132 Calculus II

Sophomore Year

PHY 251/252 Modern Physics and Laboratory

PHY 262 Introduction to Solid-State Physics

MAT 205 Calculus III

MAT 305 Calculus IV

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

PHY 335 Electronics and Instrumentation Laboratory

PHY 352 Optics and Waves

MAT 341 Applied Real Analysis

MAT 342 Applied Complex Analysis

Senior Year

PHY 405 Advanced Quantum Physics

PHY 445 Senior Laboratory I

At least two courses selected from:

PHY 403 Nonlinear Dynamics

PHY 408 Relativity

PHY 431 Nuclear and Particle Physics

PHY 446 Senior Laboratory II

PHY 447 Tutorial in Advanced Topics

PHY 472 Solid-State Physics

PHY 487 Research

Note: Of the courses explicitly mentioned above, MAT 341, MAT 342, PHY 302, and PHY 487 are not required for the B.S. in Physics.

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 con-

Sample Course Sequence for the Major in Physics

Freshman, Fall	Credits
D.E.C. A.	3
PHY 131	4
MAT 131	4
D.E.C.	3
Total	14

Spring	Credits
D.E.C. A	3
PHY 132	4
MAT 132	4
D.E.C.	3
D.E.C.	3
Total	17

Sophomore, Fall	Credits
PHY 251/252	4
MAT 205	3
D.E.C.	3
D.E.C.	3
D.E.C.	3
Total	16

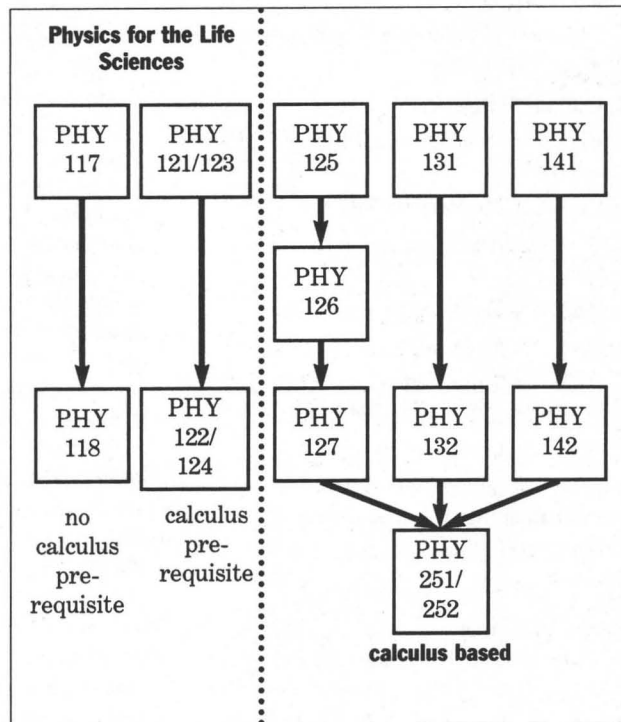
Spring	Credits
PHY 262	4
MAT 305	3
PHY 306	3
D.E.C.	3
D.E.C.	3
Total	16

Junior, Fall	Credits
PHY 301	3
PHY 303	3
PHY 335	3
MAT 341	3
D.E.C.	3
Total	15

Spring	Credits
PHY 302	3
PHY 308	3
PHY 352	3
MAT 342	3
Elective	3
Total	15

Senior, Fall	Credits
PHY 487	3
Upper Division PHY elective	3
PHY elective	3
D.E.C.	3
D.E.C.	3
Total	15

Spring	Credits
PHY 445	3
PHY elective	3
PHY elective	3
D.E.C.	3
Elective	3
Total	15



centration in those courses offered by Department of Physics and Astronomy 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.

Physics Secondary Teacher Preparation Program

See the Education and Teacher Certification entry in the College of Arts and Sciences Approved Programs chapter.

Basic Physics Sequences

The courses PHY 131, 132 (or 141, 142 or 125, 126, 127) and 251/252 present an intensive introduction to classical and modern physics for those who may major in physics, other physical sciences, or

engineering. Entering students interested in this course sequence will be tested to determine whether they should take the intensive 131, 132 sequence or the 125, 126, 127 sequence, which teaches the same material in three semesters. The flow chart below shows the five basic physics sequences available. (In the PHY 125, 126, 127 sequence 126 and 127 may be taken in either order.)

Any course numbered 200 or above that is to be used as a prerequisite for a physics course must be completed with a grade of C or higher.

POL

Department of Political Science

CHAIRPERSON: Mark Schneider DIRECTOR OF UNDERGRADUATE STUDIES: Frank Myers UNDERGRADUATE SECRETARY: Josephine Vasiento
OFFICE: S-701 Social and Behavioral Sciences PHONE: 632-7632 E-MAIL: jvasient@datalabs.sbs.sunysb.edu WEB ADDRESS:
www.sunysb.edu/polsci/index.html

Minors of particular interest to students majoring in political science: Africana studies (AFS), applied mathematics and statistics (AMS), anthropology (ANT), economics (ECO), environmental studies (ENS), history (HIS), international studies (LIS), philosophy (PHI), service learning research (LCR), sociology (SOC), technology and society (EST), women's studies (WST)

Faculty

Clifford J. Carrubba, *Assistant Professor, Ph.D., Stanford University*: Political economy; comparative politics.

Albert D. Cover, *Associate Professor, Ph.D., Yale University*: American politics and institutions; legislative politics.

James F. X. Doyle, *Lecturer, part time, J.D., Fordham University*: Administrative law.

Stanley Feldman, *Professor, Ph.D., University of Minnesota*: Political behavior and political sociology; logic of inquiry and research design; statistics.

Patricia Filiberto, *Lecturer, part time, J.D., St. Johns University*: Criminal law.

Leonie Huddy, *Associate Professor, Ph.D., University of California, Los Angeles*: Political psychology; public opinion.

Kimberley Johnson, *Assistant Professor, Ph.D., Columbia University*: American politics; public policy; federalism.

Elliot Kleinman, *Lecturer, part time, J.D., Brooklyn Law School*: Business law.

Lee E. Koppelman, *Professor, D.P.A., New York University*: Regional planning; resource management.

Noel Lateef, *Lecturer, part-time, J.D., Yale Law School*: International law.

Howard Lavine, *Assistant Professor, Ph.D., University of Minnesota*: Political psychology; attitudes and persuasion.

Milton Lodge, *Professor, Ph.D., University of Michigan*: Political psychology; political behavior.

Michael Manoussos, *Lecturer, part time, J.D., Detroit College of Law*: Constitutional law.

Andrew Martin, *Assistant Professor, Ph.D., Washington University, St. Louis*: American politics; political methodology; formal theory.

Carla E. Molette-Ogden, *Assistant Professor, Ph.D., Washington University at St. Louis*: American politics; international relations; political economy; comparative politics.

Frank Myers, *Professor, Ph.D., Columbia University*: Comparative politics; political theory.

Helmut Norpoth, *Professor, Ph.D., University of Michigan*: Elections, comparative politics.

Robert Ortiz, *Lecturer, part-time, J.D., St. John's University*: Business law.

Howard A. Scarrow, *Professor, Ph.D., Duke University*: Comparative politics; American gov-

ernment; political parties. Recipient of the State University 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, *Professor, Ph.D., University of California, Berkeley*: Public policy; public administration.

Jeffrey A. Segal, *Professor, Ph.D., Michigan State University*: American institutions; constitutional and public law.

Charles Taber, *Associate Professor, Ph.D., University of Illinois at Urbana-Champaign*: International relations; political psychology; foreign policy.

Paul Teske, *Associate Professor and Graduate Studies Director, Ph.D., Princeton University*: Political economy; urban politics; regulatory policy.

Steven R. Van Winkle, *Assistant Professor, Ph.D., Ohio State University*: American politics, statistical methods and formal theory; public opinion.

Affiliated Faculty

Jeff T. Casey, *Harriman School*

Lester Paldy, *Technology and Society*

Olufemi O. Vaughan, *Africana Studies*

Barbara Weinstein, *History/Latin America*

Teaching Assistants

Estimated number: 6

Political Science is the study of how societies make collective decisions through politics and government. It is subdivided into the following areas: American politics (study of American institutions and practices); comparative politics (study of foreign governments); international relations (study of war, international organization and foreign policies); political theory (study of the bases of legitimate political authority); political behavior (study of why people vote and act as they do in political matters); and public policy (study of organizational decision making and the consequences of government action).

The objective of the political science major is to give the student a general introduction to all the major subfields of the discipline and an in-depth exposure to one or two of them. Students study not only the major literature of the subfields, but also learn research methods and become familiar with ongoing research. Internships in Long Island, Albany and Washington offer selected students the opportunity to gain practical experience.

The political science major provides a strong liberal arts background for students who may enter such fields as journalism, business, public administration, social welfare, teaching and law. Those who graduate from law school go on to work in law firms, in businesses and in government agencies at all levels. Most political science majors who apply to law school are admitted, many of them to top-ranking institutions. Some political science majors attend graduate school in the field, leading to careers as teachers and researchers of politics at colleges and universities.

Courses Offered in Political Science

See the Course Description listing in this Bulletin for complete information.

POL 101-F World Politics

POL 102-F Introduction to American Government

POL 103-F Introduction to Comparative Politics

POL 105-F Honors Introduction to American Government

POL 201-C Introduction to Statistical Methods in Political Science

POL 214-J Modern Latin America

POL 216-J History of U.S.-Latin American Relations

POL 287 Introductory Research in Political Science

POL 302 Graphical Analysis in Political Science

POL 305-I Government and Politics of the United Kingdom
 POL 307-I Politics in Germany
 POL 309-1 Politics in the European Union
 POL 311-F Introduction to International Law
 POL 313-F Problems of International Relations
 POL 316-F Federalism and Intergovernmental Relations
 POL 317-F American Election Campaigns
 POL 318-F Voters and Elections
 POL 319 Business Law
 POL 320-F Constitutional Law and Politics: United States
 POL 321-F Law and Politics
 POL 322-F The Presidency in the American Political System
 POL 323-F Congress
 POL 324-F American Political Parties and Pressure Groups
 POL 325-F Civil Liberties and Civil Rights
 POL 326-F Politics of New York State
 POL 327-K Urban Politics
 POL 328-F Criminal Law
 POL 329-F Administrative Law
 POL 330-K Gender Issues in the Law
 POL 331-F Law and Political Representation
 POL 332-F Politics of Criminal Due Process
 POL 336-F U.S. Foreign Policy
 POL 337-I The Politics of Africa
 POL 343-F Behavioral Assumptions of the Law
 POL 344-F American Political Ideology and Public Opinion
 POL 346-F Political Psychology
 POL 347-K Women and Politics
 POL 348-F Political Beliefs and Judgments
 POL 349-F Social Psychology of Politics
 POL 350-I Contemporary European Political Theory
 POL 351 Social Surveys in Contemporary Society
 POL 359-F Public Policy Analysis
 POL 364-F Organizational Decision Making
 POL 365-F Economy and Democracy

POL 366-F Government Regulation of Business
 POL 367-F Mass Media in American Politics
 POL 368-F American Political Development
 POL 372-J Politics in the Third World
 POL 377 Contemporary Political Philosophy
 POL 382-J Politics and Political Change in Latin America
 POL 401-404 Seminars in Advanced Topics
 POL 405 Colloquium in Comparative Politics and Political Theory
 POL 406 Strategic Models of Politics
 POL 411-H Science, Technology, and Arms Control
 POL 412 Intelligence Organizations, Technology, and Democracy
 POL 413-J Asian Security and Technology Issues
 POL 418-K Legal Processes and Social Structures
 POL 434-F Supreme Court Decision Making
 POL 447 Directed Readings in Political Science
 POL 475, 476 Undergraduate Teaching Practicum I, II
 POL 487 Directed Research
 POL 488 Internship
 POL 489 Washington or Albany Internship
 POL 490 Washington or Albany Seminar
 POL 495-496 Senior Honors Project in Political Science

Requirements for the Major in Political Science

The major in political science leads to the Bachelor of Arts degree. All political science courses numbered 200 or higher offered for the major must be passed with a letter grade of C or higher.

Completion of the major requires 39 credits.

A. Study Within the Area of the Major

1. Required courses: (9 credits)

POL 101 World Politics
 POL 102 American Government or 105 Honors American Government
 POL 103 Comparative Politics

Note: Above courses must be taken for a letter grade and passed with a grade of C- or higher in order to be counted toward completion of the major requirements.

2. Political Science electives: (24 credits)

- a. All must be selected from courses numbered 200 or above (excluding POL 201), 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.
- b. 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 are accepted.

B. Study in Related Areas (6 credits)

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.

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 201, PSY 201, or SOC 202. 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 not count toward fulfilling any other major requirement.

D. Upper-Division Writing Requirement

Political science majors are expected to fulfill the 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 under-

Sample Course Sequence for the Major in Political Science

Freshman Fall	Credits
D.E.C. A	3
POL 100-level*	3
POL 100-level*	3
D.E.C.	3
D.E.C.	3
Total	15

Spring	Credits
D.E.C. A	3
POL 100-level*	3
D.E.C.	3
D.E.C.	3
D.E.C.	3
Total	15

Sophomore Fall	Credits
POL 201**	3
POL 200-level	3
D.E.C.	3
D.E.C.	3
D.E.C.	3
Total	15

Spring	Credits
POL 300-level	3
Introductory course in related area	3
Introductory course in related area	3
D.E.C.	3
D.E.C.	3
Total	15

Junior Fall	Credits
POL Upper Division course from selected Program of Study	3
POL Upper Division course from selected Program of Study	3
Upper Division course in related area	3
D.E.C.	3
D.E.C.	3
Total	15

Spring	Credits
POL Upper Division course from selected Program of Study	3
POL Upper Division course from selected Program of Study	3
Upper Division course related in area 3	3
Upper Division elective	3
Upper Division elective	3
Total	15

Senior Fall	Credits
POL Upper Division elective	3
POL Upper Division elective	3
D.E.C.	3
Upper Division elective	3
Upper Division elective	3
Total	15

Spring	Credits
Electives, directed research, internship, or honors	15
Total	15

* Every political science major must take POL 101, 102, and 103. The three courses are independent of one another and may be taken in any sequence.

** Any of the following courses may be substituted for POL 201: AMS 102, ECO 320, PSY 201, or SOC 202.

*** See the lists under "Programs of Study" right.

graduate 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 by the instructor of any upper-division political science course in which there is

an assigned research paper. Writing evaluation forms are available in the department office for students to give to their instructors along with their papers. Students should check with the undergraduate office if they have any questions about whether they have fulfilled the writing requirement.

Students whose writing is not judged adequate should consult with the director of undergraduate studies on further steps to fulfill the writing requirement.

Note:

Students must take four 300-level courses in one of the following programs of study within the major:

- Comparative Politics and International Relations;
- American Government, Law and Public Policy;
- Political Behavior and Political Psychology.

Programs of Study

Comparative Politics and International Relations

POL 214, 216, 305, 307, 309, 311, 313, 336, 337, 350, 372, 382, 405, 411, 412, 413. Also 287, 401, 402, 403, 404, 447, 487, and 495 when the topic is appropriate.

American Government, Law, and Public Policy

POL 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 336, 343, 344, 347, 350, 351, 359, 364, 365, 366, 367, 406, 434. Also 287, 401, 402, 403, 404, 447, 487, and 495 when the topic is applicable.

Political Behavior and Political Psychology

POL 316, 317, 318, 323, 343, 344, 346, 347, 348, 349, 350, 364, 367, 368, 377, 434. Also 287, 401, 402, 403, 404, 447, 487, and 495 when the topic is applicable.

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 takes 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 takes 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

Departmental majors with a 3.5 g.p.a. in political science courses and a 3.0 cumulative g.p.a. may enroll in the political science honors program at the end of their junior year. The student, after asking a faculty member to be a sponsor, must submit a proposal to the department describing the research project that is to be the subject of the honors thesis. The supervising faculty member must also submit a statement supporting the student's proposal. If the project is approved by the department, the student may enroll in POL 495-496 Senior Honors Project in Political Science in the fall and spring semesters of the senior year. The honors paper resulting from the student's research is read by two political science faculty members and a faculty member from another department, as arranged by the director of undergraduate studies. If the paper is judged to be of extraordinary merit and the student's record warrants such a determination, honors are conferred.

Requirements for the Minor in Political Science

The minor in political science 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.

Completion of the minor requires 24 credits distributed as follows:

1. Two 100-level POL courses selected from 101, 102 (or 105), and 103
2. Six POL courses numbered 200 or higher (excluding POL 201), of which at least three must be at the upper-division level. At least four of the courses must be in one of the programs of study listed 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 are accepted for minor credit.

PSY

Department of Psychology

CHAIRPERSON: Grover J. Whitehurst DIRECTOR OF UNDERGRADUATE STUDIES: Nancy Squires UNDERGRADUATE SECRETARY: Mary Galary
OFFICE: 156 Psychology B PHONE: 632-7802 WEB ADDRESS: www.psy.sunysb.edu

Minors of particular interest to students majoring in psychology: child and family studies (CFS), human and gender development (LHD), women's studies (WST)

Faculty

Brenda J. Anderson, *Assistant Professor, Ph.D., University of Illinois*: Physiological mechanisms of learning and memory; human brain mapping.

Arthur Aron, *Associate Professor, Ph.D., University of Toronto*: Motivation and cognition in close relationships; intergroup relations; methodology.

Robert Boice, *Professor Emeritus, Ph.D., Michigan State University*: Procrastination and blocking in writing.

Dana Bramel, *Professor Emeritus, Ph.D., Stanford University*: Intergroup attitudes; social class.

Jasper Brener, *Professor, Ph.D., University of London*: Cardiovascular psychophysiology; behavioral energetics; autonomic learning.

Susan Brennan, *Associate Professor, Ph.D., Stanford University*: Psycholinguistics; human-computer interaction.

Barbara Burkhard, *Adjunct Assistant Professor, Ph.D., State University of New York at Stony Brook*: Director, North Suffolk Child Treatment Program; child abuse and neglect.

Edward G. Carr, *Professor, Ph.D., University of California, San Diego*: Behavior modification; developmental disabilities.

Patricia Conrod, *Assistant Professor, Ph.D., McGill University*: Alcohol and drug abuse and dependence; classification, development, psychobiology and treatment of substance use disorders.

David Cross, *Associate Professor, Ph.D., University of Michigan*: Psychophysics; mathematical models.

Thomas J. D'Zurilla, *Associate Professor, Ph.D., University of Illinois at Urbana-Champaign*: Cognitive-behavior therapy; social problem solving; problem-solving therapy.

Edward Eisenstein, *Adjunct Professor, Ph.D., University of California, Los Angeles*: Learning and memory mechanisms in insects; human learning and memory changes with age.

David S. Emmerich, *Professor, Ph.D., Indiana University*: Sensory processing; perception.

Nancy J. Franklin, *Associate Professor, Ph.D., Stanford University*: Memory; spatial cognition; mental models of dynamic physical systems.

Robert W. Frick, *Adjunct Assistant Professor, Ph.D., University of Washington*: Cognitive psychology; human learning.

Ronald Friend, *Professor, Ph.D., University of Toronto*: Social psychology; health psychology.

Richard Gerrig, *Professor, Ph.D., Stanford University*: Cognitive psychology; understanding literature.

Marvin R. Goldfried, *Professor, Ph.D., State University of New York at Buffalo*: Behavioral assessment; cognitive behavior therapy.

Richard Heyman, *Research Assistant Professor, Ph.D., University of Oregon*: Escalation and de-escalation of marital conflict; observation of marital interactions; assessment and treatment of spouse abuse; prevalence of partner abuse.

Paul S. Kaplan, *Adjunct Assistant Professor, Ph.D., New York University*: Child and human development; behavior disorders of children; teaching of psychology.

Edward S. Katkin, *Professor, Ph.D., Duke University*: Psychophysiological disorders; assessment of emotions.

Robert Kelsey, *Research Associate Professor, Ph.D., State University of New York at Buffalo*: Cardiovascular reactivity to recurrent psychological stress; individual differences in psychophysiological reactivity to stress; cardiovascular behavioral medicine; arousal and adaptation.

Daniel N. Klein, *Professor, Ph.D., State University of New York at Buffalo*: Mood disorders; psychopathology.

Marvin Levine, *Professor Emeritus, Ph.D., University of Wisconsin-Madison*: Human learning with emphasis on cognitive functions.

Robert M. Liebert, *Professor, Ph.D., Stanford University*: Observational learning; laboratory methodology; statistics.

Marci Lobel, *Associate Professor, Ph.D., University of California, Los Angeles*: Health psychology; stress and coping; women's health.

Elizabeth Mezzacappa, *Research Assistant Professor, Ph.D., Uniformed Services University of the Health Sciences*: maternal health effects of breast-feeding; stress.

H. William Morrison, *Associate Professor Emeritus, Ph.D., University of Michigan*: Perception of abstract relations; instructional techniques.

Marc Nathan, *Adjunct Professor, Ph.D., University of Washington*: Stress-induced hypertension; effects of drugs on learning and memory.

John Neale, *Professor, Ph.D., Vanderbilt*

University: Schizophrenia; emotion.

K. Daniel O'Leary, *Distinguished Professor, Ph.D., University of Illinois at Urbana-Champaign*: Marital discord; spouse abuse; depression in marriage.

Susan G. O'Leary, *Professor, Ph.D., State University of New York at Stony Brook*: Child and family problems.

Anne Peterson, *Adjunct Assistant Professor, Ph.D., Ohio University*: Associate Director, University Counseling Center; psychodynamic psychotherapy.

David M. Pomeranz, *Associate Professor Emeritus, Ph.D., University of Rochester*: Environmental psychology; behavior modification.

Howard C. Rachlin, *Distinguished Professor, Ph.D., Harvard University*: Choice; self-control; gambling; decision making.

Suparna Rajaram, *Associate Professor, Ph.D., Rice University*: Human memory.

John Robinson, *Assistant Professor, Ph.D., University of New Hampshire*: Animal behavior; learning and memory; psychobiology.

Arthur G. Samuel, *Professor, Ph.D., University of California, San Diego*: Cognitive psychology; speech perception; psychology of language; perception.

Amy Smith Slep, *Research Assistant Professor, Ph.D., State University of New York at Stony Brook*: Parental discipline practices; maternal attributions and parenting; partner abuse and child maltreatment.

Nancy K. Squires, *Associate Professor, Ph.D., University of California, San Diego*: Human neuropsychology and electrophysiology.

Sarah Hall Sternglanz, *Adjunct Assistant Professor, Ph.D., Stanford University*: Development; gender roles.

Zvi Strassberg, *Assistant Professor, Ph.D., Vanderbilt University*: Behavioral problems in children; abnormal psychology; developmental psychology; aggression.

Stuart Valins, *Professor Emeritus, Ph.D., Columbia University*: Stress and social interaction.

Dina Vivian, *Research Assistant Professor, Ph.D., State University of New York at Stony Brook*: Spouse abuse; cognitive processes in dyadic communication; marital therapy.

Everett Waters, *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, *Professor, Ph.D., Kansas State University*: Health psychology; personality.

Grover J. Whitehurst, *Professor, Ph.D., University of Illinois at Urbana-Champaign*: Early intervention for children at risk; language disorders.

Camille B. Wortman, *Professor, Ph.D., Duke University*: Health psychology; stress; coping with loss.

Paul M. Wortman, *Professor, Ph.D., Carnegie-Mellon University*: Program evaluation and applied research; health interventions; meta-analysis.

Gregory Zelinsky, *Assistant Professor, Ph.D., Brown University*: Cognitive science; visual attention and perception.

Affiliated Faculty

Janet Fischel, *Pediatrics*

John H. Gagnon, *Sociology*

Lauren Krupp, *Neurology*

Manuel London, *Harriman School*

Jan Loney, *Psychiatry*

Lawrence P. Morin, *Psychiatry*

Joyce Sprafkin, *Psychiatry*

Arthur A. Stone, *Psychiatry*

Robert Strecker, *Psychiatry*

Rex Wang, *Psychiatry*

James Weisberg, *Psychiatry*

Gerrit Wolf, *Harriman School*

Teaching Assistants

Estimated number: 20

Psychology is defined as the science that focuses on behavior and mental processes. The study of psychology provides an understanding of the biological, cognitive, social, and clinical origins of behavior, and the methodologies employed in the study of these processes. Knowledge of psychological principles and of the methods for evaluating theories and research is essential in our rapidly changing society.

The Department of Psychology offers undergraduate programs leading to either a Bachelor of Science degree or a Bachelor of Arts degree. The objective of both programs is to provide a broad overview of psychology, and both require extensive exposure to areas other than psychology as context for study in the major. The B.S. program places relatively more emphasis on the natural sciences and mathematics. Both the B.S. and B.A. programs provide good preparation for graduate school.

The psychology major provides students with a background of fundamental subject matter that will equip them for subsequent graduate study in experimental psychology or clinical psychology and related mental health fields. The major is also beneficial for students seeking careers that involve knowledge about interpersonal relationships such as medicine, education, law, or management. Psychology expertise is also relevant to standard business settings in which a major goal is to adapt products and services to closely reflect human needs and capabilities.

Courses Offered in Psychology

See the Course Description listing in this Bulletin for complete information.

PSY 103-F Introduction to Psychology

PSY 201-C Statistical Methods in Psychology

PSY 220-F Survey in Developmental Psychology

PSY 230-F Survey in Abnormal and Clinical Psychology

PSY 240-F Survey in Social Psychology

PSY 250-F Survey in Biopsychology

PSY 260-F Survey in Cognition and Perception

PSY 273 Supervised Research in Psychology

PSY 283 Applications and Community Service

PSY 300-F Research Methodology

PSY 301 Advanced Statistics

PSY 325-F Children's Cognitive Development

PSY 326-F Children's Social and Emotional Development

PSY 329-F Special Topics in Developmental Psychology

PSY 335-F Clinical Behavior Modification

PSY 336 F Schizophrenia

PSY 338-F Behavior Deviation in Children

PSY 339-F Special Topics in Clinical Psychology

PSY 345-F Theories of Personality

PSY 346-F Health Psychology

PSY 347-F Psychology of Women

PSY 349-F Special Topics in Social Psychology

PSY 355 Human Brain Function

PSY 356 Physiological Psychology

PSY 357-F Animal Learning

PSY 359-F Special Topics in Biopsychology

PSY 365-F The Psychology of Language

PSY 366-F Human Problem Solving

PSY 367-F Memory

PSY 368-F Sensation and Perception

PSY 369-F Special Topics in Cognition and Perception

PSY 375-F History and Systems of Psychology

PSY 380 Research Lab: Human Cognition

PSY 381 Research Lab: Cognition/Computers/ Learning

PSY 382 Research Lab: Social Psychology

PSY 383 Research Lab: Physiological Psychology

PSY 384 Research Lab: Human Factors

PSY 399 Junior Honors Seminar

PSY 447 Readings in Psychology

PSY 475, 476 Undergraduate Teaching Practicum I, II

PSY 487 Independent Research in Psychology

PSY 488 Internship

PSY 491, 492 Advanced Seminars in Psychology

PSY 495, 496 Senior Honors Seminar

Requirements for the Majors in Psychology

Completion of the major for either a B.S. or a B.A. in psychology requires 57 to 63 credits.

All courses required for either the B.S. or B.A. degree must be passed with a letter grade of C or higher.

Study within Psychology

For both degree programs, 33-34 credits in psychology to be distributed as follows:

1. Core Program:

PSY 103 Introduction to Psychology (3 credits)

PSY 201 Statistical Methods in Psychology or another allowed statistics course (3 credits)

PSY 300 Research Methodology (3 credits)

2. Survey Courses in Psychology:

Three survey courses from the list below, two from either Group A or B and one from the other group:

Group A

- PSY 220 Survey in Developmental Psychology (3 credits)
- PSY 230 Survey in Clinical Psychology (3 credits)
- PSY 240 Survey in Social Psychology (3 credits)

Group B

- PSY 250 Survey in Biopsychology (3 credits)
- PSY 260 Survey in Cognition and Perception (3 credits)

3. Any one course numbered 200 and above (3 credits) Note: PSY 273, 283, 399, 447, 475, 476, 487, 488, and 495-496 may not be used

4. Advanced Additional Courses:

A minimum of 12 or 13 credits from among advanced courses numbered 301 to 384.

For the B.S. student selection among the advanced courses must include a laboratory course (PSY 380-384) and PSY 301 or AMS 315.

Note: The department strongly recommends that any B.A. student planning to attend graduate school take one of the advanced laboratory courses, PSY 380-384. For the honors student in the B.A. program, one of the advanced courses must be a laboratory course.

5. Upper-Division Writing Requirement

The upper-division writing requirement can be fulfilled through a writing sample of at least six pages, submitted in any psychology course, that is judged by the instructor of that course to be satisfactory writing in the discipline of psychology. The writing sample may consist of one or more reports or term papers that are prepared as part of the regular assignments for a course, or the sample may be prepared exclusively to fulfill the upper-division writing requirement. A student must obtain the permission of the instructor prior to submitting a writing sample for evaluation. An evaluation form that can be obtained in the Psychology Undergraduate Office

Sample Course Sequence for the Psychology Major (B.A. Degree)

Freshman Fall	Credits
D.E.C. A	3
PSY 103	3
MAT course*	3-4
BIO course	3-4
D.E.C.	3
Total	15-17

Spring	Credits
D.E.C. A	3
PSY Group A (220 or 230 or 240) OR PSY Group B (250 or 260)	3
PHI course	3
SOC or ANT or POL course**	3
Statistics course***	3
Total	15

Sophomore Fall	Credits
PSY Group B (if Group A taken) OR Group A (if Group B taken)	3
Course outside concentration (#1)	3
PSY 300 (or D.E.C. course and take PSY 300 in spring)	3
D.E.C.	3
D.E.C.	3
Total	15

Spring	Credits
PSY Group A or B course	3
PSY 200 and above elective	3
D.E.C. (or PSY 300 of not taken in fall)	3
D.E.C.	3
D.E.C.	3
Total	15

Junior Fall	Credits
PSY Upper Division elec. (301 to 384)	3
Course outside concentration (#2)	3
Upper Division Elective	3
Upper Division Elective	3
Elective	3
Elective	1-3
Total	16-18

Spring	Credits
PSY Upper Division elective (301-384)	3
Upper Division course outside concentration (#3)	3
PSY Upper Division elective (301-384)	3
D.E.C.	3
Total	14-15

Senior Fall	Credits
Upper Division outside concentration (course #4)	3
PSY Upper Division elective (301-384)	3
D.E.C.	3
Upper Division elective	3
Upper Division elective	3
Total	15

Spring	Credits
D.E.C.	3
Upper Division elective	3
Upper Division elective	3
Elective	3
Elective	3
Total	15

* One course from among the following: AMS 101, CSE 110, MAT 122 or any higher AMS, CSE, or MAT course except AMS 102. (Students who pass the current Department of Mathematics placement examination with a score of 4 or higher have fulfilled this requirement.)

** Any course offered by these departments except SOC 202 or POL 201

*** Choose one of the following: AMS 102, ECO 320, POL 201, PSY 201, or SOC 202

must be submitted to the instructor with the writing sample.

A student who receives an "unsatisfactory" on the writing sample may, with the permission of the instructor, revise and resubmit the sample for evaluation. Alternatively, the student may submit another sample in another course. Since instructors are obligated to accept only a limited number of writing samples for

evaluation in a given course, students are strongly advised to attempt to complete the writing requirement in their junior year.

Courses outside the Psychology Department

In addition to the 33 to 34 credits in psychology, students must also complete 24 to 29 credits of courses outside the department. This requirement dif-

Sample Course Sequence for the Psychology Major (B.S. Degree)

Freshman Fall	Credits
D.E.C. A	3
PSY 103	3
MAT 125 or 131 or 141	3-4
CHE 111 or 131*	3-4
D.E.C.	3
Total	15-17

Spring	Credits
D.E.C. A	3
PSY Group A (220 or 230 or 240) OR PSY Group B (250 or 260)	3
BIO 201, 202, or 203	4
MAT 126 or 132 or 142	3-4
D.E.C.	3
Total	16-17

Sophomore Fall	Credits
PSY 201**	3
PSY Group B (if Group A taken) OR Group A (if Group B taken)	3
BIO 201, 202, or 203	4
D.E.C.	3
D.E.C.	3
Total	16

Spring	Credits
PSY 300	3
PSY Group A or B	3
PSY elective***	3
D.E.C.	3
D.E.C.	3
D.E.C.	3
Total	18

Junior Fall	Credits
PSY advanced laboratory (380 or 381 or 381 or 383 or 384)	3-4
Science sequence elective	3
PSY Upper Division elective***	3
Upper Division elective	3
D.E.C.	3
Total	15-16

Spring	Credits
PSY 301 or AMS 315	3
Science sequence elective	3
D.E.C.	3
Upper Division elective	3
Elective	3
Total	15

Senior Fall	Credits
PSY Upper Division elective***	3
D.E.C.	3
Upper Division elective	3
Upper Division elective	3
Upper Division elective	3
Total	15

Spring	Credits
PSY Upper Division elective ***	3
D.E.C.	3
Upper Division elective	3
Upper Division elective	3
Elective	3
Total	15

Note: Passing a placement test at the appropriate level also satisfies the calculus requirement.

- * CHE 111 or 131 is a prerequisite to the 200-level BIO courses. CHE 111 may not be used for the required science sequence in chemistry.
- ** Other allowed statistics courses are AMS 102, ECO 320, POL 201, or SOC 202.
- *** May not use any of the following to fulfill this requirement: PSY 273, 283, 399, 447, 475, 476, 487, 488, or 495-496.

fers in some aspects between the B.S. and B.A. degrees.

For the B.A. Student

One course from each of the 5 categories below:

1. Mathematics (3-4 credits)

Choose from among the following:
AMS 101, CSE 110, MAT 122, or any higher AMS, CSE, or MAT

course, except AMS 102, or passing at the appropriate level a placement test.

- 2. Biology (3-4 credits): Any one-semester BIO course
- 3. Philosophy (3 credits): Any one-semester PHI course
- 4. Social Sciences (3 credits): Any one-semester SOC, ANT, or POL course except SOC 202 or POL 201

5. A 12-credit concentration in one of the departments listed below. At least two courses must be upper-division (numbered between 300 and 499).

- a. Africana Studies
- b. Anthropology/Sociology
- c. Biology
- d. Computer Science
- e. Economics
- f. History of Science
- g. Linguistics
- h. Mathematical Sciences
- i. Philosophy
- j. Political Science

The following may be substituted for category 5 above (see the Psychology Department for details):

- aa. A minor program
- bb. A second major
- cc. Student-designed options if approved by the departmental undergraduate committee

Note: Many students will do a concentration in one of the departments that fulfills requirements 1 to 4. If so, the concentration will automatically fulfill that specific area requirement.

For the B.S. Student:

All three categories below are required.

1. Mathematics:

- a. MAT 125 and 126; or
- b. MAT 131 and 132; or
- c. MAT 141 and 142; or
- d. Passing a placement test at the appropriate level

2. Biology:

- a. Two courses from BIO 201, 202, and 203

Note: One course of the two course requirement is waived if students elect the Biology concentration (below).

3. Two of the following groups of courses:

- a. Biology: Two BIO or biology related courses. The list of approved courses to satisfy this requirement may be obtained from the Psychology Undergraduate Office.
- b. Chemistry: CHE 131 and 133, CHE 132 and 134. This requirement may also be fulfilled by sub-

stituting CHE 141 and 143, CHE 142 and 144.

- c. Mathematics: two courses. The list of approved courses to satisfy this requirement may be obtained from the Psychology Undergraduate Office.
- d. Physics: PHY 117 and 118; or PHY 121/123 and PHY 122/124; or PHY 125, 126, and 127; or PHY 131 and 132; or PHY 141 and 142.
- e. Computer Science: CSE 113 and 114.

credits in both semesters of the senior year as well as PSY 495-496 Senior Honors Seminar. The thesis is judged by the thesis director and two additional faculty members

Notes:

1. Transfer students must take at least 12 credits of psychology in residence at Stony Brook.
2. No more than six credits from among PSY 273, 283, 447, and 487 may be taken in one semester. See also Course Credit and Grading Option Limits in the Academic Policies and Regulations chapter.

Honors Program in Psychology

The psychology honors program features a. a faculty mentor for each honors student, and b. collaborative research with faculty that results in a senior thesis. Students are encouraged to apply for acceptance to the honors program as soon as Prime Time during the first semester of their sophomore year at Stony Brook.

The latest point at which students may enroll is three semesters prior to graduation. Application forms and information are available in the Psychology Undergraduate Office. For acceptance into the honors program a student must have a cumulative grade point average of 3.2 or higher. A student whose cumulative grade point average falls below 3.0 may be dropped from the honors program. Conferral of honors in psychology requires the following:

1. A cumulative g.p.a. of 3.0 and a 3.5 g.p.a. in psychology.
2. A grade of C or higher in a laboratory course in psychology (PSY 380-384).
3. Successful completion of a senior thesis, as described below.

The senior thesis program in psychology is followed for three semesters. During the spring of their junior year, students enroll in PSY 399 Junior Honors Seminar, and PSY 487 for two

RLS

Program in Religious Studies

PROGRAM COORDINATOR: Peter Manchester, Philosophy
OFFICE: 129 Old Chemistry PHONE: 632-7312 E-MAIL: pmanchester@notes.cc.sunysb.edu

Minors of particular interest to students majoring in religious studies: classics (CLS), Judaic studies (JDS), philosophy (PHI)

Teaching Assistants

Estimated Number: 4

Adjuncts

Estimated Number: 2

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 Program offers a major, a minor, an honors program, and a variety of 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 general education requirements.

The major in Religious Studies is an attractive option for students seeking a general liberal arts education with strength in humanities. It develops skills in reading texts with sophisticated critical awareness, and in expressing complex ideas orally and in writing. It affords insight into the fundamental traditions that shape historic cultures, east and west, and forms habits of tolerance and appreciation of unfamiliar ideas and values.

Students also major in Religious Studies intending to go on to further professional training in this field, or in closely related ones like law and diplomacy. Those who wish to pursue graduate studies are encouraged to study the languages needed for their areas of interest, and to supplement their major requirements with related work in history, philosophy, and the arts.

Further information and advising in regard to any of the program's services are available through the program coordinator.

Courses Offered in Religious Studies

See the Approved Courses listing in this Bulletin for complete course descriptions.

RLS 101-G, 102-G World Religions I, II
RLS 110-B The Bible: A Critical Introduction
RLS 150-B The Religious Dimension
RLS 220-G Studies in Religion
RLS 230-G Judaism
RLS 240-J Confucianism and Taoism
RLS 246-J Korean and Japanese Religions
RLS 250-J Hinduism
RLS 260-J Buddhism
RLS 270-I Christianity
RLS 280-J Islam
RLS 301-G Sources and Methods
RLS 310-G Biblical Theology
RLS 320-G The Rabbinic Tradition
RLS 341-J Meditation and Enlightenment
RLS 400 Religious Studies Seminar
RLS 402-G Contemporary Theologies
RLS 406-J Japanese Buddhism
RLS 408-J Islamic Classics
RLS 415-G Judaic Response to Catastrophe
RLS 421-I Christian Classics
RLS 426-G Feminine Spirituality
RLS 430-G, 431-G Special Topics
RLS 447 Readings in Religious Studies
RLS 450-G Philosophical Theology
RLS 475 Undergraduate Teaching Practicum
RLS 496-496 Senior Honors Project

Related Courses in Other Programs

See the Course Description listing in this Bulletin for complete information.

AFS 395-J Religions of the Caribbean
ANT 351-F Comparative Religion
ANT 358-J Ways to Civilization

ARH 303-I The Art and Architecture of the Early Middle Ages, ca. 400-1050

ARH 304-I The Art and Architecture of the High and Late Middle Ages, ca. 1050-1400

ARH 326-J Arts of Ancient Mesoamerica

ARH 328-J Arts of West Africa

CLS 215-I Classical Mythology

EGL/JDH 261-B The Bible as Literature

EGL 342-G Milton

HIS 235-I The Early Middle Ages

HIS 236-I The Late Middle Ages

JDS/HIS 225-J The Formation of the Judaic Heritage

JDS/HIS 226-F The Shaping of Modern Judaism

JDH 369-G Topics in Biblical Interpretation

KRH 346-J Philosophy of Education in Korea and Japan

PHI 304-I Medieval Philosophy

PHI 336-G Philosophy of Religion

PHI 342-J History of Chinese Philosophy

PHI 344-J Japanese Thought and Philosophy

SOC 264-J Introduction to Middle Eastern Society

SOC 352-F Sociology of Religion

Appropriate special topics from these or other programs may also be offered to fulfill major requirements with permission of the major advisor.

Requirements for the Major in Religious Studies

Attentive and personal advising is a primary commitment of the Religious Studies faculty, and students who enter the program are assigned to an individual advisor who will help them find the courses best suited to their area of interest in the major and make productive use of their electives outside the major and the general education requirements of the college. Students commonly complete minors or even second majors in related fields. 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 programs listed under "Related Courses in Other Programs" above. Students wishing to satisfy the requirements with yet other courses may do so with the approval of the major advisor.

The major in religious studies leads to the Bachelor of Arts degree. All courses for the major must be passed with a letter grade of C or higher.

Completion of the major requires 30 credits.

A. Required Courses:

RLS 301 Sources and Methods (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)

RLS 400 Religious Studies Seminar

B. Depth requirement: Four courses at the 200, 300, and 400 levels in one of the following areas of emphasis:

1. Buddhism
2. East Asian religions (Chinese, Japanese, and Korean religions)
3. Judaism (in coordination with Judaic studies; ordinarily all four courses in this area emphasis are JDS and JDH, but one may be replaced with a relevant RLS or other course with advisor's approval)
4. Christianity (to include at least one Judaic studies course; JDH/RLS 230 or JDS/HIS 225, 226 recommended)
5. Islam (may include one course in Judaism or Christianity; ARB 111, 112 may also count as one course for this area)
6. Theology, philosophy, and method in religion
7. Other areas, as available; these must be approved by the major advisor before the first semester of the senior year.

C. Breadth requirement: Four RLS courses in areas outside the area emphasis.

D. Upper-Division Writing Requirement: Majors are required to demonstrate a capability for expressing themselves effectively in writing. They should meet this requirement by taking RLS 301 before the end of their junior year

Sample Course Sequence for the Religious Studies Major

Freshman Fall	Credits
D.E.C. A	3
RLS 101 or 102	3
D.E.C.	3
D.E.C.	3
Elective	3
Total	15

Spring	Credits
D.E.C. A	3
Selected Area Emphasis course #1 (200 level)	3
D.E.C.	3
D.E.C.	3
D.E.C.	3
Total	15

Sophomore Fall	Credits
Selected Area Emphasis course #2 (200 level or higher)	3
RLS elective outside Area Emphasis	3
D.E.C.	3
D.E.C.	3
D.E.C.	3
Total	15

Spring	Credits
Selected Area Emphasis course #3 (300 level or higher)	3
RLS elective outside Area Emphasis	3
D.E.C.	3
Upper Division elective	3
Elective	3
Total	15

Junior Fall	Credits
RLS 301	3
Selected Area Emphasis course #4 (300 level or higher)	3
RLS Up Div elec outside Area Emphasis	3
D.E.C.	3
Upper Division elective	3
Total	15

Spring	Credits
RLS Up Div elec outside Area Emphasis	3
D.E.C.	3
D.E.C.	3
Upper Division elective	3
Upper Division elective	3
Total	15

Senior Fall	Credits
RLS 400	3
Upper Division elective	3
Upper Division elective	3
Elective	3
Elective	3
Total	15

Spring	Credits
D.E.C.	3
Upper Division elective	3
Upper Division elective	3
Elective	3
Elective	3
Total	15

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" necessitates remedial action. More detailed information about this requirement is available from the program.

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 pur-

sued through both semesters of the senior year under the supervision of a member of the faculty, with registration in 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, meet to decide whether to recommend conferring the degree with honors. The decision is 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 wish to become candidates for honors should consult with the program coordinator 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) must be 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:

- A. RLS 101 or 102 or 150
- B. One 200-level RLS course
- C. RLS 301
- D. At least three courses in one of the area emphases listed for the major

Students consult the program coordinator by the semester in which they register for RLS 301 for advice 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.

LSE

Living/Learning Center Interdisciplinary Minor in Science and Engineering

MINOR COORDINATOR: Thomas Robertazzi, Electrical Engineering

OFFICE: 249 Light Engineering & Keller College PHONE: 632-8412 / 632-9437 E-MAIL: tom@sbee.sunysb.edu

Because scientists and engineers increasingly work together in industry, government, and higher education, Stony Brook offers an interdisciplinary minor in Science and Engineering (LSE). The interdisciplinary minor in Science and Engineering is designed to give students an appreciation of the many fields in science and engineering and of the relationships of these fields to each other and to society. Through the minor, students receive broad exposure to the many science and engineering disciplines represented at Stony Brook. Students unsure about a major can also use the minor to learn about various science and engineering disciplines before selecting a major.

The minor is intended primarily, but not exclusively, for residents of the Keller College Science and Engineering Living Learning Center.

Requirements for the Minor in Science and Engineering

Before declaring the Science and Engineering minor, each student should plan his or her program in consultation with the minor coordinator. All courses for the minor must be passed with a letter grade of C or higher.

Completion of the minor requires 19 credits.

1. LSE 102 Opportunities in Science and Engineering
2. Majors in any engineering area listed below must take 12 credits in courses with designators listed under "Natural Science Courses."

Majors in any natural science area must take 12 credits in courses with designators listed under "Engineering Courses."

All other students must take at least 6 credits from the natural sciences list and 6 credits from the engineering list. For all students, at least 3 credits must be upper division.

Natural Sciences Courses:

AST (Astronomy), ATM (Atmospheric and Oceanic Sciences), BIO (Biology), CHE (Chemistry), GEO (Geosciences), MAR (Marine Sciences), PHY courses numbered 200 or higher (Physics)

Engineering Courses:

ECE (Computer Engineering), ESE (Electrical Engineering), ESG (Engineering Science), ESM (Materials Science and Engineering), MEC (Mechanical Engineering)

3. One of the following courses:
 - EST 391 Technology Assessment
 - HIS 398 Topics in History of Science and Technology
 - PHI 364 Philosophy of Technology
 - PHI 368 Philosophy of Science
 - SOC 315 Sociology of Technology
4. LSE 301 Issues in Science and Engineering

Note:

Three credits in requirement 2 may be in independent research in a department approved by the minor coordinator. These credits do not meet the requirement for 3 credits of upper-division coursework.

LCR

Living/Learning Center Interdisciplinary Minor in

Service Learning for Community-Based Action Research

MINOR COORDINATOR: Gregory Ruf, Social Sciences Interdisciplinary

OFFICE: S-537 Social and Behavioral Sciences PHONE: 632-9013 E-MAIL: gruf@notes.cc.sunysb.edu

The interdisciplinary minor in service learning for community-based action research (LCR) is open to all undergraduates, with preference given to residents of Douglass College who wish to add an academic dimension to their residential experience. The program, housed in Douglass College, is designed to use the special educational opportunities available at Stony Brook to create citizens with the depth of commitment to community service that the 21st century will demand. Acquisition of skills and knowledge is combined with a fostering of an appreciation by students of their role as citizens both in the University and in the surrounding communities. The learning arena is extended into the community by addressing local social issues. After completion of academic course work, student interns are partnered and assigned to work in specific communities to address community concerns.

Requirements for the Minor in Service Learning for Community-Based Action Research

Before declaring the minor in service learning for community-based action research, each student should plan his or her program in consultation with the minor coordinator. All courses must be passed with a letter grade of C or higher.

Completion of the minor requires 23 credits.

1. LCR 200 The Nature of Communities
2. LCR 201 Methods in Community-Based Research
3. Elective Course Sequence:
Three lower-division credits and three upper-division credits in courses to be chosen in consultation with the minor coordinator

4. Internship

Students are required to register for LCR 488 Service Learning for Community-Based Action Research Internship for two semesters (a total of 8 credits)

5. LCR 490 Senior Seminar in Service Learning for Community-Based Action Research

SSI

Interdisciplinary Program in Social Sciences

PROGRAM DIRECTOR: Eli Seifman DIRECTOR OF UNDERGRADUATE STUDIES: Shi Ming Hu ADMINISTRATIVE ASSISTANT: Lorraine Geiger
OFFICE: N-507 Social and Behavioral Sciences PHONE: 632-7685

Minors of particular interest to students majoring in social sciences: *Africana studies (AFS)*, *child and family studies (CFS)*, *Chinese studies (CNS)*, *history (HIS)*, *political science, (POL)*, *service learning for community action research (LCR)*, *women's studies (WST)*

Faculty

Barbara Baskin, *Associate Professor Emerita, Ed.D., Wayne State University*: Special education.

Beverly Birns, *Professor Emerita, Ph.D., Columbia University*: Child and family studies; child development; psychology of women; social policy.

Georges Fournon, *Associate Professor, Ed.D., Columbia University*: Social studies education; bilingual education.

Kenneth D. Gadow, *Professor, Ph.D., University of Illinois at Urbana-Champaign*: Special education.

Joan F. Kuchner, *Lecturer, Ph.D., University of Chicago*: Child and family studies; child development; social policy.

Shi Ming Hu, *Distinguished Teaching Professor, Ed.D., Columbia University*: Chinese; Asian studies; social science education. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1989, the President's Award for Excellence in Teaching, 1989, and the Alumni Association Outstanding Professor Award, 1996.

Gregory A. Ruf, *Assistant Professor, Ph.D., Columbia University*: Modern China; cultural anthropology.

Eli Seifman, *Distinguished Service Professor, Ph.D., New York University*: Asian studies; modern China; social science education.

Judith Wishnia, *Associate Professor, Ph.D., State University of New York at Stony Brook*: Women's history; labor history; European history.

Affiliated Faculty

Joel T. Rosenthal, *History*

Adjunct Faculty

Estimated number: 2

Teaching Assistants

Estimated number: 2

The Social Sciences Interdisciplinary 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

210). The student must complete work in at least four of these fields.

The Social Sciences Interdisciplinary Program is the administrative home of the Social Studies Secondary Teacher Preparation Program and two minors: Chinese studies and child and family studies. Social sciences majors who wish to follow one of these minors as an area of concentration may choose courses in that minor so as to simultaneously fulfill a large number of their social sciences requirements. (Requirements for the two minors appear under each program title elsewhere in the alphabetical listing of Arts and Sciences programs. Further information on the minors is available at the Social Sciences Interdisciplinary Program Office.)

Most alumni of the program have gone on to advanced study in one of the social sciences, social welfare, business administration, and law. Others have found employment as secondary school social studies teachers or in government service, business management, and social welfare agencies.

Courses Offered in Social Sciences Interdisciplinary

See the Course Description listing in this Bulletin for complete information.

SSI 102-F Women in Contemporary Society

SSI 210-F Human Development: The Family Context

SSI 249-J Chinese Culture and Society: Tradition al China

SSI 250-J Chinese Culture and Society: Modern China

SSI 283 Practicum in Child Development

SSI 287 Supervised Research in Social Science

SSI 308-F Abuse of Women and Children

SSI 310-F Contemporary Feminist Issues

SSI 311-F Interdisciplinary Problems in the Social Sciences

SSI 320-F The Special Child

SSI 321-F Early Childhood Environments

SSI 322-F The Infant and Young Child

SSI 327-F Middle Childhood and Adolescent Growth and Development

SSI 339-F Children's Play

SSI 345-K Parental Roles in a Pluralistic Society

SSI 350-F Foundations of Education

SSI 381-F Seminar in Child Development

SSI 397 Teaching Social Studies

SSI 398 Social Studies Teaching Strategies

SSI 405 Seminar in Children, Law, and Social Policy

SSI 417 Senior Seminar in Child and Family Studies

SSI 447 Directed Readings in Social Science

SSI 451 Supervised Student Teaching: Middle Level Grades 7-9

SSI 452 Supervised Student Teaching: High School Grades 10-12

SSI 454 Student Teaching Seminar

SSI 475, 476 Undergraduate Teaching Practicum I, II

SSI 488 Internship

Requirements for the Major in Social Sciences

The interdisciplinary major in social sciences leads to the Bachelor of Arts degree. All courses offered for the major must be passed with a grade of C or higher.

Completion of the major requires 48 credits.

Courses with at least four of the social science designators (AFS, ANT, CNS, ECO, HIS, LIN, POL, PSY, SOC, SSI, and WST crosslisted with social science courses) are required, distributed as follows:

- A. Two courses with each of any two social science designators

- 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)
- C. Four additional courses with any social science designator(s) numbered 300 or above
- D. Upper-Division Writing Requirement

Option 1: Successful completion of the upper-division writing requirement of any one of the following majors: 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 CNS, SSI, or WST courses: CNS 447, 461, 487, SSI 308, 310, 321, 339, 345, 405, 417, 447, 487, WST/HIS 333, WST 334/HIS 336, or WST 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.

Notes:

1. No more than nine credits of independent work (273, 447, 487, or 488) 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 may count toward the major.
2. 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 Chinese studies, child and family studies, or women's studies minor may use upper-division humanities courses listed for their minor as related courses.

Sample Course Sequence for the Social Sciences Interdisciplinary Major

Freshman Fall	Credits
D.E.C. A	3
SSI Requirement A course	3
SSI Requirement A course	3
D.E.C.	3
D.E.C.	3
Total	15

Spring	Credits
D.E.C. A	3
SSI Requirement A course	3
SSI Requirement A course	3
D.E.C.	3
D.E.C.	3
Total	15

Sophomore Fall	Credits
SSI Requirement B course	3
SSI Requirement B course	3
D.E.C.	3
D.E.C.	3
D.E.C.	3
Total	15

Spring	Credits
SSI Requirement B course	3
SSI Requirement B course	3
D.E.C.	3
D.E.C.	3
D.E.C.	3
Total	15

Junior Fall	Credits
SSI Req. B Upper Division course	3
SSI Req. B Upper Division course	3
D.E.C.	3
Upper Division elective	3
Elective	3
Total	15

Spring	Credits
SSI Req. B Upper Division course	3
SSI Req. B Upper Division course	3
D.E.C.	3
Upper Division elective	3
Elective	3
Total	15

Senior Fall	Credits
SSI Req. C Upper Division course	3
SSI Req. C Upper Division course	3
Upper Division elective	3
Upper Division elective	3
Elective	3
Total	15

Spring	Credits
SSI Req. C Upper Division course	3
SSI Req. C Upper Division course	3
Upper Division elective	3
Elective	3
Elective	3
Total	15

3. 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, upper-division Africana studies courses with the AFH designator, upper-division Chinese studies courses with the CNH designator, and upper-division WST courses crosslisted with humanities courses.
4. AFS 283, PSY 283, SSI 283, 451, 452, the lower-division language courses taught by the Linguistics Department, and lower-division AFH and CNH courses may not be used to fulfill major requirements. Only one teaching practicum (475) may be counted.

Social Studies Secondary Teacher Preparation Program

See the Education and Teacher Certification entry in the alphabetical listings of Arts and Sciences programs.

SOC

Department of Sociology

CHAIRPERSON: Diane Barthel-Bouchier DIRECTOR OF UNDERGRADUATE STUDIES: O. Andrew Collver
UNDERGRADUATE SECRETARY: Sharon Worksman

OFFICE: S-401 Social and Behavioral Sciences PHONE: 632-7700 WEB ADDRESS: www.sunysb.edu/sociology

Minors of particular interest to students majoring in sociology: anthropology (ANT), business management (BUS), human sexual and gender development (LHD), political science (POL), service learning for community action research (LCR)

Faculty

Said Amir Arjomand, *Professor, Ph.D., University of Chicago*: Comparative, historical, political sociology; religion.

Elizabeth Arias, *Assistant Professor, Ph.D., University of Wisconsin*: Family, demography, quantitative methods.

Javier Auyero, *Assistant Professor, Ph.D., The New School for Social Research*: Culture, urban poverty and social inequality, Latin American studies.

Diane Barthel, *Professor, Ph.D., Harvard University*: Culture; sex roles; historical. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1989, and the President's Award for Excellence in Teaching, 1989.

Ivan D. Chase, *Associate Professor, Ph.D., Harvard University*: Social inequality; social structure; resource allocation; cross-species comparisons.

Maria Cole, *Adjunct Professor, Ph.D., University of Warsaw*: Gender, social stratification.

Stephen Cole, *Professor, Ph.D., Columbia University*: Science; theory; culture. Recipient of the State University Chancellor's Award for Excellence in Teaching and President's Award for Excellence in Teaching, 1992.

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

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

John H. Gagnon, *Emeritus Professor, Ph.D., University of Chicago*: Deviance; family simulations; sexual conduct; social change.

Erich Goode, *Professor, Ph.D., Columbia University*: Deviance; criminology. Recipient of the State University Chancellor's Award for Excellence in Teaching and President's Award for Excellence in Teaching, 1997.

Norman Goodman, *Distinguished Teaching Professor and Distinguished Service Professor, Ph.D., New York University*: Social psychology; family; socialization. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1976.

Morton Hunt, *Adjunct Professor, B.A., Temple University*: Social science writing; sexuality; marriage and family life; methodology.

Nilufer Isvan, *Assistant Professor, Ph.D., University of Michigan*: Rural sociology; gender; comparative; social change.

Michael Kimmel, *Professor, Ph.D., University of California, Berkeley*: Comparative and historical development; social movements; gender and sexuality.

Hermann Kurthen, *Assistant Professor, Ph.D., Freie Universitat Berlin*: International migration; national identity.

Frank Romo, *Associate Professor, Ph.D., Yale University*: Statistics; methodology; social organizations; economic.

Ian Roxborough, *Professor, Ph.D., University of Wisconsin-Madison*: Joint Appointment with History; Comparative social structures; development; Latin American politics; social change; Latin American labor movements.

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.

Jackie Smith, *Assistant Professor, Ph.D., University of Notre Dame*: Collective behavior/social movements, environmental sociology.

Judith Tanur, *Distinguished Teaching Professor, Ph.D., State University of New York at Stony Brook*: Statistics; methodology; social psychology. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1990, and the President's Award for Excellence in Teaching, 1990.

Andrea Tyree, *Professor, Ph.D., University of Chicago*: Demography; social stratification; statistics; ethnicity.

Affiliated Faculty

Richard Howard, *Philosophy*

Joseph Schwartz, *Psychiatry*

H. Barry Waldman, *Dental Health*

Adjunct Faculty

Estimated number: 2

Teaching Assistants

Estimated number: 25

Sociology is the systematic study of social life. It is based on the assumption that there is a certain pattern to the way people live and think and that by studying their behavior and attitudes, this pattern can be discovered and explained. Sociologists investigate how the group influences behavior, from the smallest (a two-person relationship, like husband and wife) to the largest (huge organizations, such as General Motors or the Catholic Church). Anything having to do with social behavior is the subject matter of sociology.

The Bachelor of Arts program at Stony Brook seeks to develop in students both an understanding of a history of social thought and skills in the collection and analysis of social data. The core program includes two semesters of sociological theory, one semester of research methods, and one semester of statistics.

Students who have completed this program have attended graduate schools in sociology or related disciplines, law school, social welfare, and pursued careers in advertising, marketing, and business management. Some work at market research (studying for large companies what products people want to buy), demography (studying the population scientifically, as in the United States census), criminology (investigating the causes and nature of crime and criminal justice), urban planning, polling, and public opinion (like the Gallup or Harris Polls).

Courses Offered in Sociology

See the Course Description listing in this Bulletin for complete information.

SOC 105-F Introduction to Sociology

SOC 150 Topics in Introductory Sociology

SOC 200 Medicine and Society

SOC 201 Research Methods in Sociology

SOC 202-C Statistical Methods in Sociology

- SOC 204-F Intimate Relationships
- SOC 243-F Sociology of Youth
- SOC 247-K Sociology of Gender
- SOC 264-J Introduction to Middle Eastern Society
- SOC 268 Theory and Practice in Student Leadership
- SOC 302-K American Society
- SOC 303-F Social Stratification
- SOC 304-F Sociology of the Family
- SOC 309-F Social Conflicts and Movements
- SOC 310-K Ethnic Relations
- SOC 315-H Sociology of Technology
- SOC 317-H Decisions, Uncertainty, and Individual Futures
- SOC 320-F Population and Society
- SOC 323-F Urban Society
- SOC 335-F Sociology of Labor Movements
- SOC 336-F Social Change
- SOC 337-F Social Deviance
- SOC 338-F The Sociology of Crime
- SOC 339-F Sociology of Alcoholism and Drug Abuse
- SOC 340-H Sociology of Human Reproduction
- SOC 341-F Historical Sociology
- SOC 344-F Social Ecology
- SOC 351-F Sociology of the Arts
- SOC 352-F Sociology of Religion
- SOC 353-H Sociology of Science
- SOC 354-F Sociology of Law
- SOC 355-H Social World of Humans and Animals
- SOC 356-F Political Sociology
- SOC 361-F Historical Development of Sociological Theory
- SOC 362-F Contemporary Sociological Theory
- SOC 364-J Sociology of Latin America
- SOC 371-K Gender and Work
- SOC 373-F Collective Behavior
- SOC 380-F Social Psychology
- SOC 381-F Sociology of Organizations
- SOC 382-F Small Groups
- SOC 384-F Sociology of the Life Course
- SOC 386-J State and Society in the Middle East
- SOC 387-F Sociology of Education
- SOC 390-F-394-F Special Topics

Sample Course Sequence in the Sociology Major

Freshman Fall	Credits
D.E.C. A	3
SOC 105	3
MAT 123	3
D.E.C.	3
D.E.C.	3
Total	15

Spring	Credits
D.E.C. A	3
SOC elective	3
D.E.C.	3
D.E.C.	3
D.E.C.	3
Total	15

Sophomore Fall	Credits
SOC 201	3
SOC elective	3
Social science elective	3
D.E.C.	3
D.E.C.	3
Total	15

Spring	Credits
SOC 202 or AMS 102	3
SOC elective	3
Social science elective	3
D.E.C.	3
D.E.C.	3
Total	15

Junior Fall	Credits
SOC 361	3
SOC Upper Division elective	3
Social science elective	3
D.E.C.	3
Elective	3
Total	15

Spring	Credits
SOC 362	3
SOC Upper Division elective	3
SOC Upper Division elective	3
SOC Upper Division elective	3
SOC elective	3
Total	15

Senior Fall	Credits
SOC Upper Division elective	3
SOC Upper Division elective	3
SOC Upper Division elective	3
SOC Upper Division elective	3
SOC elective	3
Total	15

Spring	Credits
SOC Upper Division elective	3
Upper Division elective	3
Upper Division elective	3
Elective	3
Elective	3
Total	15

- SOC 447 Independent Readings
- SOC 475, 476 Undergraduate Teaching Practicum I, II
- SOC 487 Independent Research
- SOC 488 Internship
- SOC 495-496 Senior Honors Project I, II

Requirements for the Major in Sociology

The major in sociology leads to the Bachelor of Arts degree. All sociology courses offered for the major, except those graded S/U, must be passed with a letter grade of C or higher. Of courses outside the department offered for the major, only one may be taken with the Pass/No Credit option.

Completion of the major requires 39 credits, of which 30 to 33 are in sociology

courses.

A. Study within the Area of the Major

1. Required courses:

- SOC 105 Introduction to Sociology
- SOC 201 Research Methods
- SOC 202 Statistical Methods in Sociology or another allowed statistics course
- SOC 361 Historical Development of Contemporary Sociology
- SOC 362 Introduction to Sociological Theory (SOC 361 and 362 should be taken consecutively during the junior or senior year)

2. Sociology electives

Free selection of courses, totaling 15 credits, from among all sociology course offerings.

B. Study in Related Areas

At least three courses (nine 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, and women's studies (only those WST courses crosslisted with social sciences courses). Credits from applied social science professions such as social work, police science, education, and management science are not applicable. Courses that are crosslisted with a sociology course do not satisfy this requirement.

C. Upper-Division Writing Requirement

Sociology majors are expected to fulfill the upper-division writing requirement by the end of their junior year. Students may meet the requirement by having their writing evaluated in certain upper-division sociology courses (list available in the department). Students who have indicated that they wish to have their writing evaluated 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.

Notes on Group A:

1. If any required course is waived for any reason, it must be replaced with an additional elective
2. Only six credits of independent study courses (SOC 447, 487, and 488) may be used toward the requirements of 15 elective credits in sociology.

Notes for Transfer Students:

The Sociology Department requires that transfer students take at least 12 credits in sociology in residence at Stony Brook to complete the sociology major.

No transferred sociology course with a grade lower than C is accepted for credit in the 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 the methods and statistics requirement and the upper-division writing requirement.

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.

In the senior year, the student enrolls in SOC 495 during the first semester and SOC 496 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 is 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 are conferred.

SOA

Minor Program in

South Asian Studies

DIRECTOR: Kamal K. Sridhar

OFFICE: E-5350 Melville Library PHONE: 632-9742 E-MAIL: indstudy@ccmail.sunysb.edu WEB ADDRESS: www.sunysb.edu/~indstudy/

Other minors of particular interest to students minoring in South Asian studies: anthropology (ANT), Chinese studies (CNS), international studies (LIS), Japanese studies (JNS), religious studies (RLS)

Affiliated Faculty

Mark Aronoff, *Linguistics*

William Chittick, *Religious Studies*

Sung-Taek Cho, *Religious Studies*

Rhonda Cooper, *Art*

David Hicks, *Anthropology*

Theresa Kim, *Theatre Arts*

Sung-Bae Park, *Religious Studies*

Kamal K. Sridhar, *Linguistics*

S.N Sridhar *Linguistics*

John A. Williams, *History*

Adjunct Faculty

Estimated Number: 5

The minor in South Asian Studies provides a broad introduction to a major world civilization through a set of coordinated courses in selected areas of South Asian society and culture. Courses are offered in South Asian languages, religions, philosophy, history, culture, literatures, linguistics, and performing arts. Both traditional and contemporary aspects are covered. The minor serves as a foundation for specialization in area studies (South Asia), complements knowledge of other areas in Asian Studies, and offers cross-cultural experience valued in many fields, including international business. With the approval of the program director, the student constructs a coherent and individualized program of study.

Requirements for the Minor in South Asian Studies

All courses offered for the minor must be passed with a letter grade of C or higher. At least nine credits toward the minor must be upper division.

Completion of the minor requires 21 credits.

1. SAS 240 Introduction to the Civilization of the Indian Subcontinent
2. HIS 350 Modern South Asian History, 1750 to Present

3. One of the following:

RLS 250 Hinduism

RLS 260 Buddhism

RLS 280 Islam

4. LIN 355 Language and Life in South Asia

or SAS 320 Literature of India

5. Nine additional credits chosen from the courses listed below:

ANT 311 Immersion in Another Culture (appropriate topic only)

ARH 203 History of Asian Art

CLT 220 Non-Western Literature (appropriate topic only)

EGL 373 Literature in English from Non-Western Cultures (appropriate topic only)

EGL 374 Literature in Relation to Other Disciplines (appropriate topic only)

HIN 111 Elementary Hindi I

HIN 112 Elementary Hindi II

HIN 211-J Intermediate Hindi I

HIN 212-J Intermediate Hindi II

LIN 431 Analysis of an Uncommonly Taught Language (appropriate topic only)

MUS 355 Special Topics in Music (appropriate topic only)

RLS 341 Meditation and Enlightenment

RLS 408 Islamic Classics

SAS 320 Literature of India

SAS 381 Topics in South Asian Studies

SAS 401, 402 Special Topics in South Asian Studies

SAS 447 Directed Readings

SAS 487 Directed Research

SKT 111 Elementary Sanskrit I

SKT 112 Elementary Sanskrit II

THR 313 Asian Theatre and Drama

WST 250 Women in the Third World

THR

Department of Theatre Arts

CHAIRPERSON: John Lutterbie ADMINISTRATIVE ASSISTANT: Ed Quinn

OFFICE: 3046 Staller Center for the Arts PHONE: 632-7300 WEB ADDRESS: <http://i-lab-pc.theatre.sunysb.edu/>

Minors of particular interest to students majoring in theatre arts: dance (DAN), English (EGL), interdisciplinary arts (LIA), media arts (MDA)

Faculty

Phillip Baldwin, *Assistant Professor, M.F.A., Yale University School of Drama: Design.*

Paul Kassel, *Assistant Professor, M.F.A., Florida State University/ Asolo Conservatory.*

Theresa Kim, *Assistant Professor, Ph.D., New York University: Acting; Asian drama.*

John Lutterbie, *Associate Professor and Graduate Studies Director, Ph.D., University of Washington: Theory; history; criticism.*

Deborah Mayo, *Instructor, M.F.A., Yale University: Acting; youth theatre.*

Norman Prusslin, *Adjunct Instructor, B.A., State University of New York at Stony Brook: Radio broadcasting; media leadership.*

Amy Sullivan, *Associate Professor, M.F.A., University of North Carolina at Greensboro: Modern dance with emphasis on performance and choreography.*

Adjunct Faculty

Estimated number: 6

Teaching Assistants

Estimated number: 6

Theatre Arts is traditionally the study of the dramatic event typified by productions associated with the New York stage, whether it be Broadway or Off-Broadway. In recent years, however, the concept of theatre has expanded to include performances from around the world, extending from the most sacred rituals to the most profane performance art. What was once the study of the live actor before a live audience now requires an investigation into the impact of technology and media on the practice of theatre. This exciting and expanding discipline defines the department of theatre arts at Stony Brook, where students can study acting, design, and directing; immerse themselves in playwriting, dance, and media; and explore interactive computing technologies as a tool of study and a means of personal expression.

The objective of study in theatre arts is to provide students with the opportunity to explore a range of self-expressive forms. Students are introduced to the practical tools necessary to communicate effectively through the theatre, dance,

the media, and technology. In addition, they investigate the historical and theoretical basis on which these art forms are based, giving them a strong foundation on which to pursue the many opportunities available to a student graduating as a theatre major.

Students graduate with a strong background in the liberal and theatre arts. After graduation they may pursue theatre-related careers, go on to further study, or enter other professions such as law, business, publishing, advertising, communications, computer graphics, and public relations.

Courses Offered in Theatre Arts

See the Course Description listing in this Bulletin for complete information.

THR 101-D Understanding Theatre

THR 102-D Dance Appreciation

THR 104-B Play Analysis

THR 105-D Acting I

THR 110 Public Speaking

THR 115 Stagecraft I

THR 116 Stagecraft II

THR 117 Film, Video, and Audio Narrative

THR 164 Tap Technique and History

THR 165-D Modern Dance Technique I

THR 166-D Ballet Technique I

THR 167-D Jazz Dance Technique

THR 168-D World Dance

THR 205-G Acting II

THR 208 Technology in the Arts

THR 216-D Introduction to Visual Interpretation

THR 223-D Stage Costume

THR 230 Voice for the Actor

THR 232 Improvisation

THR 244 Summer Theatre Workshop

THR 246-D Stage Lighting

THR 256-D Stage Design

THR 264-D Movement Awareness and Analysis

THR 277 The Media Industry

THR 295 Special Workshop

THR 296 Special Workshop in Design and Technical Theatre

THR 298 Student Media Leadership

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

THR 307 Performance Laboratory

THR 312-K American Theatre and Drama

THR 313-J Asian Theatre and Drama

THR 314-G Modern Drama on Stage

THR 315-I European History and Drama: The Classical Era

THR 316-I European History and Drama: The Modern Era

THR 317 Interactive Performance, Media, and MIDI

THR 320 Production I

THR 321 Production II

THR 322-G Acting III

THR 323-G Costume Design

THR 324 Stage Makeup

THR 325 Scriptwriting for Film and Television

THR 326 Playwriting

THR 327 Advanced Playwriting

THR 333-G Directing I

THR 336 Stage Management

THR 337 Advanced Technical Theatre

THR 340 Summer Theatre Workshop

THR 344-G The Shakespearean Tradition

THR 346-G Lighting Design

THR 351-G, 352-G Special Topics in Performance

THR 353-G Special Topics in Dance Performance

THR 354-G Topics in Dramaturgy

- THR 356-G Scene Design
- THR 365 Modern Dance Technique
- THR 366 Ballet Technique II
- THR 367 Jazz Dance Technique II
- THR 368 Dance Improvisation
- THR 369-J World Dance Forms
- THR 372 Introduction to Television
- THR 375 Television Production
- THR 378 Introduction to Radio Broadcasting
- THR 379 Radio News
- THR 400 Performance Dance Ensemble
- THR 401 Senior Seminar
- THR 403 Media Theory and Criticism
- THR 405 Western Styles of Acting
- THR 406 Eastern Styles of Acting
- THR 439 Directing II
- THR 447 Readings in Theatre Arts
- THR 451 Auditioning for Careers
- THR 462 Acting for the Camera
- THR 465 Modern Dance Technique and Performance
- THR 467 Jazz Dance Technique and Performance
- THR 468 Choreography
- THR 475, 476 Undergraduate Teaching Practicum I, II
- THR 480 Projects in Media
- THR 483 Projects in Theatrical Design
- THR 487 Projects in Theatre
- THR 488 Internship

Sample Course Sequence for the Theatre Arts Major

Freshman Fall	Credits
D.E.C. A	3
THR course for req. A1*	3
THR 115	3
D.E.C.	3
Elective	3
Total	15

Spring	Credits
D.E.C. A	3
THR course for req. A1*	3
THR 116	3
D.E.C. B#	3
D.E.C.	3
Total	15

Sophomore Fall	Credits
THR 230	3
D.E.C. D#	3
D.E.C.	3
D.E.C.	3
Elective	3
Total	15

Spring	Credits
THR 216	3
THR 264	3
D.E.C.	3
D.E.C.	3
Elective	3
Total	15

Junior Fall	Credits
THR 315	3
THR 320	3
D.E.C.	3
D.E.C.	3
Upper Division elective	3
Total	15

Spring	Credits
THR 312	3
THR 313	3
THR 321	3
D.E.C.	3
Elective	3
Total	15

Senior Fall	Credits
THR 354	3
THR elective	3
THR elective	3
Upper Division elective	3
Upper Division elective	3
Total	15

Spring	Credits
THR 401	3
THR elective	3
Upper Division elective	3
Upper Division elective	3
Elective	3
Total	15

Requirements for the Major in Theatre Arts

The major in theatre arts leads to the Bachelor of Arts degree. All courses for the major in theatre arts must be passed with a letter grade of C or higher.

Completion of the major requires 48 credits.

A. Theatre Arts Core Program

1. Two of the following courses:
 - THR 105 Acting I
 - THR 117 Film, Video and Audio Narrative
 - THR 164 Tap Technique and History
 - THR 165 Modern Dance Technique I
 - THR 166 Ballet Technique I
 - THR 167 Jazz Dance Technique
2. THR 115 Stagecraft I
3. THR 116 Stagecraft II

*Theatre Arts majors need two courses from THR 105, 117, 164, 165, 166, and 167

Theatre Arts majors may not satisfy D.E.C. categories B and D with THR courses.

4. THR 104 Play Analysis
5. THR 216 Introduction to Visual Interpretation
6. One of the following courses:
 - THR 315 European Theatre and Drama: The Classical Era
 - THR 316 European Theatre and Drama: The Modern Era
7. THR 312 American Theatre and Drama
8. THR 313 Asian Theatre and Drama
9. THR 320 Production I
10. THR 321 Production II

11. One of the following courses:
 - THR 401 Senior Seminar
 - THR 488 Internship

B. Electives

Twelve additional credits in one of the following areas: performance and playwriting; design and technical theatre; dance, media, and technology; or history, theatre, and criticism.

C. Upper-Division Writing Requirement

Before the end of the second semester of the junior year, each student submits to the director of undergraduate studies a portfolio of at least two papers written for different instructors in

upper-division theatre courses. The director of undergraduate studies, in consultation with the faculty, evaluates the papers to determine the writing competence of the student.

Note:

Students majoring in theatre arts may not satisfy D.E.C. categories B and D with THR courses.

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 for 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, technology, performance, design, or management. The honors project is reviewed by at least two members of the Department of Theatre Arts faculty 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 are conferred. Course credit for the honors project is given under THR 487. Guidelines are available in the department office.

Minor in Theatre Arts

The minor in theatre arts provides the student with the opportunity to explore several aspects of the dramatic arts. The course of study should lead the student to an understanding of the necessary next steps should his or her interest be sharpened by the experience.

Requirements for the Minor

All courses offered for the minor must be passed with a letter grade of C or higher. At least 12 of the 21 credits must be taken at Stony Brook.

Completion of the minor requires 21 credits.

A. Theatre Arts Minor Core Program

1. THR 105 Acting I
2. One of the following courses:
 - THR 115 Stagecraft I
 - THR 116 Stagecraft II

3. One of the following courses:
 - THR 320 Production I
 - THR 321 Production II

4. One of the following courses:

- THR 312 American Theatre and Drama
- THR 313 Asian Theatre and Drama
- THR 315 European History and Drama: The Classical Era
- THR 316 European History and Drama: The Modern Era

B. Electives

Nine credits to be chosen from courses in theatre arts, six of which must be upper division.

Note: Students who choose upper-division theatre electives for the requisite 9 credits (see B. above) need only take an additional 3 credits of upper division elective work to satisfy University requirements.

WST

Major in Women's Studies

DIRECTOR: Temma Kaplan, Women's Studies, History DIRECTOR OF UNDERGRADUATE STUDIES: Sarah Hall Sternglanz
UNDERGRADUATE SECRETARY: Colleen Wallahora

OFFICE: 105 Old Chemistry PHONE: 632-9176 E-MAIL: cwallahora@notes.cc.sunysb.edu WEB ADDRESS: www.sunysb.edu/wns

Majors and other minors of particular interest to students majoring or minoring in women's studies: English (EGL), health and wellness (LHW), gender and sexual development (LHD), history (HIS), psychology (PSY), social sciences interdisciplinary (SSI), sociology (SOC)

Faculty

Marcia Abrams, *Lecturer, Ph.D., Cornell University*: French and comparative literature; psychoanalysis.

Beverly Haviland, *Associate Professor, Ph.D., Princeton University*: 19th and 20th-century American, English, and French literature; feminist theory; psychoanalysis; women's writing.

Temma Kaplan, *Professor, Ph.D., Harvard University*: Comparative history; 20th-century social movements of women.

Connie Koppelman, *Lecturer, part time, Ph.D., State University of New York at Stony Brook*: Women in Long Island history; Long Island women artists.

Adrienne Munich, *Professor, Ph.D., City University of New York*: Victorian studies; feminist theory.

Kelly Oliver, *Associate Professor, Ph.D., Northwestern University*: 20th-century French philosophy; continental feminist theory; Nietzsche.

Sarah Hall Sternglanz, *Lecturer, Ph.D., Stanford University*: Psychology of women; sex role development.

Affiliated Faculty

Harriet Allentuch, *French and Italian*

Frank Anshen, *Linguistics*

William Arens, *Anthropology*

Diane Barthel, *Sociology*

Beverly Birns, *(Emerita) Social Sciences Interdisciplinary*

Michele Helene Bogart, *Art*

Ruth S. Bottigheimer, *Comparative Studies*

Barbara Brand, *Library*

Ruth Brandwein, *Social Welfare*

Floris Barnett Cash, *Africana Studies*

Lou Charnon-Deutsch, *Hispanic Languages and Literature*

Helen Cooper, *English*

Ruth Schwartz Cowan, *History*

Norman Goodman, *Sociology*

Robert O. Hawkins, *(Emeritus) Allied Health Professions*

Young-Sun Hong, *History*

Laura Henigman, *English*

Leonie Huddy, *Political Science*

Heidi Hutner, *English*

Don Ihde, *Philosophy*

Nilufer Isvan, *Sociology*

E. Ann Kaplan, *English*

Aisha Khan, *Africana Studies, Anthropology*

Michael Kimmel, *Sociology*

Eva Feder Kittay, *Philosophy*

Joan Kuchner, *Social Sciences Interdisciplinary*

Brooke Larson, *History*

Helen Lemay, *History*

Shirley Lim, *History*

Ira Livingston, *English*

Marci Lobel, *Psychology*

Judith Lochhead, *Music*

Iona Man-Cheong, *History*

Carla Molette-Ogden, *Political Science*

Rita Nolan, *Philosophy*

Lester Paldy, *Technology and Society*

Ilona Rashkow, *Comparative Studies*

Mary Rawlinson, *Philosophy*

Carol Rosen, *English*

Joel Rosenthal, *History*

Jane Sugarman, *Music*

Nancy Tomes, *History*

Kathleen Vernon, *Hispanic Language and Literature*

Gerdi Weidner, *Psychology*

Barbara Weinstein, *History*

Kathleen Wilson, *History*

Judith Wishnia, *Social Sciences Interdisciplinary*

Patricia Wright, *Anthropology*

Adjunct Faculty

Estimated number: 2

Teaching Assistants

Estimated number: 4

Women's studies is a scholarly field that examines its subject—women—from an interdisciplinary perspective. By bringing the questions, methods, and theories of one discipline to focus on the subject matter of others, scholars in this area often discover new approaches to their own fields, through their own insights

and through their interactions with faculty and students trained in other disciplines. The Women's Studies Program provides a focus for scholars who are interested in the interdisciplinary study of women.

The women's studies major and minor (WST) are designed for students interested in the interdisciplinary study of women's roles and achievements. The programs consist of courses offered by the Women's Studies Program as well as courses in the social and behavioral sciences, the humanities, the life sciences, and the health sciences. Students wishing to complete the major or minor should consult the Associate Director of Women's Studies and establish an advising folder by the beginning of the junior year.

Many students have found study in Women's Studies to be an asset to their professional credentials, either when applying to graduate or professional school or for employment. Students who have completed coursework in women's studies have gone on to law school, especially with interests in civil rights; to medical school, especially with specializations in obstetrics and gynecology and psychiatry; to graduate programs in social welfare and psychology, especially with specializations in such areas as abuse and rape counseling; and to graduate work in the humanities and social sciences disciplines where gender issues are at the forefront. Double majors, combining women's studies with another field, are not uncommon.

Some of the courses accepted for the programs appear listed in the home departments of the affiliated faculty, with that department's designator rather than WST. The Associate Director of Women's Studies provides a list of such courses at Prime Time each semester. Affiliated faculty also teach the readings and research courses and the teaching practicum in Women's Studies.

Courses Offered in Women's Studies

See the Course Description listing in this Bulletin for complete information.

WST/SSI 102-F Women in Contemporary Society

WST 103-G Women, Culture, and Difference

WST 121 Library Skills for Research in Women's Studies

WST/SOC 204-F Intimate Relationships

WST/SOC 247-K Sociology of Gender

WST 250-J Women in the Third World

WST/EGL 276-B Feminism: Literature and Cultural Contexts

WST/PHI 284-G Introduction to Feminist Theory

WST 287 Research in Women's Studies

WST/SOC 304-F Sociology of the Family

WST 305 Feminist Theories in Context

WST/SSI 310-F Contemporary Feminist Issues

WST/MUS 314-G Women Making Music

WST/HIS 316-F The Healer and the Witch in History

WST 320/JDS 327-F Women in Judaism

WST/POL 330-K Gender Issues in the Law

WST/HIS 333-K Women in U.S. History

WST 334/HIS 336-I Women, Work, and Family in Modern European History

WST/SOC 340-H Sociology of Human Reproduction

WST/HIS 345-J Women and Gender in Chinese History

WST/POL 347-K Women and Politics

WST/AFS 350-J Black Women and Social Change: A Cross-Cultural Perspective

WST/HIS 360-I Women in Pre-Modern Europe

WST/SOC 371-K Gender and Work

WST/EGL 372-G Topics in Women and Literature

WST/HIS 374-K Perspectives on Gender Orientation

WST 377/PSY 347-F Psychology of Women

WST/PHI 384-G Advanced Topics in Feminist Philosophy

WST/HIS 387-J Women, Development, and Revolution in Latin America

WST 390-G, 391-G Special Topics in Women's Studies in the Humanities

WST 392-H Special Topics in Women and Science

WST 393-I Special Topics in Women's Studies

WST 394-H Special Topics in Women's Studies

WST 395-J Special Topics in Women's Studies

WST 396-K Special Topics in Women's Studies

WST 397, 398-F Special Topics in Women's Studies in the Social Sciences

WST 401, 402 Seminar in Women's Studies

WST 407 Senior Research Seminar in Women's Studies

WST 408 Senior Research Seminar for Women's Studies Majors

WST 447 Directed Readings in Women's Studies

WST 475 Undergraduate Teaching Practicum

WST 487 Independent Project in Women's Studies

WST 488 Internship

Requirements for the Major in Women's Studies

The major in women's studies leads to the Bachelor of Arts degree. No more than one course offered for the major may be taken Pass/No Credit. All other courses for the major must be passed with a letter grade of C or higher. No transferred course with a grade lower than C may be applied toward major requirements. No more than three 100-level courses may be applied toward major requirements. At least 18 credits must be in courses numbered 300 or higher.

Completion of the major requires 36 credits.

1. WST/SSI 102 Women in Contemporary Society
2. WST 103 Women, Culture, and Difference
3. WST 305 Feminist Theories in Context
4. WST 408 Senior Research Seminar
5. Women and Diversity: One course from the following:
 - AFS 370 The African-American Family
 - HWC 349 Overview of Gay and Lesbian Issues
 - WST 250 Women in the Third World

WST 345 Women and Gender in Chinese History

WST 350 Black Women and Social Change: A Cross-Cultural Perspective

WST 387 Women, Development, and Revolution in Latin America

6. Concentration Requirement

Students must complete 12 credits in one of the following areas of concentration:

A. Women in Contemporary Society

AFS 345 Culture and Gender: Women in Africa and the Caribbean

PSY 240 Social Psychology

SOC 380 Social Psychology

SSI 210 Human Development: The Family Context

SSI 308 Abuse of Women and Children

SSI 405 Seminar in Children, Law, and Social Policy

WST/SOC 204 Intimate Relationships

WST/SOC 247 Sociology of Gender

WST/SOC 304 Sociology of the Family

WST/SSI 310 Contemporary Feminist Issues

WST/POL 330 Gender Issues in the Law

WST/SOC 340 Sociology of Human Reproduction

WST/POL 347 Women and Politics

WST/SOC 371 Gender and Work

WST 377/PSY 347 Psychology of Women

B. Women in History

ANT 367 Male and Female

WST/HIS 316 The Healer and the Witch

WST/HIS 333 Women in U.S. History

WST/HIS 334 Women, Work, and Family in Early European History

WST/HIS 360 Women in Premodern Europe

WST/HIS 374 Historical Perspectives on Gender Orientation

WST/HIS 387 Women, Development, and Revolution in Latin America

C. Women in Literature and the Arts

ARH 360 Art and Eros

EGL 371 Topics in Gender Studies
 HUM 122 Images of Women in Literature
 WST 250 Women in the Third World
 WST/EGL 276 Feminism: Literature and Cultural Contexts
 WST/PHI 284 Introduction to Feminist Theory
 WST/MUS 314 Women Making Music

WST/EGL 372 Topics in Women and Literature

D. Women in Philosophy and Religion

PHI 374 Philosophical Reflections on the Body
 RLS 426 Feminine Spirituality
 WST/PHI 284 introduction to Feminist Theory
 WST 320/JDS 327 Women in Judaism

WST/HIS 360 Women in Premodern Europe

WST/PHI 384 Advanced Topics in Feminist Philosophy

E. Human Reproduction and Gender

ANT 367 Male and Female
 BIO 300 Biology of Human Reproduction
 PHI 374 Philosophical Reflections on the Body
 WST/HIS 316 The Healer and the Witch in History
 WST/SOC 340 Sociology of Human Reproduction
 WST/HIS 374 Historical Perspectives on Gender Orientation

7. Electives. Nine credits outside the area of concentration chosen from the areas above.
8. Upper Division Writing Requirement Students must present a minimum of ten typewritten pages of formal writing, prepared for an upper-division course listed above as acceptable for the major requirements. This written work must have been judged by the course instructor to be satisfactory for the upper-division writing in the field of Women's Studies.

Notes:

1. Topics courses offered in women's studies or other departments may be substituted for required courses with per-

Sample Course Sequence for the Women's Studies Major

Freshman Fall	Credits
D.E.C. A	3
WST 102	3
D.E.C.	3
D.E.C.	3
Elective	3
Total	15

Spring	Credits
D.E.C. A	3
WST 103	3
D.E.C.	3
D.E.C.	3
Elective	3
Total	15

Sophomore Fall	Credits
Prereq. for concentration	3
D.E.C.	3
D.E.C.	3
Concentration course	3
Elective	3
Total	15

Spring	Credits
Prereq. for concentration	3
D.E.C.	3
Concentration course	3
Elective	3
D.E.C.	3
Total	15

Junior Fall	Credits
WST 305	3
Women and Diversity course	3
Upper Division D.E.C.	3
D.E.C.	3
Upper Division elective	3
Total	15

Spring	Credits
Concentration course	3
Course outside concentration	3
D.E.C.	3
Upper Division elective	3
Elective	3
Total	15

Senior Fall	Credits
Course outside concentration	3
Concentration course	3
D.E.C.	3
Upper Division elective	3
Elective	3
Total	15

Spring	Credits
WST 408	3
Elective	3
Course outside concentration	3
Upper Division D.E.C.	3
Upper Division elective	3
Total	15

mission of the director of undergraduate studies.

2. At least 12 credits must be taken in women's studies courses at Stony Brook.
3. No more than six credits from WST 447 and 487 may be applied toward the major.

Requirements for the Minor in Women's Studies

Only one course offered for the minor may be taken for Pass/No Credit.

Completion of the minor requires 21 credits.

1. WST/SSI 102 Women in Contemporary Society or WST 103 Women, Culture, and Difference

2. WST 407 Senior Seminar in Women's Studies
3. Five courses chosen from among WST courses (or their crosslisted equivalents) and the list below. At least two of these courses must be numbered 300 and above.

AFS 370 The African-American Family
 AFS 345 Culture and Gender: Women in Africa and the Caribbean
 ANT 367 Male and Female
 ARH 360 Arts and Eros
 BIO 300 Biology of Human Reproduction
 EGL 371 Topics in Gender Studies
 HIS 369 American Social History to 1860
 HIS 370 U.S. Social History, 1860-1930

HIS 394 Topics in History of Medicine
and Reproduction

HUM 122 Images of Women in
Literature

HWC 349 Overview of Gay and
Lesbian Issues

PSY 240 Survey in Social Psychology

RLS 426 Feminine Spirituality

SOC 380 Social Psychology

SSI 210 Human Development: The
Family Context

SSI 308 Abuse of Women and Children

SSI 405 Seminar in Children, Law, and
Social Policy

Related special topics courses given in
various departments are acceptable for
the Women's Studies minor with the
approval of the Associate Director of
Women's Studies.

WRT

Program in Writing and Rhetoric

DIRECTOR: Kay Losey, English, Writing ADMINISTRATIVE ASSISTANT: Norma Porras

OFFICE: 196 Humanities PHONE: 632-7390 E-MAIL: nporras@notes.cc.sunysb.edu WEB ADDRESS: www.sunysb.edu/~writprog/index.html

Faculty

Justin Brent, *Coordinator of the Electronic Writing Classroom, A.B.D. State University of New York at Stony Brook*: Computer-assisted instruction, composition and rhetoric.

Gabriel Brownstein, *Lecturer, M.F.A., Columbia University Writing Program*: Fiction, criticism writing.

Dennis Clarke, *Lecturer, M.A., Louisiana State University*: Composition and rhetoric, fiction writing, film.

Cynthia Davidson, *Lecturer, Ph.D., University of Illinois at Chicago*: creative writing, 20th-century poetry and magic, women's poetry, science fiction.

Clare Frost, *Lecturer and Coordinator of EGC 100, M.A., State University of New York at Stony Brook*: Composition and rhetoric, writing in the health professions, interdisciplinary writing, English as a second language.

Sally La Forte, *Interim Writing Center Director, M.A., Queens College of the City University of New York*: Composition and rhetoric.

Kay Losey, *Associate Professor and Writing Program Director, Ph.D., University of California, Berkeley*: Composition and rhetoric, adult literacy, bilingualism and writing.

Sharon Marshall, *Lecturer, M.A., City College of the City University of New York*: Creative writing, workshop for teachers of writing and writers.

Carolyn McGrath, *Lecturer, M.A., State University of New York at Stony Brook*: Creative writing, compositional theory and pedagogy, uses of instructional technology.

Jimmy D. McRoy, *Lecturer, M.A. State University of New York at Stony Brook*: Cultural studies, and postmodernism.

Ronald Overton, *Lecturer, M.A., State University of New York at Stony Brook*: Contemporary poetry, crime fiction, and jazz criticism.

Astrid Wimmer, *Lecturer, Ph.D., State University of New York at Stony Brook*: Composition and rhetoric.

Frances Zak, *Lecturer, Ph.D., State University of New York at Stony Brook*: Teaching of writing, response and grading, women's autobiography.

Adjunct Faculty

Estimated number: 10

Teaching Assistants

Estimated number: 45

The Program in Writing and Rhetoric offers courses that fulfill the University's

D.E.C. category A English Composition requirement. The program also provides electives for students who want to explore writing in different contexts and enhance their proficiency in academic writing.

The philosophy of the University's Program in Writing and Rhetoric is that writing is an ongoing process as well as a finished product. Because writing well requires re-thinking and re-writing, the program emphasizes revision. Courses require multiple drafts of all papers submitted for the final writing portfolio.

Writing courses stress collaborative learning in the classroom and are designed as workshops. Students work in small groups to learn aspects of writing analysis and criticism in order to better analyze their own writing as well as the writing of fellow students. By learning how to analyze their writing, students learn to improve their writing. All group work is supervised by writing instructors experienced in workshop teaching and in critical commentary on student writing. The primary goal of all writing courses is effective communication, orally and in writing.

Facilities

The Writing Center

The Writing Center provides free, individual tutoring to all members of the University community, including entering freshmen, upperclassmen, graduate students, post-doctoral fellows, and faculty in all of Stony Brook's many departments and disciplines. Tutors address all writing issues including, but not limited to, getting started, organization, grammar and graphics, revision, research, and reading the final product. Tutors are trained to help improve writing and communication. Tutors will not proofread or copy-edit papers.

Electronic Writing Classrooms

The Writing Program has two computer classrooms: the Electronic Writing Classroom mac (EWCmac), located in the Humanities building, room 307 and

equipped with 26 Power Macintosh computers; and the Electronic Writing Classroom pc (EWCpc), located in the Social and Behavioral Sciences building, room S-316 and equipped with 26 Pentium PC computers. Computers in both EWCs are equipped with Microsoft Office Suite, internet access, and laser-quality printers.

Placement

The Program in Writing and Rhetoric offers a placement examination, given at orientation and during Prime Time, to determine the first writing course a student must take. All incoming freshmen are required to take this placement examination. Transfer students must take the examination if they have not satisfied either Entry Skill 2, Basic Writing Competence, or D.E.C. category A, English Composition. Students may not retake the examination. Transferred composition courses are automatically evaluated by the Transfer Office for applicability to Skill 2 and D.E.C. A. The placement examination result does not affect the number of credits transferred or the transfer evaluation.

Level	Placement
1	ESL 192
2	ESL 193
3	WRT 101
4	WRT 102
5	WRT 103

Courses Offered in Writing

See the Course Description listing in this Bulletin for complete information.

WRT 101 Introductory Writing Workshop

WRT 102-A Intermediate Writing Workshop A

WRT 103-A Intermediate Writing Workshop B

WRT 201-B Writing in the Disciplines: Special Topics

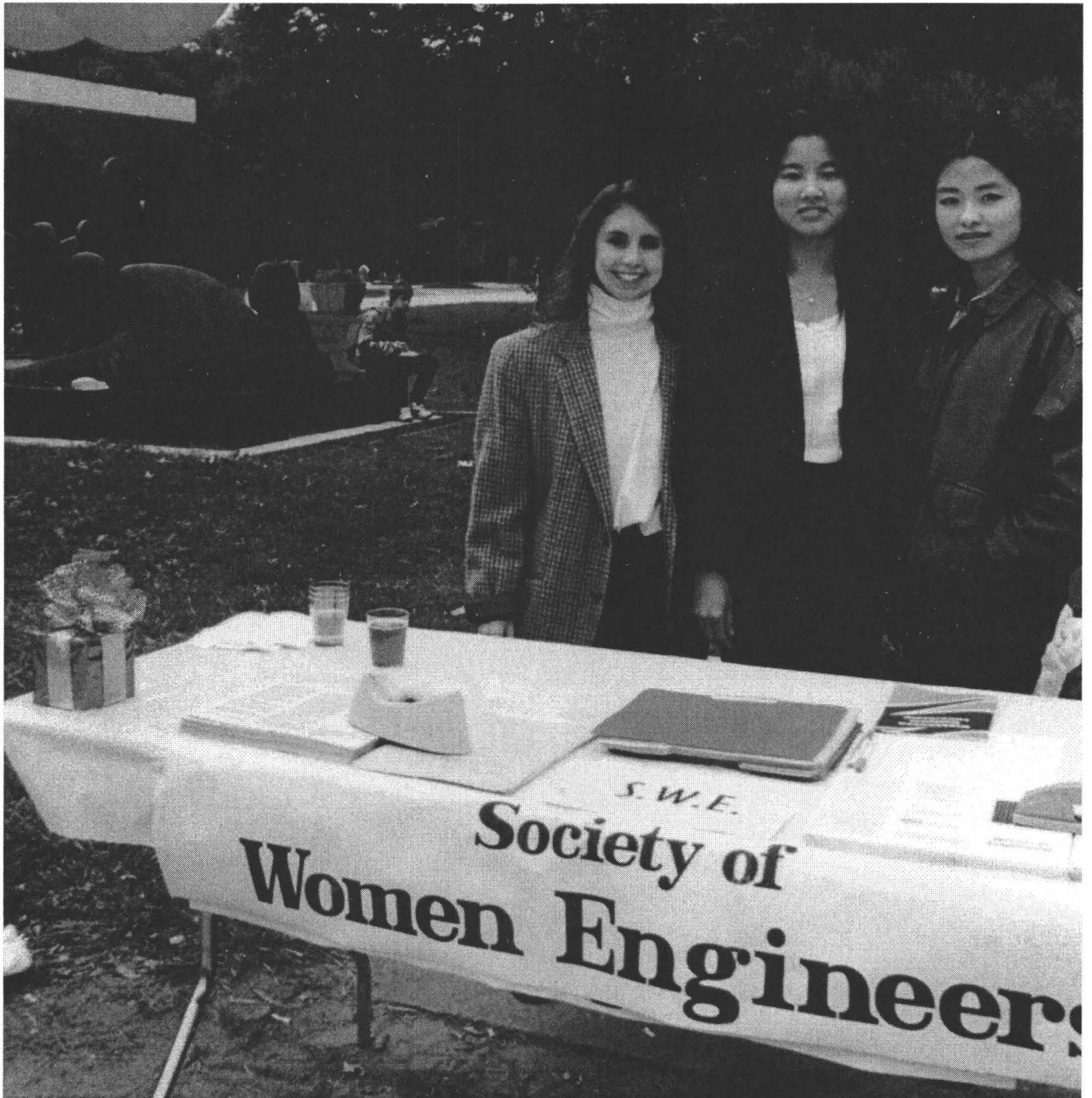
WRT 215-B Argumentative Writing

WRT 381, 382 Advanced Analytic and Argumentative Writing



College of Engineering and Applied Sciences

Yacov Shamash, Dean



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 a strong foundation of 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 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, computer, mechanical, or materials engineering, as well as applied mathematics, computer science, or information systems, 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.

Similarly, today's industries and businesses require managers with strong problem-solving abilities that are based on a broad education in the liberal arts and sciences and that encompass applied mathematics, economics, finance, organization theory, and technological systems. The curriculum of the W. Averell Harriman School for Management and Policy, a branch of the College of

Engineering and Applied Sciences, prepares students for business careers by providing them with the skills and knowledge for managing business enterprises as well as non-profit and governmental agencies. The program covers quantitative decision making, computers, and the ways in which organizations work financially, legally, and behaviorally, and the functions and strategies of organizations in society.

The college offers eight different majors, listed below.

Bachelor of Science in:

- Applied Mathematics and Statistics
- Business Management
- Computer Science
- Information Systems

Bachelor of Engineering in:

- Computer Engineering
- Electrical Engineering
- Engineering Science
- 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 electives within the majors. In addition, the College of Engineering and Applied Sciences 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.

The college also offers twelve minors: applied mathematics and statistics; bio-engineering; biomedical engineering; business management; computer science; electrical engineering; electronic, optical, and magnetic materials; manufacturing engineering; materials science; mechanical engineering; physical metallurgy; and technology and society.

Accreditation

The four undergraduate engineering (B.E.) degree programs offered by the college are accredited by the Accreditation Board for Engineering and Technology, Inc.

The Undergraduate Student Office

The Undergraduate Student Office, a branch of the College of Engineering and

Applied Sciences Dean's Office, provides numerous services to students who are matriculated in one of the college's undergraduate majors. The services include general academic advising, appropriate referrals for academic advising in a major, advising about the college Diversified Education Curriculum (D.E.C.) requirements, and assistance with the processing of transfer credits. The Undergraduate Student Office receives and processes applications for admission to engineering majors from Stony Brook students in other degree programs, and receives and processes student petitions to the college's Committee on Academic Standing and Appeals. The office also serves as the center for the Internships Program and as a resource center for job opportunities, special scholarships, and the activities of student professional societies, clubs, and honor societies.

Internships Program

The College of Engineering and Applied Sciences (CEAS) is actively involved with many engineering and high-technology companies, both large and small, in the Long Island region. The many collaborative academic and industrial efforts include teaching, research, consultation, and cooperative problem solving to promote the physical and fiscal well-being of the region. Undergraduate students have a place in this working relationship between the college and industry as participants in the CEAS Internships Program, which provides them with real-world paid experience in which they observe engineers, scientists, and managers at work, work for and with professionals in their area of interest, apply theory learned in class, learn new applications, and learn about the corporate culture and environment. The internship experience is an important element of a student's education and enhances his or her qualifications for permanent job placement following graduation. More than 130 regional companies support the Internships Program.

Students may participate in internships with or without academic credit. In order to earn credit, the nature of the work undertaken in the industry setting must be reviewed by the student's academic advisor. With the approval and agreement of the employer and the academic advisor, the student may register for the department's internship course and

receive three credits (or up to nine credits in the full-time semester-long internship in mechanical engineering) toward baccalaureate degree requirements. A student may choose to participate in an internship for the experience and remuneration only and in this case, no course registration or academic approval is required.

The program is administered by the college's Undergraduate Student Office, which receives participating companies' internship requirements, posts and distributes internship position announcements, processes student applications, reviews student records and verifies academic qualifications, forwards resumés to internship employers, and, when necessary, assists in scheduling interviews on or off campus according to employer needs.

Acceptance into College of Engineering and Applied Sciences Programs

All programs in the College of Engineering and Applied Sciences currently limit the number of students accepted. 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.

Qualified freshman and transfer applicants who have specified their interest in Applied Mathematics and Statistics, Business Management, Computer Engineering, Computer Science, Electrical Engineering, Engineering Science, Information Systems, or Mechanical Engineering may be accepted directly into these majors upon admission to the University. Admission to the University, however, does not guarantee either immediate or future acceptance into the major for which the student applied.

Requirements for acceptance of continuing students into a major are listed with each major. Transfer students are urged to contact the appropriate undergraduate program director as early as possible.

Double Degrees

Qualified students whose special interests and career plans make such study appropriate may be granted permission

to earn two undergraduate degrees concurrently 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 or a Bachelor of Science in the Health Sciences Center. For details see the Academic Policies and Regulations chapter in this *Bulletin*.

Double Majors

Approved combinations of two majors leading to a Bachelor of Engineering degree are an engineering major (computer engineering, electrical engineering, mechanical engineering, or engineering science) with applied mathematics and statistics or business management or computer science or information systems or a major in the College of Arts and Sciences. (It is not possible to have two engineering majors.)

Approved combinations of two majors leading to a Bachelor of Science degree are applied mathematics and statistics with business management or computer science or information systems, or applied mathematics and statistics or business management or computer science or information systems with a major in the College of Arts and Sciences. (It is not possible to have a double major consisting of computer science and information systems.)

Bachelor's/Master's Degree Program

An engineering science student may apply at the end of the junior year for admission to enter this special program, which leads to a Bachelor of Engineering degree at the end of the fourth year and a Master of Science degree in materials science at the end of the fifth year. For the requirements, see the department entry.

An applied mathematics and statistics or computer science student may apply at the end of the junior year for admission to a program that leads 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 the departments' entries.

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 a 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 graduate studies director of 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 is 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 Diversified Education Curriculum, and other university degree requirements. Candidates for the Bachelor of Engineering degree must also satisfy the college residence requirements.

All majors offered include in their *Bulletin* entry a definition of the discipline and the goal of the major as well as general information about the careers that students who complete the major pursue after graduation. In addition to an outline of the major requirements, a suggested sequence of courses students may take to complete the major over eight semesters is given. "D.E.C." in the sample sequence indicates the Diversified Education Curriculum described in the Degree Requirements chapter in this *Bulletin*. "Upper division" indicates that a course numbered 300 or higher should be taken to fulfill the University's 39 upper-division credit requirement. All course descriptions are listed alphabetically by area of concentration in the back of the *Bulletin*.

Diversified Education Curriculum Requirements

The Diversified Education Curriculum (D.E.C.) requirements of the College of Engineering and Applied Sciences provide broad exposure to the liberal arts and sciences, enabling the engineering or applied science student to better understand the context in which his or her technical discipline has been founded. The student also learns to integrate the historical, social, and humanistic aspects of technical problems and developments.

D.E.C. requirements for students in the College of Engineering and Applied Sciences are detailed in the Degree Requirements chapter of this *Bulletin*, page 50.

Students are encouraged to visit the Undergraduate Student Office for a formal review of their D.E.C. requirements at least two semesters prior to their expected date of graduation.

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 in the Academic Policies and Regulations chapter.

Residence Requirement

At least seven engineering courses (those with the designator ESE, ESG, ESM or MEC) and/or approved technical elective courses must be completed in the College of Engineering and Applied Sciences at Stony Brook. For the majors in computer, electrical and mechanical engineering, at least five of the seven courses must be offered by the department of the student's major. ESE, ESG, MEC 440 and 441 must be taken at Stony Brook.

The following courses may not be used to meet this requirement: ESE 211, 314, and 324; ESG 217, 312, and 316; MEC 200, 316 and 317; and ESE, ESG and MEC 300, 440, and 441.

Technical Electives

Students in majors leading to the B.E. degree must complete a defined number of technical elective courses in their major. A copy of technical elective

requirements and the current list of approved technical elective courses for each engineering major are available in the relevant engineering department.

Open Electives

Open electives are courses offered for credit at Stony Brook and any credits accepted as transfer credits that are not approved to meet specific requirements.

Grading

All courses used to meet Diversified Education Curriculum requirements and the 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. No more than seven credits of undergraduate teaching practica (courses normally numbered 475 and 476) may be counted toward degree requirements.

Restrictions on Transfer Credits

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 Designators

The three-letter designator for each course offered by the College of Engineering and Applied Sciences indicates its program affiliation as follows:

AMS	offered by the Department of Applied Mathematics and Statistics
BUS	offered by the W. Averell Harriman School for Management and Policy
CSE	offered by the Department of Computer Science
ESE	offered by the Department of Electrical and Computer Engineering
ESG	engineering science interdisciplinary; offered by the Department of Materials Science and Engineering
ESM	offered by the Department of Materials Science and Engineering
EST	offered by the Department of Technology and Society
ISE	offered by the Department of Computer Science
MEC	offered by the Department of Mechanical Engineering

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 dean of the graduate school and the approval of the course instructor and of their department's undergraduate program director. Forms are available from the Graduate School for the dean's approval and in the 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.

Laboratory Fees

The following engineering courses have laboratory fees:

ESE 314, 324, 440, and 441; ESG 312, 316, 440, and 441; MEC 316, 317, 417, 440, and 441

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. In addition, students who withdraw from the University and return at a later date to complete degree requirements are required to have formally reevaluated all courses more than six years old that were taken (at Stony Brook or elsewhere) to fulfill major requirements.

AMS

Department of

Applied Mathematics and Statistics

CHAIRPERSON: James Glimm UNDERGRADUATE PROGRAM DIRECTOR: Alan C. Tucker UNDERGRADUATE SECRETARY: Scott Connelly
OFFICE: P-131 Math Tower PHONE: 632-8370 E-MAIL: atucker@ccmail.sunysb.edu WEB ADDRESS: www.ams.sunysb.edu

Students majoring in applied mathematics and statistics often double major in one of the following: computer science (CSE), economics (ECO), information systems (ISE)

Faculty

Hongshik Ahn, *Assistant Professor, Ph.D., University of Wisconsin*. Biostatistics, survival analysis.

Esther Arkin, *Associate Professor, Ph.D., Stanford University*: Computational geometry; combinatorial optimization.

Edward J. Beltrami, *Professor, Ph.D., Adelphi University*: Optimization; stochastic models.

Yung Ming Chen, *Emeritus Professor, Ph.D., New York University*: Partial differential equations; inverse problems.

Yuefan Deng, *Associate Professor, Ph.D., Columbia University*: Computational fluid dynamics; parallel computing.

Vaclav Dolezal, *Professor Emeritus, Sc.D., Czechoslovak Academy of Science*: Distribution theory; systems theory.

Stephen Finch, *Associate Professor, Ph.D., Princeton University*: Applied statistics.

Robert Frey, *Adjunct Assistant Professor, Ph.D., State University of New York at Stony Brook*: Operations research.

James Glimm, *Distinguished Professor, Ph.D., Columbia University*: Mathematical physics; nonlinear physics.

Sheldon Gordon, *Adjunct Professor, Ph.D., McGill University*: Mathematics education.

John Grove, *Adjunct Professor, Ph.D., Ohio State University*: Conservation laws; computational fluid dynamics.

Woo Jong Kim, *Professor, Ph.D., Carnegie Mellon University*: Ordinary differential equations.

Xiao Lin Li, *Associate Professor, Ph.D., Columbia University*: Computational applied mathematics.

Brent Lindquist, *Professor, Ph.D., Cornell University*: Computational fluid dynamics; reservoir modeling.

Nancy Mendell, *Professor, Ph.D., University of North Carolina at Chapel Hill*: Biostatistics; statistical genetics.

Joseph Mitchell, *Associate Professor, Ph.D., Stanford University*: Computational geometry, Recipient of the State University Chancellor's Award for Excellence in Teaching, 1996.

Bradley Plohr, *Professor, Ph.D., Princeton University*: Conservation laws; computational fluid dynamics.

David Sharp, *Adjunct Professor, Ph.D., California Institute of Technology*: Mathematical physics.

Ram P. Srivastav, *Professor, D.Sc., University of Glasgow; Ph.D., University of Lucknow*: Integral equations; numerical solutions.

David Stoltz, *Assistant Professor, Ph.D., State University of New York at Stony Brook*: Conservation laws, computational fluid dynamics.

Michael Taksar, *Professor, Ph.D., Cornell University*: Stochastic processes.

Reginald P. Tewarson, *Professor, Ph.D., Boston University*: Numerical analysis; biomathematics.

Alan C. Tucker, *Distinguished Teaching Professor, Ph.D., Stanford University*: Combinatorics; applied models. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1974.

Kenny Ye, *Assistant Professor, Ph.D., University of Michigan*: Design of experiments, industrial statistics.

Qiang Zhang, *Associate Professor, Ph.D., New York University*: Scientific computing; computational fluid dynamics.

Wei Zhu, *Assistant Professor, University of California, Los Angeles*: Biostatistics.

Affiliated Faculty

Hussein Badr, *Computer Science*

Pradeep Dubey, *Economics*

Eugene Feinberg, *Harriman School*

David Ferguson, *Technology and Society*

Roger Grimson, *Preventive Medicine*

Abraham Neyman, *Economics*

Steven Skiena, *Computer Science*

Jadranka Skorin-Kapov, *Harriman School*

Judith Tanur, *Sociology*

Armen Zemanian, *Electrical Engineering*

Adjunct Faculty

Estimated number: 2

Teaching Assistants

Estimated number: 20

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 used 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. Students interested in environmental issues should consider the department's track in applied environmental science. This track, run jointly by AMS and the Marine Sciences Research Center, provides a multidisciplinary perspective combined with strong technical training.

About half of the applied mathematics majors enter graduate or professional programs, primarily 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 assists them in choice of schools and provides information about Graduate Record Examinations, etc. Students considering secondary school mathematics teaching can major in applied mathematics and statistics or in mathematics.

Courses Offered in Applied Mathematics and Statistics

AMS 101-C Applied Precalculus

AMS 102-C Elements of Statistics

AMS 110 Probability and Statistics in the Life Sciences

AMS 151, 161 Applied Calculus I, II

AMS 194-C Patterns of Problem Solving

AMS 201 Matrix Methods and Models

AMS 210 Applied Linear Algebra

AMS 236 Statistics in Engineering Quality Control

AMS 261 Applied Calculus III
 AMS 294 Statistical Laboratory
 AMS 300 Writing in Applied Mathematics
 AMS 301 Finite Mathematical Structures
 AMS 303 Graph Theory
 AMS 310 Survey of Probability and Statistics
 AMS 311 Probability Theory
 AMS 312 Mathematical Statistics
 AMS 315 Data Analysis
 AMS 318 Theory of Interest
 AMS 321 Computer Projects in Applied Mathematics
 AMS 322 Groundwater Modeling
 AMS 326 Numerical Analysis
 AMS 331 Mathematical Modeling
 AMS 335 Game Theory
 AMS 341 Operations Research I: Deterministic Models
 AMS 342 Operations Research II: Stochastic Models
 AMS 351 Applied Algebra
 AMS 361 Applied Calculus IV: Differential Equations
 AMS 373 Analysis of Algorithms
 AMS 410 Actuarial Mathematics
 AMS 421 Statistical Quality Control and Design of Experiments
 AMS 441 Business Strategy
 AMS 475 Undergraduate Teaching Practicum
 AMS 487 Research in Applied Mathematics
 AMS 492 Topics in Applied Mathematics

Sample Course Sequence in the Applied Mathematics and Statistics Major

Freshman Fall	Credits
D.E.C. A	3
AMS 151*	3
D.E.C.	3
D.E.C.	3
D.E.C.	3
Total	15

Spring	Credits
AMS 161*	3
D.E.C.	3
D.E.C.	3
CSE 110*	3
D.E.C.	3
Total	15

Sophomore Fall	Credits
AMS 210	3
AMS 261	4
D.E.C.	3
D.E.C.	3
D.E.C.	3
Total	16

Spring	Credits
AMS 301	3
AMS 310	3
Elective	3
AMS Upper Division elective	3
AMS Upper Division elective	3
Total	15

Junior Fall	Credits
AMS Upper Division elective	3
Upper Division elective	3
AMS Upper Division elective	3
AMS Upper Division elective or ECO 321	4
AMS Upper Division elective	3
Total	16

Spring	Credits
Upper Division Elective	3
Upper Division Elective	3
Related Area course**	3
Elective	3
Elective	3
Total	15

Senior Fall	Credits
AMS 300	1
Upper Division Elective	3
Upper Division Elective	3
Related Area course**	3
Related Area course**	3
Elective	3
Total	16

Spring	Credits
Related Area course**	3
Related Area course**	3
Elective	3
Elective	3
Total	12

* See A. 1. and 2. for alternate course selections.

**Consult the department for appropriate courses.

Acceptance into the Applied Mathematics and Statistics Major

Qualified freshman and transfer students who have indicated their interest in the major on their applications are accepted directly into the major upon admission to the University. Students who did not apply for the major and those who were not accepted into the major when they entered the University may apply directly to the department only after completion of AMS 161 or MAT 132 or 142 or 127; AMS 210 or MAT 211; and CSE 110 or 114 or MEC 111.

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, totaling approximately 60 credits, are required (Note: the applied environmental science track has different requirements, given below):

A. Study Within the Area of the Major

- AMS 151, 161 Applied Calculus I, II
 AMS 210 or MAT 211 Applied Linear Algebra
 AMS 261 or MAT 203 or MAT 205 Applied Calculus III

Note: The following alternate calculus course sequences may be substituted for AMS 151, 161 in major requirements or prerequisites:

- MAT 125, 126, 127
 or MAT 131, 132
 or MAT 141, 142

- CSE 110 Introduction to Computer Science
 or CSE 114 Computer Science I
 or MEC 111 Computer Science for Engineers
- 24 credits of AMS courses numbered 301 and above including AMS 301 Finite Mathematical Structures

and either AMS 310 Survey of Probability and Statistics or AMS 311 Probability Theory. (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 upper division mathematically oriented courses. Typically approved substitutions are ECO 321, ECO 348, and all courses designated CSE numbered 301 and above and MAT 310 and above.)

4. Upper Division Writing Requirement

All degree candidates must demonstrate skill in written English at a level acceptable for applied mathematics and statistics majors. AMS students 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 passes 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.

B. Study in Related Areas

To gain a background in fields that generate mathematical applications, a minimum of 14 additional credits are 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.

Grading

All courses taken to satisfy requirements A 1, 2, and 3 above must be taken for a letter grade.

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 double major (or to minor) in another discipline. The most frequent choices of AMS double majors are computer science and economics.

Requirements for the Track in Applied Environmental Science

The departmental major also offers a specialized track in applied environmental sciences leading to the Bachelor of Science degree. The following courses, totaling approximately 74 credits, are required.

1. AMS 151, 161 Applied Calculus I, II

Note: The following alternate calculus course sequences may be substituted for AMS 151, 161 in major requirements or prerequisites:

MAT 125, 126, 127

or MAT 131, 132

or MAT 141, 142

2. CHE 131, 132 General Chemistry

3. PHY 131 Classical Physics I

4. CSE 110 Introduction to Computer Science

or CSE 114 Computer Science I

or MEC 111 Computer Science for Engineers

5. AMS 210 or MAT 211 Applied Linear Algebra

AMS 310 Survey of Probability and Statistics

AMS 315 Data Analysis

AMS 322 Groundwater Modeling

AMS 361 Applied Calculus IV

6. MAR 308 Principles of Instrumental Analysis

MAR/GEO 318 Engineering Geology and Coastal Processes

MAR 333 Coastal Oceanography

7. ATM 305 Global Atmospheric Change

ATM 397 Air Pollution and Its Control

8. One upper-division biology course chosen in consultation with the major advisor

9. 12 credits of course work from the following:

AMS 261 Applied Calculus III

AMS 326 Numerical Analysis

AMS 331 Mathematical Modeling

EST 290 Technology, Society, and Values: Balancing Risks and Rewards

EST 291 Energy, Environment, and People

GEO 101 Environmental Geology

GEO 111 Environmental Geology Lab

GEO 315 Groundwater Hydrology

MAR 212 Environmental Microbiology

MAR 304 Waves, Tides, and Beaches

MAR 334 Remote Sensing of the Environment

MAR 488 Internship

10. Upper-Division Writing Requirement

See note A.4 under Requirements for the Major in Applied Mathematics and Statistics.

Actuarial Science

The AMS major is equivalent to an actuarial science major. That is, the AMS major covers the mathematical sciences topics tested in the first five actuarial examinations. Examination 100 covers calculus and linear algebra (AMS 410 reviews this material); examination 110 covers probability and statistics (AMS 310, 311, and 312; AMS 301 is also helpful); examination 120 covers applied statistics (AMS 315); examination 130 covers operations research (AMS 341 and 342); and examination 135 covers numerical analysis (AMS 326). For more information about actuarial science as well as study materials to help prepare for actuarial examinations, students should see the department's actuarial advisor. Note that in the year 2000, the actuarial examinations will be restructured. See the website www.soa.org for details.

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, two semesters of physics numbered PHY 121 or higher, CSE 110 or 113, 114 or MEC 111; 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 303. The following list of course sequences for certain professions is given as a preliminary guide to students with interests in these professions. Students should speak with faculty members specializing in these areas as early as possible for more specific information.

Statistics: AMS 301, 310, 311, 312, 315, another CSE course beyond 110 or 114 or MEC 111; students considering graduate statistics programs should take MAT 310 and 320.

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.

Programmer-Analyst: AMS 301, 310, 311, 321, 326, 341, 361, and CSE 214, 220, and 301.

Applied Environmental Science: See requirements for applied environmental science track.

Secondary Teaching: Students preparing for a career as a teacher of mathematics in the secondary schools enroll in the Mathematics Teacher Preparation Program. See the Education and Teacher Preparation section in the College of Arts and Sciences Approved Programs listing.

Course Sequence in the Applied Mathematics and Statistics Major

Many students enter the University intending another major and change to the Applied Mathematics and Statistics major, or add it as a second major, toward the end of the sophomore year or in the junior year. Required courses for the major in the first two years are the calculus sequence and linear algebra—virtually the same mathematical requirements as found in the intended majors of students who subsequently switch to Applied Mathematics and Statistics.

The particular set of 300-level AMS courses taken in the junior and senior years by Applied Mathematics and Statistics majors, and the order in which they are taken, is very flexible. Normally, majors take AMS 301 and 310 (the two required 300-level AMS courses)

first. For assistance in 300-level AMS course sequences, majors are encouraged to speak with the department's Undergraduate Program Director.

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 120 credits for the B.S. degree, the student takes 30 graduate credits to fulfill the M.S. requirements in either applied mathematics, operations research, or statistics.

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 programmer analyst jobs).

For more details about the B.S./M.S. program, see the undergraduate program director or graduate studies director in the Department of Applied Mathematics and Statistics.

The Minor in Applied Mathematics and Statistics

The minor in applied mathematics and statistics is designed for students who take a limited amount of mathematics in their major. The AMS minor must include at least 18 credits in courses that are not used to satisfy the requirements of the student's primary major; therefore, students in majors requiring a substantial amount of mathematics may find that a double major with AMS requires fewer credits.

- A. Calculus: AMS 151, 161 (See note.)
- B. Linear algebra: AMS 210 or MAT 211 (Students who took AMS 201 prior to declaring the AMS minor may substitute AMS 201)
- C. Core AMS courses: AMS 301 and 310
- D. AMS electives: two additional 300-level AMS courses

Note: The following alternate calculus course sequences may be substituted for

AMS 151, 161 in major requirements or prerequisites:

- MAT 125, 126, 127
or MAT 131, 132
or MAT 141, 142

BNG

Interdisciplinary Minor in Bioengineering

DIRECTOR: Kenneth McLeod, School of Medicine ADMINISTRATIVE ASSISTANT: Anne-Marie Dusatko
OFFICE: HSC T18-030 PHONE: 444-2302 E-MAIL: anne.dusatko@sunysb.edu FAX: 444-7671

Faculty

Kenneth McLeod, *Associate Professor, Ph.D., Massachusetts Institute of Technology*: Joint appointment with Materials Science and Engineering; Electromagnetic interactions with living tissue, self-organization of tissues.

Partap Khalsa, *Assistant Professor, Ph.D., Worcester Polytechnic Institute*: Robotics, haptic interfaces in robotics, neural encoding.

Mark Otter, *Assistant Professor, Ph.D., University of Illinois*: Electrokinetic processes in physiologic systems, diagnostic instrumentation.

Clint Rubin, *Professor, Ph.D., University of Bristol*: Joint appointment with Mechanical Engineering; Adaptation of the skeletal system, therapeutic medical devices.

Yi-Xian Qin, *Assistant Professor, Ph.D., State University of New York at Stony Brook*: Fluid flow of porous structures, ultrasonic-based diagnostics.

Michael Hadjiargyrou, *Assistant Professor, Ph.D., City University of New York*: Gene expression during biophysical stimulation of tissues.

Affiliated Faculty

Danny Bluestein, *Mechanical Engineering*

Christopher Berndt, *Materials Science and Engineering*

Patrick Herley, *Materials Science and Engineering*

Jiahua Xu, *Dermatology*

The bioengineering minor is designed for College of Arts and Sciences students who wish to obtain a more thorough understanding of how physical forces in the natural world influence the development and history of plants, animals, and single cell organisms on earth. Coursework introduces these concepts and shows how an engineering approach can be useful in dealing with the natural world. The program serves as an excellent background for students who wish to prepare for graduate study in bioengineering or a related field or to prepare for a career in which an understanding of engineering concepts would provide an advantage.

Courses Offered in Bioengineering

BNG 201-H Engineering Responses to Society

BNG 301 Bioelectricity

BNG 302 Biofluids

BNG 303 Biomechanics

BNG 401 Design in Bioengineering

BNG 499 Research in Bioengineering

Requirements for the Minor in Bioengineering

Completion of the minor requires 21-23 credits. All courses for the minor must be passed with a letter grade of C or higher.

A. Required Courses

- BIO 201 Fundamentals of Biology: Organisms to Ecosystems
or BIO 202 Fundamentals of Biology: Molecular and Cellular Biology
or BIO 203 Fundamentals of Biology: Cellular and Organ Physiology
(depending on courses chosen to satisfy requirement B. Electives.)
- ESG/BNG 201 Engineering Responses to Society
- Two 300-level BNG courses
- BNG 401 Design Problems in Bioengineering

B. Electives

Two courses chosen from:

- ATM 397 Air Pollution and Its Control
- BIO/EST 307 Computer Modeling in Biological Systems
- BIO 315 Microbiology
- BIO 328 Mammalian Physiology
- BIO 330 Comparative Physiology
- BIO 335 Animal Physiology Laboratory
- BIO 347 Botany and Biotechnology

BIO 350 Darwinian Medicine

BIO/GEO 353 Marine Ecology

CHE 310 Chemistry in Technology and the Environment

ENS 443 Environmental Problem Solving

ESM 353 Biomaterials: Manufacture, Properties, and Applications

EST 330 Natural Disasters: Societal Impacts and Technological Solutions

GEO/MAR 318 Engineering Geology and Coastal Processes

HMC/SOC 200 Medicine and Society

HMC 331 Legal and Ethical Issues in Health Care

MAR 334 Remote Sensing of the Environment

MAR 340 Environmental Problems and Solutions

MEC 381 Transport and Fate of Pollutants

PHY 403 Non-Linear Dynamics

Notes:

- Students are strongly encouraged to complete two from BIO 201, 202, and 203.
- Other electives may be substituted for Requirement B. Electives, with permission of the director.

BES

Interdisciplinary Minor in Biomedical Engineering

CHAIRPERSON: Michael Dudley, Materials Science and Engineering UNDERGRADUATE PROGRAM DIRECTOR: Christopher C. Berndt
ADMINISTRATIVE ASSISTANT: Gertha Benoit-Hollis

OFFICE: 314 Engineering PHONE: 632-8484 E-MAIL: ghollis@notes.cc.sunysb.edu WEB ADDRESS: <http://doL1.eng.sunysb.edu/>

Biomedical Engineering

The minor in Biomedical Engineering is designed for students enrolled in programs leading to the Bachelor of Engineering (B.E.) degree who wish to obtain an understanding of how materials interact with the human body and how engineering materials can be designed to serve physiological functions. The minor includes a comprehensive selection of courses in materials science, biomechanics, and biology as well as study of fluids and electricity as they relate to human physiology. The program serves as an excellent background for engineering students who wish to prepare for graduate education in medicine, bioengineering, and the biosciences or a related field, or to prepare for a career in which an understanding of biological concepts is essential.

Requirements for the Minor

Completion of the minor requires 21-23 credits in addition to courses counting towards the requirements for the majors. Electrical Engineering (ESE), Engineering Science (ESG), and Mechanical Engineering (MEC) majors may choose to complete the sequence of courses for the minor as they relate to their major program. An example of the minor course list for each is listed below, but students should contact the Department of Materials Science and Engineering, Engineering Building, Room 314, as early as possible for detailed requirements.

Students majoring in Electrical or Computer Engineering:

1. ESE 304 Electronic Instrumentation and Operational Amplifiers
2. ESE 318 Digital Systems Design
3. ESE 380 Embedded Microprocessor Systems Design I
4. ESM 353 Biomaterials: Manufacture, Properties, and Applications
5. Three courses chosen from:
BNG 301 Bioelectricity

BNG 302 Biofluids

BNG 303 Biomechanics

BNG 401 Design in Bioengineering

4. Two courses chosen from:

BIO 202 Fundamentals of Biology: Molecular and Cellular Biology

BIO 203 Fundamentals of Biology: Cellular and Organ Physiology

BIO 328 Mammalian Physiology

BIO 361 Biochemistry I

CHE 321 Organic Chemistry

ESG 332 Materials Science I: Structure and Properties of Materials

5. BNG/ESG 201 Engineering Responses to Society

Students majoring in Engineering Science:

1. ESM 334 Materials Engineering
 2. ESM 335 Mechanical Properties of Materials
 3. ESM 353 Biomaterials: Manufacture, Properties, and Applications
 4. ESG 332 Materials Science I: Structure and Properties of Materials
 5. Three courses chosen from:
BNG 301 Bioelectricity
BNG 302 Biofluids
BNG 303 Biomechanics
BNG 401 Design in Bioengineering
 6. One course chosen from:
BIO 202 Fundamentals of Biology: Molecular and Cellular Biology
BIO 203 Fundamentals of Biology: Cellular and Organ Physiology
BIO 328 Mammalian Physiology
BIO 361 Biochemistry
CHE 321 Organic Chemistry
 7. BNG/ESG 201 Engineering Responses to Society
- #### Students majoring in Mechanical Engineering:
1. MEC 310 Introduction to Machine Design
 2. MEC 410 Design and Analysis of Machine Elements

3. ESG 332 Materials Science I: Structure and Properties of Materials

4. ESM 353 Biomaterials: Manufacture, Properties, and Applications

5. Three courses chosen from:

BNG 301 Bioelectricity

BNG 302 Biofluids

BNG 303 Biomechanics

BNG 401 Design in Bioengineering

6. Two courses chosen from:

BIO 202 Fundamentals of Biology: Molecular and Cellular Biology

BIO 203 Fundamentals of Biology: Cellular and Organ Physiology

BIO 328 Mammalian Physiology

BIO 361 Biochemistry I

CHE 321 Organic Chemistry

7. BNG/ESG 201 Engineering Responses to Society

BUS

W. Averell Harriman School for Management and Policy

DIRECTOR: Thomas R. Sexton UNDERGRADUATE PROGRAM DIRECTOR: Carl J. Allocca
 OFFICE OF STUDENT SERVICES: Maria Moore, Patrice Virgilio
 OFFICE: 102 Harriman Hall PHONE: 632-7171 E-MAIL: oss@notes.cc.sunysb.edu FAX: 632-8181
 WEB ADDRESS: www.ceas.sunysb.edu/HAR/index.html

Minors or other majors of particular interest to students majoring in business management: applied math & statistics (AMS), computer science (CSE), economics (ECO), psychology (PSY)

Faculty

Carl J. Allocca, *CPA, Lecturer, Long Island University, C.W. Post*: Public and private accounting, auditing, taxation and internal systems development, conversion and review.

Stanley M. Altman, *Ph.D., Polytechnic Institute of Brooklyn*: Health care management and policy; finance.

T. Owen Carroll, *Associate Professor, Ph.D., Cornell University*: Management information systems; finance. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1974.

Jeff T. Casey, *Associate Professor, Ph.D., University of Wisconsin, Madison*: Organizational behavior; decision making.

Eugene A. Feinberg, *Professor, Ph.D., Vilnius University*: Operations management; operations research.

Herbert F. Lewis, *Visiting Assistant Professor, Ph.D., State University of New York at Stony Brook*: Operations research; operations management.

Manuel London, *Professor and Director of Labor Management Studies Program, Ph.D., Ohio University*: Personnel; promotion policies; management training; assessment centers.

Sanal K. Mazvancheryl, *Assistant Professor, M.B.A., Indian Institute of Management*: Marketing; consequences of customer satisfaction; industrial organization models in marketing.

Anne Preston, *Associate Professor, Ph.D., Harvard University*: Labor economics; nonprofit organizations.

Thomas R. Sexton, *Associate Professor, Ph.D., State University of New York at Stony Brook*: Operations research; statistics; health care management; productivity analysis.

Jadranka Skorin-Kapov, *Associate Professor, Ph.D., University of British Columbia*: Management science; mathematical programming with applications; artificial intelligence.

Gerrit Wolf, *Professor, Ph.D., Cornell University*: Decision and organizational behavior.

Affiliated Faculty

Donald P. Harrington, *Radiology*

Lee E. Koppelman, *Political Science*

Alan Leiken, *Health Technology and Management*

Robert Nathans, *Physics*

Mark Schneider, *Political Science*

John T. Scholz, *Political Science*

Michael Taksar, *Applied Mathematics and Statistics*

Paul E. Teske, *Political Science*

Adjunct Faculty

Estimated Number: 17

The W. Averell Harriman School for Management and Policy offers undergraduate students a major and a minor in business management. The major program stresses the role of business managers in today's society while providing a solid foundation of essential concepts and applications relevant to all areas of management and organizational decision making.

The primary purpose of the business management major is to develop and enhance general managerial skills while creating an overall awareness of the interrelationship and interdependency of various financial, economic and administrative considerations within a business environment. Additional concepts presented include data management, systems evaluation, resource allocation and utilization, strategic planning, assessment and monitoring.

The business management program provides students with the necessary career skills to obtain diverse and innovative managerial and professional positions in all areas of business. Career opportunities include management positions in manufacturing companies, business and management consulting, financial planning and banking, sales management, marketing and human resource administration.

Courses offered in Business Management

BUS 114 Financial Accounting

BUS 214 Managerial Accounting

BUS 339 The Nonprofit Sector: Institutions, Policy, and Practice

BUS 340 Management Information Systems

BUS 341, 342 Special Topics in Management

BUS 343 Expert Systems in Business

BUS 346 Operations Management

BUS 347 Business Ethics

BUS 348 Principles of Marketing

BUS 349 Management Science

BUS 351 Human Resource Management

BUS 353 Entrepreneurship

BUS 355-F Investment Analysis

BUS 356 Financial Engineering

BUS 440 International Management

BUS 441 Business Strategy

BUS 475, 476 Undergraduate Teaching Practicum I, II

BUS 487 Independent Research

BUS 488 Internship

Acceptance to the Major

Qualified freshman and transfer students who have indicated their interest in the major on their applications are accepted directly into the major upon admission to the University. Students who did not apply for the major and those who were not accepted into the major when they entered the University may apply to the major at any time during their academic career provided that their cumulative grade point average (including, for transfer students, coursework completed at other institutions) is 3.0 (B) or higher. Students seeking admission to the major should contact the Harriman Student Services Office, Harriman Hall, room 102.

Requirements for the Major in Business Management

The major in business management leads to the Bachelor of Science degree. The

following courses, totaling 66-69 credits, are required:

A. Required Courses

1. Accounting
 - BUS 114 Financial Accounting
 - BUS 214 Managerial Accounting
2. Data Management
 - AMS 102 Elements of Statistics
 - BUS 340 Management Information Systems
 One of the following:
 - AMS 315 Data Analysis
 - ECO 320 Mathematical Statistics
3. Human Resources
 - One of the following:
 - PSY 103 Introduction to Psychology
 - SOC 105 Introduction to Sociology
 - One of the following:
 - BUS 347 Business Ethics
 - BUS 351 Human Resource Management
 - SOC 381 Sociology of Organizations
4. Economics and Finance
 - ECO 107 Introduction to Economic Reasoning
 - ECO 109 Introduction to Analytical Economics
 - ECO 303 Intermediate Microeconomic Theory
 - One of the following:
 - BUS 355 Investment Analysis
 - ECO 389 Corporate Finance
5. Modeling and Operations Management
 - MAT 122 Overview of Calculus with Applications *or* MAT 123 Introduction to Calculus
 - AMS 201 Matrix Methods and Models
 - BUS 346 Operations Management
 - BUS 349 Management Science
6. Business Environment
 - BUS 440 International Management
 - POL 319 Business Law
7. Marketing and Business Strategy
 - BUS 348 Principles of Marketing
 - BUS 441 Business Strategy

One or more of the following courses may be substituted for elective courses with the approval of the undergraduate pro-

gram director: BUS 341, 342 Special Topics in Management, BUS 475, 476 Undergraduate Teaching Practicum I, II, BUS 487 Independent Research, and BUS 488 Internship.

B. Electives

Two courses chosen from one of the following groups. Any course taken to fulfill the required courses *cannot* be used to satisfy the elective area.

1. Economics and Finance
 - BUS 339 The Non-Profit Sector: Institutions, Policy, and Practice
 - BUS 353 Entrepreneurship
 - BUS 355 Investment Analysis
 - BUS 356 Financial Engineering
 - ECO 305 Intermediate Macroeconomic Theory
 - ECO 321 Econometrics
 - ECO 326 Industrial Organization
 - ECO 360 Money and Banking
 - ECO 383 Public Finance
 - ECO 389 Corporate Finance
2. Organizational Theory and Behavior
 - BUS 339 The Nonprofit Sector: Institutions, Policy, and Practice
 - BUS 347 Business Ethics
 - BUS 351 Human Resource Management
 - BUS 353 Entrepreneurship
 - POL 364 Organizational Decision Making
 - SOC 317 Decisions, Uncertainty, and Individual Futures
 - SOC 381 Sociology of Organizations
3. Labor Markets and Human Resources
 - BUS 351 Human Resource Management
 - BUS 353 Entrepreneurship
 - ECO 318 Labor Economics
 - ECO 337 Advanced Labor Theory
 - SOC/WST 371 Gender and Work
4. Operations and Technology
 - AMS 341 Operations Research I: Deterministic Models
 - AMS 342 Operations Research II: Stochastic Models
 - BUS 343 Expert Systems in Business
 - BUS 353 Entrepreneurship
 - CSE/ISE 305 Principles of Database Systems

EST 305 Applications Software for Information Management

EST 325 Technology in the Workplace

EST 392 Engineering and Managerial Economics

5. Language and International Commerce

One of the following groups:

France

FRN 410 Business French

FRN 441 French Civilization

Italy

ITL 410 Business Italian

ITL 440 The Italian Scene

Germany

Any two of the following:

HUG 229 Germany Today (in English)

GER 311 German Conversation and Composition I

GER 312 German Conversation and Composition II

GER 431 Business German I

GER 432 Business German II

Spanish America

SPN 303 Practical Spanish

SPN 392 The Culture and Civilization of Spanish America

Note: Other language groups may be substituted with permission of the undergraduate program director.

C. Upper-Division Writing Requirement

All undergraduate business majors must successfully demonstrate the ability to communicate and express their ideas related to business and management in writing. A written portfolio of work is to be completed comprising three documents: 1) a resumé; 2) a letter of application for a real job advertised in a newspaper or other medium; and 3) a two-page memorandum describing the results of an analysis or similar topic appropriate to a business organization. Business majors work with their faculty advisor beginning the first semester of their junior year and complete this requirement prior to the conclusion of the junior year. The student should allow time for revisions which may be necessary to satisfy the requirement. A sample package of exhibits and additional information on the Upper Division Writing Requirement is available for a nominal charge from Solutions in the

campus bookstore. The faculty advisor gives a satisfactory (S) evaluation upon successful completion of the portfolio.

Grading

All courses taken to satisfy requirements A and B above must be taken for a letter grade. A grade of C or higher is required in the following courses: AMS 102; BUS 114, 214, 340, 346, 348, 349, 440, and 441; ECO 109; MAT 122 or 123; PSY 103; SOC 105.

The Minor in Business Management

The business management minor (BUS) is intended for students pursuing other majors who seek a foundation in business studies. The minor complements their chosen major by introducing them to principles and techniques used in business and management.

The minor can be completed with 22 credits provided that the appropriate prerequisite courses have been taken. Including the prerequisites, a total of 39 credits is necessary for completion of the minor. All courses must be taken for a letter grade.

1. BUS 340 Management Information Systems
or AMS 102 Elements of Statistics
2. ECO 303 Intermediate Microeconomic Theory
3. BUS 349 Management Science
4. Three courses from the following:
 - BUS 114 Financial Accounting
 - BUS 214 Managerial Accounting
 - BUS 346 Operations Management
 - BUS 347 Business Ethics or POL 319 Business Law
 - BUS 348 Principles of Marketing
 - BUS 351 Human Resource Management or POL 364 Organizational Decision Making or SOC 381 Sociology of Organizations
 - BUS 353 Entrepreneurship
 - BUS 355 Investment Analysis or BUS 356 Financial Engineering or ECO 383 Public Finance or ECO 360 Money and Banking or ECO 389 Corporate Finance
 - BUS 440 International Management
5. BUS 441 Business Strategy

Notes to Sample Course Sequence:

1. This is a suggested plan and not a required course sequence. Each student should select courses in a

Sample Course Sequence in the Business Management Major

Freshman Fall	Credits*
D.E.C. A	3
BUS 114	3
MAT 122 or 123	3
PSY 103 or SOC 105 or 106	3
D.E.C.	3
Total	15

Spring	Credits
AMS 102	3
ECO 109	4
D.E.C.	3
D.E.C.	3
D.E.C.	3
Total	16

Sophomore Fall	Credits
AMS 201	3
BUS 214	3
ECO 107	4
D.E.C.	3
D.E.C.	3
Total	16

Spring	Credits
D.E.C.	3
D.E.C.	3
D.E.C.	3
D.E.C.	3
D.E.C.	3
Total	15

Junior Fall	Credits
Begin upper division writing requirement	
BUS 340	3
BUS 349	3
BUS 347 or BUS 351 or SOC 381	3
AMS 315 or ECO 320	3-4
BUS 355 or ECO 389	3
Total	15-16

Spring	Credits
Complete upper division writing requirement	
BUS 346	3
BUS 348	3
ECO 303	4
BUS elective	3
BUS elective	3
Total	16

Senior Fall	Credits
BUS 440	3
POL 319	3
Upper Division BUS elective	3
Upper Division BUS elective	3
Upper Division BUS elective	3
Total	15

Spring	Credits
BUS 441	3
Upper Division BUS elective	3
Upper Division BUS elective	3
Upper Division BUS elective	3
Upper Division BUS elective	3
Total	15

sequence based on his/her specific circumstances. Students seeking additional guidance should consult their faculty advisor. The list of faculty advisors is available in the Harriman School's Office of Student Services, Harriman Hall, room 102.

2. Business management students are required to meet the same Diversified Education Curriculum (D.E.C.) requirements as those required by the College of Arts and Sciences and are encouraged to complete all D.E.C. requirements by the end of the sophomore year.
3. To accommodate students' schedules, most of the required BUS courses are offered in both semesters.
4. It is recommended that students take the business electives beginning in the

second semester of the junior year. Many business elective courses have prerequisites that must be completed in addition to the courses listed in the sample course sequence.

5. It is the student's responsibility to ensure that all prerequisites have been satisfied prior to registration for a specific course.
6. Students selecting the Foreign Language and International Commerce electives may use one intermediate course to fulfill D.E.C. Category I.

CSE

Department of Computer Science

CHAIRPERSON: David S. Warren UNDERGRADUATE PROGRAM DIRECTOR: Leo Bachmair UNDERGRADUATE SECRETARY: Grace Garufi
OFFICE 1440 Computer Science PHONE: 632-8470 E-MAIL: leo@cs.sunysb.edu or ggarufi@notes.cc.sunysb.edu WEB ADDRESS: www.cs.sunysb.edu
Minors of particular interest to students majoring in computer science: business management (BUS)

Faculty

Leo Bachmair, *Associate Professor, Ph.D., University of Illinois at Urbana-Champaign*: Computational logic; automated deduction; symbolic computation.

Hussein G. Badr, *Associate Professor, Ph.D., Penn State University*: Computer communication networks and protocols; performance evaluation, modeling and analysis.

Michael A. Bender, *Assistant Professor, Ph.D., Harvard University*: Algorithms; scheduling; asynchronous parallel computing.

Arthur J. Bernstein, *Professor, Ph.D., Columbia University*: Transaction processing; concurrent programming; distributed databases.

Tzi-cker Chiueh, *Associate Professor, Ph.D., University of California, Berkeley*: Processor architecture; parallel I/O; high-speed networks; compression.

W. Rance Cleaveland II, *Professor, Ph.D., Cornell University*: Specification and verification formalisms; automated verification algorithms and tools; models of concurrent computation.

Thomas J. Cortina, *Senior Lecturer, M.S., Polytechnic University*: programming methodology; computer science education; computer music.

Herbert L. Gelernter, *Professor Emeritus, Ph.D., University of Rochester*: Artificial intelligence; knowledge-based, heuristic problem-solving systems; scientific applications.

Jack Heller, *Professor Emeritus, Ph.D., Polytechnic Institute of Brooklyn*: Database systems; office automation; visualization.

Peter Henderson, *Professor, Ph.D., Princeton University*: Software engineering; programming environments; computer science education.

Arie Kaufman, *Leading Professor, Ph.D., Ben Gurion University, Israel*: Computer graphics; visualization; virtual reality; user interfaces; multimedia; computer architecture.

Michael Kifer, *Professor, Ph.D., Hebrew University of Jerusalem*: Database systems; logic programming; knowledge representation; artificial intelligence.

Ker-I Ko, *Professor, Ph.D., Ohio State University*: Computational complexity; theory of computation; computational learning theory.

Philip M. Lewis, *Professor, Ph.D., Massachusetts Institute of Technology*: Concurrency and concurrent systems; transaction processing systems; software engineering.

Theo Pavlidis, *Distinguished Professor, Ph.D.,*

University of California, Berkeley: Image processing; machine vision; computer graphics; window systems.

Shaunak Pawagi, *Lecturer, Ph.D., University of Maryland at College Park*: Analysis of algorithms; parallel computing.

Hong Qin, *Assistant Professor, Ph.D., University of Toronto*: Computer graphics; geometric modeling and design; physics-based animation and simulation; scientific computing and visualization; virtual environment; computer vision; medical imaging; applied mathematics.

C.R. Ramakrishnan, *Assistant Professor, Ph.D., SUNY at Stony Brook*: Logic Programming; programming Languages; verification.

I.V. Ramakrishnan, *Professor, Ph.D., University of Texas at Austin*: Computer Architecture; algorithms; rewrite systems.

Steven Skiena, *Associate Professor, Ph.D., University of Illinois at Urbana-Champaign*: Algorithms; computational biology; computational geometry.

David R. Smith, *Professor, Ph.D., University of Wisconsin, Madison*: Hardware description languages and synthesis; VLSI design tools; experimental chip architectures.

Scott A. Smolka, *Professor, Ph.D., Brown University*: Model checking; semantics of concurrency; CASE tools for safety-critical systems; distributed languages and algorithms.

Eugene W. Stark, *Associate Professor, Ph.D., Massachusetts Institute of Technology*: Programming language semantics; distributed algorithms; formal specifications; verification; theory of concurrency.

Vassilios Tsaoussidis, *Visiting Assistant Professor, Ph.D., Humboldt University*: Computer networks; network and application management; communication systems and protocols; resource management and quality of service.

Amitabh Varshney, *Assistant Professor, Ph.D., University of North Carolina at Chapel Hill*: Interactive 3D computer graphics; scientific visualization; parallel graphics algorithms; geometric modeling; computational geometry.

David S. Warren, *Professor, Ph.D., University of Michigan*: Logic programming; database systems; knowledge representation; natural language processing.

Anita Wasilewska, *Associate Professor, Ph.D., Warsaw University, Poland*: Data base mining; knowledge discovery in data bases; machine learning; uncertainty in expert systems; automated theorem proving.

Larry D. Wittie, *Professor, Ph.D., University of Wisconsin, Madison*: Superconducting computers and networks; massively parallel computation; computer architecture; distributed operating systems.

Affiliated Faculty

Esther Arkin, *Applied Mathematics and Statistics*

Jerome Liang, *Radiology*

Joseph Mitchell, *Applied Mathematics and Statistics*

Teaching Assistants

Estimated number: 33

Computer science is the study of computer systems, including the architecture of computers, development of computer software, information processing, computer applications, algorithmic problem-solving and the mathematical foundations of the discipline.

The computer science major provides professional education in computer science to prepare the student for graduate study or for a career in the computing field. Students learn concepts and skills needed for designing, programming, and applying computer systems while also learning the theoretical and mathematical foundations of computer science. They 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 utilize the flexibility of the program to satisfy the requirements of a second major for the bachelor's degree.

Many students prepare for their professional careers through internships at local companies. Computer science graduates are recruited heavily by technology and financial firms, primarily in the New York metropolitan area. Career opportunities include developing software systems for a diverse range of applications such as: user-interfaces; networks; databases; forecasting; world wide web support; and medical, communications, satellite, and embedded systems. Many are

employed in the telecommunication and financial industries. The explosive growth of the Internet provides numerous jobs for those familiar with Internet technology. A large number of graduates are self-employed, some as heads of software consulting companies. Approximately one third of the program's graduates pursue advanced degrees, some in fields such as law, business, medicine, finance, engineering, and other professions requiring strong technical knowledge and problem-solving skills.

The Department of Computer Science offers two undergraduate majors: Computer Science (CSE) and Information Systems (ISE). Requirements and courses for the latter appear under the program title in the alphabetical listing of Engineering and Applied Sciences programs. The two programs of study share a number of courses, particularly in the first two years, so that it is possible to follow a program that permits a student to select either major by the start of the junior year. The department also offers a minor in computer science.

Computing Facilities

Computing facilities for undergraduate students are maintained by both the University Computing Center and the Computer Science Department. For a description of the computing services provided by the University Computing Center see p. 19.

The department's primary computing facility for undergraduates is its Undergraduate Computing Laboratory which is regularly upgraded, keeping pace with advances in technology. The user area of the laboratory consists of 38 Pentium PC systems, plus laser printers and scanners. The FreeBSD operating system, a derivative of the 4.4BSD Unix system, serves as the main operating system for the laboratory, although the machines can also run MS-Windows. Supporting the user workstations are nine server systems and associated networking hardware. The Laboratory is connected to the Internet via a fiber optic link to the campus network. See www.ug.cs.sunysb.edu for more information.

The Computer Associates Transaction Processing Laboratory consists of 30 Pentium PC systems running Microsoft Windows NT on a TCP/IP network, and Windows NT servers supporting data-

base, file, and unsecured and secured Web services. This laboratory exposes students to real-world information systems architectures, such as multi-tiered transaction processing and web-based data access. It supports undergraduate courses on databases, transaction processing, graphics, and software engineering. A grant from Computer Associates has provided for expansion of the laboratory to 50 Pentium systems and a number of Xenon class systems to support remote access to all laboratory applications using a multi-user version of Microsoft Windows with Citrix Winframe extensions. See www.translab.cs.sunysb.edu for more information about this laboratory and planned expansions.

Other instructional computing facilities in the Computer Science department include the multimedia lab (see www.cvc.sunysb.edu/multi). For special projects undergraduates also have access to the departmental research laboratories.

Transfer Credits

Students wishing to transfer credits for courses equivalent to CSE 113, 114, 213, 214, or 220 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 113, 114, 213, 214, and 220 are given during the first week of each semester and may be given at the beginning of the first summer session.)

Challenge Examination Credits

A challenge examination is offered covering the syllabus of CSE 113 for students who feel they have mastered the material on their own. See also the section entitled "Challenge Program for Credit by Examination" in the University Studies chapter.

Courses Offered in Computer Science

CSE 101 Introduction to Computers and Information Technologies
 CSE 103 Introduction to the Internet
 CSE 106 Introduction to Moldula 3 Programming
 CSE 110 Introduction to Computer Science
 CSE 113 Foundations of Computer Science I

CSE 114 Computer Science I
 CSE 127 Introduction to C Programming
 CSE 213 Foundations of Computer Science II
 CSE 214 Computer Science II
 CSE 220 Computer Organization and Systems Programming
 CSE 230 Introduction to C and UNIX
 CSE 300 Writing and Oral Skills in Computer Science
 CSE 303 Introduction to the Theory of Computation
 CSE 304 Compiler Design
 CSE 305 Principles of Database Systems
 CSE 306 Operating Systems
 CSE 307 Principles of Programming Languages
 CSE 308 Software Engineering I
 CSE 309 Software Engineering II
 CSE 310 Data Communications and Networks
 CSE 315 Database Transaction Processing Systems
 CSE 326 Digital Image Processing
 CSE 327 Computer Vision
 CSE 328 Fundamentals of Computer Graphics
 CSE 332 Introduction to Scientific Visualization
 CSE 333 User Interface Development
 CSE 334 Introduction to Multimedia Systems
 CSE 345 Computer Architecture
 CSE 346 Computer Communication
 CSE 352 Artificial Intelligence
 CSE 366 Introduction to Virtual Reality
 CSE 371 Logic
 CSE 373 Analysis of Algorithms
 CSE 475 Undergraduate Teaching Practicum
 CSE 487 Research in Computer Science
 CSE 488 Internship
 CSE 491 Honors Seminar

Admittance to CSE and ISE Courses

For admittance to undergraduate computer science and information systems courses, students must have successfully completed the necessary prerequisite courses with a grade of C or higher.

Acceptance into the Computer Science Major

Qualified freshman and transfer applicants are accepted directly into the computer science major upon admission to the University. Currently enrolled students may be accepted into the major in one of two ways:

1. After completing CSE 113, 114, and AMS 151 and 161 (or MAT 125 and 126 or MAT 131 and 132), and earning a grade point average of 2.8 or higher in these courses with no grade in any of them lower than a C. Only one of these courses may be repeated.
2. Students not meeting condition 1 may still be admitted by petitioning the department. Acceptance will then be considered based upon the student's individual performance.

Requirements for the Major in Computer Science

The major in computer science leads to the Bachelor of Science degree. The following courses, totaling approximately 80 credits, are required. At least five upper-division courses from items 2, 3, and 4 below must be completed at Stony Brook.

1. Required Introductory Courses
 - CSE 113 Foundation of Computer Science
 - CSE 114 Computer Science I
 - CSE 213 Foundations of Computer Science II
 - CSE 214 Computer Science II
 - CSE 220 Computer Organization and Systems
2. Required Advanced Courses
 - CSE 303 Introduction to the Theory of Computation
 - CSE 308 Software Engineering I
 - CSE 309 Software Engineering II
 - AMS/CSE/MAT 373 Analysis of Algorithms
3. Three courses chosen from:
 - CSE 304 Compiler Design
 - CSE 305 Principles of Database Systems
 - CSE 306 Operating Systems
 - CSE 307 Principles of Programming Languages
 - CSE 328 Fundamentals of Computer Graphics
 - either CSE/ESE 345 Computer Architecture or ESE 380 Embedded

Sample Course Sequence in the Computer Science Major

Freshman Fall	Credits
D.E.C. A	3
CSE 106	1
CSE 113	3
AMS 151	3
Natural science course	4
Total	14

Spring	Credits
CSE 114	3
AMS 161	3
Natural science course	4
D.E.C.	3
D.E.C.	3
Total	16

Sophomore Fall	Credits
CSE 213	4
CSE 214	3
MAT 211 or AMS 210	3
Quantitative studies course	3
D.E.C.	3
Total	16

Spring	Credits
CSE 220	4
AMS 301	3
AMS 310	3
Quantitative studies course	3
D.E.C.	3
Total	16

Junior Fall	Credits
ESE 318	3
CSE Upper Division elective	3
D.E.C.	3
CSE 373	3
Elective	3
Total	15

Spring	Credits
CSE 303	3
CSE Upper Division elective	3
D.E.C.	3
Elective	3
Elective	3
Total	15

Senior Fall	Credits
CSE 308	3
CSE 300	1
CSE Upper Division elective	3
D.E.C.	3
Elective	3
Total	13

Spring	Credits
CSE 309	3
CSE Upper Division elective	3
CSE Upper Division elective	3
Elective	3
Elective	3
Total	15

4. Microprocessor Systems Design I *but not both*
4. Two additional upper-division CSE or ISE courses (excluding CSE or ISE 475 and ISE 440 and 441). Only one of the two courses may be CSE or ISE 488.
5. AMS 151, 161 Applied Calculus I, II
Note: The following alternate calculus course sequences may be substituted for AMS 151, 161 in major requirements or prerequisites: MAT 125, 126, 127, or MAT 131, 132, or MAT 141, 142. Equivalency for MAT courses achieved through the Mathematics Placement Examination is accepted to meet MAT course requirements.
6. One of the following:
 - MAT 211 Introduction to Linear Algebra
 - AMS 210 Applied Linear Algebra
 - AMS 326 Numerical Analysis
7. AMS 301 and AMS 310 or 311 or 312
8. ESE 318
9. One of the following natural science sequences:
 - Two courses from: BIO 201, 202, 203 Fundamentals of Biology
 - CHE 131, 132 or CHE 141, 142 General Chemistry
 - GEO 102/112 The Earth/Physical Geology Lab or GEO 122 Physical Geology; and GEO 309 Structural Geology
 - PHY 131, 132 or PHY 141, 142 or PHY 125, 126, 127 Classical Physics
 - PHY 125 or PHY 131 or PHY 141 Classical Physics and AST 203 Astronomy

10. Six credits from courses in quantitative studies, which can be additional courses from the natural science sequences (see 9 above); or other courses with a strong quantitative studies component, such as ECO 109, BUS 114, 214, POL 201, PSY 201 or SOC 201, 202. Students wishing to take other courses to fulfill the quantitative studies requirement must obtain the approval of the Computer Science Department.

11. Upper-Division Writing and Oral Skills Requirement

All degree candidates must demonstrate writing skills and oral communication skills in English at a level acceptable for computer science majors. To satisfy the requirement, the CSE student must submit a technical paper on an appropriate computer science topic that illustrates the student's ability to write in a clear, concise, technical, and organized manner. Students must successfully complete and submit the technical paper in order to be permitted to register for the writing and oral skills course CSE 300. Students must also give an oral presentation that demonstrates the student's ability to use the spoken word to communicate effectively with other suitably trained technical persons.

The oral skills portion of the requirement is met by giving a presentation of the technical paper described above, by serving as an undergraduate teaching assistant in a computer science course and leading a recitation lecture, or by some other suitable presentation approved by a Computer Science faculty member. Students whose writing or speaking does not meet the required standards are directed to seek remedial help and resubmit their work or repeat their presentation.

Notes: All students are encouraged to discuss their program with an undergraduate advisor. In requirement 2 above, CSE/ESE double majors may substitute ESE 440, 441 Electrical Engineering Design I, II for CSE 308, 309 Software Engineering I, II provided that the design project contains a significant software component. Approval of the Computer Science Department is required.

Grading

All courses taken to satisfy requirements 1 through 10 must be passed with a letter grade of C or higher. A grade of

C or higher is also required in prerequisite courses listed for all CSE and ISE courses.

Suggested Elective Courses

Students are encouraged to pursue a program that provides 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/ISE 305; CSE 306; ISE 315

Hardware: CSE 306; CSE/ESE 345, 346; ESE 380

Operating Systems: CSE 306, 307; CSE/ESE 345

Programming Languages and Software Engineering: CSE/ISE 302; CSE 304, 307

Theory: CSE 303; CSE/MAT 371; CSE/AMS/MAT 373

Graphics: CSE 328, 332, 333

Multimedia: CSE 333, 334

Computer Networks and Communications: CSE/ESE 346; CSE/ISE 310

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 "Permission to Take Graduate Courses" in the College of Engineering and Applied Sciences chapter). Students should consult early with faculty members of the Department of Computer Science to plan their programs.

Concentration in Computer-Human Interaction

The concentration in computer-human interaction requires four courses. The psychology aspect of the concentration deals with the design of effective computer-human interactions; the computer science aspect deals with the technical design and implementation of the systems for those interactions. A student is considered to be a participant in the program after successfully completing courses 1 and 2 below.

1. CSE/ISE 333 User Interface Development
2. PSY 260 Survey of Cognition and Perception

3. The concentration requires completion of at least two electives from the following list:

CSE 328 Fundamentals of Computer Graphics

CSE/ISE 332 Introduction to Scientific Visualization

CSE 334 Introduction to Multimedia Systems

PSY 384 Research Lab: Human Factors

ISE 440 Information Systems Design I

ISE 441 Information Systems Design II

The Minor in Computer Science

The minor in computer science is open to all students not majoring in either computer science or information systems. The minor requires six CSE or ISE courses, totaling approximately 21 credits, as outlined below.

1. Three courses from the core sequence: CSE 113, 114, 213, 214, and 220.
2. Three upper-division CSE or ISE courses, excluding CSE and ISE 300.

Of these six courses, not more than two may be crosslisted (specifically CSE 326/ESE 357; CSE 327/ESE 358; CSE/ESE 345; CSE/ESE 346; CSE/MAT 371; CSE/AMS/MAT 373).

Additional upper-division courses may be substituted for lower-division courses with departmental approval.

Joint B.S./M.S. Program in Computer Science

Computer science majors may apply for admission to a special program that leads 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. Students usually apply to the program in their junior year.

Students must satisfy the respective requirements of both the B.S. degree and the M.S. degree, but the main advantage of the program is that six credits may be simultaneously applied to both the undergraduate and graduate requirements. The M.S. degree can therefore be earned in less time than that required by the traditional course of study.

For more details about the B.S./M.S. program, see the the undergraduate or graduate program director in the Department of Computer Science.

ESE, ECE

Department of

Electrical and Computer Engineering

CHAIRPERSON: Serge Luryi UNDERGRADUATE PROGRAM DIRECTOR: Petar M. Djuric UNDERGRADUATE SECRETARY: Carolyn Huggins
OFFICE: 267 Light Engineering PHONE: 632-8415 E-MAIL: postmaster@sbee.sunysb.edu WEB ADDRESS: www.ee.sunysb.edu

Minors of particular interest to students majoring in electrical or computer engineering: applied mathematics and statistics (AMS), computer science (CSE), science and engineering (LSE)

Faculty

Gregory L. Belenky, *Associate Professor, Ph.D., Institute of Semiconductors, Kiev, Ukraine; D.Sc., Institute of Physics and Mathematics, Baku, Russia*: Semiconductor devices; physics and technology; lasers for telecommunication.

Bradley Carlson, *Associate Professor, Ph.D., Syracuse University*: VLSI; circuit design, parallel and distributed computing.

Chi-Tsong Chen, *Professor, Ph.D., University of California, Berkeley*: Systems and control theory; digital signal processing.

Harbans S. Dhadwal, *Associate Professor, Ph.D., University of London*: Fiber-optic sensors, optical signal processing, photon correlation spectroscopy, inverse problems.

Petar M. Djuric, *Associate Professor, Ph.D., University of Rhode Island*: Signal processing; systems theory.

Mikhail N. Dorojevets, *Assistant Professor, Ph.D., Russian Academy of Sciences, Novosibirsk*: Parallel computer architecture; high-performance systems design.

Vera Gorfinkel, *Associate Professor, Ph.D., A.F. Ioffe Physical-Technical Institute, St. Petersburg, Russia*: Semiconductor devices, including microwave and optoelectronics.

Ridha Kamoua, *Assistant Professor, Ph.D., University of Michigan*: Solid-state devices and circuits; microwave devices and integrated circuits.

Serge Luryi, *Professor, Ph.D., University of Toronto*: High speed solid-state electronic and photonic devices, semiconductor physics and technology.

Velio A. Marsocci, *Distinguished Service Professor, Eng.Sc.D., New York University*: Solid-state electronics; integrated electronics; biomedical engineering.

John Murray, *Associate Professor, Ph.D., University of Notre Dame*: Signal processing; systems theory.

Jayantkumar P. Parekh, *Professor, Ph.D., Polytechnic Institute of Brooklyn*: Microwave acoustics; microwave magnetics; microwave electronics; microcomputer applications.

Nam Phamdo, *Assistant Professor, Ph.D., University of Maryland at College Park*: Data compression and coding.

Stephen S. Rappaport, *Professor, Ph.D., New York University*: Communication theory; systems theory.

Thomas G. Robertazzi, *Associate Professor,*

Ph.D., Princeton University: Computer communications; performance evaluation; parallel processing.

Yacov Shamash, *Professor, Ph.D., Imperial College*: Control systems and robotics.

Kenneth L. Short, *Professor, Ph.D., State University of New York at Stony Brook*: Digital system design; embedded microprocessor systems; instrumentation. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1985, and the President's Award for Excellence in Teaching, 1985.

Muralidhara Subbarao, *Associate Professor, Ph.D., University of Maryland at College Park*: Computer vision; image processing.

Stephen E. Sussman-Fort, *Associate Professor, Ph.D., University of California, Los Angeles*: Electronic circuits, CAD, solid-state electronics, electromagnetics; semiconductor devices.

Wendy K. Tang, *Associate Professor, Ph.D., University of Rochester*: Parallel and distributed processing; massively parallel systems; computer architecture; neural networks.

Hang-Sheng Tuan, *Professor, Ph.D., Harvard University*: Electromagnetic theory; integrated optics; microwave acoustics.

Armen H. Zemanian, *Professor, Eng.Sc.D., New York University*: Network theory; VLSI modeling.

Affiliated Faculty

Gene R. Gindi, *Radiology*

John H. Marburger, *Physics*

Theo Pavlidis, *Computer Science*

David R. Smith, *Computer Science*

Adjunct Faculty

Estimated number: 3

Teaching Assistants

Estimated number: 30

The Department of Electrical and Computer Engineering offers two majors leading to the Bachelor of Engineering (B.E.) degree. The department's teaching and research areas include computer engineering, computer networks, microprocessors, computer architecture, communications, signal and image processing, pattern recognition, electronic circuits, solid-state electronics, lasers and fiber-optics, electromagnetics, microwave electronics, systems

and control, biomedical engineering, VLSI, computer-aided design, parallel and distributed processing, computer vision, and computer graphics.

The objective of the Electrical and Computer Engineering programs is to give students an excellent preparation for professional careers or graduate studies in the electrical and computer engineering fields. The programs are developed to provide students with depth and breadth of knowledge in engineering science and engineering design as well as in mathematics and the natural sciences. Development of non-technical skills such as communication and teamwork is also emphasized. The two programs share a common core curriculum in the freshman and sophomore years with specialization taking place during the junior and senior years.

Following graduation many students choose immediate employment in industry from Long Island to the west coast. Electrical engineers are recruited in diverse fields for a variety of challenging positions: a communications engineer may work on improving the flow of traffic in communications networks; a command and control engineer may work on systems in tactical and traffic control, satellite and surveillance systems, or in commercial applications; a circuit design engineer designs, develops, and manufactures electronic circuits for many applications including microcomputers; and computer engineers design microprocessor-based systems that include a range of consumer products and industrial machinery. Graduates also pursue advanced degrees in engineering, business, finance, medicine, law, and other professions in which their problem-solving skills and technical knowledge are valuable qualities.

Courses Offered in Electrical Engineering

ESE 123 Introduction to Electronic Design

ESE 124 Computer Techniques for Electronic Design
 ESE 211 Electronics Laboratory A
 ESE 271 Electrical Circuit Analysis I
 ESE 275 Fundamentals of Electrical Engineering
 ESE 290 Transitional Study
 ESE 300 Writing in Electrical/Computer Engineering
 ESE 304 Electronic Instrumentation and Operational Amplifiers
 ESE 305 Deterministic Signals and Systems
 ESE 306 Random Signals and Systems
 ESE 307 Modern Filter Design
 ESE 310 Electrical Circuit Analysis II
 ESE 311 Electronics Circuits Design I
 ESE 312 Microwave Electronics
 ESE 314 Electronics Laboratory B
 ESE 315 Control System Design
 ESE 316 Digital Devices and Circuits
 ESE 318 Digital Systems Design
 ESE 319 Introduction to Electromagnetic Fields and Waves
 ESE 320 Microwave Electronics Laboratory
 ESE 321 Electromagnetic Waves and Fiber Optics
 ESE 324 Electronics Laboratory C
 ESE 330 Integrated Electronics
 ESE 331 Introduction to Semiconductor Devices
 ESE 332 Semiconductor Device Characterization
 ESE 337 Digital Signal Processing: Theory
 ESE 340 Basic Communication Theory
 ESE 341 Information Theory and Coding
 ESE 342 Digital Communications Systems
 ESE 343 Modern Electronic Communications Laboratory
 ESE 344 Software Tools for Engineers
 ESE 345 Computer Architecture
 ESE 346 Computer Communications
 ESE 347 Digital Signal Processing: Implementation
 ESE 349 Introduction to Fault Diagnosis of Digital Systems
 ESE 350 Electrical Power Systems
 ESE 351 Energy Conversion

ESE 352 Electromechanical Energy Converters
 ESE 357 Digital Image Processing
 ESE 358 Computer Vision
 ESE 362 Optoelectronic Devices and Optical Imaging Techniques
 ESE 371 Computer Graphics
 ESE 372 Electronics
 ESE 380 Embedded Microprocessor Systems Design I
 ESE 381 Embedded Microprocessor Systems Design II
 ESE 382 Digital Design Using VHDL and PLDs
 ESE 390 Special Topics in Digital Systems
 ESE 440 Engineering Design I
 ESE 441 Engineering Design II
 ESE 475 Undergraduate Teaching Practicum
 ESE 488 Internship in Electrical Engineering
 ESE 499 Research in Electrical Sciences

Acceptance into the Electrical Engineering and Computer Engineering Majors

Freshman and transfer applicants who have specified their interest in the major in computer engineering or electrical engineering may be accepted into these majors upon admission to the University. Applicants admitted to the University but not immediately accepted into the computer engineering or electrical engineering major may apply for acceptance to one of these majors at any time during the academic year. The department's enrollment committee will consider an application only if the following conditions have been met:

1. the student has completed at least 12 credits of mathematics, physics, or electrical and computer engineering courses required for the major;
2. the student has earned a grade point average of 3.0 or higher in these courses with no grade in any of them lower than C,
3. no courses required for the major have been repeated,
4. all transfer courses have been evaluated.

Requirements for the Major in Electrical Engineering

The curriculum begins with a focus on basic mathematics and natural sciences followed by courses that emphasize engineering science and bridging courses that combine engineering science and design. The series of courses culminates with a one-year design experience that integrates various engineering skills and knowledge acquired. A minimum of six technical electives taken in the Electrical and Computer Engineering Department is required. The core sequence, technical electives, and additional courses may be chosen in consultation with a faculty advisor, taking into consideration the particular interest of the student. The following courses, totaling approximately 100 credits, are required:

1. Mathematics

AMS 151, 161 Applied Calculus I, II
 AMS 261 *or* MAT 203 Applied Calculus III
 AMS 361 *or* MAT 303 Applied Calculus IV

Note: The following alternate calculus course sequences may be substituted for AMS 151, 161 in major requirements or prerequisites:

MAT 125, 126, 127
or MAT 131, 132
or MAT 141, 142

2. Natural Sciences

PHY 131, 132 Classical Physics I, II
 CHE 198 and 199 Chemistry for Engineers

PHY 251 Modern Physics *or* ESG 281 Introduction to the Solid State

Note: The physics course sequence PHY 125, 126, 127 *or* 141, 142 is accepted in lieu of PHY 131, 132. (Students are advised to take PHY 127 before PHY 126.) The chemistry course sequence CHE 131, 132, and 133 *or* 141, 142, and 143 is accepted in lieu of CHE 198 and 199.

3. Freshman Introduction to Electrical Engineering

ESE 123 Introduction to Electronic Design

ESE 124 Computer Techniques for Electronic Design

4. Engineering Topics

Engineering topics include engineering science and engineering design.

Sample Course Sequence in the Electrical Engineering Major

Sample Course Sequence in the Computer Engineering Major

Freshman Fall	Credits
D.E.C. A	3
MAT 131#	4
PHY 131#	4
ESE 123	4
Total	15

Spring	Credits
MAT 132#	4
PHY 132#	4
ESE 124	3
CHE 198	4
CHE 199	1
Total	16

Freshman Fall	Credits
D.E.C. A	3
MAT 131#	4
PHY 131#	4
ESE 123	4
Total	15

Spring	Credits
MAT 132#	4
PHY 132#	4
ESE 124	3
CHE 198	4
CHE 199	1
Total	16

Sophomore Fall	Credits
AMS 361 or MAT 303	4
ESE 211#	2
ESE 271#	4
ESE 305	3
ESE 318#	4
Total	17

Spring	Credits
AMS 261 or MAT 203	4
ESE 306	3
ESE 314	3
ESE 372#	4
D.E.C.	3
Total	17

Sophomore Fall	Credits
AMS 361 or MAT 303	4
ESE 211#	2
ESE 271#	4
ESE 318#	4
CSE 113	3
Total	17

Spring	Credits
AMS 210 or MAT 211	3
ESE 314	3
ESE 372#	4
CSE 114	3
D.E.C.	3
Total	16

Junior Fall	Credits
ESE 300	1
ESE 319	3
ESE 324	2
ESE technical elective#	3
MEC 259	4
D.E.C.	3
Total	16

Spring	Credits
PHY 251 or ESG 281	4
ESE technical elective#	3
ESE technical elective#	3
ESE technical elective#	3
D.E.C.	3
Total	16

Junior Fall	Credits
ESE 300	1
ESE 324	2
ESE 305	3
ESE 380#	4
AMS 301	3
D.E.C.	3
Total	16

Spring	Credits
ESE 306	3
ESE technical elective#	3
ESE technical elective#	3
CSE 214	4
D.E.C.	3
Total	16

Senior Fall	Credits
ESE 440	3
ESE technical elective#	3
Technical elective	3
ESG 302 or 332 or 333	4
D.E.C.	3
Total	16

Spring	Credits
ESE 441	3
ESE technical elective#	3
Technical elective	3
D.E.C.	3
D.E.C.	3
Total	15

Senior Fall	Credits
ESE 440	3
ESE technical elective#	4
ESE 345#	3
CSE 308	3
D.E.C.	3
Total	16

Spring	Credits
ESE 441	3
ESG 302 or 332 or 333 or MEC 259	4
CSE 306	3
D.E.C.	3
D.E.C.	3
Total	16

Note: Courses with a # must be completed with a C or higher.

These sequences ensure that prerequisites and corequisites are taken in the proper order.

Content of the former category is determined by the creative application of basic science skills, while the content of the latter category focuses on the procedure of devising systems, components, or processes.

a. Engineering Sciences

- ESE 211 Electronics Laboratory A
- ESE 271 Electrical Circuit Analysis I
- ESE 305 Deterministic Signals and Systems
- ESE 318 Digital Systems Design
- ESE 319 Introduction to Electromagnetic Fields and Waves
- ESE 372 Electronics

MEC 259 Particle and Rigid Body Mechanics

One of the following:

- ESG 302 Thermodynamics of Materials
 - ESG 332 Materials Science I: Structure and Properties of Materials
 - ESG 333 Materials Science II: Electronic Properties
- #### b. Engineering Design
- ESE 314 Electronics Laboratory B
 - ESE 324 Electronics Laboratory C
 - ESE 440 Engineering Design I
 - ESE 441 Engineering Design II

Note: ESE 440, 441 are engineering design project courses that must be carried out at Stony Brook under the supervision of an Electrical and Computer Engineering faculty member.

5. Probability and Statistics

- ESE 306 Random Signals and Systems

6. Engineering Specialization and Technical Electives

Eight technical elective courses. Of these eight, at least six must be chosen from the technical elective courses offered by the department (see ESE course list).

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 ESE 324 and submit approximately three long reports on the experiments performed in ESE 324. Students whose writing does not meet the required standard are referred for remedial help. Detailed guidelines are provided by the department. If the standard of writing is judged acceptable, the student receives an S grade for ESE 300, thereby satisfying this requirement.

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: ESE 211, 271, 318, 372; AMS 151, 161 (or equivalent courses); PHY 131, 132 (or equivalent courses); and six ESE technical electives.

Specialized Areas in Electrical Engineering

The following is a list of major specialization areas:

Bioengineering

Communications and Signal Processing
Control and Systems

Power and Energy Systems

Electronic Circuits and Devices

Solid-State Electronics

Electromagnetic Fields and Optical
Systems

This list is not exhaustive. For more detailed information concerning additional areas and specific course recommendations, students should consult the Undergraduate Guide to Electrical Engineering, available in the department's office.

Requirements for the Major in Computer Engineering

The solutions to current system design problems are based on both hardware and software. It is important for students who wish to specialize in computer hardware to be fluent in modern software techniques and familiar with digital electronics and the application of large-scale integrated devices. The following courses, totalling approximately 110 credits, are required.

1. Mathematics

AMS 151, 161 Applied Calculus I, II
AMS 210 *or* MAT 211 Applied Linear
Algebra

AMS 361 *or* MAT 303 Applied
Calculus IV

AMS 301 Finite Mathematical
Structures

Note: The following alternate calculus course sequences may be substituted for AMS 151, 161 in major requirements or prerequisites:

MAT 125, 126, 127

MAT 131, 132

or MAT 141, 142

2. Natural Sciences

PHY 131, 132 Classical Physics I, II

CHE 198 and CHE 199 Chemistry for
Engineers

Note: The physics course sequence PHY 125, 126, 127 *or* 141, 142 is accepted in lieu of PHY 131, 132. (Students are advised to take PHY 127 before PHY 126.)

The chemistry course sequence CHE 131, 132, and 133 *or* 141, 142, and 143 is accepted in lieu of CHE 198 and 199.

3. Freshman Introduction to Electrical Engineering

ESE 123 Introduction to Electronic
Design

ESE 124 Computer Techniques for
Electronic Design

4. Engineering Topics

Engineering topics include engineering science and engineering design. Content of the former category is determined by the creative application of basic science skills, while the content of the latter category focuses on the procedure of devising systems, components, or processes.

a. Engineering Sciences

ESE 211 Electronic Laboratory A

ESE 271 Electrical Circuit Analysis

ESE 305 Deterministic Signals and
Systems

ESE 318 Digital Systems Design

ESE 345 Computer Architecture

ESE 372 Electronics

One of the following:

MEC 259 Particle and Rigid Body
Mechanics

ESG 302 Thermodynamics of
Materials

ESG 332 Materials Science I:
Structure and Properties of
Materials

ESG 333 Materials Science II:
Electronic Properties

b. Engineering Design

ESE 314 Electronics Laboratory B

ESE 324 Electronics Laboratory C

ESE 380 Embedded Microprocessor
Systems Design II

ESE 440 Engineering Design I

ESE 441 Engineering Design II

Note: ESE 440, 441 are courses on engineering design projects that must be carried out at Stony Brook under the supervision of an Electrical and Computer Engineering faculty member.

5. Probability and Statistics

ESE 306 Random Signals and Systems

6. Computer Science

CSE 113 Foundations of Computer
Science I

CSE 114 Computer Science I

CSE 214 Computer Science II

CSE 306 Operating Systems

CSE 308 Software Engineering I

7. Engineering Technical Electives

Three ESE electives chosen from:

ESE 311 Electronics Circuits Design I

ESE 316 Digital Devices and Circuits

ESE 344 Software Tools for Engineers

ESE 346 Computer Communications

ESE 347 Digital Signal Processing

ESE 349 Introduction to Fault

Diagnosis of Digital Systems

ESE 357 Digital Image Processing

ESE 358 Computer Vision

ESE 381 Embedded Microprocessor
Systems Design II

ESE 382 Digital Design with
Programmable Logic

8. Upper-Division Writing Requirement

All degree candidates must demonstrate skill in written English at a level acceptable for computer engineering majors. The ECE student must register for the writing course ESE 300 concurrently with ESE 324 and submit approximately three long reports on the experiments performed in ESE 324. Students whose writing does not meet the required standard are referred for remedial help. Detailed

guidelines are provided by the department. If the standard of writing is judged acceptable, the student receives an S grade for ESE 300, thereby satisfying this requirement.

Grading

All courses taken to satisfy requirements 1 through 7 must be taken for a letter grade. A grade of C or higher is required in the following courses: ESE 211, 271, 318, 345, 372, 380; AMS 151, 161 (or equivalent courses), PHY 131, 132 (or equivalent courses); and three ESE technical electives.

Requirements for the Minor in Electrical Engineering

The Electrical Engineering minor is intended for students with majors other than Electrical or Computer Engineering who seek to complement their chosen major through an introduction to the principles and techniques of electrical engineering. Students interested in the minor should apply through the office of the Department of Electrical and Computer Engineering, Light Engineering Building, Room 267, as early as possible.

Students seeking to complete the ESE minor must meet the relevant prerequisites and corequisites of each ESE course.

At least nine credits must be in upper-division courses. All courses for the minor must be passed with a letter grade of C or higher.

Completion of the minor requires 21 credits.

1. ESE 123 (4 credits)
2. Six ESE courses for a total of at least 17 credits.

Note: Students may not take ESE 124, 300, 324, 440, 441, 475, 488, or 499 for credit toward the minor.

EOM

Minor in

Electronic, Optical, and Magnetic Materials

CHAIRPERSON: Michael Dudley, Materials Science and Engineering UNDERGRADUATE PROGRAM DIRECTOR: Christopher C. Berndt
ADMINISTRATIVE ASSISTANT: Gertha Benoit-Hollis

OFFICE: 314 Engineering PHONE: 632-8484 E-MAIL: ghollis@notes.cc.sunysb.edu WEB ADDRESS: <http://doL1.eng.sunysb.edu/>

The Department of Materials Science and Engineering offers the minor in Electronic, Optical and Magnetic Materials, suitable for Engineering Science (ESG) students or for non-Engineering Science students who seek to obtain a more thorough understanding of the engineering sciences. ESG, ECE, ESE, MEC, and AMS students can assemble a sequence of courses with 18-24 credits to satisfy an engineering science minor. Courses used to satisfy the requirements of the minor may not be used to satisfy requirements of another minor in engineering science. The student's program must be approved by the Undergraduate Program Director, Department of Materials Science and Engineering, Engineering Building, Room 314.

Requirements for the Minor in Electronic, Optical, and Magnetic Materials

Completion of the minor requires 18-24 credits.

Requirements for students majoring in Engineering Science (ESG):

1. ESE 318 Digital Systems Design *and*
ESE 380 Embedded Microprocessor Systems Design II
or ESE 312 Microwave Electronics *and* ESE 315 Control System Design
2. Five courses chosen from:
BNG/ESG 201 Engineering Responses to Society
ESE 319 Introduction to Electronmagnetic Fields
ESE 321 Electromagnetic Waves and Fiber Optics
ESM 325 Diffraction Techniques and Structure of Solids
ESM 336 Electronic Materials
ESM 369 Polymers
ESM 488 Cooperative Industrial Practice
ESM 499 Research in Materials

Requirements for all other students:

1. ESE 318 Digital Systems Design *and*
ESE 380 Embedded Microprocessor Systems Design II
or ESE 312 Microwave Electronics *and*
ESE 315 Control System Design
2. ESE 123 Introduction to Electronic Design
or ESG 100 Introduction to Engineering Science
or MEC 100 Introduction to Mechanical Engineering
3. BNG/ESG 201 Engineering Responses to Society
4. Three courses chosen from:
ESE 319 Introduction to Electronmagnetic Fields
ESE 321 Electromagnetic Waves and Fiber Optics
ESM 325 Diffraction Techniques and Structure of Solids
ESM 336 Electronic Materials
ESM 369 Polymers
ESM 488 Cooperative Industrial Practice *or* ESM 499 Research in Materials

ISE

Major in Information Systems

CHAIRPERSON: David Warren UNDERGRADUATE PROGRAM DIRECTOR: Philip M. Lewis UNDERGRADUATE SECRETARY: Grace Garufi
OFFICE: 1440 Computer Science PHONE: 632-8470 E-MAIL: pml@cs.sunysb.edu or ggarufi@notes.cc.sunysb.edu
WEB ADDRESS: www.cs.sunysb.edu

The information systems major, which is housed in the Department of Computer Science, prepares its graduates to design and manage computerized data processing and decision support systems. The program is technically oriented, emphasizing the design and implementation aspects of large-scale information systems as well as the more traditional managerial and organizational issues, and it balances development of system engineering skills with learning to deliver reliable systems on time and within budget. Throughout the program, students are exposed to diverse application areas ranging from traditional business, finance, and accounting through telecommunications, networks, multimedia, and database management, to computer-aided design and industrial production management systems.

Courses Offered in Information Systems

ISE 112-C Fundamentals of Computer Information Systems
ISE 203 Internet for Research
ISE 300 Writing and Oral Skills in Information Systems
ISE 305 Principles of Database Systems
ISE 308 Software Engineering I
ISE 309 Software Engineering II
ISE 310 Data Communication and Networks
ISE 315 Database Transaction Processing Systems
ISE 332 Introduction to Scientific Visualization
ISE 333 User Interface Development
ISE 334 Introduction to Multimedia Systems
ISE 390 Special Topics in Information Systems
ISE 440 Information Systems Design I
ISE 441 Information Systems Design II
ISE 475 Undergraduate Teaching Practicum
ISE 487 Research in Information Systems
ISE 488 Information Systems Internship

Acceptance into the Information Systems Major

Qualified freshman and transfer applicants are accepted directly into the information systems major upon admission to the University. Currently enrolled students may be accepted into the major in one of two ways:

1. After completing: ISE 112 or CSE 113; CSE 114; AMS 151 (or MAT 131 or MAT 125, 126); ECO 109 or BUS 114; and earning a grade point average of 2.8 or higher in these courses (excluding ECO 109 or BUS 114) with no grade in any of them lower than C. Only one of these courses may be repeated.
2. Students who do not meet these requirements may still be admitted by petitioning the department. Acceptance will then be considered based upon the student's individual performance.

Requirements for the Major in Information Systems

The major in information systems leads to the Bachelor of Science degree. The following courses, totaling approximately 70 credits, are required. At least one of the courses under requirement A-2 below and all of the courses under requirement A-3 must be completed at Stony Brook.

- A. Information Systems/Computer Science Courses
1. CSE 106 Introduction to Programming (*recommended*)
ISE 112 Fundamentals of Computer Information Systems
CSE 114 Computer Science I
CSE 214 Computer Science II
CSE 220 Computer Organization and Systems Programming
 2. ISE/CSE 305 Principles of Database Systems
ISE/CSE 308 Software Engineering II
 3. ISE/CSE 310 Data Communication

ISE 440 Information Systems Design I

ISE 441 Information Systems Design II

4. Twelve credits chosen from the following:

CSE 306 Operating Systems

CSE 307 Principles of Programming Languages

CSE 326 Digital Image Processing

CSE 328 Fundamentals of Computer Graphics

CSE 366 Introduction to Virtual Reality

CSE 373 Analysis of Algorithms

CSE 491 Honors Seminar

ISE/CSE 309 Software Engineering II

ISE/CSE 315 Database Transaction Processing Systems

ISE/CSE 332 Introduction to Scientific Visualization

ISE/CSE 333 User Interface Development

ISE/CSE 334 Introduction to Multimedia Systems

ISE 390 Special Topics in Information Systems

ISE 487 Research in Information Systems (minimum of 3 credits)

ISE 488 Information Systems Internship

B. Mathematics Courses

1. AMS 151 Applied Calculus I (or MAT 131 or MAT 141 or MAT 125, 126)
2. AMS 210 Applied Linear Algebra or MAT 211 Introduction to Linear Algebra; and AMS 310 Survey of Probability and Statistics or AMS 201 Matrix Methods and Models or AMS 210 Applied Linear Algebra or MAT 211 Introduction to Linear Algebra; and ECO 320 Mathematical Statistics

C. Economics and Business Courses

1. ECO 109 Introduction to Analytical Economics

2. BUS 114 Financial Accounting

3. One course chosen from the following:

BUS 214 Managerial Accounting

BUS 346 Operations Management

BUS 349 Management Science

BUS 355 Investment Analysis

BUS 356 Financial Engineering

ECO 348 Analysis for Managerial Decision Making

ECO 368 Modern Portfolio Theory

ECO 389 Corporate Finance

EST 392 Engineering and Managerial Economics *or* EST 393 Production and Operations Analysis

4. One course chosen from the following:

BUS 347 Business Ethics

BUS 348 Principles of Marketing

ECO 255 Strategic Thinking in Business

ECO 326 Industrial Organization

ECO 343 Transformation in Economic Systems

ECO 345 Law and Economic Issues

POL 319 Business Law

POL 359 Public Policy Analysis

POL 364 Organizational Decision Making

SOC 317 Decisions, Uncertainty, and Individual Futures

SOC 381 Sociology of Organizations

5. One course chosen from the following:

BUS 340 Management Information Systems

BUS 343 Expert Systems in Business

EST 302 Assessment of Computer-Based Technologies

EST 305 Applications Software in Information Management

EST 320 Communication Technology Systems

EST 325 Technology in the Workplace

6. Upper-Division Writing and Oral Skills Requirement:

All degree candidates must demonstrate writing skills and oral communication skills in English at a

Sample Course Sequence in the Information Systems Major

Freshman Fall	Credits
D.E.C. A	3
AMS 151	3
CSE 101 or D.E.C.	3
D.E.C.	3
D.E.C.	3
Total	15

Spring	Credits
ECO 109 (D.E.C. F)	4
CSE 106	1
ISE 112	3
D.E.C.	3
D.E.C.	3
Total	14

Sophomore Fall	Credits
BUS 114	3
CSE 114	3
AMS 201 or 210 or MAT 211	3
D.E.C.	3
D.E.C.	3
Total	15

Spring	Credits
CSE 214	4
CSE 220	4
Requirement C course	3
D.E.C.	3
Total	14

Junior Fall	Credits
ISE 308	3
ISE 305	4
Requirement C course	3
ECO 320 or AMS 310	3-4
D.E.C. or elective	3
Total	16-17

Spring	Credits
ISE 310	3
CSE/ISE elective	3
CSE/ISE elective	3
Elective	3
Elective	3
Total	15

Senior Fall	Credits
ISE 300	1
ISE 440	3
CSE/ISE elective	3
Elective	3
Elective	3
Elective	3
Total	16

Spring	Credits
ISE 441	3
CSE/ISE elective	3
Requirement C course	3
Elective	3
Elective	3
Total	15

level acceptable for information systems majors. To satisfy the requirement, the ISE student must submit a technical paper on an appropriate information systems topic that illustrates the student's ability to write in a clear, concise, technical, and organized manner. Students must successfully complete and submit the technical paper in order to be permitted to register for the writing and oral skills course ISE 300. Students must also give an oral presentation that demonstrates the student's ability to use the spoken word to communicate effectively with other suitably trained technical persons.

The oral skills portion of the requirement is met by giving a presentation of the technical paper described

above, by serving as an undergraduate teaching assistant in a computer science or information systems course and leading a recitation lecture, or by some other suitable presentation approved by an Information Systems faculty member. Students whose writing or speaking does not meet the required standards are directed to seek remedial help and resubmit their work or repeat their presentation.

Grading

All courses taken to satisfy requirements A through C (with the exception of ISE 488) 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 CSE and ISE courses.

MFE

Interdisciplinary Minor in

Manufacturing Engineering

CHAIRPERSON: Michael Dudley, Materials Science and Engineering UNDERGRADUATE PROGRAM DIRECTOR: Christopher C. Berndt
ADMINISTRATIVE ASSISTANT: Gertha Benoit-Hollis

OFFICE: 314 Engineering PHONE: 632-8484 E-MAIL: ghollis@notes.cc.sunysb.edu WEB ADDRESS: <http://doL1.eng.sunysb.edu/>

The Department of Materials Science and Engineering offers the minor in Manufacturing Engineering, suitable for Engineering Science (ESG) students or for non-Engineering Science students who seek to obtain a more thorough understanding of the engineering sciences. ESG, ECE, ESE, MEC, and AMS students can assemble a sequence of courses with 18-24 credits to satisfy an engineering science minor. Courses used to satisfy the requirements of the minor may not be used to satisfy requirements of another minor in engineering science. The student's program must be approved by the Undergraduate Program Director, Department of Materials Science and Engineering, Engineering Building, Room 314.

Requirements for the Minor in Manufacturing Engineering

Completion of the minor requires 21-24 credits.

Requirements for students majoring in Engineering Science (ESG):

1. ESM 334 Materials Engineering *and* ESM 335 Mechanical Properties of Materials *or* MEC 310 Introduction to Machines Design and MEC 410 Design and Analysis of Machine Elements
2. Five courses chosen from:
 - AMS 310 Survey of Probability and Statistics
 - BNG/ESG 201 Engineering Responses to Society
 - ESM 302 Introduction to the Crystalline State
 - ESM 336 Electronic Materials
 - ESM 353 Biomaterials: Manufacture, Properties, and Applications
 - ESM 369 Polymers
 - ESM 488 Cooperative Industrial Practice
 - ESM 499 Research in Materials Science

EST 392 Engineering and Managerial Economics

MEC 305 Heat and Mass Transfer

Requirements for all other students:

1. ESM 334 Materials Engineering *and* ESM 335 Mechanical Properties of Materials *or* MEC 310 Introduction to Machines Design and MEC 410 Design and Analysis of Machine Elements
2. AMS 310 Survey of Probability and Statistics
3. One course chosen from the following:
 - ESE 123 Introduction to Electronic Design
 - ESG 100 Introduction to Engineering Science
 - MEC 100 Introduction to Mechanical Engineering
4. BNG/ESG 201 Engineering Responses to Society
5. ESM 335 Mechanical Properties of Materials
ESM 369 Polymers
6. Two courses chosen from:
 - ESM 302 Introduction to the Crystalline State
 - ESM 353 Biomaterials: Manufacture, Properties, and Applications
 - ESM 488 Cooperative Industrial Practice *or* ESM 499 Research in Materials Science
 - EST 392 Engineering and Managerial Economics
 - MEC 305 Heat and Mass Transfer

ESG/ESM

Department of

Materials Science and Engineering

CHAIRPERSON: Michael Dudley UNDERGRADUATE PROGRAM DIRECTOR: Christopher C. Berndt

ADMINISTRATIVE ASSISTANT: Gertha Benoit-Hollis

OFFICE: 314 Engineering PHONE: 632-8484

E-MAIL: ghollis@notes.cc.sunysb.edu WEB ADDRESS: <http://doL1.eng.sunysb.edu/>

Minors of particular interest to students majoring in Materials Science and Engineering Science: biomedical engineering (BES), electronic, optical, and magnetic materials (EOM), manufacturing engineering (MFE), physical metallurgy (PME), science and engineering (LES)

Faculty

Christopher C. Berndt, *Professor, Ph.D., Monash University*: Mechanical properties; bio-engineering; biomaterials.

Clive R. Clayton, *Professor, Ph.D., University of Surrey*: Structure and properties of materials; thin film processing.

Michael Dudley, *Professor, Ph.D., University of Warwick*: Synchrotron X-ray topography, defects in single crystals.

A.J. Francis, *Adjunct Professor, Ph.D., Cornell University*: Environmental remediation; radiological materials analysis.

Richard J. Gambino, *Professor and Principal Research Scientist, M.S., Polytechnic Institute of New York*: Magnetic thin films; magneto-optical properties.

Dilip Gersappe, *Assistant Professor, Ph.D., Northwestern University*: Polymer science; computational methods in materials science.

Allen N. Goland, *Adjunct Professor, Ph.D., Northwestern University*: Solid-state physics.

Gary P. Halada, *Assistant Professor, Ph.D., State University of New York at Stony Brook*: Surface analysis; engineering design; environmental remediation; infrared spectroscopy.

Patrick J. Herley, *Professor, Ph.D., Rhodes University; Ph.D., Imperial College*: Crystallography; chemistry of solids.

Herbert Herman, *Professor, Ph.D., Northwestern University*: Materials engineering; surface engineering; physical metallurgy.

James K. Hirvonen, *Adjunct Professor, Ph.D., Rutgers University*: Surface engineering; ion beam methods; coatings.

Hugh Isaacs, *Adjunct Professor, Ph.D., Imperial College*: Surface defects; surface analysis.

Franco P. Jona, *Professor, Ph.D., Eidgenossische Technische Hochschule*: Solid-state physics; modern materials.

Alexander H. King, *Professor, D.Phil., University of Oxford*: Electron microscopy; crystal defects.

David J. Larson, Jr., *Research Professor and Principal Research Scientist, Ph.D., Northwestern University*: Crystal growth, microgravity materials science.

Miriam Rafailovich, *Professor, Ph.D., State University of New York at Stony Brook*: Polymer surfaces and interfaces.

Sanjay Sampath, *Associate Professor, Ph.D.,*

State University of New York at Stony Brook:

Thermal spray technology; Tribology; functionally graded materials.

Leslie L. Seigle, *Emeritus Professor, D.Sc., Massachusetts Institute of Technology*: Thermodynamics.

Jonathan C. Sokolov, *Professor, Ph.D., State University of New York at Stony Brook*: Polymer surfaces and interfaces.

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.

Affiliated Faculty

Benjamin Chu, *Chemistry*

Vishwanath Prasad, *Mechanical Engineering*

Adjunct Faculty

Estimated number: 10

Teaching Assistants

Estimated number: 20

The Department of Materials Science and Engineering offers the Bachelor of Engineering degree program in engineering science and several interdisciplinary undergraduate programs in conjunction with other science and engineering departments on campus. These joint programs provide basic training for prospective graduates to enter a wide range of industries or to proceed to graduate studies in engineering fields. They 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. Reflecting the breadth and variety of topics falling within the domain of engineering science, the department also offers five minors that afford undergraduate students the opportunity to enhance their engineering or science studies with

knowledge in a specialized area. In addition to the minor in materials science, described in this section, the department offers minors in biomedical engineering; electronic, optical, and magnetic materials; manufacturing engineering; and physical metallurgy, each detailed under a separate heading in the chapter; College of Engineering and Applied Sciences Approved Programs.

The major in engineering science (ESG) furnishes the student with a broad background in the basic engineering disciplines. The program includes an extensive design experience that builds upon fundamental concepts and matches the requirements of engineering science professional practice. Particular emphasis is placed on the following: development of creativity; use of open-ended problems; modern design theory and methodology; formulation of problem statements and specifications; consideration of alternate solutions; feasibility; production processes; concurrent design; and detailed descriptions. Design is fundamental to the curriculum but is particularly concentrated in a two-year, four-course design sequence (Engineering Design I, II, III, and IV) with the latter two courses comprising the capstone senior design project. In addition, an area of specialization must be formally declared and is achieved through appropriate selection of technical electives and senior design topic. Areas of specialization and the required courses for each are listed below. 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. The major in engineering science is also excellent preparation for graduate studies in architecture, business, law, or medicine.

The program in Engineering Science also prepares students for a variety of employment opportunities as it is particularly suited to the nature of modern

manufacturing processes in industry as well as to scientific institutions and laboratories across the nation. Graduates of the program, trained to understand the materials and forces of nature and to apply that knowledge to practical problem solving, are well equipped to take optimum advantage of rapidly developing technology for the benefit of society. They occupy engineering, scientific, and management positions in engineering, development, manufacturing, and marketing in major corporations in the area of communications, computing, and aerospace. Small and medium-sized companies also rely on the expertise of materials scientists in design and manufacturing. In addition, some graduates apply their knowledge to patent law and consulting. About ten percent of the program's graduates pursue advanced degrees in engineering research as well as in law, business, and medicine.

Courses Offered in Engineering Science

ESG 100 Introduction to Engineering Science

ESG 201-H Engineering Responses to Society

ESG 217 Engineering Science Design I

ESG 281 An Engineering Introduction to the Solid State

ESG 300 Writing in Engineering Science

ESG 302 Thermodynamics of Materials

ESG 312 Engineering Laboratory

ESG 316 Engineering Science Design II: Methods

ESG 332 Materials Science I: Structure and Properties of Materials

ESG 333 Materials Science II: Electronic Properties

ESG 339 Thin Film Processing of Advanced Materials

ESG 440 Engineering Science Design III

ESG 441 Engineering Science Design IV

ESG 487 Cooperative Research in Technological Solutions

Courses Offered in Materials Science

ESM 216 Materials in Art, Design, and Technology

ESM 221 Introduction to Chemistry of Solids

ESM 302 Introduction to the Crystalline State

ESM 309 Thermodynamics of Solids

ESM 325 Diffraction Techniques and Structure of Solids

ESM 327 Solid Crystal Surfaces

ESM 334 Materials Engineering

ESM 335 Mechanical Properties of Materials

ESM 336 Electronic Materials

ESM 338 Engineering Ceramics: Properties, Processing, and Microstructures

ESM 339 Thin Film Processing of Advanced Materials

ESM 350 Structure and Electronic Properties of Solids

ESM 353 Biomaterials: Manufacture, Properties, and Applications

ESM 355 Materials and Processes in Manufacturing

ESM 369 Polymers

ESM 450 Phase Changes and Mechanical Properties

ESM 475 Undergraduate Teaching Practicum

ESM 488 Cooperative Industrial Practice

ESM 499 Research in Materials Science

Acceptance into the Major in Engineering Science

Freshman and transfer applicants who have specified their interest in the engineering science major may be accepted directly into the major upon admission to the University. Applicants admitted to the University but not immediately

Sample Course Sequence in the Engineering Science Major

Freshman Fall	Credits
D.E.C. A	3
AMS 151#	4
PHY 131#	4
ESG 100	3
D.E.C.	3
Total	17

Spring	Credits
AMS 161#	4
PHY 132#	4
MEC 111	3
CHE 198	4
CHE 199	1
Total	16

Sophomore Fall	Credits
AMS 261 or MAT 203	4
PHY 251 or ESG 281	3-4
MEC 260	3
ESG 332	4
D.E.C.	3
Total	17-18

Spring	Credits
AMS 361 or MAT 303	4
MEC 262	3
MEC 363	4
ESE 271	4
Total	15

Junior Fall	Credits
ESG 312#	3
ESE 372	4
ESG 217#	4
Technical elective (design)#	3
D.E.C.	3
Total	17

Spring	Credits
ESG 316	4
ESG 300	0
ESG 302	4
ESG 333	4
ESG 339#	4
Total	16

Senior Fall	Credits
ESG 440	3
ESM 450	3
Technical elective (design)#	3
Two technical electives#	6
D.E.C.	3
Total	18

Spring	Credits
ESM 350	3
ESM 355	3
ESG 441	3
Technical elective#	3
D.E.C.	3
D.E.C.	3
Total	18

Courses with a # must be completed with a grade of C or higher.

accepted into the 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. Students in good academic standing may apply in any semester, but priority for admission is given to those students who have 1. completed MAT 132 and PHY 132 or their equivalents, 2. earned a g.p.a. of 3.0 in all mathematics and physics courses with no more than one grade in the C range, and 3. received completed course evaluations for all transferred courses that are to be used to meet requirements of the major.

Requirements for the Major in Engineering Science

The major in engineering science leads to the Bachelor of Engineering degree. The following courses, totaling approximately 110 credits, are required:

1. Mathematics

AMS 151, 161; AMS 261 or MAT 203; AMS 361 or MAT 303

Note: The following alternate calculus course sequences may be substituted for AMS 151, 161 in major requirements or prerequisites:

MAT 125, 126, 127 or
MAT 131, 132
MAT 141, 142

2. Natural Sciences

PHY 131, 132; PHY 251 or ESG 281; CHE 198 and 199

Notes:

- The physics course sequence PHY 125, 126, 127 or 141, 142 is acceptable in lieu of PHY 131, 132
- The chemistry course sequence CHE 131, 132, and 133 or CHE 141, 142, and 143 is acceptable in lieu of CHE 198 and 199 only if both courses in the sequence were completed prior to admission to the ESG major.

3. Computer Science

CSE 113, 114 or MEC 111

4. Engineering Science Core Program

ESG 100; ESG 312; ESM 350, 450; and the following nine courses:

Materials Science and Engineering
ESG 302, 332, 333, 339
Electrical Engineering
ESE 271, 372
Mechanical Engineering

MEC 260, 262, 363

5. Engineering Synthesis and Design

ESG 217, 316, 440, 441; ESM 355

6. Engineering Specialization and Technical Electives

The area of specialization, composed of five technical electives including at least two design-oriented courses, must be declared in writing by the end of the junior year. It is selected in consultation with the faculty advisor to ensure a cohesive course sequence with depth at the upper level.

The five areas of specialization are biomedical engineering, electrical engineering, manufacturing engineering, materials science and engineering, and mechanical engineering. (Declaration of the materials science minor is accepted in lieu of the written statement for the Materials Science and Engineering area of specialization.)

7. Upper-Division Writing Requirement

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 is evaluated and students whose writing does not meet the required standard are referred for remedial help. Detailed guidelines are provided by the department. If the standard of writing is judged acceptable, the student receives an S grade for ESG 300, thereby satisfying the requirement.

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:

- AMS 151, 161; PHY 131, 132; ESG 217, 312, 339; and
- Each of the five required technical electives offered by the college.

Courses in the sequence above with a # must be completed with a grade of C or higher.

Areas of Specialization

Each area of specialization requires at least two design and three elective courses. Other technical electives may be substituted only with the approval of the student's faculty advisor.

Biomedical Engineering

1. One of the following two-course design sequences must be completed.

- ESM 334 Materials Engineering
ESM 335 Mechanical Properties of Materials
- MEC 310 Kinematics and Dynamics of Machinery
MEC 410 Design of Machine Elements
- ESE 318 Digital Systems Design
ESE 380 Embedded Microprocessor Systems Design

2. The following three courses are required.

ESM 353 Biomaterials: Manufacture, Properties, and Applications

One from: BIO 202 Fundamentals of Biology: Molecular and Cellular Biology or BIO 203 Fundamentals of Biology: Cellular and Organ Physiology
BIO 328 Mammalian Physiology

The remaining one technical elective must be chosen from the following list.

BIO 361, 362 Biochemistry I, II
CHE 321, 322 Organic Chemistry I, II
ESM 369 Polymers

Any of the design course subjects listed above in item 1 which have not been taken for the design sequence.

Electrical Engineering

Core

ESE 271 Electrical Circuit Analysis
ESE 372 Electronics

1. Subspecialty in Digital Systems

Design Courses:

ESE 318 Digital Systems Design
ESE 380 Microprocessors and Programmed Logic I

Electives (three courses chosen from the following):

ESE 316 Digital Devices and Circuits
ESE 347 Digital Signal Processing
ESE 342 Digital Communications Systems

ESE 349 Introduction to Fault Diagnosis of Digital Systems
ESE 381 Embedded Microprocessor System Design II

2. Subspecialty in Analog Systems

Design Courses:

ESE 304 Electronic Instrumentation
 ESE 315 Control Systems Design
 Electives (three courses chosen from the following):
 ESE 311 Electronic Circuit Design
 ESE 321 Electromagnetic Waves and Fiber Optics
 ESE 331 Physical Electronics
 ESE 362 Optoelectronic Devices and Optical Imaging Techniques
 ESE 352 Energy Conversion

Manufacturing Engineering

Two Design Courses:

MEC 310 Kinematics and Dynamics of Machinery and MEC 410 Design of Machine Elements or ESM 334 Materials Engineering and ESM 335 Mechanical Properties of Materials

Electives (three courses chosen from the following):

AMS 310 Survey of Probability and Statistics
 MEC 305 Heat and Mass Transfer
 ESM 302 Introduction to the Crystalline State
 ESM 336 Electronic Materials
 ESM 353 Biomaterials: Manufacture, Properties and Applications
 ESM 369 Polymers
 EST 392 Engineering and Managerial Economics

Materials Science and Engineering

1. Subspecialty in Electronic, Optical, and Magnetic (EOM) Applications

Design Courses:

ESE 318 Digital Systems Design
 ESE 380 Embedded Microprocessor Systems Design or ESE 304 Electronic Instrumentation
 ESE 315 Control Systems Design

Electives (three courses chosen from the following, of which two must be ESG/ESM):

ESE 319 Introduction to Electromagnetic Fields and Waves
 ESE 321 Electromagnetic Waves and Fiber Optics
 ESM 325 Diffraction Techniques and Structure of Solids
 ESM 336 Electronic Materials
 ESM 369 Polymers

2. Subspecialty in Physical Metallurgy

Design Courses:

ESM 334 Materials Engineering
 ESM 335 Mechanical Properties of Materials

Electives (three courses chosen from the following):

MEC 305 Heat and Mass Transfer
 MEC 355 Applied Stress Analysis
 ESM 309 Thermodynamics of Solids
 ESM 353 Biomaterials: Manufacture, Properties, and Applications

Mechanical Engineering

Core

MEC 260 Engineering Statics
 MEC 262 Engineering Dynamics
 MEC 301 Thermodynamics (in lieu of ESG 302)
 MEC 363 Mechanics of Solids

Design Courses:

MEC 310 Kinematics and Dynamics of Machinery
 MEC 410 Design of Machine Elements

Electives (three of the following):

MEC 350 Energy Conversion and Alternate Energy Technologies
 MEC 364 Introduction to Fluid Mechanics
 MEC 393 Engineering Fluid Mechanics
 MEC 398 Thermodynamics II
 MEC 422 Thermal System Design

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. For further details, contact the Interdisciplinary Program in Engineering Chemistry.

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 College of Arts and Sciences chapter for information about the physics major.

Bachelor's/M.S. Program

An engineering science, 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 Research and three credits of an additional 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*.

The Minor in Materials Science

The sequence of courses included in the minor in materials science (ESM) provides a firm background for students seeking employment in the materials science industry or those who will pursue graduate study in related fields. There are two versions of the minor: one for students enrolled in B.S. degree programs (e.g., physics and chemistry) and one for those enrolled in B.E. degree programs. (B.E. students should see the faculty advisor in their engineering major for approval before declaring the materials science minor.)

For students with majors leading to the B.S. degree, six courses with a grade of C or higher in each are required:

1. ESG 100
2. Two of ESG 332, 333, 339
3. Two of ESM 325, 334, 335, 353, 355, one of the courses not completed in number 2.
4. ESM 488 or ESM 499

For students in the engineering science major, six courses with a grade of C or higher in each are required:

1. ESG 100
2. Four of the following: ESM 325, 334, 335, 353, 355, 369; ESG 332, 333, 339
3. ESM 488 or ESM 499

MEC

Department of Mechanical Engineering

CHAIRPERSON: Fu-Pen Chiang UNDERGRADUATE PROGRAM DIRECTOR: John M. Kincaid UNDERGRADUATE SECRETARY: Patricia Brockbank
OFFICE: 113 Light Engineering Lab PHONE: 632-8310 E-MAIL: pbrockbank@notes.cc.sunysb.edu FAX: 632-8544
WEB ADDRESS: design.eng.sunysb.edu

Minors of particular interest to students majoring in mechanical engineering: science and engineering (LSE)

Faculty

Daniel Bluestein, *Assistant Professor, Ph.D., Tel Aviv University*: Biomedical engineering.

Fu-Pen Chiang, *Professor, Ph.D., University of Florida*: Experimental stress analysis; solid mechanics; optical nondestructive evaluation.

Q. Jeffrey Ge, *Assistant Professor, Ph.D., University of California, Irvine*: Mechanical design; kinematics; robotics; CAD/CAM; computer graphics.

Stewart Harris, *Professor, Ph.D., Northwestern University*: Physics of fluids; environmental engineering.

Peisen S. Huang, *Assistant Professor, Ph.D., University of Michigan: D. Eng, Tohoku University, Japan*: Optical measurement; precision engineering.

Imin Kao, *Assistant Professor, Ph.D., Stanford University*: Robotics; control; neural networks; computer integrated manufacturing.

John Kincaid, *Professor, Ph.D., Rockefeller University*: Statistical mechanics; thermodynamics.

Alan S. Kushner, *Professor, Ph.D., University of Maryland at College Park*: Solid and computational mechanics.

Foluso Ladeinde, *Associate Professor, Ph.D., Cornell University*: Fluid mechanics and heat transfer; turbulence; computational fluid dynamics.

Jon P. Longtin, *Assistant Professor, Ph.D., University of California at Berkeley*: Heat transfer; radiation interactions with materials; optical measurements.

Toshio Nakamura, *Associate 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.

Vishwanath Prasad, *Professor, Ph.D., University of Delaware*: Heat transfer; transport processes.

Jahangir Rastegar, *Associate Professor, Ph.D., Stanford University*: Kinematics; dynamics; vibration control of high performance machinery; optimal design of mechanical systems.

Raman P. Singh, *Assistant Professor, Ph.D., University of Rhode Island*: Experimental mechanics; thin films and micro-mechanical structures; dynamic fracture mechanics.

James Tasi, *Professor, Ph.D., Columbia University*: Mechanics of solids.

Lin-Shu Wang, *Associate Professor, Ph.D., University of California, Berkeley*: Thermodynamics.

Hui Zhang, *Assistant Professor, Ph.D., Polytechnic University, Brooklyn*: Materials processing, solidification and free surface problems; computational fluid dynamics.

Affiliated Faculty

Robert D. Cess, *Marine Sciences Research Center*

Clinton Rubin, *Orthopaedics*

George Stell, *Chemistry*

Adjunct Faculty

Estimated number: 5

Teaching Assistants

Estimated number: 9

Mechanical engineering is one of the historical core disciplines of engineering and it encompasses a large number of subdisciplines that are at the heart of both traditional and leading edge technologies. It is a broad profession frequently concerned with activities such as energy conversion, power generation, design, and manufacturing. The theoretical and technical bases of knowledge include the pure sciences, mathematics, and the engineering sciences, especially the mechanics of solids and fluids, thermodynamics, and kinematics. Mechanical engineering requires aptitude and interest in the physical sciences and the language of mathematics, and the ability to apply these to societal needs.

The undergraduate mechanical engineering program at Stony Brook recognizes that students have a variety of career objectives and a choice of industrial environments in which to pursue them. While the majority of our graduates are immediately employed in industry, a significant percentage pursue graduate study. Most of the students entering graduate schools continue mechanical engineering studies. However, many go to law, business and medical schools. The undergraduate curriculum is specifically designed to pro-

vide students with the detailed mechanical engineering education and training required for immediate entry into the job market while at the same time maintaining enough flexibility to enable students to fully prepare for graduate studies and research careers.

The program in mechanical engineering provides students with a core education in mathematics and the physical sciences along with a broad sequence of courses covering thermal processes and fluid mechanics, mechanical design, solid mechanics and the dynamic behavior and control of mechanical systems. Students also take courses that introduce them to the use of advanced computational methods for engineering design and analysis and data processing and analysis. A series of laboratory courses introduce them to modern instrumentation and experimental techniques used in engineering for tasks ranging from product evaluation and testing to research. The elective courses in the curriculum provide an opportunity for students to develop a concentration in an energy systems track or a mechanical systems track. In addition, students can select electives to provide either higher level academic training in preparation for graduate school or a broader exposure to subjects related to engineering practice to enhance their preparation for a job after graduation.

The spectrum of activity within each career area includes research, development, design, testing, manufacturing, operations and maintenance, marketing and sales, administration, and consulting. Some of the industries that require the expertise of mechanical engineers are: aerospace, automotive, industrial machinery and equipment, power, transportation, environmental, mining, chemical, textile, petroleum, pharmaceutical, computing, electronics, office machinery, and consumer household products.

Courses Offered in Mechanical Engineering

MEC 100 Introduction to Mechanical Engineering
 MEC 111 Computer Science for Engineers
 MEC 125 Fundamentals of Machining
 MEC 200 Technical Communications in Mechanical Engineering I
 MEC 202 Technical Drawing and Computer-Aided Drafting I
 MEC 203 Technical Drawing and Computer-Aided Drafting II
 MEC 259 Particle and Rigid Body Mechanics
 MEC 260 Engineering Statistics
 MEC 262 Engineering Dynamics
 MEC 280-H Pollution and Human Health
 MEC 300 Technical Communications in Mechanical Engineering II
 MEC 301 Thermodynamics
 MEC 305 Heat and Mass Transfer
 MEC 309 Numerical Methods for Engineering Analysis
 MEC 310 Introduction to Machine Design
 MEC 316 Mechanical Engineering Laboratory I
 MEC 317 Mechanical Engineering Laboratory II
 MEC 320 Engineering Design Methodology and Optimization
 MEC 323 Internal Combustion Engine
 MEC 325 Manufacturing Processes
 MEC 342 Introduction to Experimental Stress Analysis
 MEC 350 Energy Conservation and Alternate Energy Technologies
 MEC 363 Mechanics of Solids
 MEC 364 Introduction to Fluid Mechanics
 MEC 381 Transport and Fate of Pollutants
 MEC 393 Engineering Fluid Mechanics
 MEC 398 Thermodynamics II
 MEC 402 Mechanical Vibrations
 MEC 410 Design and Analysis of Machine Elements
 MEC 411 System Dynamics and Control
 MEC 412 Computer-Aided Design
 MEC 417 Mechanical Engineering Laboratory III

MEC 420 Turbomachinery and Applications
 MEC 421 Statistical Quality Control and Design of Experiments
 MEC 422 Thermal System Design
 MEC 440 Mechanical Engineering Design I
 MEC 441 Mechanical Engineering Design II
 MEC 455 Applied Stress Analysis
 MEC 475 Undergraduate Teaching Practicum
 MEC 488 Mechanical Engineering Internship
 MEC 490, 491, 492 Topics in Mechanical Engineering
 MEC 499 Research in Mechanical Engineering

Requirements for Acceptance to the Major in Mechanical Engineering

Freshman and transfer applicants who have specified their interest in the mechanical engineering major may be accepted directly into the major upon admission to the University. 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. Students in good academic standing may apply in any semester, but priority for admission to an engineering major is given to those students who have 1. completed MAT 132 and PHY 132 or their equivalents, 2. earned a G.P.A. of 3.0 in all mathematics and physics courses with no more than one grade in the C range, and 3. received completed course evaluations for all transferred courses that are to be used to meet requirements of the major.

Requirements for the Major in Mechanical Engineering:

The major in mechanical engineering leads to the Bachelor of Engineering degree. The following courses, totaling approximately 110 credits, are required:

1. Mathematics
 - a. AMS 151, 161 Applied Calculus I, II
 - b. AMS 236 Statistics in Engineering Quality Control
 - c. AMS 261 Applied Calculus III or MAT 203 Calculus III with Applications

- d. AMS 361 Applied Calculus IV: Differential Equations or MAT 303 Calculus IV with Applications

Note: The following alternate calculus course sequences may be substituted for AMS 151, 161 in major requirements or prerequisites:

MAT 125, 126, 127
 or MAT 131, 132
 or MAT 141, 142

2. Natural Sciences

- a. PHY 131, 132 Classical Physics I, II
- b. PHY 251 Modern Physics or ESG 281 An Engineering Introduction to the Solid State
3. CHE 198 Chemistry for Engineers and CHE 199 General Chemistry Laboratory for Engineers

Notes:

- a. The following alternate physics course sequences may be substituted for PHY 131, 132:

PHY 125, 126, 127 Classical Physics A, B, C
 or PHY 141, 142 Classical Physics I, II: Honors

The following chemistry course sequences may be substituted for CHE 198 and 199:

CHE 131, 132 General Chemistry and CHE 133 General Chemistry Laboratory
 or CHE 141, 142 Honors Chemistry and CHE 143 Honors Chemistry Laboratory

3. Computer Programming

MEC 111 Computer Science for Engineers

4. Laboratories

MEC 316 Mechanical Engineering Laboratory I
 MEC 317 Mechanical Engineering Laboratory II
 MEC 417 Mechanical Engineering Laboratory III

5. Mechanical Engineering

MEC 100 Introduction to Mechanical Engineering
 MEC 202 Technical Drawing and Computer-Aided Drafting I
 MEC 203 Technical Drawing and Computer-Aided Drafting II
 MEC 260 Engineering Statics
 MEC 262 Engineering Dynamics

Sample Course Sequence in the Mechanical Engineering Major

- MEC 301 Thermodynamics
 MEC 305 Heat and Mass Transfer
 MEC 309 Numerical Methods for Engineering Analysis
 MEC 363 Mechanics of Solids
 MEC 364 Introduction to Fluid Mechanics

6. Materials Science

- ESG 332 Materials Science I: Structure and Properties of Materials

7. Electrical Science

- ESE 275 Fundamentals of Electrical Engineering
 or ESE 271 Electrical Circuit Analysis

8. Engineering Design

- MEC 310 Introduction to Machine Design
 MEC 320 Engineering Design Methodology and Optimization
 MEC 410
 MEC 411
 MEC 440
 MEC 441

9. Engineering Economics

- EST 392 (also satisfies D.E.C. category F')

10. Technical Electives

The mechanical engineering curriculum requires specialization in either of two tracks, Energy Systems or Mechanical Systems, through the completion of three upper-division technical electives. Two of the courses must be chosen from the three listed for each track below.

Energy Systems track:

MEC 398 Thermodynamics II and one of the following two courses:

- MEC 393 Engineering Fluid Mechanics
 MEC 422 Thermal Systems Design

Mechanical Systems track:

MEC 402 Mechanical Vibrations and one of the following two courses:

- MEC 325 Manufacturing Processes
 MEC 455 Applied Stress Analysis

The third course can be selected from those offered by various departments of the College of Engineering and Applied Sciences

Freshman Fall	Credits
D.E.C. A	3
MAT 131	4
MEC 100	3
PHY 131	4
D.E.C.	3
Total	17

Spring	Credits
CHE 198	4
CHE 199	1
MAT 132	4
PHY 132	4
MEC 111	3
MEC 202	1
Total	17

Sophomore Fall	Credits
MEC 260	3
ESG 281 or PHY 251	4
ESG 332	4
AMS 261 or MAT 203	4
AMS 236	1
Total	16

Spring	Credits
MEC 200	1
MEC 262	3
MEC 363	4
AMS 361 or MAT 303	4
ESE 275 or 271	4
MEC 203	1
Total	17

Junior Fall	Credits
MEC 301	3
MEC 309	3
MEC 316	3
MEC 364	4
D.E.C.	3
Total	16

Spring	Credits
MEC 300	0
MEC 305	3
MEC 310	3
MEC 317	2
MEC 320	3
Technical Elective	3
D.E.C.	3
Total	17

Senior Fall	Credits
MEC 410	3
MEC 411	4
MEC 440	3
Technical Elective	3
EST 392 (D.E.C. F.)	3
Total	16

Spring	Credits
MEC 417	2
MEC 441	3
Technical Elective	3
D.E.C.	3
D.E.C.	3
Total	14

including the Department of Mechanical Engineering. A list of specific courses can be found in the department's Undergraduate Guide.

11. Writing and Oral Communication Requirement

- MEC 200 Technical Communication in Mechanical Engineering I
 MEC 300 Technical Communication in Mechanical Engineering II

Grading

All courses taken to satisfy requirements 1 through 10 above must be taken for a letter grade. The average of the grades for the courses MEC 260, 262, 301, 305,

309, 310, 316, 317, 320, 363, 364, 410, 411, 417, 440, 441 and technical electives must be at least 2.0.

Minor in Mechanical Engineering

The minor in mechanical engineering is offered for students who want the record of their University studies to show a significant amount of upper-division work in one of the two tracks traditional to the mechanical engineering profession: energy systems and mechanical systems. Entry into this minor presupposes a background in mathematics and physics, represented by the prerequisite requirements for the courses listed below.

Requirements for the minor

Completion of the minor requires 21-23 credits of which 15-17 are from required core courses and several of which students may have taken as part of their major.

There are pairs of courses that can be selected to achieve a specific expertise. A student who wishes to pursue this minor should consult with the undergraduate program director in the Department of Mechanical Engineering before registering for the elective courses. All courses must be taken for a letter grade and an average of 2.0 or higher is required for the six courses that constitute the minor.

1. Required courses:

MEC 259 (or MEC 260 and 262)

MEC 301 (or ESG 302)

MEC 309 (or equivalent course in numerical methods)

MEC 363

2. Two elective courses chosen from either group A or group B

Group A, Energy Systems: MEC 305, 323, 350, 364, 393, 398, 490, 491, 492

Group B, Mechanical Systems: MEC 310, 320, 325, 342, 402, 411, 490, 491, 492

PME

Minor in Physical Metallurgy

CHAIRPERSON: Michael Dudley, Materials Science and Engineering UNDERGRADUATE PROGRAM DIRECTOR: Christopher C. Berndt
ADMINISTRATIVE ASSISTANT: Gertha Benoit-Hollis

OFFICE: 314 Engineering PHONE: 632-8484 E-MAIL: ghollis@notes.cc.sunysb.edu WEB ADDRESS: <http://doL1.eng.sunysb.edu/>

The Department of Materials Science and Engineering offers the minor in Physical Metallurgy, suitable for Engineering Science (ESG) students or for non-Engineering Science students who seek to obtain a more thorough understanding of the engineering sciences. ECE, ESG, ESE, MEC, and AMS students can assemble a sequence of courses with 18-24 credits to satisfy an engineering science minor. Courses used to satisfy the requirements of the minor may not be used to satisfy requirements of another minor in engineering science. The student's program must be approved by the Undergraduate Program Director, Department of Materials Science and Engineering, Engineering Building, Room 314.

Mechanical Engineering
or ESE 123 Introduction to Electronic Design

3. ESM 334 Materials Engineering
ESM 335 Mechanical Properties of Materials
ESM 353 Biomaterials: Manufacture, Properties, and Applications
4. Two courses chosen from:
 - ESM 488 Cooperative Industrial Practice or ESM 499 Research in Materials Science
 - ESM 309 Thermodynamics of Solids
 - ESM 325 Diffraction Techniques and Structure of Solids

Requirements for the Minor in Physical Metallurgy

Completion of the minor requires 18-24 credits.

Requirements for students majoring in Engineering Science:

1. ESM 334 Materials Engineering
ESM 335 Mechanical Properties of Materials
ESM 353 Biomaterials: Manufacture, Properties, and Applications
2. Four courses chosen from:
 - BNG/ESG 201 Engineering Responses to Society
 - ESM 309 Thermodynamics of Solids
 - ESM 325 Diffraction Techniques and Structure of Solids
 - ESM 488 Cooperative Industrial Practice
 - ESM 499 Research in Materials Science
 - MEC 305 Heat and Mass Transfer

Requirements for all other students:

1. BNG/ESG 201 Engineering Responses to Society
2. ESG 100 Introduction to Engineering Science
or MEC 100 Introduction to

EST

Department of Technology and Society

CHAIRPERSON: Thomas T. Liao UNDERGRADUATE PROGRAM DIRECTOR: Joseph S. Hogan ADMINISTRATIVE ASSISTANT: Catherine Bardram
OFFICE: 210 Engineering PHONE: 632-8765 WEB ADDRESS: www.ceas.sunysb.edu/ts.html

Faculty

Joanne English Daly, *Lecturer, M.S., State University of New York at Stony Brook*: Internet technology; computers in learning environments.

David L. Ferguson, *Professor, Ph.D., University of California, Berkeley*: Quantitative methods; computer applications; intelligent tutoring systems; mathematics and engineering education. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1992, and the President's Award for Excellence in Teaching, 1992.

Michael Hacker, *Research Associate Professor, M.S., City University of New York*: Technology education; curriculum design and development; teacher enhancement programs.

Joseph S. Hogan, *Associate Professor, Ph.D., New York University*: Planetary atmospheres; climate change; environmental satellites.

Thomas T. Liao, *Distinguished Teaching Professor, Ed.D., Columbia University*: Science education; educational technology; curriculum development. Recipient of the State University Chancellor's Award for Excellence in Teaching, 1993, and the President's Award for Excellence in Teaching, 1993.

Lester Paldy, *Distinguished Service Professor, M.S., Hofstra University*: Physics; science policy and education.

Sheldon J. Reaven, *Associate Professor, Ph.D., University of California, Berkeley*: Energy-environmental issues; waste management; philosophy of science and technology.

Herb Schiller, *Lecturer, M.S.M.E., California Institute of Technology, M.S., Polytechnic University*: Operations management, manufacturing systems.

Glenn G. Smith, *Assistant Professor, Ph.D., Arizona State University*: Educational media and technology; impact of computer technology on human cognition; effects of computer games on spatial visualization.

John G. Truxal, *Distinguished Teaching Professor Emeritus, Sc.D., Massachusetts Institute of Technology*: Technology and society issues; automatic control systems.

Marion Visich, Jr., *Emeritus Professor, Ph.D., Polytechnic Institute of Brooklyn*: Aerospace engineering; technology-society issues.

Affiliated Faculty

Jacqueline G. Brooks, *Science, Mathematics, and Technology Education*

Adjunct Faculty

Estimated number: 10

Teaching Assistants

Estimated number: 10

The Department of Technology and Society 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 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.

Courses Offered in Technology and Society

EST 100 Societal Impact of Computers

EST 102-E Weather and Climate

EST 192 Introduction to Modern Engineering

EST 194-C Patterns of Problem Solving

EST 210 Learning to Learn New Technologies

EST 290-H Technology, Society, and Values: Balancing Risks and Rewards

EST 291-H Energy, Environment, and People

EST 300 Computer Modeling and Experiments in Mathematics and Science Education

EST 302 Assessment of Computer-Based Technologies

EST 305 Applications Software for Information Management

EST 307 Computer Modeling of Biological Systems

EST 320-H Communication Technology Systems

EST 325-H Technology in the Workplace

EST 330-H Natural Disasters: Societal Impacts and Technological Solutions

EST 391-H Technology Assessment

EST 392-F Engineering and Managerial Economics

EST 393 Production and Operations Analysis

EST 411-H Science, Technology, and Arms Control

EST 412 Intelligence Organizations, Technology, and Democracy

EST 420 Seminar on Information-Age Society

EST 421 Starting the High-Technology Venture I

EST 422 Starting the High-Technology Venture II

EST 475 Undergraduate Teaching Practicum

EST 499 Research in Technology and Society

The Minor in Technology and Society

There are two versions of the minor in technology and society. Students should arrange for an interview with a program faculty member to discuss the requirements listed below.

In both versions, at least three of the six courses must be at the 300 level or above and a 2.5 grade point average must be attained for the six courses. The minor for students with majors leading to the B.A. or B.S. degree may be fulfilled by satisfactorily completing six courses totaling at least 18 credits:

1. at least four EST courses
2. two other College of Engineering and Applied Sciences courses approved by the undergraduate program director

The minor for students with majors leading to the B.E. degree may be fulfilled by satisfactorily completing six courses totaling at least 18 credits:

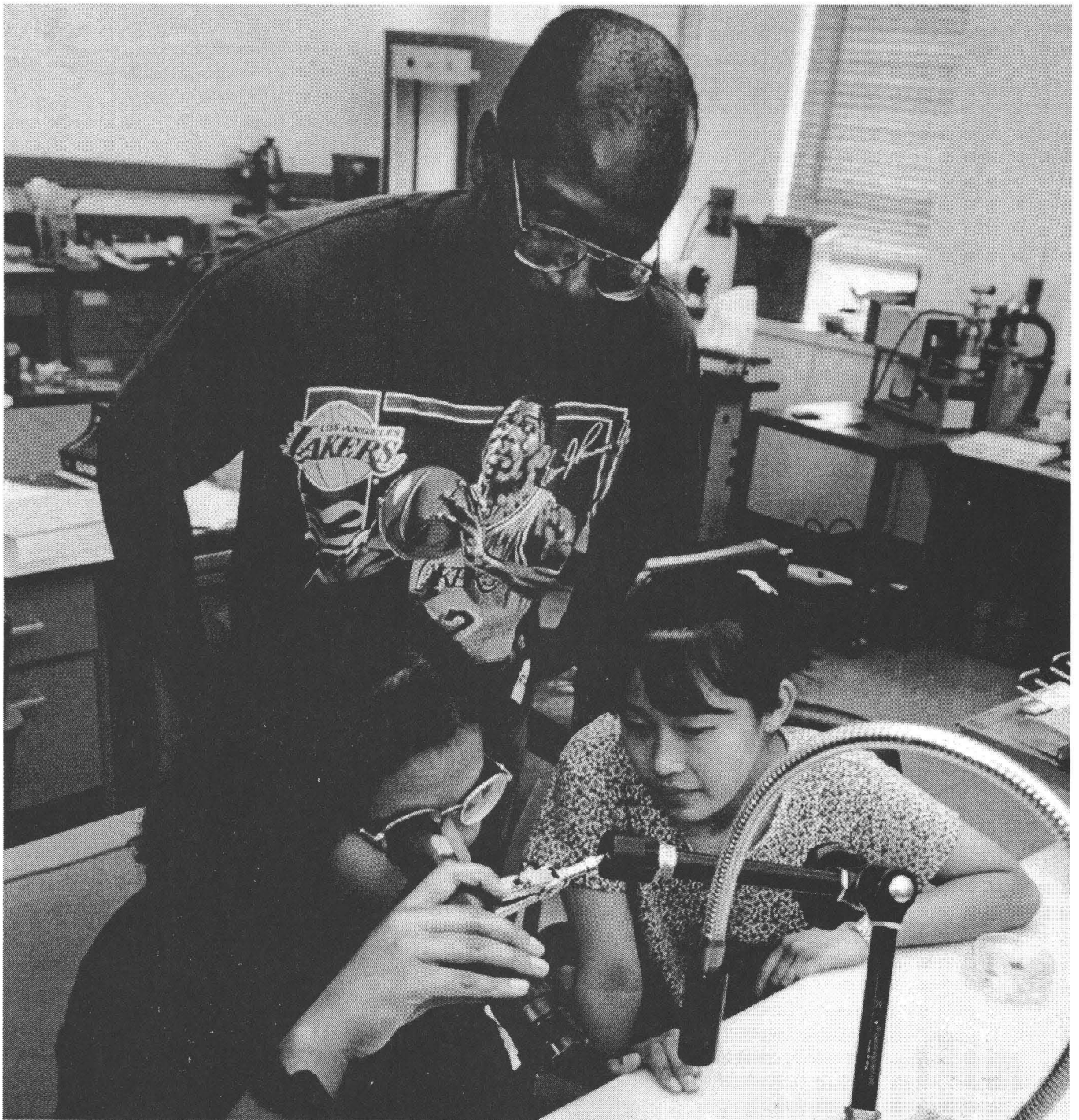
1. four EST courses (An EST technical elective cannot be used to satisfy both this requirement and a major in the College of Engineering and Applied Sciences)

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.



Health Sciences Center

*Frances L. Brisbane, Norman H. Edelman, Craig Lehmann,
Lenora J. McClean, Barry R. Rifkin, Deans*



This chapter provides an overview of Stony Brook's Health Sciences Center and describes the programs to which West Campus students may apply. In addition, some courses are open to West Campus students, and these are described in the alphabetical listing of Approved Courses. 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 (HSC) consists of five professional schools. The schools—Dental Medicine, Health Technology and Management, Medicine, Nursing, and Social Welfare—offer professional education to approximately 2,500 students annually, and conduct programs in research, service, and continuing professional education. University Hospital and the Long Island State Veterans Home are major teaching facilities for the educational programs of the Center. Professional, technical, and laboratory resources support the academic and research activities of the students and faculty.

The Health Sciences Center schools have four primary objectives. They seek 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.

Program Offerings

Current offerings include both undergraduate and post-baccalaureate programs. The Health Sciences Center offers the following programs and degrees:

School of Health Technology

- B.S. Clinical Laboratory Sciences (formerly Medical Technology)
- B.S. Cytotechnology
- B.S. Occupational Therapy
- B.S. Physician Assistant Education
- B.S. Respiratory Care

B.S. Health Science/M.S. Physical Therapy dual degree

M.S. Health Care Policy and Management

Advanced Certificates in Health Care Management, Community Health

School of Nursing

B.S., B.S./M.S., M.S. Nursing

Post Master's Nursing Certificates

School of Social Welfare

B.S., M.S.W., Ph.D. Social Work

School of Dental Medicine

D.D.S. Doctor of Dental Surgery

M.S., Ph.D. Oral Biology and Pathology

Post Doctoral Certificates in Endodontics, Orthodontics, and Periodontics

School of Medicine

M.D. Doctor of Medicine

M.S., Ph.D. Basic Sciences

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 summer and fall, depending on the program. Each school of the Health Sciences Center is responsible for determining its admissions policy and for selecting its students. Admissions decisions are made by committees in each of the schools. Application processing and records are handled by the Office of Student Services in the Health Sciences Center, where applications for all undergraduate programs should be obtained in the fall preceding the year of anticipated admission.

Undergraduate Eligibility

All Health Sciences Center professional baccalaureate programs begin in the junior year except for the BSHS/MSPT program, which requires 72 college credits prior to matriculation. Admission to Health Sciences Center programs is by formal application only and is selective.

Applications for all undergraduate programs 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 pro-

grams; they should note that admission to any of the undergraduate programs is not simply a change of major. Application forms and information about course and program content is available from each school and from the Office of Student Services, Health Sciences Center.

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. The BSHS/MSPT requires 72 prerequisite college credits. All programs require specific course prerequisites, which are given below under the appropriate school offering the program(s). Stony Brook freshmen can declare the four-year lower-division major in either Clinical Laboratory Sciences or Respiratory Care. Automatic advancement to the upper-division major is contingent upon successful completion of program prerequisites and the preprofessional course.

Most undergraduate programs and the BSHS/MSPT program are full time. Part-time studies are offered by the registered nurse program in the School of Nursing.

The Baccalaureate Accelerated Program in the School of Nursing is designed for college graduates who have a non-nursing bachelor's degree. To be eligible for consideration, students must have a B.S. or B.A. degree and specific course prerequisites. This is a full-time program, running from July 1 through June 30.

Pre-Application Advising

Before they have applied for admission to the health professions programs, West Campus students can receive advising about course sequences and requirements in the Office of Undergraduate Academic Affairs. Several programs in the Health Sciences Center hold open meetings throughout the academic year at which advisors present overviews of the programs, explain admissions procedures, and advise students individually. The Office of Student Services at HSC provides individual advising and general information regarding all Health Sciences Center Programs.

Through its credentials service, the University Career Placement Center also assists Stony Brook students applying to undergraduate health professions schools. The office keeps letters of rec-

ommendation on file and will send copies to schools upon request.

Health Sciences Center Academic Calendars

Health Sciences Center courses may consist of one semester or one or more modules as determined by the faculty of each school. Semesters are the traditional academic periods of late August or early September to December (fall) and January to May (spring); modules are academic periods of approximately five weeks.

Semesters are used for all courses offered on the West Campus, in the School of Social Welfare, and in some graduate programs in the School of Health Technology and Management, as well as for most courses in the schools of Dental Medicine, Medicine, and Nursing. Modules are used exclusively for courses in the undergraduate programs and the BSHS/MSPT program of the School of Health Technology and Management and for some basic science courses. Modular dates, including the beginning and ending dates, add/drop periods, and the modular codes required for course registration, are contained in the table of modular dates provided in the Health Sciences Center Bulletin and in the Health Sciences Center academic calendar published by the Office of Student Services.

School of Health Technology and Management

Although most undergraduate students enter the Health Sciences Center programs at the junior level, the School of Health Technology and Management offers students interested in clinical laboratory sciences or respiratory care the opportunity to begin their studies in their freshman year. Freshman applicants who have been admitted to the University and who have accepted the offer of admission may be eligible to declare the four-year lower-division major in Respiratory Care or Clinical Laboratory Sciences, after an interview with the program.

Clinical Laboratory Sciences

Students who are strong in science, enjoy problem solving, and have good manual dexterity can apply their talents to patient care as clinical laboratory scientists, who analyze specimens from the human body by applying biological and

chemical principles to the diagnosis and treatment of disease. Clinical laboratory scientists work in various clinical settings: hospitals, private laboratories and medical practices, and government and industrial laboratories. A double major in a basic science with a concentration in immunology, hematology, microbiology, or biochemistry is also available.

Pre-Application Requirements

- 3 credits of English composition
- 6 credits in the arts and/or humanities, excluding studio, skills, and techniques courses
- 6 credits in the social and behavioral sciences
- 12 credits of chemistry with labs (to include inorganic and organic chemistry)
- 8 credits of biology with labs (See note 1)
- 3 credits of college-level mathematics
- 2.5 G.P.A.

Notes:

1. Students completing the courses at Stony Brook should take BIO 202 and 203 Fundamentals of Biology.
2. Courses in physics, biochemistry, general microbiology, genetics, cell biology, and computer literacy are recommended.
3. Stony Brook freshmen are eligible to declare clinical laboratory sciences as a major. In addition to the requirements listed above, students in this four-year program must successfully complete HAD 210 Introduction to Clinical Laboratory Sciences during the fall of their sophomore year.

Cytotechnology

Cytotechnologists are trained medical laboratory technologists who study the structure and function of cells. They work with pathologists to detect changes in body cells that may be important in the early diagnosis of cancer. They use a microscope to screen slide preparations of body cells for abnormalities in structure, indicating either benign or malignant conditions. Using special techniques, cytotechnologists prepare cellular samples for study under a microscope and assist in the diagnosis of disease by examining the samples. Cytologic techniques can also be used to detect diseases involving hormonal abnormalities and other pathological disease processes.

Pre-Application Requirements

- 3 credits of English composition
- 6 credits in the arts and/or humanities, excluding studio, skills, and techniques courses
- 6 credits in the social and behavioral sciences
- 12 credits of biology with labs (See Note 1)
- 8 credits of chemistry with labs
- 3 credits in college-level mathematics
- 2.5 G.P.A.

Notes:

1. Students completing the courses at Stony Brook should take BIO 202 and 203 Fundamentals of Biology and HBM 320, 321 Microbiology and Laboratory, though other biological science courses may be substituted for HBM 320, 321.
2. Courses in botany, genetics, cell physiology, general microbiology, histology, anatomy, philosophy, psychology, and computer literacy are recommended.

Occupational Therapy

Occupational therapists apply goal-oriented activity in the evaluation, diagnosis, and treatment of persons whose function is impaired by physical illness or injury, emotional disorder, congenital or developmental disability, or the aging process, in order to achieve optimum functioning, prevent disability, or maintain health. They provide services including, but not limited to, education and training in activities of daily living; the design, fabrication, and application of orthoses (splints); guidance in the selection and use of adaptive equipment; therapeutic activities to enhance functional performance; pre-vocational evaluation and training; and consultation concerning the adaptation of physical environments for the disabled.

Pre-Application Requirements

- 3 credits of English composition
- 6 credits in the arts and/or humanities, excluding studio, skills, and techniques courses
- 6 credits in the social and behavioral sciences including an introduction to psychology course and a course in abnormal psychology
- 8 credits of biology with labs (See Note)
- 8 credits of chemistry with labs
- 8 credits of physics with labs

Cardiopulmonary resuscitation and first aid certification

Minimum of 40 hours of varied experience in occupational therapy under the supervision of an occupational therapist and documented in writing

Preference is given to students who have completed science requirements within the last ten years

2.5 g.p.a (Preference is given to 3.0 g.p.a)

Note:

Students completing the courses at Stony Brook should take BIO 202 and 203 Fundamentals of Biology.

Physical Therapy

Physical therapists use physical agents such as heat, light, water, and electrical energy to treat illness and disability, to relieve pain, or to change a patient's physiological status. As a member of the rehabilitation team, they treat trauma, stroke, and heart disease patients who must re-learn how to use their muscles and attain maximum physical potential. Physical therapists work in hospitals, clinics, health agencies, special centers and schools for the disabled, or private practice. The physical therapy program is now an entry-level master's degree program and offers a dual degree: B.S. in Health Science/ M.S. in Physical Therapy (BSHS/MSPT). 72 college credits are required as prerequisite for admission.

Pre-Application Requirements

3 credits of English composition

9 credits in the arts and/or humanities, excluding studio, skills, and techniques courses

9 credits in the social and behavioral sciences

11 credits of biology with labs (See Note 1) including 3 credits of 300- or 400-level physiology.

8 credits of chemistry with labs

8 credits of physics with labs

Cardiopulmonary resuscitation and first aid certification

Minimum of 100 hours of experience in physical therapy rehabilitation under the supervision of a physical therapist

Allied Health Professions Admission Test

Preference is given to students who have earned a 3.0 minimum cumulative g.p.a. and 3.0 minimum science g.p.a.

Notes:

1. Students completing the courses at Stony Brook should take BIO 202 and 203 Fundamentals of Biology, and BIO 328 Mammalian Physiology.

2. At least a year of psychology is also recommended and those who have completed 20 of the 27 required credits in science at the time of application.

3. Preference is given to students who have completed science requirements within the last ten years and those who have completed 20 of the 27 required credits in science at the time of application.

Physician Assistant

Physician assistants (PAs) practice medicine with the supervision of a physician. PAs take medical histories, perform physical examinations, develop and implement patient management plans, order diagnostic studies such as laboratory tests, and perform therapeutic procedures such as suturing and casting. Patient education and counseling are also important aspects of the PA role, as is preventive health care. The quality and value of the services PAs provide are highly sought after by physicians and institutional employers in virtually all medical and surgical specialties and settings. Special emphasis is placed on graduate employment in medically underserved areas and primary care specialties.

Pre-Application Requirements

3 credits of English composition

6 credits in the arts and/or humanities, excluding studio, skills, and techniques courses

6 credits in the social and behavioral sciences

11 credits in biological sciences, including 3 credits in microbiology (See Note 1)

8 credits of chemistry with labs

3 credits of college-level mathematics

Minimum of one year (or two thousand hours) of documented direct patient care and/or health-related experience

Cardiopulmonary resuscitation certification

Allied Health Professions Admission Test

Minimum g.p.a of 2.5 in the natural sciences (including all courses in chemistry, biology, physics, and mathematics)

Notes:

1. Students completing the courses at Stony Brook should take BIO 202 and 203 Fundamentals of Biology and HBM 320 Microbiology.

2. Courses in psychology, sociology, and statistics are also recommended.

3. Preference is given to applicants who have completed science requirements within the last seven years, and to those who have completed 15 of the 19 required credits in chemistry and biological sciences at the time of application.

Respiratory Care

These practitioners diagnose and treat patients with a wide range of cardiopulmonary disorders, such as asthma, emphysema, cystic fibrosis, and pneumonia. The respiratory care practitioner (RCP) employs a variety of sophisticated medical equipment and therapies in the management of patients in hospitals, clinics, and home settings. This multifaceted profession involves evaluation of lung and cardiac function, administration of oxygen and therapeutic medications, remedial breathing exercises, cardiopulmonary respiratory therapy, mechanical ventilation, and other life support procedures. Respiratory care involves a high degree of patient interaction in both critical and long-term situations. The knowledge and skills of the RCP are necessary in many aspects of health care, including medical and surgical intensive care, neonatal intensive care, pediatrics, coronary care and hemodynamic monitoring, pulmonary function and exercise testing, emergency services and trauma care, rehabilitation and home care, land and air patient transport services, discharge planning and patient education, departmental management, clinical research, teaching, and administration.

Pre-Application Requirements

3 credits of English composition

6 credits in the arts and/or humanities, excluding studio, skills, and techniques courses

6 credits in the social and behavioral sciences

11 credits in biological sciences, including 3 credits in microbiology (See Note 1)

8 credits of chemistry with labs

8 credits of physics with labs

3 credits of college-level mathematics

Sample Course Sequence: Requirements for Application to the School of Nursing

Freshman Fall	Credits
D.E.C. A English Composition	3
CHE 121	4
PSY 103	3
BIO 150	3
SOC 105	3
Total	16

Spring	Credits
D.E.C. A English Composition	3
BIO 203	4
CHE 112	3
D.E.C. B (Humanities)	3
MAP 103 or HNI 290	3
Total	16

Sophomore Fall	Credits
BIO 328	3
ANP 300	4
PSY 220	3
D.E.C. G (Humanities)	3
D.E.C. G (Humanities)	3
Total	16

Spring	Credits
AMS 102	3
BIO 232	3
PSY 240 or SOC 382	3
HBM 320, 321	4
SOC 392 or elective	3
Total	16

Sample Course Sequence: Requirements for Application to the School of Social Welfare

Freshman Fall	Credits
D.E.C. A English Composition	3
BIO 101	3
ANT 102 or SOC 105	3
MAP 103*	3
Total	12

Spring	Credits
D.E.C. A English Composition	3
D.E.C. E (Natural Science) or Math	3
POL 102	3
HIS 104	3
D.E.C. B or G (Humanities)	3
Total	15

Sophomore Fall	Credits
D.E.C. B, D or G (Humanities)	3
PSY 103	3
**200- and 300-level D.E.C. categories courses	9
Total	15

Spring	Credits
**200- 300-level D.E.C. categories courses	15
Total	15

* Students must take a mathematics placement examination.

**The above program puts most of the required courses into the first year, but they could equally be spread over two years since the student cannot enter the social work major until the junior year. Application should be submitted in the sophomore year. Volunteer work is desirable.

Cardiopulmonary resuscitation and first aid certification

2.5 g.p.a

Notes:

1. Students completing the courses at Stony Brook should take BIO 202 and 203 Fundamentals of Biology and HBM 320 Microbiology.
2. Stony Brook freshmen are eligible to declare respiratory care as a major. In addition to the requirements listed above, students in this four-year program must successfully complete HAT 210 Introduction to Respiratory Care during the fall of their sophomore year.

School of Nursing

Nurses synthesize knowledge from a variety of fields of study as they are prepared to assist people in the performance of activities that contribute to health, its recovery or to the alleviation of distress or discomfort in preparing people for a peaceful death.

The goals of the program in nursing at the University at Stony Brook are to:

- Educate a diverse population of men and women for professional generalist nursing practice in a variety of health care settings.
- Contribute to the scholarly development of the profession by testing and evaluating theoretical formulations, applications of knowledge, and inno-

vative practices.

- Provide an educational foundation for advanced and specialized study in a field of nursing.
- Prepare for improvement of health care at the local, state, and national levels through individual, collaborative, and interdisciplinary efforts.

Nurses prepared at the baccalaureate level are employed in a diverse array of health care areas ranging from hospital to ambulatory, home, school, short- and long-term care facilities. They are employed as leaders in health care management, case management, and supervision of assistive health care providers.

A career in nursing includes a masters degree as preparation for advanced nursing as a nurse practitioner or clinical nurse specialist. Preparation as nurse educators, nurse researchers, and analysts is at the doctoral level.

Admission to the basic baccalaureate program leading to a B.S. with a major in nursing follows two or three years of study in the arts and sciences during which a student must earn a minimum of 57 credits and a minimum G.P.A. of 2.5. The nursing major also requires certification in cardiopulmonary resuscitation (CPR). West Campus students are strongly encouraged to identify themselves as potential nursing majors by officially declaring an area of interest in

nursing (GNS).

Required Courses

AMS 102
ANP 300
CHE 121
CHE 112
BIO 150
BIO 203
BIO 232
BIO 328
HBM 320 with laboratory HBM 321
WRT 102 or 103
PSY 103
PSY 220
SOC 105
SOC 382 or PSY 240
Humanities (9 credits)

Recommended Courses

BIO 202
HNI 290
EST 100
PHY 117
SOC 392

School of Social Welfare

Graduates with a bachelor's degree in social welfare are prepared for entry level social work professional positions working with individuals, families, groups, communities, and organizations in a wide range of health and human service facilities including: nursing homes, hospitals, mental health services, sub-

stance abuse programs, community action agencies, child welfare programs, services for older people, homeless shelters, mental retardation services, youth services, legal service agencies, foster care programs, public health, and family services. Social workers seek to: affirm human dignity; strengthen and empower people; affirm their strengths as a means to create positive change in their lives. This commitment is carried out by providing services to people and helping communities to organize services that contribute to the welfare of all people.

Pre-Application Requirements

3 credits of English composition

6-8 credits in the fine arts and humanities, excluding elementary languages, design, or skills improvement courses.

3 credits of American political systems

3 credits of introductory anthropology or sociology

3 credits of introductory psychology

3 credits of American history (post-Reconstruction)

3-4 credits of introductory biology

3-4 credits in natural science or college-level mathematics

2.5 g.p.a

Applicants should have demonstrated interest in the social welfare field through paid or volunteer experience in programs aimed at social improvement.

GRADUATE HEALTH PROFESSIONS PROGRAMS

Although Stony Brook students wishing to enter medical or dental school have the advantage of these professional schools at the University, applicants throughout the state and country apply for entry and students are well advised to prepare for application to several schools.

All graduate health professions schools require completion of the following courses prior to application:

One year of biology with laboratory

One year of general chemistry with laboratory

One year of organic chemistry with laboratory

One year of physics with laboratory

One year of English

One year of mathematics, including at least one semester of calculus

Note: Students interested in the new Physical Therapy entry-level master's degree program (BSHS/MSPT) should refer to the physical therapy section on page 264 for required courses.

School of Dental Medicine

Although its program is primarily for post-baccalaureate students, the School of Dental Medicine also offers research opportunities for elective credit to undergraduate students enrolled in courses of study in all departments of the University. To register for these courses, West Campus students should have earned a minimum of 57 University credits. Permission of the instructor is required for all courses.

School of Medicine

Although its program is primarily for post-baccalaureate students, the School of Medicine offers courses and research opportunities for elective credit to undergraduate students enrolled in the University.

Further information is available from the Office of Undergraduate Academic Affairs.

Health Professions Area of Interest

West Campus students interested in any of the undergraduate health professions are strongly encouraged to identify themselves by officially declaring an area of interest. Declaration of major/minor/area of interest forms are available in the Academic Advising Center.

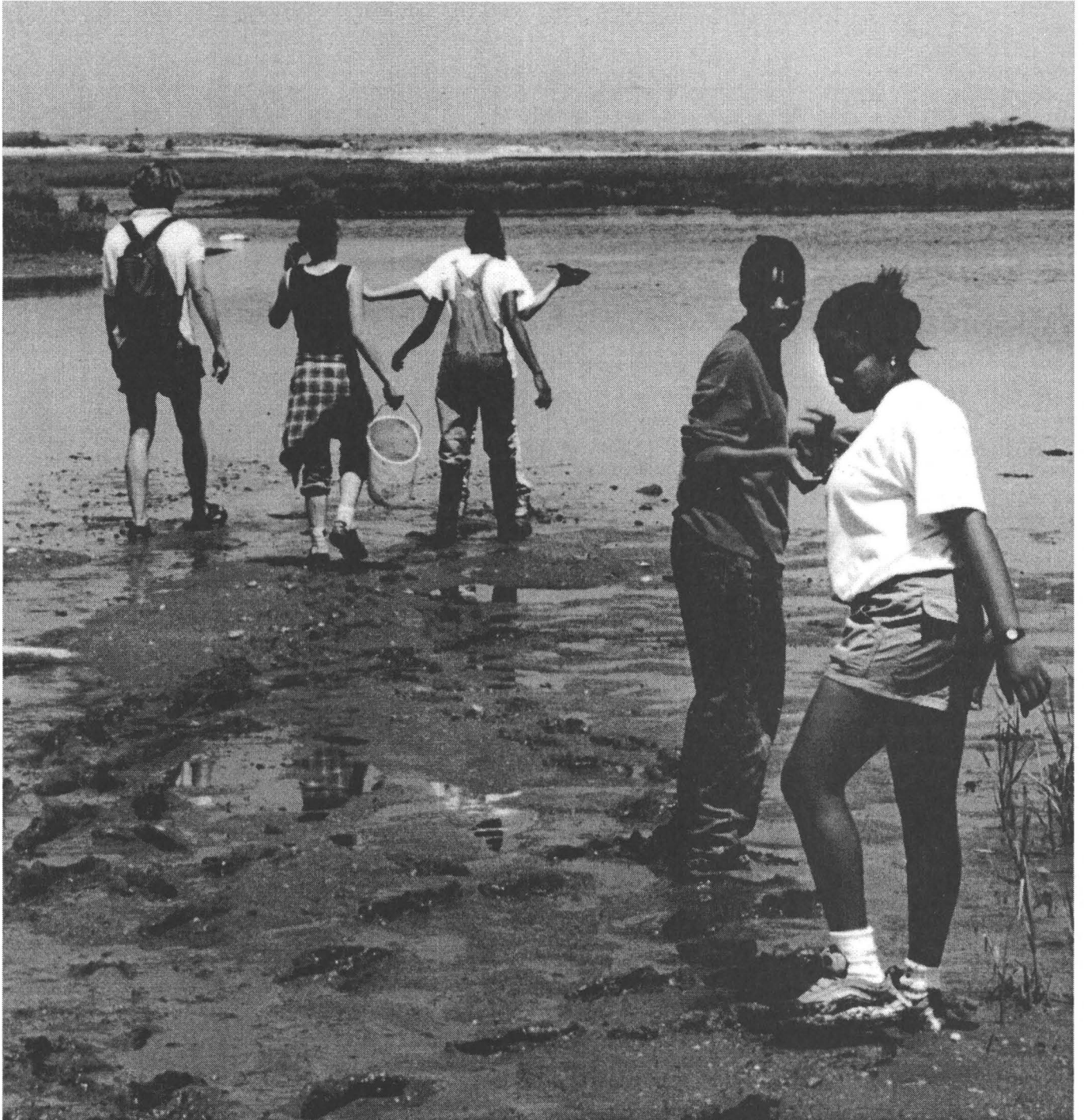
Note: Declaring an area of interest does not assure acceptance into the Health Sciences Center programs.

Students interested in any of the graduate health professions are strongly encouraged to identify themselves by officially declaring an area of interest code. Forms are available in the Office of Undergraduate Academic Affairs.



Marine Sciences Research Center

Marvin A. Geller, Dean



ATM / MAR

Programs of the

Marine Sciences Research Center

DEAN AND DIRECTOR: Marvin A. Geller DIRECTOR OF UNDERGRADUATE STUDIES: Robert M. Cerrato

ASSISTANT TO THE DIRECTOR: Laura Richardson

EDUCATION OFFICE: 105 Endeavour Hall PHONE: 632-8681 E-MAIL: lrichardson@notes.cc.sunysb.edu WEB ADDRESS: www.msrmc.sunysb.edu

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, *Professor, 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.

Vincent T. Breslin, *Assistant Professor, Ph.D., Florida Institute of Technology*: Metal leachability from combustion residues; trace metal geochemistry.

Bruce J. Brownawell, *Associate Professor, Ph.D., Massachusetts Institute of Technology*: Biogeochemistry of organic pollutants in seawater and groundwater.

Edward J. Carpenter, *Professor, Ph.D., North Carolina State University*: Nitrogen cycling; phytoplankton ecology.

Robert M. Cerrato, *Associate Professor, Ph.D., Yale University*: Benthic ecology; population and community dynamics.

Robert D. Cess, *Distinguished Professor, Ph.D., University of Pittsburgh*: Radiative transfer and climate modeling; greenhouse effect; nuclear winter theory; atmospheric structures of Mars, Saturn, and Jupiter.

Andre Y. Chistoserdov, *Assistant Professor, Ph.D., Institute of Genetics and Selection of Industrial Organisms*: Marine microbiology; marine biotechnology and bioremediation.

J. Kirk Cochran, *Professor, Ph.D., Yale University*: Marine geochemistry; use of radionuclides as geochemical tracers; diagenesis of marine sediments.

Daniel C. Conley, *Assistant Professor, Ph.D., University of California, San Diego*: Sediment transport; wave boundary layers; near-shore processes.

David O. Conover, *Professor, Ph.D., University of Massachusetts-Amherst*: Ecology of fishes; fishery biology.

Nicholas S. Fisher, *Professor and Associate Dean, Ph.D., State University of New York at Stony Brook*: Marine phytoplankton physiology and ecology; biogeochemistry of metals; marine pollution.

Roger D. Flood, *Professor, Ph.D., Massachusetts Institute of Technology*: Marine geology; sediment dynamics; continental margin sedimentation.

Jane L. Fox, *Professor, Ph.D., Harvard University*: Planetary upper atmospheres.

Marvin A. Geller, *Professor and Dean and Director, Ph.D., Massachusetts Institute of Technology*: Atmospheric dynamics; stratosphere dynamics; ozone behavior.

Valrie A. Gerard, *Associate Professor, Ph.D., University of California, Santa Cruz*: Marine macrophyte ecology and physiology.

Sultan Hameed, *Professor and Coordinator of Atmospheric Sciences Program, Ph.D., University of Manchester*: Climate change.

Cindy Lee, *Professor, Ph.D., University of California, San Diego*: Marine geochemistry of organic compounds; organic and inorganic nitrogen cycle biochemistry.

Darcy J. Lonsdale, *Associate Professor, Ph.D., University of Maryland at College Park*: Zooplankton ecology with special interest in physiology; life history studies.

Glenn R. Lopez, *Professor, Ph.D., State University of New York at Stony Brook*: Benthic ecology; animal-sediment interactions.

Kamazima Lwiza, *Associate Professor, Ph.D., University College of North Wales*: Coastal ocean circulation; tides and tidal fronts; mixing.

Anne E. McElroy, *Associate Professor, Ph.D., Massachusetts Institute of Technology*: Aquatic toxicology.

John L. McHugh, *Emeritus Professor, Ph.D., University of California, Los Angeles*: Fishery management; fishery oceanography; whales and whaling.

Donald W. Pritchard, *Professor Emeritus, Ph.D., University of California, San Diego*: Estuarine and coastal dynamics; coastal zone 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.

Sergio A. Sanudo-Wilhelmy, *Assistant Professor, Ph.D., University of California, Santa Cruz*: Chemical oceanography; coastal geochemistry; metal cycling in aquatic systems.

J. R. Schubel, *Emeritus Professor, Ph.D., The Johns Hopkins University*: Coastal sedimentation; suspended sediment transport; coastal zone management.

Mary I. Scranton, *Professor, Ph.D., Massachusetts Institute of Technology*: Marine geochemistry; biological-chemical interactions in seawater.

Gordon Taylor, *Associate Professor, Ph.D., University of Southern California*: Marine microbiology; microbial ecology; plankton trophodynamics; marine biofouling.

Prasad Varanasi, *Professor, Ph.D., University of California, San Diego*: Planetary spectroscopy.

Duane E. Waliser, *Assistant Professor, Ph.D., University of California, San Diego*: Atmospheric dynamics; climate modeling.

Dong Ping Wang, *Professor, Ph.D., University of Miami*: Coastal ocean dynamics.

Peter K. Weyl, *Professor Emeritus, Ph.D., University of Chicago*: Coastal zone planning; physical oceanography.

Robert E. Wilson, *Associate Professor, Ph.D., 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 Emeritus, Ph.D., Stanford University*: Effects of chlorinated hydrocarbons on phytoplankton communities.

Jeannette Yen, *Associate Professor, Ph.D., University of Washington*: Marine zooplankton ecology.

Minghua Zhang, *Associate Professor, Ph.D., Academia Sinica*: Atmospheric dynamics; climate modeling.

Affiliated Faculty

Edward Beltrami, *Applied Mathematics*

Robert L. deZafra, *Physics*

Theodore Goldfarb, *Chemistry*

William H. Greene, *Medicine*

Stewart Harris, *Engineering*

Herbert Herman, *Materials Science and Engineering*

Lee E. Koppelman, *Political Science*

Manuel Lerdau, *Ecology and Evolution*

Jeffrey Levinton, *Ecology and Evolution*

William J. Meyers, *Earth and Space Sciences*

Sheldon Reaven, *Technology and Society*

Teaching Assistants

Estimated number: 13

The Marine Sciences Research Center (MSRC) is the center for marine research, education, and public service in the marine sciences for the State University of New York system. In addition, MSRC is the University at Stony Brook's center for research, education, and public service in the atmospheric sciences. MSRC is one of the leading coastal oceanographic and atmospheric institutions in the world. The expertise of MSRC's faculty places them in the forefront in addressing and answering questions about regional environmental problems, as well as problems relating to the global ocean and atmosphere. The primary focus of the MSRC faculty is on fundamental research designed to increase understanding of the processes that characterize the coastal ocean and the atmosphere. But the Marine Sciences Research Center is also committed to applying the results of research to solve problems arising from society's uses and misuses of the environment. The Center includes institutes in several major areas: the Institute for Terrestrial and Planetary Atmospheres, the Living Marine Resources Institute, the Long Island Groundwater Resource Institute, and the Waste Reduction and Management Institute. These institutes add a wealth of varied resources to education and research.

MSRC offers an undergraduate major in atmospheric and oceanic sciences (ATM), a minor in marine sciences (MAR), and several cooperative programs with departments in the College of Arts and Sciences and the College of Engineering and Applied Sciences. Research opportunities in marine sciences, atmospheric sciences, and waste management are available to outstanding undergraduates. Information on research opportunities may be found on the MSRC website at www.msrc.sunysb.edu. MSRC also provides an array of marine and atmospheric sciences courses designed for non-science majors as well as for science majors.

Courses Offered in Atmospheric and Oceanic Sciences

See the Course Description listing in this Bulletin for complete information.

ATM 102-E Weather and Climate

ATM 205-E Introduction to Atmospheric Sciences

ATM 237-H Current Topics in World Climate and Atmosphere

ATM 247-E Weather Prediction I

ATM 305-E Global Atmospheric Change

ATM 345-E Theoretical Meteorology

ATM 346-E Dynamic Meteorology

ATM 347-E Weather Prediction II

ATM 348-E Atmospheric Physics

ATM 397-E Air Pollution and Its Control

ATM 447 Senior Tutorial in Atmospheric Sciences

ATM 487 Senior Research in Atmospheric Sciences

ATM 488 Internship

MAR 101-E Long Island Sound: Science and Use

MAR 104-E Oceanography

MAR 301-E Environmental Microbiology

MAR 302-E Marine Microbiology and Microbial Ecology

MAR 303 Long Island Marine Habitats

MAR 304-E Waves, Tides, and Beaches

MAR 305 Experimental Marine Biology

MAR 307 Communication in Environmental Science

MAR 308 Principles of Instrumental Analysis

MAR 313-E Marine Biochemistry

MAR 315-H Conservation Biology and Marine Biodiversity

MAR 318-E Engineering Geology and Coastal Processes

MAR 320-Limnology

MAR 333-H Coastal Oceanography

MAR 334-E Remote Sensing of the Environment

MAR 335 Primary Productivity in the Sea

MAR 336 Marine Pollution

MAR 340-H Environmental Problems and Solutions

MAR 346-E Marine Sedimentology

MAR 350 Introduction to Ocean Physics

MAR 351 Introduction to Ocean Chemistry

MAR 360-E Behavioral Ecology Laboratory

MAR 366-E Plankton Ecology

MAR 371 Introduction to Tropical Marine Ecology

MAR 385 Principles of Fishery Biology and Management

MAR 390-H Development of Aquaculture

MAR 391-H Environmental Policy

MAR 392-H Waste Management Issues

MAR 394-H Environmental Toxicology and Public Health

MAR 395 Topics in Marine Environmental Sciences

MAR 410 Modeling Techniques for Marine Geochemistry

MAR 475 Teaching Practicum in Marine Sciences

MAR 487 Research in Marine Sciences

MAR 488 Internship

Requirements for the Major in Atmospheric and Oceanic Sciences

The major in atmospheric and oceanic sciences leads to the Bachelor of Science degree. Two tracks of study are available in the Atmospheric and Oceanic Sciences undergraduate major at Stony Brook. One is intended for students wishing to learn about the physical behavior of the atmosphere and its application to weather forecasting and the other track is for students who wish to learn about physical phenomena in the atmosphere and the oceans and their interactions.

Of the 65 credits required for the major, at least 61 credits must be passed with a letter grade of C or higher.

Completion of the major requires approximately 65 credits.

The core courses for both tracks are as follows:

A. Required Courses in Mathematics, Chemistry, Physics and Computer Science

1. MAT 131 and 132 Calculus I and II (see note below)
2. MAT 203 Calculus III with Applications
or MAT 205 Calculus III
or AMS 261 Applied Calculus III
3. MAT 303 Calculus IV
or AMS 315 Data Analysis
or AMS 361 Applied Calculus
4. CHE 131 and 132 General Chemistry I and II
or CHE 141 and 142 Honors Chemistry I and II
5. PHY 125, 126, 127 Classical Physics A, B, and C
or PHY 131, 132 Classical Physics I and II
or PHY 141, 142 Classical Physics I and II: Honors
6. PHY 251 Modern Physics
7. MEC 111 Computer Science for Engineers

Sample Course Sequence for the Atmospheric and Oceanic Sciences Major (Meteorology Track)

Freshman Fall	Credits
D.E.C. A	3
MAT 131	4
CHE 131 or CHE 141	4
PHY 131 or PHY 141	4
Total	15

Spring	Credits
D.E.C. A	3
MAT 132	4
CHE 132 or CHE 142	4
PHY 132 or PHY 142	4
Total	15

Sophomore Fall	Credits
ATM 205	3
MAT 203 or 205 or PHY 251	4
D.E.C.	3
D.E.C.	3
D.E.C.	3
Total	16

Spring	Credits
ATM 247	3
PHY 251 or MAT 203 or 205	4
MEC 111	3
D.E.C.	3
D.E.C.	3
Total	16

Junior Fall	Credits
ATM 345	3
MAT 303	3
D.E.C.	3
D.E.C.	3
D.E.C.	3
Total	15

Spring	Credits
ATM 346	3
ATM 348 or ATM 397	3
D.E.C.	3
Upper Division Elective	3
Elective	3
Total	15

Senior Fall	Credits
ATM 347	3
MAR 334	3
Upper Division Elective	3
Elective	3
Elective	3
Total	15

Spring	Credits
ATM 348 or ATM 397	3
MAR 350	2
Upper Division Elective	3
Elective	3
Elective	3
Total	14

B. Required Departmental Courses:

1. ATM 205 Introduction to Atmospheric Sciences
2. ATM 345 Theoretical Meteorology
3. ATM 346 Dynamic Meteorology
4. ATM 397 Air Pollution and Its Control
5. MAR 334 Remote Sensing
6. MAR 350 Ocean Physics

C. Upper-Division Writing Requirement:

All students majoring in atmospheric sciences/meteorology must submit two papers from required departmental courses (term papers, laboratory reports, or independent research papers) to the director of undergraduate studies for evaluation by the end of the junior year. If this evaluation is satisfactory, the student has fulfilled

the upper-division writing requirement. If it is not, the student must fulfill the requirement before graduation.

Additional Requirements for the Meteorology Track:

- ATM 247 Weather Prediction I
- ATM 347 Weather Prediction II
- ATM 348 Atmospheric Physics

In this track, students learn both the mathematics and physics governing atmospheric behavior and apply this knowledge to forecasting the weather using real-time data received at our weather laboratory. Opportunities are available for students to gain additional practical experience by working under cooperative agreements at two nearby NOAA weather forecasting installations. Students graduating in this track will have satisfied all of the course

work recommended by the American Meteorological Society for undergraduate training in meteorology and also the course work required by NOAA for certification as an entry level government meteorologist.

Additional Requirements for the Atmosphere/Ocean Track:

- MAR 308 Instrumental Analysis
- MAR 333 Coastal Oceanography
- MAR 340 Environmental Problems and Solutions

Students graduating in this track will have taken the course work necessary for graduate study leading to degrees that prepare them for research and teaching positions in the atmospheric sciences, in physical oceanography, or in atmosphere-ocean interactions.

Note: The following alternate beginning calculus sequences may be substituted for major requirements or prerequisites: MAT 124, 126, 127 or 125, 126, 127 or 141, 142 for 131, 132. Equivalency for MAT courses achieved by earning the appropriate score on a placement test is accepted as fulfillment of the requirement without the necessity of substituting other credits. For detailed information about the various calculus sequences, see "Beginning Mathematics Courses" under the Mathematics Department in this Bulletin.

Minor in Marine Sciences

The minor in marine sciences (MAR) 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. No more than three credits of Pass/No Credit will be accepted toward the minor. Completion of the minor requires 18 credits.

A. MAR 101 or 104

B. At least 15 credits from the following: All upper-division MAR courses, BIO 343, or BIO/GEO 353. No more than three credits each of MAR 487 and MAR 488 may be applied toward this requirement.



Course Descriptions for
West Campus Undergraduates:
College of Arts and Sciences
College of Engineering and Applied Sciences
Health Sciences Center
Marine Sciences Research Center



College of Arts and Sciences Course Designators

AFH Africana Studies in Humanities
AFL African Languages
AFS Africana Studies in Social and Behavioral Sciences
AIM Advancement on Individual Merit Program
ANP Physical Anthropology
ANT Social and Cultural Anthropology
ARB Arabic
ARH Art History
ARS Studio Art
AST Astronomy
ATM Atmospheric and Oceanic Sciences
BCP Pharmacology
BIO Biology
CBN Center for Behavior Neurobiology
CCS Cinema and Cultural Studies
CHE Chemistry
CHI Chinese Language
CLS Classics
CLT Comparative Studies in Literature
CNH Chinese Studies in Humanities
CNS Chinese Studies in Social and Behavioral Sciences
ECO Economics
EEL Selected East European Languages
EGL English
ENS Environmental Studies
ESL English as a Second Language
FLA Foreign Language Secondary Education
FLC Federated Learning Communities
FRN French Language and Literature
GEO Geology
GER German Language and Literature
GRK Greek Language and Literature
HBW Hebrew Language and Literature
HIN Hindi
HIS History
HON Honors College
HUE European Literature and Culture Courses Taught in English
HUF French Literature and Culture Courses Taught in English
HUG German Literature and Culture Courses Taught in English
HUI Italian Literature and Culture Courses Taught in English
HUL Romance Language Courses Taught in English
HUM Humanities

HUR Russian Literature and Culture Courses Taught in English
HUS Spanish Literature and Culture Courses Taught in English
ITL Italian Language and Literature
JDH Judaic Studies in Humanities
JDS Judaic Studies in Social and Behavioral Sciences
JNH Japanese Studies in Humanities
JNS Japanese Studies in Social and Behavioral Sciences
JPN Japanese Language
JRN Journalism
KOR Korean Language
KRH Korean Studies in Humanities
KRS Korean Studies in Social and Behavioral Sciences
LAC Latin American and Caribbean Studies
LAN Uncommonly Taught Languages
LAT Latin Language and Literature
LBR Library
LCR Living/Learning Center in Service Learning for Community-Based Action Research
LHD Living/Learning Center in Human Sexual and Gender Development
LHW Living/Learning Center in Health and Wellness
LIA Living/Learning Center in Interdisciplinary Arts
LIN Linguistics
LIS Living/Learning Center in International Studies
LRN Learning Communities
LSE Living/Learning Center in Science and Engineering
MAE Mathematics Secondary Education
MAP Mathematics Proficiency Courses
MAR Marine Sciences
MAT Mathematics
MUS Music
MVL Medieval Studies
PEC Physical Education
PHI Philosophy
PHY Physics
POL Political Science
POR Portuguese Language and Literature
PSY Psychology
RLS Religious Studies
RUS Russian Language and Literature
SAS South Asian Studies
SCI Science Teaching Secondary Education
SKT Sanskrit
SLN Sign Language
SOC Sociology
SPN Spanish Language and Literature

SSI Social Sciences Interdisciplinary
THR Theatre Arts
USB University at Stony Brook
WRT Writing and Rhetoric
WSE Women in Science and Engineering
WST Women's Studies

College of Engineering and Applied Sciences Course Designators

AMS Applied Mathematics and Statistics
BNG Bioengineering
BUS Business Management
CSE Computer Science
EAS Engineering and Applied Sciences
ESE Electrical Engineering
ESG Engineering Science
ESM Materials Science
EST Technology and Society
ISE Information Systems
MEC Mechanical Engineering

Health Sciences Center Course Designators

HAD Clinical Laboratory Sciences
HAT Respiratory Care
HBA Anatomical Sciences
HBP Pathology
HBY Physiology and Biophysics
HDH Dental Health
HDO Oral Biology and Pathology
HDP Periodontics
HBH Pharmacological Sciences
HBM Microbiology
HMC Health and Society
HNI Nursing
HWC Social Welfare

Marine Sciences Research Center Designators

ATM Atmospheric and Oceanic Sciences
MAR Marine Sciences

AFH

Africana Studies in Humanities

AFH 206-B 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 vary depending on each semester's emphasis.
Advisory Prerequisite: U2 standing
3 credits

AFH 212-J French Caribbean Literature (in Translation)

A study of representative texts from the French Caribbean translated into English. This course focuses on literary manifestations of a search for a specific identity by writers from Martinique, Guadeloupe, French Guiana, and Haiti. Crosslisted with HUF 212.
Prerequisites: Completion of D.E.C. category A
3 credits

AFH 213-G Caribbean and American Connections in Literature (in English)

An exploration of the connections between writers from the French-speaking and English-speaking Caribbean and from the African-American community, who share a similar cultural heritage, historical heritage, and historical experience, but differ in geopolitical situations. Special attention is paid to spirituality, gender, and identity motifs in the literature. Crosslisted with HUF 213.
Advisory Prerequisite: Completion of D.E.C. category B
3 credits

AFH 249-K African-American Literature and Music in the 19th and 20th Centuries

A detailed look at African-American literature and music and their importance for American literature and music of the 19th and 20th centuries. An examination of the literature with attention to the special stylistic devices, tones of literary voice, and characterization that writers use in their efforts to match the music experience with the written word. Selections from the recordings of African-American and African-American-inspired musicians—from Bessie Smith and Louis Armstrong to Jimi Hendrix and the Rolling Stones. Crosslisted with EGL 249.
Advisory Prerequisites: One D.E.C. category B or D course; completion of D.E.C. categories I and J
3 credits

AFH 329-J, 330-J 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 treats the development, diffusion, and significance of these themes. It involves intensive consideration of selected literary works of African and African-American expression. AFH 329 is crosslisted with HUF 318.

Prerequisite: U3 or U4 standing
Advisory Prerequisites: Two courses in literature
3 credits per course

AFH 339-G Arts of the African Diaspora

A study of the arts of the African Diaspora from the African continent to Brazil, Surinam, the Caribbean, and the United States. Emphasis is on the full range of art forms, including not only sculptural and performance traditions, but also textiles, basketry, and other crafts. Cultural continuities, spiritual belief, and significant changes in context, meaning, style, and technology are examined. Crosslisted with ARH 329.

Prerequisite: U3 or U4 standing
Advisory Prerequisite: ARH 201
3 credits

AFH 379-K Philosophy of Race

Examination of our assumptions about race and the impact of those assumptions on issues concerning gender, class, and sexuality. Readings include critical race theory, feminist theory, and critical legal theory. Students examine racial issues from a philosophical perspective and consider the ways in which representations of race may reinforce patterns of power and privilege. Crosslisted with PHI 379-K
Prerequisite: U3 or U4 standing
Advisory Prerequisite: One course in philosophy
3 credits

AFH 421, 422 Topics in Africana Studies

An examination of a selected topic in the Black Experience to be announced each term. May be repeated as the topic changes.
Prerequisite: Permission of instructor
1-3 credits per course

AFH 447 Readings in Africana Studies

Individually supervised reading in selected topics in the Black Experience. May be repeated once.
Prerequisite: Permission of instructor and program director
1-3 credits

AFH 475, 476 Undergraduate Teaching Practicum I, II

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is 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. In AFH 476, students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have already been graded. Students may not serve as teaching assistants in the same course twice. Not for major or minor credit.
Prerequisites: to AFH 475: Africana studies major or minor; U4 standing; permission of instructor.
Prerequisites: to AFH 476: AFS 475; permission of instructor
3 credits per course, S/U grading

AFH 487 Research in Africana Studies

Individual research projects in the Black Experience carried out under the direct supervision of a faculty member.
Prerequisite: Permission of instructor and program director
0-3 credits

AFL

African Languages

AFL 111, 112 Elementary Selected African Languages I, II

An introduction to spoken and written selected African languages (Kiswahili, Bantu) stressing pronunciation, speaking, comprehension, reading, and writing. Practice in the language laboratory supplements class work. 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 AFL 111 without written permission from the supervisor of the course. May be repeated for more than one language.

Prerequisite: to AFL 112: AFL 111
3 credits per course

AFS

Africana Studies in Social and Behavioral Sciences

AFS 101-F, 102-F Themes in the Black Experience I, II

An historical survey of the experience of people of African descent. This course examines 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 treats themes to 1865. The second semester treats themes from 1865 to the present.
3 credits per course

AFS 221-J Introduction to Modern African History

Historical themes in 19th and 20th century Africa. Topics include social and political relations in African states; slavery and the slave trade in West Africa; the impact of Christianity and Islam on African colonialism; colonialism and its consequences; nationalist movements and de-colonization; pan-Africanism and the politics of African unity; the postcolonial state project; economic planning in postcolonial Africa; and African states and international politics in the Cold War era. Crosslisted with HIS 221.

Advisory Prerequisite: One D.E.C. category F course
3 credits

AFS 239-J 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.
Advisory Prerequisite: One D.E.C. category F course
3 credits

AFS 240-J 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.
Advisory Prerequisites: AFS 101, 102, and 239
3 credits

AFS 277-K The Modern Color Line

An exploration of the significance of race in twentieth century America. Topics include forms of political organization and collective struggle; the social and psychic consequences of racist subjection; the relationship among race, racism, and culture; and the cultural politics of race and gender. Crosslisted with HIS 277.

Advisory Prerequisites: AFS 101 and 102; completion of D.E.C. categories I and J
3 credits

AFS 283 Community Service

Through field experience, readings, research, and discussion, students focus on a social and educational problem relating primarily to the African-American experience. Specific programs may include working with children from low-income families, educational and cultural enrichment projects, tutoring in various institutional settings, and other projects to be announced. May be repeated once.

Prerequisite: Permission of instructor
3 credits, S/U grading

AFS 300-K Blacks in the City

The urban experiences of blacks as a force in determining the character, culture, and social climate of the American city. A central theme is that blacks have greatly impacted U.S. urban life and made important contributions to its sense of vitality and cultural diversity.

Prerequisite: U3 or U4 standing

Advisory Prerequisites: Completion of D.E.C. categories F, I and J
3 credits

AFS 310-K American Attitudes Toward Race

An historical examination of the growth and development of racism in America. The focus is on African Americans and their relationships with the American system, its institutions, and culture. References are made to other ethnic groups in order to give balance to the examination of social conditions and attitudes shaping American society.

Prerequisite: U3 or U4 standing

Advisory Prerequisites: One D.E.C. category F course; completion of D.E.C. categories I and J
3 credits

AFS 319-F 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 are identified and discussed: overt, covert, and reactive racism. Examples of these three forms and the groups involved with them are identified and discussed, showing the similarities and differences where they exist.

Prerequisite: U3 or U4 standing

Advisory Prerequisites: Completion of D.E.C. category F
3 credits

AFS 325-K 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.

Prerequisite: U3 or U4 standing

Advisory Prerequisite: HIS 104 or AFS 101 or 102
3 credits

AFS 337-J 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
3 credits

AFS 345-J Culture and Gender: Women in Africa and the Caribbean

Comparative analysis of the status and role of women in colonial and contemporary societies of Africa and the Caribbean. Exploration of the forces that shape women's lives and the ways in which women have contributed to the development of these societies.

Prerequisite: AFS 239 or 240
3 credits

AFS 346-J Political and Social History of Africa

An exploration of theoretical perspectives in the historical sociology and comparative politics of Africa. Topics include the crisis of state legitimacy; the patriarchal society; ethnicity, religion, and politics; the politics of modernization; development and the environment; population growth and underdevelopment; globalization, neo-liberal economic policy and the postcolonial state; and the history of state and society relations. Crosslisted with HIS 346.

Prerequisite: U3 or U4 standing

Advisory Prerequisites: Two AFS or HIS courses
3 credits

AFS 350-J 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 are cov-

ered: 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. Crosslisted with WST 350.

Prerequisite: U3 or U4 standing

Advisory Prerequisites: Completion of D.E.C. category F
3 credits

AFS 360-K African-American Social Commentary

A study of African-American responses to the social order in America. The course concentrates on the various ways African Americans have conceptualized and described their condition. Particular attention is paid to the solutions proposed by African-American spokespersons during various historical eras.

Prerequisite: U3 or U4 standing

Advisory Prerequisites: Completion of D.E.C. categories F, I and J
3 credits

AFS 370-K The African-American Family (formerly AFS 417)

The African-American family in historical perspective. The nature and structure of that family, the obstacles it has faced, and its interrelationships with the African-American community and the diversity of American society.

Prerequisite: U3 or U4 standing

Advisory Prerequisite: Completion of D.E.C. categories I and J
3 credits

AFS 372-K 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 is 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: U3 or U4 standing

Advisory Prerequisites: Completion of D.E.C. categories F, I and J
3 credits

AFS 375-F 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.

Prerequisite: U3 or U4 standing

Advisory Prerequisites: Completion of D.E.C. category F
3 credits

AFS 380-J Race and Ethnicity in Latin America and the Caribbean

Concepts and theories of race and ethnicity in Latin American and Caribbean settings. The historical evolution and the contemporary social and cultural significance of racial and ethnic identities within the region are explored. Specific examples of social relations characterized by ethnic or racial conflict are presented. Crosslisted with ANT 380.

Prerequisite: U3 or U4 standing

Advisory Prerequisite: AFS 240 or ANT 219 or LAC 200
3 credits

AFS 388-J Slavery in Latin America and the Caribbean

The institution of slavery and its impact on plantation societies in the Americas, with particular attention to Brazil and the Caribbean. Topics include conquest and enslavement, the formation of slave communities, African culture in Latin America, resistance and oppression, the process of emancipation, and race relations. Crosslisted with HIS 388.

Prerequisite: One of the following: AFS 239, AFS 240, AFS 277, HIS 213, HIS 214 or LAC 200
3 credits

AFS 391 Interdisciplinary Seminar

Exposes students to methods of research and writing within history, anthropology, literature, sociology, etc., important to understanding and producing scholarship related to the African heritage. Exploration of the ways in which past and present research and writing have portrayed Africans. The importance of interdisciplinary approaches and methodologies to understanding Africana Studies is emphasized. Students are required to select topics, conduct in-depth library research and present their findings in written and oral formats.

Prerequisites: U4 standing; six courses in Africana Studies, permission of instructor and department
3 credits

AFS 395-J Religions of the Caribbean

An ethnographic approach to the relationship among religion, social organization, and identity politics through studying cultural and historical bases of Christianity, Islam, Hinduism, and their related religious manifestations in the Caribbean. Class stratification, ethnic conflict, and fundamentalist movements are explored. Crosslisted with ANT 395.

Prerequisite: U3 or U4 standing

Advisory Prerequisite: ANT 351
3 credits

AFS 400 Ancient Egypt (KMT): Historical and Contemporary Views

An exploration of the rise and development of ancient Egypt (KMT) through study of Egyptian peoples, religions, cultural transformations, and monument building. Examines the periods of the Old Kingdom, Middle Kingdom, and New Kingdom and introduces students to the museum culture that has fueled ongoing interest over time. Particular attention to scholarly debates about the nature and composition of Egyptian society, including interpretations of ethnicity and identity.

Prerequisites: U3 or U4 standing

3 credits

AFS 410 Computers and Third World Social Issues

A consideration of significant Third World issues using basic computing skills. The use of computer concepts and word processing skills to evaluate current social issues and their impact. The course encourages utilization of the computer in problem solving, research, and decision making.

Prerequisites: U3 or U4 standing; permission of instructor

Advisory Prerequisites: Two AFS courses
4 credits

AFS 418-K Legal Processes and Social Structure

A critical exploration of the role of the American legal order in constructing and deconstructing social dominion and subordination in the United States. Particular attention is paid to the legal and social construction of the "white" race juxtaposed with other races, specifically the "yellow," "brown," and "black" races. Contemporary legal debates regarding the concepts of the social contract, property, and objectivity are considered. Crosslisted with POL 418.

Prerequisites: U3 or U4 standing; POL/WST 330

Advisory Prerequisite: One of the following: AFS 277, AFS 310, POL 321, POL 325, POL 343, or PHI/POL 377

3 credits

AFS 421, 422 Topics in Africana Studies

An examination of a selected topic in the Black Experience to be announced each term. May be repeated as the topic changes.

Prerequisite: Permission of instructor
3 credits per course

AFS 447 Readings in Africana Studies

Individually supervised readings in selected topics in the Black Experience. May be repeated once.

Prerequisite: Permission of instructor
1-3 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 are studied. Students 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: U3 or U4 standing; permission of instructor

4 credits per course

AFS 475, 476 Undergraduate Teaching Practicum I, II

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is 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. In AFS 476, students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have already been graded. Students may not serve as teaching assistants in the same course twice. Not for major or minor credit.

Prerequisites: to AFS 475: Africana studies major or minor; U4 standing; permission of instructor

Prerequisites: to AFS 476: AFS 475; permission of instructor

3 credits per course, S/U grading

AFS 487 Research in Africana Studies

Individual research projects in the Black Experience carried out under the direct supervision of a faculty member.

Prerequisite: Permission of instructor
0-3 credits

AFS 488 Internship

Participation in public and private agencies and organizations under the supervision of a faculty sponsor. Students are required to submit progress reports and a final written report on their experiences to the faculty sponsor. May be repeated up to a limit of 12 credits.

Prerequisites: Africana studies major or minor; 15 credits in AFS courses; permission of instructor and program director

1-6 credits, S/U grading

AIM**Advancement on Individual Merit Program****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. Does not count toward graduation. The Pass/No credit option may not be used. Open to EOP/AIM students only.

Prerequisite: Placement by writing placement examination

Corequisite: WRT 101 or ESL course
3 credits, A-C/U grading

AIM 104 Literary Analysis and Critical Reasoning

Introduction to literary analysis and critical reasoning through close examination of selected works. Open to EOP/AIM students only. May not be taken after successful completion of the discontinued AIM 103. The Pass/No credit option may not be used.

Prerequisites: Placement by writing placement examination

Corequisite: WRT 102

3 credits, A-C/U grading

AMS**Applied Mathematics and Statistics****AMS 101-C Applied Precalculus**

Presents applied topics in functions, discrete dynamical systems, trigonometry and linear algebra designed to improve students' skills for analyzing problems in the social and natural sciences.

Prerequisite: Satisfaction of basic mathematics competence

3 credits

AMS 102-C 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; POL 201; PSY 201; or SOC 202.

Prerequisite: Satisfaction of basic mathematics competence

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. May not be taken for credit in addition to AMS 102.

Prerequisite: AMS 151 or MAT 125 or 131 or 141 (or the discontinued MAT 124)

3 credits

AMS 151-C Applied Calculus I

A review of functions and their applications; analytic methods of differentiation; interpretations and applications of differentiation; introduction to integration. Intended for CEAS majors. Satisfies the calculus requirement for economics majors.

Prerequisite: AMS 101 or MAT 123 or level 4 on the mathematics placement examination

3 credits

AMS 161-C Applied Calculus II

Analytic and numerical methods of integration; interpretations and applications of integration; differential equations models and elementary solution techniques; phase planes; Taylor series and Fourier series. Intended for CEAS majors.

Prerequisite: AMS 151 or MAT 126 or 131 or 141 or level 7 on the mathematics placement examination

3 credits

AMS 194-C 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.

Prerequisite: Satisfaction of basic mathematics competence

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 by students with credit for MAT 211 or AMS 210.

Prerequisite: AMS 151 or MAT 122, 123, 125, 131 or 141

3 credits

AMS 210 Applied Linear Algebra

An introduction to the theory and use of vectors and matrices. Matrix theory including systems of linear equations. Theory of Euclidean and abstract vector spaces. Eigenvectors and eigenvalues. Linear transformations. May not be taken for credit in addition to MAT 211.

Prerequisite: AMS 151 or MAT 131 or 141 or corequisite MAT 126

3 credits

AMS 236 Statistics in Engineering Quality Control

Understanding of, and facility with, basic statistical techniques used in manufacturing and quality control including introductory probability and statistical inference. Empirical distributions, discrete and continuous distributions, order statistics, testing, estimation control, and regression.

Prerequisite: AMS 161 or MAT 127 or 132 or 142

1 credit

AMS 261 Applied Calculus III

Vector algebra and analytic geometry in two and three dimensions; multivariable differential calculus and tangent planes; multivariable integral calculus; optimization and Lagrange multipliers; vector calculus including Green's and Stokes's theorems. May not be taken for credit in addition to MAT 203 or 205.

Prerequisite: MAT 127 or 132 or 142 or AMS 161

4 credits

AMS 294 Statistical Laboratory

Designed for students interested in statistics and their applications. Basic statistical techniques including sampling, design, regression, and analysis of variance are introduced. Includes the use of statistical packages such as SSPS and SAS. Students translate realistic research problems into a statistical context and perform the analysis.

Prerequisite: One AMS course (AMS 102 or 110 or 310 or 315 recommended)

3 credits

AMS 300 Writing in Applied Mathematics

See Requirements for the Major in Applied Mathematics and Statistics, Upper Division Writing Requirement.

Prerequisites: AMS major; U3 or U4 standing

1 credit, S/U grading

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 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 211 or AMS 361 or MAT 303

3 credits

AMS 303 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
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 211
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 203 or 205 or AMS 261
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
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 102 or 310
3 credits

AMS 318 Theory of Interest

Actuarial mathematics including the arithmetical and algebraic problems posed by calculation of simple and compound interest. Considers investment risks created by variable interest rates, inflation, changing foreign currency exchange rates, and changes in tax laws. Develops problem solving skills adopting both deterministic and stochastic approaches and taking into account the perspectives of the consumer and the investor.

Prerequisite: AMS 310
3 credits

AMS 321 Computer Projects in Applied Mathematics

The simulation methodology for a variety of applied mathematical problems in numerical linear and nonlinear algebra, statistical modeling, and numerical differentiation and integration. Graphical representation of numerical solutions.

Prerequisites: AMS 210 or 261 or MAT 203; prior programming experience in C or Pascal or FORTRAN or Basic
3 credits

AMS 322 Groundwater Modeling

Basic numerical models and solution methods for modeling groundwater flow. Finite difference methods for steady state and transient single-phase, solute transport and multi-phase flow in confined and unconfined aquifer systems.

Prerequisites: AMS 161 or MAT 132; AMS 210 or MAT 211; programming experience in FORTRAN, Pascal, C, or Modula 3
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: AMS 210 or MAT 211; programming experience in Pascal, FORTRAN, or C
3 credits

AMS 331 Mathematical Modeling

Investigation of the process of translating real world problems into mathematical models. Six to eight unconnected problems are studied in detail. These are chosen to illustrate various methods of formulation and solution, and generally find their origins in the physical and biological sciences.

Prerequisites: AMS 210 or MAT 211; AMS 310 or 311
3 credits

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. Crosslisted with ECO 355.

Prerequisite: AMS 151 or MAT 126, 131 or 141
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 211
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 211; AMS 311
3 credits

AMS 351 Applied Algebra

Topics in algebra: groups, informal set theory, relations, homomorphisms. Applications: error correcting codes, Burnside's theorem, computational complexity, Chinese remainder theorem. Crosslisted with MAT 312.

Prerequisites: AMS 210 or MAT 211; AMS 261 or MAT 203 or 205
3 credits

AMS 361 Applied Calculus IV: Differential Equations

Homogeneous and inhomogeneous linear differential equations; systems of linear differential equations; solution with power series and Laplace transforms; partial differential equations and Fourier series. May not be taken for credit in addition to the equivalent MAT 303.

Prerequisite: AMS 161 or MAT 127, 132 or 142
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 is required for the implementation and comparison of algorithms. Crosslisted with CSE 373 and MAT 373.

Prerequisites: MAT 211 or AMS 210; CSE 214
3 credits

AMS 410 Actuarial Mathematics

Single and multivariable calculus and linear algebra are used to develop advanced proficiency in the calculus foundations of actuarial science, with particular attention to the types of problems found on Actuarial Examination 100.

Prerequisites: AMS 261 or MAT 203 or 205; AMS 210 or MAT 211
2 credits

AMS 421 Statistical Quality Control and Design of Experiments

On-line techniques that determine and control the quality of mass-manufactured products on a real-time basis by means of statistical analysis. Off-line use and applications of the design-of-experiment and Taguchi methods to optimize a product and a process design. The concept of total quality management. Histograms, tests for normality, variables, and attribute control charts, orthogonal arrays, and signal-to-noise arrays. Z-transform for the evaluation of the percentage of nonconforming parts, tests for special causes, Xbar-R charts, and process capability analysis. Acceptance quality level and lobby-lot inspection.

Prerequisite: MEC 317
3 credits

AMS 441 Business Strategy

Capstone course that builds tools and concepts introduced in more specialized business courses, and on students' general business knowledge. Includes: methods for analysis of forces driving competition; identification of strengths, weaknesses, opportunities, and threats faced by individual corporations; and practical strategies for enabling new or existing firms to compete successfully within an industry. Case studies and in-class situations challenge students to develop skills in handling multidimensional business problems. Crosslisted with BUS 441.

Prerequisites: BUS 114 and 340; POL 319; BUS 347 or 351 or SOC 381
3 credits

AMS 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 advisor. May be used as an open elective only and repeated once.

Prerequisites: U4 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
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, MEC 499, ESE 499, ESM 499, EST 499, ISE 487) may be counted toward engineering technical elective requirements.

Prerequisite: Permission of instructor and department
0-3 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 change from semester to semester. May be repeated once.

Prerequisite: Permission of instructor
3 credits

ANP

Physical Anthropology

ANP 120-E 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.

4 credits

ANP 210-E The Living Primates

The comparative study of the anatomy, ecology, and behavior of humankind's closest living relatives, the primates. The anatomy of apes, monkeys, and prosimians is used to classify these animals according to their evolutionary relationships. The course relates their anatomy to their ecology and behavior. Primate behavior is related to ecology, and this behavior, together with that of other animals not closely related to humans but ecologically similar, is used to explore behavioral and ecological models for human evolution.

Advisory Prerequisite: ANP 120

3 credits

ANP 300-E Human Anatomy

An introduction to the structure of the human body considered from both systems and regional approaches. Subject matter includes the musculoskeletal, respiratory, nervous, cardiovascular, digestive, and urogenital systems, together with an appreciation of these systems in a regional anatomical context. Laboratory sessions entail examination of plastic models, exercises in living anatomy and computer "dissection."

Prerequisite: ANP 120 or BIO 201 (or the discontinued BIO 151 or 152)

4 credits

ANP 320-E Primate Functional Morphology and Biomechanics

A broad review of methods employed in the interpretation of morphological adaptation of animals, with special focus on the order Primates. Topics include the development and application of biomechanical models, kinetics and kinematics, electromyography, and the statistical analysis of functional morphological data.

Prerequisites: ANP 120 and 210

3 credits

ANP 321-E Primate Evolution

The evolution of the order Primates from its origins to the appearance of the human family. Primate origins; the first primates of modern aspect; origins and adaptive radiations of monkeys; appearance and adaptations of apes and humans. Relevant topics in geology such as geochronology, paleogeography, taphonomy, and paleoecology.

Prerequisites: ANP 120 and 210

3 credits

ANP 325-E Primate Behavior

An introduction to primate social systems and the factors that influence their maintenance and evolution, including foraging strategy, demographic processes, mating and rearing strategies, conflicts and coalitions, and communication.

Prerequisite: ANP 120

3 credits

ANP 330-E Human Evolution

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.

Prerequisite: ANP 120

3 credits

ANP 340 Field Methods in Physical Anthropology

Methods, problems, and experience in field techniques. The course focuses on field methods such as fossil excavation, reconstruction of skeletal and dental remains, anthropometry, craniometry, and field behavioral ecology of primates.

Prerequisites: ANP 120 or BIO 201 (or the discontinued BIO 151); permission of instructor

3-6 credits

ANP 360-H Primate Conservation

Review of endangered species of primates and case histories of conservation programs in Asia, Africa, South America, and Madagascar, highlighting different problems and solutions.

Prerequisite: ANP 120 or BIO 201 (or the discontinued BIO 151)

Advisory Prerequisite: One other ANP course

3 credits

ANP 391-E Topics in Physical Anthropology

May be repeated as topic changes.

Prerequisite: ANP 120.

Advisory Prerequisite: One other ANP course

3 credits

ANP 403 Problems in Physical Anthropology

May be repeated as topic changes.

Prerequisite: ANP 120 or BIO 201 (or the discontinued BIO 151)

3 credits

ANP 404 Human Osteology

A detailed study of the anatomy of the human skeleton with special emphasis on the interpretation of skeletal remains from archaeological contexts. Consideration is 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 conduct a research project on a human skeleton.

Prerequisites: ANP 300; permission of instructor

3 credits

ANP 447 Readings in Physical Anthropology

Individual advanced readings on selected topics in physical anthropology.

Prerequisites: ANP 321 and 330; permission of instructor

3 credits

ANP 475, 476 Undergraduate Teaching Practicum I, II

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is 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. In ANP 476, students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have already been graded. Students may not serve as teaching assistants in the same course twice.

Prerequisites to ANP 475: ANP 321 and 330; permission of instructor

Prerequisites to ANP 476: ANP 475; permission of instructor

3 credits; S/U grading

ANP 487 Independent Research in Physical Anthropology

May be repeated up to a limit of six credits.

Prerequisites: Two 200- or 300-level ANP courses; permission of instructor and department

0-6 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 ANP 495 are obliged to complete ANP 496 the following semester. Students receive only one grade upon completion of the sequence.

Prerequisite: Admission to the anthropology honors program

3 credits per course

ANT

Social and Cultural Anthropology

ANT 102-F 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.

3 credits

ANT 104-F 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 are presented.

3 credits

ANT 160-F 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.

3 credits

ANT 201-J 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.

Prerequisite: ANT 102

3 credits

ANT 203-J Native Peoples of North America

The various peoples and cultures of North America are studied with respect to their political, educational, linguistic, social, and cultural patterns. Selected societies are studied in depth.

Prerequisite: ANT 102

3 credits

ANT 219-J Peoples of the Caribbean

The study of the environment, history, and cultural and social institutions characteristic of the Caribbean area. Topics covered include precontact 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.
Prerequisite: ANT 102
 3 credits

ANT 230-J 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 are also discussed. Readings are on selected peoples throughout the world.

Prerequisite: ANT 102
 3 credits

ANT 255-F 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 different cultures. Emphasis is 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
 3 credits

ANT 290-H Science and Technology in Ancient Society

Examination of the role of advances in science and technology in societies ranging from the earliest humans to the archaic civilizations of the Old and New Worlds. The course focuses on such innovations as tool making, fire, metallurgy, writing, mathematics, complex architecture, and relates these innovations to changes in sociopolitical organization.

Prerequisite: One D.E.C. category E course
 3 credits

ANT 310-J Ethnography

A particular cultural area of the world, such as sub-Saharan Africa, Oceania, Mexico and Guatemala, Asia, or the Middle East, is 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 is to provide an overview of cultural diversity and uniformity in an area outside of Europe. May be repeated as the topic changes.

Prerequisite: ANT 102
Advisory Prerequisite: One other ANT course
 3 credits

ANT 311-J 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, are considered in detail. Lectures, texts, and films consider ecology, history, social change, language, cultural systems, and social arrangements toward providing students with a comprehensive understanding of another cultural system. May be repeated as the topic changes.

Prerequisite: ANT 102
 3 credits

ANT 321 Archaeological Field Methods

An opportunity to participate in all aspects of an archaeological research project. Students are trained in excavation, recording, artifact retrieval, surveying, field sorting techniques, and interpretation. This course is usually held in the summer and involves excavation of a prehistoric or early historic site on Long Island.

Prerequisites: ANT 104; permission of instructor
 6 credits

ANT 333-F 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 considers psy-

chological, 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.

Prerequisite: ANT 102
Advisory Prerequisite: One other ANT course
 3 credits

ANT 350-F 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 individual and community perspectives. Readings encompass studies of cultures from all parts of the world.

Prerequisite: ANT 102
 3 credits

ANT 351-F 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.

Prerequisite: U3 or U4 standing
 3 credits

ANT 352-F 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.

Prerequisite: U3 or U4 standing
 3 credits

ANT 353 Archaeological Analysis and Interpretation

Laboratory analysis of recently excavated materials from Long Island archaeological sites. Types of prehistoric material analyzed include lithic and ceramic artifacts, and the remains of shellfish and vertebrates.

Prerequisites: ANT 321; permission of instructor
Advisory Prerequisite: ANT 363
 3 credits

ANT 354-F Family, Kinship, and Marriage

Concepts of family, kinship, marriage, incest, exogamy: their source in nature and culture and their social implications. Major theories are discussed historically, demographically, and ecologically. Brief case studies are presented to illustrate theories of social anthropology.

Prerequisite: ANT 102
 3 credits

ANT 356-K Urban Anthropology

A cross-cultural review of current anthropological research in urban societies with primary reference to the American context. Topics include family and kinship behavior, social status and role, rules and regulations, social stratification, mobility and upward mobility, assimilation and acculturation, and political relations.

Prerequisite: ANT 102
 3 credits

ANT 357-F 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 considers the archae-

ological evidence as to how this re-adaptation to the natural environment took place in different parts of the world.

Prerequisite: ANT 104
 3 credits

ANT 358-J 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 is 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, Meso-america, and Peru.

Prerequisite: ANT 104
 3 credits

ANT 360-J Ancient Mesopotamia

The organization and development of the social, economic, political, and religious systems of ancient Mesopotamia through study of the archaeological and textual records. This course stresses the first two thousand years of this civilization, from 3500 B.C. to 1500 B.C.

Prerequisite: U3 or U4 standing
 3 credits

ANT 361-F 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.

Prerequisite: ANT 102
 3 credits

ANT 362-J Long Island Archaeology

Life on Long Island from its first settlement by Native Americans 12,000 years ago until the end of the 17th century. Trends and changes in human behavior are studied in the context of environmental and cultural processes affecting all of northeastern North America.

Prerequisites: ANT 104; permission of instructor
 3 credits

ANT 363-F Archaeological Method and Theory

A survey of archaeological thought from early antiquarianism through the Culture History, Processual, and Post-Processual approaches to the investigation and analysis of past societies. Following a chronological review, the course focuses on different approaches to specific ethnoarchaeology, systems theory, site formation processes, and spatial analysis.

Prerequisite: ANT 104
 3 credits

ANT 364-J African Stone Age

An examination of the evidence for human behavioral and physical evolution on the African continent. The focus is on the way both early and modern hominids adapted to different habitats. Modern African environments and ecology, as well as modern hunter-gatherer peoples, are covered.

Prerequisite: ANT 104
 3 credits

ANT 366-J Prehistoric and Historic Hunter-Gatherers

An examination of the theory for hunter-gatherer societies. The course emphasizes ecological theory and examines that theory through application to both the archaeological and ethnographic record. The focus is on particular problems such as different adaptive strategies in differing environments, the emergence of complex hunter-gatherer societies, and the rela-

tionship between biological and behavioral change.

Prerequisite: ANT 104
3 credits

ANT 367-F 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.

Prerequisite: ANT 102
3 credits

ANT 368-F Ice Age Europe

A survey of the archaeological record for Europe and western Asia during the Pleistocene epoch, or "Ice Age." The course examines environmental change and human behavioral evolution between 1.6 million and 13,000 years ago. Specific topics include initial human colonization, the origin of modern humans, the fate of the Neanderthals, and the significance of cave art.

Prerequisite: ANT 104
3 credits

ANT 370-F Great Archaeological Discoveries

A survey of great archaeological discoveries that have contributed to current knowledge of the human past. The discoveries at Olduvai, Jericho, Tutankhamen's tomb, Xian, Ebla, Tikal, etc. are discussed within the context of the ancient cultures that they have illuminated. Recent controversies about the origin of modern humans, "goddess cults," and the rise of ancient civilizations are also examined.

Prerequisite: U3 or U4 standing
3 credits

ANT 379-J Ethnicity and Nation in China

Focusing on the material and social contexts that have shaped perceptions of cultural groups in China, both past and present, the course explores issues of ethnic identification and minority status, civilizing projects and autonomous movements, and notions of race, ethnicity, and nation. Drawing on case studies from the Himalayan plateau, the Central Asian steppes, Taiwan, and diaspora communities, students examine how ecology and livelihood, social organization and exchange, politics and religion influence constructions of identity. Crosslisted with CNS 379.

Prerequisite: U3 or U4 standing
Advisory Prerequisite: CNS 249 or 250 or HIS 219
3 credits

ANT 380-J Race and Ethnicity in Latin America and the Caribbean

Concepts and theories of race and ethnicity in Latin American and Caribbean settings. The historical evolution and the contemporary social and cultural significance of racial and ethnic identities within the region are explored. Specific examples of social relations characterized by ethnic or racial conflict are presented. Crosslisted with AFS 380.

Prerequisite: U3 or U4 standing
Advisory Prerequisite: ANT 219 or AFS 240 or LAC 200
3 credits

ANT 381-F Applied Anthropology

An examination of how anthropology is used in nonacademic settings, such as AIDS research, environmental impact and preservation, legal and advocacy issues, marketing, biomedical anthropology, and forensics. Case studies in sociocultural anthropology, archaeology, and physical anthropology are discussed.

Prerequisite: U3 or U4 standing
3 credits

ANT 385-J Prehistoric Peoples of the Americas

Life in the Americas from first settlement at the end of the last ice age until the arrival of the Europeans in the 15th and 16th centuries. The culture, history and evolution of prehistoric peoples of North, Central, and South America are treated. Specific topics covered include settlement by Native Americans, hunting-gath-

ering lifeways, plant and animal domestication, the origins of village life, and state-level societies.

Prerequisite: ANT 104
3 credits

ANT 390-F, 391-F Topics in Social and Cultural Anthropology

May be repeated as the topic changes.

Prerequisite: ANT 102
3 credits per course

ANT 392-K Topics in American Cultural Alternatives

May be repeated as the topic changes.

Prerequisite: ANT 102
Advisory Prerequisite: One other anthropology course
3 credits

ANT 393-F, 394-F Topics in Archaeology

May be repeated as the topic changes.

Prerequisites: ANT 104; one other anthropology course to be specified when the topic is announced
3 credits

ANT 395-J Religions of the Caribbean

An ethnographic approach to the relationship among religion, social organization, and identity politics through studying cultural and historical bases of Christianity, Islam, Hinduism, and their related religious manifestations in the Caribbean. Class stratification, ethnic conflict, and fundamentalist movements will be explored. Crosslisted with AFS 395.

Prerequisite: U3 or U4 standing
Advisory Prerequisite: ANT 351
3 credits

ANT 401 Problems in Social and Cultural Anthropology

May be repeated as the topic changes.

Prerequisite: ANT 102
Advisory Prerequisites: Two other ANT courses at the 200 level or higher
3 credits

ANT 402 Problems in Archaeology

May be repeated as the topic changes.

Prerequisite: ANT 104
Advisory Prerequisites: Two other archaeology courses to be specified when the topic is announced
3 credits

ANT 418 Lithic Technology

An introduction to the practical skills needed to study lithics (stone tools) from archaeological sites. Topics include typology of prehistoric industries and technological, functional, and behavioral analysis of lithic variation. Students work with teaching collections, learning to draw, measure, and classify stone tools. Laboratory sessions teach students how to make and use replicas of prehistoric stone tools using aboriginal techniques. One to two hours of computer laboratory work required per week.

Prerequisites: ANT 104; permission of instructor
Advisory Prerequisites: Two other archaeology courses at the 200 level or higher
4 credits

ANT 419 Zooarchaeology

The study of animal bones from archaeological sites. Special emphasis is on the identification of fragmented bone and surface modification, calculation of indexes of abundance, and measurement and metrical analysis of mammal bone. Computer analysis is stressed, and the class seeks a fusion of traditional zooarchaeology and actualistic studies. Three to four hours of computer laboratory work required per week.

Prerequisites: ANT 104 or ANP 120; permission of instructor
Advisory Prerequisite: One other archaeology course
3 credits

ANT 420 Environmental Analysis Using Remote Sensing and Geographic Information Systems

The use of aerial and satellite imagery in environmental analysis and the manipulation of geographic data sets of all types using Geographic Information Systems. Concentrating on Long Island as a research area, each student designs and completes a research project on a particular section of the area, focusing on the habitats of local wildlife, the locations of archaeological sites, coastal regimes, etc. Students should expect to spend approximately 10 hours per week beyond regularly scheduled classtime in a University computer laboratory. Crosslisted with GEO 420.

Prerequisites: Upper-division course in ANT or BIO or GEO or MAR
4 credits

ANT 447 Readings in Anthropology

Individual advanced readings on selected topics in anthropology. May be repeated twice.

Prerequisites: ANT 102; two other ANT courses at the 200 level or higher; permission of instructor and department
3 credits

ANT 475, 476 Undergraduate Teaching Practicum I, II

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is 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. In ANT 476, students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have already been graded. Students may not serve as teaching assistants in the same course twice.

Prerequisites to ANT 475: U4 or advanced U3 anthropology major or minor standing; permission of instructor
Prerequisites to ANT 476: ANT 475; permission of instructor
3 credits per course; S/U grading

ANT 487 Independent Research in Anthropology

May be repeated up to a limit of six credits.

Prerequisites: 15 credits in anthropology; permission of instructor and department
0-6 credits

ANT 488 Internship

Participation in local, state, and national public and private agencies and organizations. Students are required to submit written progress reports and a final written report on their experiences to the faculty sponsor and the department. May be repeated up to a limit of 12 credits.

Prerequisites: 15 credits of anthropology; permission of instructor and department
1-6 credits, S/U grading

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. Students receive only one grade upon completion of the sequence.

Prerequisite: Admission to the anthropology honors program
3 credits per course

ARB

Arabic

ARB 111, 112 Elementary Arabic I, II

An introduction to Arabic, stressing speaking, comprehension, reading and writing. Selected texts are read. Practice in the language laboratory supplements class work. No student who has had two or more years of Arabic in high school (or who has otherwise acquired an equivalent proficiency) may receive credit for ARB 111 without written permission from the supervisor of the course.

Prerequisite to ARB 112: ARB 111

3 credits per course

ARB 211-J, 212-J Elementary Arabic I, II

Continued study of Arabic at a more advanced level of speaking, comprehension, reading, writing, and grammar. Selected texts are read. Practice in the language laboratory supplements class work. No student who has four or more years of Arabic in high school (or who has otherwise acquired an equivalent proficiency) may receive credit for ARB 211 or 212 without written permission from the supervisor of the course.

Prerequisite to ARB 211: ARB 112

Prerequisite to ARB 212: ARB 211

3 credits per course

ARH

Art History

ARH 101-D 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.

3 credits

ARH 102-D 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.

3 credits

ARH 201-D Arts of Africa, Oceania, and the Americas

An introduction to the arts of Africa, Oceania, and the Americas. Following discussion of basic concepts in studying non-Western art, the course focuses on comparing and contrasting the arts of particular societies in each of these regions from ancient times to the present.

Advisory Prerequisite: U2 standing

3 credits

ARH 203-J History of Asian Art

A general course on Far Eastern art covering India, China, and Japan from its beginnings to the present. Emphasis is on the major arts of painting and sculpture, with some reference to architecture.

Prerequisite: ARH 101 or 102

3 credits

ARH 204-G History of Photography

A historical survey of the technical, theoretical, and aesthetic development of black-and-white and color still photography and its close interrelationship with the evolution of modern art.

Prerequisite: ARH 102

3 credits

ARH 205-G Introduction to Architecture

An introduction to the discipline of architecture through various interpretations of its technological and cultural functions. Focusing on the history of architecture's engagement with engineering, anthropology, sociology, and politics, this course explores changing conceptions of the nature and the task of architecture.

3 credits

ARH 299 Gallery Management Workshop

Development of practical skills in the business and managerial problems of an art gallery. Assigned readings focus on arts administration, arts conservation, and connoisseurship. May be repeated once.

Prerequisite: ARH 101 or 102

1 credit

ARH 300-I 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.

Prerequisite: ARH 101

3 credits

ARH 301-I 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.

Prerequisite: ARH 101

3 credits

ARH 303-I 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 traditions of northern Spain, Anglo-Saxon England, Ottonian Germany, and Viking Scandinavia.

Prerequisite: ARH 101

3 credits

ARH 304-I 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 is on the development in northern Europe.

Prerequisite: ARH 101

3 credits

ARH 306-I The Early Renaissance in Italy

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 Da Vinci.

Prerequisites: ARH 101 and 102

3 credits

ARH 307-I High Renaissance and Mannerism in Central Italy

Art and architecture in Florence and Rome in the 16th century. The High Renaissance is studied in the works of Leonardo, Michelangelo, Raphael, and Bramante; Mannerism in the works of Pontormo, Bronzino, Giambologna, Giulio Romano, and Vignola, among others.

Prerequisites: ARH 101 and 102

Advisory Prerequisite: ARH 306

3 credits

ARH 310-I 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 101 and 102

Advisory Prerequisite: ARH 307

3 credits

ARH 314-I 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.) are studied through the works of the major figures in each field, such as Hals, Vermeer, and van Ruisdael.

Prerequisite: ARH 102

3 credits

ARH 315-I Spanish Painting, 1560-1700

Painting in Spain from El Greco to Murillo. Special emphasis is given to the principal figures working during this golden age of the arts, among them Zurbaran, Ribera, and Velazquez.

Prerequisite: ARH 102

3 credits

ARH 316-I 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 are studied in detail with special emphasis on Rome. The study of French art in both Italy and France focuses particularly on the painting of the French caravaggisti, on Poussin and Claude Lorrain, and on the sculptors of Versailles.

Prerequisite: ARH 102

3 credits

ARH 318-J 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.

Prerequisite: ARH 101 or 102

Advisory Prerequisite: CNS 249 or 250 or courses in Chinese philosophy or history

3 credits

ARH 320-I Art of the 18th Century

A study of the development of 18th-century European art from rococo to neoclassicism.

Prerequisite: ARH 102

Advisory Prerequisites: Two other courses from among D.E.C. categories B, G, and I

3 credits

ARH 322-G American Art Since 1947

A survey of painting and sculpture in New York, including abstract expressionism, "hard edge" painting, pop art, minimal art, earthworks, protest art, and postmodernism.

Prerequisite: ARH 102

Advisory Prerequisite: ARH 342

3 credits

ARH 324-G 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 covered 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.

Prerequisites: ARH 101 and 102

Advisory Prerequisite: ARH 205

3 credits

ARH 326-J Arts of Ancient Mesoamerica

A survey of the artistic and cultural achievements of the major civilizations of Central America prior to the European conquest. Emphasis is on architectural and sculptural art forms and the ritual, social, and political

contexts within which they were created.

Prerequisite: U3 or U 4 standing

Advisory Prerequisite: ARH 201

3 credits

ARH 328-J Arts of West Africa

A study of the arts of West Africa from ancient to contemporary civilizations. Emphasis is primarily on the history of sculptural traditions, especially figurative sculpture and masquerade. These arts are examined in their political, social, and cultural contexts, as objects of ritual and religious practices, and as evidence of aesthetic choices and achievements.

Prerequisite: U3 or U4 standing

Advisory Prerequisite: ARH 201

3 credits

ARH 329-G Arts of the African Diaspora

A study of the arts of the African Diaspora from the African continent to Brazil, Surinam, the Caribbean, and the United States. Emphasis is on the full range of art forms, including not only sculptural and performance traditions but also textiles, basketry, and other craft traditions. Cultural continuities, spiritual belief, and significant changes in context, meaning, style, and technology are examined. Crosslisted with AFH 339.

Prerequisite: U3 or U4 standing

Advisory Prerequisite: ARH 201

3 credits

ARH 331-K American Art to 1890

A chronological and thematic survey of painting, sculpture, and architecture from the colonial period to the post-Civil War period. The course explores the theme of American pluralism, addressing such areas as Hispanic and European influences in American architecture; the imaging of encounter and ideologies of westward expansion; the construction of gender in the arts; the image of the Native American and the African American; the woman and African-American artist.

Prerequisite: ARH 101 or 102

3 credits

ARH 332-K Art of the United States, 1890-1930

American painting, sculpture, and architecture from the period spanning Progressivism and the rise of modern urban commercial culture to the end of World War II, emphasizing major events and various social, cultural, and ethnic influences. The course explores the theme of American pluralism, addressing such areas as the construction of race, gender, ethnicity, and class in the arts and the impact of immigration, urbanization, and commercial culture.

Prerequisite: ARH 101 or 102

Advisory Prerequisite: ARH 331

3 credits

ARH 333-K Arts for the Public

The history of efforts to develop forms of artistic work that engage broad audiences of citizens and consumers. Examination of a range of enterprises spanning the century, including monuments, murals, billboards, magazines, cartoons, religious icons, propaganda, and the Internet. Drawing on perspectives from art history, social history, and cultural studies, the course considers such developments as urbanization, political and business expansion, class and racial conflict, war, and technological innovation in relation to artwork, concluding with the questions: What is art for "the public" at the dawn of the 21st century? Are public arts and popular arts one and the same?

Prerequisite: ARH 102 or CCS 101

Advisory Prerequisite: ARH 332 or 342

3 credits

ARH 337-I Northern Renaissance Art

Painting and graphic art in the Netherlands and Germany in the 15th and 16th centuries are 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 and 102

3 credits

ARH 341-I Art of the 19th Century

A survey of European art from about 1780 to 1890. Emphasis is on individual artists, artistic attitudes, and progression of style. Art is examined in its historical and cultural contexts. Movements studied include neo-classicism, romanticism, realism, and impressionism.

Prerequisite: ARH 102

Advisory Prerequisites: Two other courses from among D.E.C. categories B, D, and G

3 credits

ARH 342-G 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.

Prerequisite: ARH 102

3 credits

ARH 360-G Art and Eros

A study of erotic imagery in various cultures and its psychosocial significance. A typology of erotic images is developed. The approach is largely, but not exclusively, psychoanalytic, both Freudian and object relational. The social context is brought in through stylistic considerations.

Prerequisite: ARH 101 or 102

Advisory Prerequisite: PSY 103

3 credits

ARH 400-403 Topics in Art History and Criticism

May be repeated as the topic changes.

Prerequisites: ARH 101 or 102; one other ARH course, varying with topic

3 credits per course

ARH 404 Topics in Film Studies and Criticism

May be repeated as the topic changes.

Prerequisites: Two of the following: CLT 335, HIS 361, HUM 201, 202, THR 117

3 credits

ARH 475, 476 Undergraduate Teaching Practicum I, II

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is 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. In ARH 476, students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have already been graded. Students may not serve as teaching assistants in the same course twice.

Prerequisites: to ARH 475: Art history/criticism major; preferably U4 standing; sponsorship of an instructor; permission of department

Prerequisites: to ARH 476: ARH 475; permission of instructor and director of undergraduate studies

3 credits per course; S/U grading

ARH 485 Projects in Art History and Criticism in New York City

Prerequisites: ARH 101, 102; two other ARH courses; permission of sponsor and department

3 credits

ARH 487 Independent Reading and Research in Art

May be repeated up to a maximum of 12 credits.

Prerequisites: At least four courses in art; sponsorship of a faculty member; permission of department

0-6 credits

ARH 488 Internship

Participation in the work of galleries, museums, arts agencies, and art historical societies. Students are required to submit written progress reports and a final report of their experiences 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 no more than three credits may count toward the major in studio art.

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 U4 students; permission of instructor and department

1-6 credits, S/U grading

ARH 495 Senior Honors Project in Art History and Criticism

A one-semester project for art history and criticism majors who are candidates for the degree with departmental honors.

Prerequisites: Permission of instructor and department

3 credits

ARS

Studio Art

ARS 154-D Foundations of Drawing

Fundamentals of drawing using various drawing media and types of paper. Perspective, foreshortening, proportion, anatomy, and basic concepts of drawing are studied. The figure, still life, and landscape are explored as subject matter, and color theory is introduced.

3 credits

ARS 208 Technology in the Arts

A multidisciplinary, hands-on introduction to the concepts and techniques of computer-influenced art, combining art, music, and theatre. Students explore computer creation and manipulation of sounds and images, as well as various ways of combining them. Current creative work using these techniques is studied. Crosslisted with MUS 208 and THR 208. Additional hours in Laboratory for Technology in the Arts or Fine Arts SINC site required.

Prerequisite: One 200 level ARS, MUS or THR course

3 credits

ARS 230-G Foundations of Two-Dimensional Design

Introduction to basic design principles and their application on the two-dimensional surface, with investigation into different functions and properties of the formal elements of line, value, texture, shape, space and their organizational use of basic relational elements (repetition, scale, rhythm). Abstract problems stress graphic and systematic approaches to visual problem solving. Primary media are pencil, charcoal, ink, tempera, and cut paper in black and white.

Prerequisite: ARS 154

3 credits

ARS 255-D Introductory Painting

Introductory painting in oils or acrylics. The various media, tools, and techniques of painting and of preparing surfaces for painting are explored. Continues the work of ARS 154 in the traditional areas of landscape, still life, and figure, as well as in perspective, foreshortening, proportion, anatomy, and color theory. One or two field trips to New York City museums and galleries may be required.

Prerequisite: ARS 154

3 credits

ARS 256-D Fundamentals of Sculpture

An introduction to sculpture, using a variety of materials and techniques. Specific, sequentially organized projects in carving, construction, modeling, and casting are designed to develop technical skills in conjunction with conceptual information.

Pre- or Corequisite: ARS 154

3 credits

ARS 264-D Ceramics

Investigation of ceramic ware and ceramic sculpture utilizing a wide variety of approaches in earthenware and stoneware clay bodies. The course offers a technical and conceptual foundation for clay construction, low- and high-fire glazing, and multiple finishing techniques using gas and electric firing processes.

Pre- or Corequisite: ARS 154
3 credits

ARS 274-D Beginning Printmaking

An introduction to printmaking. Demonstrations and lectures treat printmaking techniques and print shop procedures. Students are introduced to intaglio (etching, drypoint, engraving), relief (wood block, line block) monoprinting, and if time permits, lithography.

Pre- or Corequisite: ARS 154
3 credits

ARS 281-D Photography I

An intensive course with extensive practice and experimentation in the aesthetics, techniques, and materials of black-and-white photography. It is expected that the student's academic program or vocational objectives require a legitimate need for photographic training, and the course is structured accordingly. Students must provide their own 35mm camera equipped with a single focal length normal lens (no zoom lens) and the ability for full manual operation. They must expect to spend approximately \$450 during the semester on materials.

Pre- or Corequisite: ARS 154
3 credits

ARS 317 Interactive Performance, Media, and MIDI

Practical and theoretical issues related to interactive performance, combining elements of art, music, theatre, performance art, video, and computer science. Course topics include sound synthesis, sampling, video, lighting, alternative input, and MIDI. This hands-on course stresses small experimental-creative laboratory assignments and culminates in final small-group or individual projects. Crosslisted with MUS 317 and THR 317. Additional hours in Laboratory for Technology in the Arts or Fine Arts SINC site required.

Prerequisite: At least one 200- or 300-level ARS, MUS, or THR studio or performance course
3 credits

ARS 330 Foundations of Three-Dimensional Design

An introduction to the basics of three-dimensional design concepts and processes. Through studio problems students become familiar with fundamental three-dimensional design concepts, vocabulary, materials and skills applicable to continued study in a variety of visual and applied disciplines.

Prerequisite: ARS 230
3 credits

ARS 350 Life Drawing and Painting

Drawing and painting of the human figure. May be repeated once.

Prerequisite: ARS 255
3 credits

ARS 351 Painting II: Theory and Practice

Painting and drawing studio; practice and theory stressing exploration of media and crafts, historical styles, and individual development.

Prerequisites: ARH 102 and ARS 255
3 credits

ARS 352 Painting III: Theory and Practice

A continuation of ARS 351, stressing the individual development of the student as a maturing artist through critiques of the student's work and discussion of contemporary and historical issues in art.

Prerequisite: ARS 351
3 credits

ARS 359-G Theory and Practice of Conceptual Drawing

The further study of different processes and methods of generating drawings, encouraging individual expression. Slide presentations, assigned readings, and gallery visits are part of the student's experience.

Prerequisites: ARS 255 and ARH 102
3 credits

ARS 364 Advanced Theory and Practice of Ceramics

An advanced course in ceramics stressing sophisticated sculptural forms and techniques in earthenware, stoneware, porcelain, and raku clay bodies. Class work is based on individual projects stressing expression of ideas and image making. Additional techniques of mold making, slip casing, and raku firing enlarge the repertoire of construction and surface finishes.

Prerequisites: ARS 264 and ARH 102
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.

Prerequisites: ARS 256 and ARH 102
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.

Prerequisites: ARS 256 and ARH 102
3 credits

ARS 374 Theory and Practice of Printmaking: Intaglio Processes

Further development of the craft of black-and-white intaglio printing, utilizing various methods including dry point, engraving, etching, soft ground, and aquatint, with an emphasis on the history of printmaking.

Prerequisite: ARS 154
3 credits

ARS 375 Theory and Practice of Printmaking: Lithography

Demonstrations and hands-on work in the basic techniques of direct lithographic printing from limestone, primarily in black and white, with an emphasis on the history of printmaking.

Prerequisite: ARS 154
3 credits

ARS 381 Photography II

An advanced course in the theory and practice of black-and-white photography utilizing 35mm 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.

Prerequisite: ARS 281
3 credits

ARS 425 Computer Imaging Workshop

An exploration of computer imaging and its applications in the arts and sciences, intended for the student prepared to work independently in his or her discipline on computer imaging problems.

Prerequisites: U3 or U4 standing; ARS/MUS/THR 208; permission of instructor after interview and review of portfolio
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.

Prerequisites: ARS 351 and 352; ARH 342
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.

Prerequisites: ARS 365 and ARH 342
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 are developed. Advanced reproduction techniques (including plaster and flexible rubber molds) are used with subsequent castings in a variety of media such as plaster, polyester resin, and metal. May be repeated once.

Prerequisites: ARS 366 and ARH 342
3 credits

ARS 471 Advanced Theory and Practice of Printmaking: Intaglio Processes

Continued development of intaglio techniques, emphasizing a variety of multi-plate and single-plate color printing processes, and tailored to the individual requirements of advanced students. May be repeated once.

Prerequisite: ARS 374
3 credits

ARS 472 Advanced Theory and Practice of Printmaking: Lithography

Continued development of lithographic techniques, emphasizing methods of stone and plate lithography and leading to the production of printed single- and multi-colored editions. May be repeated once.

Prerequisite: ARS 375
3 credits

ARS 475, 476 Undergraduate Teaching Practicum I, II

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is 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. In ARS 476, students assume greater responsibility in such areas as assisting in demonstrations and critiques, only under direct supervision of the instructor.

Prerequisites to ARS 475: Studio art major; preferably U4 standing; sponsorship of an instructor; permission of department

Prerequisites to ARS 476: ARS 475; permission of department
3 credits per course; S/U grading

ARS 481 Photography III

Black-and-white photography stressing the theory and practice of 35 mm and medium-format equipment as an artistic tool for individual expression and communication. Emphasis is on the production of prints of outstanding quality and presentation through varied assignments (landscapes, abstracts, portraits, etc.) and equipment. Students must supply their own 35 mm camera equipment. Estimated cost of supplies is \$300.

Prerequisites: ARS 381; permission of instructor after interview and review of portfolio
3 credits

ARS 482 Photography IV

Black-and-white photography stressing the theory and practice of communicative skills and presentation aimed at enabling serious photographic students to follow and develop their personal photographic and subject interests. Students work on several photographic essays throughout the semester. Students must provide their own 35mm equipment. Estimated cost of supplies is \$300.

Prerequisite: ARS 381; permission of instructor after interview and review of portfolio
3 credits

ARS 487 Advanced Directed Projects in Studio Theory and Practice

May be repeated once.

Prerequisites: Advanced status in one of the studio areas; sponsorship of a faculty member; permission of department
0-6 credits

ARS 488 Internship

Prerequisites: U3 or U4 standing; 15 credits in art department courses; permission of department
1-6 credits, *S/U grading*

ARS 491, 492 Special Topics in Studio/Theory and Practice

May be repeated as the topic changes.

Prerequisite: Permission of department
3 credits per course

ARS 495 Senior Honors Project in Studio Art

A one-semester project for studio art majors who are candidates for the degree with departmental honors.

Prerequisites: Permission of instructor and department
3 credits

AST Astronomy

AST 101-E 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. Not for credit in addition to AST 203.
3 credits

AST 105-E 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 a historical introduction and discussion of the methods of science. Emphasizes current NASA deep-space exploration missions and other modern astronomical methods. Not for credit in addition to GEO 106.
3 credits

AST 111 Astronomy Laboratory A

An introduction to observational activities in astronomy. Students make simple astronomical measurements using instruments such as a quadrant, cross-staff, spectrometer, and telescope. Not for credit in addition to AST 112.

Pre- or Corequisite: AST 101 or 105 or 248
1 credit

AST 112 Astronomy Laboratory B

An introduction to observational activities in astronomy primarily intended for the ESS major. Students make astronomical measurements, using instruments they build, and learn how to reduce measurement errors. They study the basics of using computers in observational astronomy by using a computer-operated spectroscope, telescope, and image analyzers. Not for credit in addition to AST 111.

Pre- or Corequisite: AST 101 or 105 or 248
1 credit

AST 203-E 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. May not be taken for credit in addition to AST 101. An optional observing session is held one evening per week.

Prerequisite: PHY 125 or 131 or 141
4 credits

AST 248-H The Search for Life in the Universe

A study of the role of science in modern society through investigation of the question: Does life exist elsewhere in the universe? Topics include a review of the astronomical and biological settings; the origin of life on the earth and possibly elsewhere; the evolution of life and the development of intelligence and technology. Also discussed are the ramifications of the development of life and intelligence for the atmosphere and the biosphere.

Prerequisite: One D.E.C. category E course
3 credits

AST 287 Introductory Research in Astronomy

Prerequisites: Permission of instructor and departmental research coordinator.

Advisory Prerequisites: U1 or U2 standing; one AST course

0-3 credits

AST 301-H Collisions in the Solar System

A discussion of the evidence that comet and asteroid impacts have played a significant part in the evolution of the Earth, and other planets of the solar system, as well as an assessment of the actual and perceived hazard posed by terrestrial impacts and discussion of what can be done about it. The course follows an interdisciplinary approach and is not for major credit.

Prerequisites: Any two of the following: AST 101 or 105 or 248; MAT 125 or 131 or 141 (or the discontinued MAT 124); PHY 121/123 or 125 or 131 or 141

3 credits

AST 341-E Stars and Radiation

An introduction to, and development of, a firm physical understanding of the observed properties of stars. Topics include the structure of the interior and atmosphere of stars, the transfer of energy by radiation in plasmas, the evolution of stars, and the end stages of stellar evolution, including white dwarfs, neutron stars, black holes and supernovae, with careful attention to the comparison of the predictions with observations.

Prerequisites: AST 203; PHY 251/252; MAT 203 or 205 or 211 or AMS 261

Corequisite: PHY 306

3 credits

AST 342 The Interstellar Medium

Examination of the processes that govern the gas and dust in our galaxy and how we study it; gas dynamics and radiative processes, phases of the interstellar medium, star and planet formation, explosive phenomena.

Prerequisites: AST 203; PHY 251/252; MAT 203 or 205 or 211 or AMS 261

Corequisite: PHY 306

3 credits

AST 343-E Galaxies

An introduction to the properties of galaxies, including the Milky Way and others. Observational information is presented from a physical point of view. Theoretical discussion emphasizes well-established concepts. Consideration of active galactic nuclei and quasars, the probable sites of massive black holes.

Prerequisite: AST 203; PHY 251/252; MAT 203 or 205 or 211 or AMS 261

Corequisite: PHY 306

3 credits

AST 344-E Cosmology

An introduction to physical cosmology: observations bearing on the Big Bang, Hubble expansion, extragalactical distance scale, light element abundances, and quasar absorption lines. Interpretation using various theoretical results from general relativity, gravitational instability, and nucleosynthesis.

Prerequisite: AST 203; PHY 251/252; MAT 203 or 205 or 211 or AMS 261

Corequisite: PHY 306

3 credits

AST 345 Undergraduate Research in Astronomy

Prerequisite: Permission of instructor

0-1 credit

AST 351-E 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.

Prerequisites: AST 203; PHY 251/252; MAT 203 or 205 or AMS 261

4 credits

AST 443 Observational Techniques in Optical Astronomy

An introduction to modern astronomical instrumentation and data handling and to the use of telescopes. Emphasis on techniques and equipment appropriate for wavelengths shorter than one micron. Extensive laboratory and observing exercises are required.

Prerequisite: AST 341 or PHY 301

4 credits

AST 447 Senior Tutorial in Astronomy

Independent readings in advanced topics to be arranged prior to the beginning of the semester. Weekly conferences are held with a faculty member. May be repeated once.

Prerequisites: Permission of instructor; U4 standing
1-3 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.

Prerequisites: U4 standing; permission of instructor
3 credits, *S/U grading*

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.

Prerequisite: Permission of instructor
0-3 credits

ATM

Atmospheric and Oceanic Sciences

ATM 102-E 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 EST 102.

3 credits

ATM 205-E 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.

Prerequisites: PHY 119 or 121/123 or 126 or 131 or 141; MAT 125 or 131 or 141 (or the discontinued MAT 124)

3 credits

ATM 237-H Current Topics in World Climate and Atmosphere

An exploration of current concerns about the greenhouse effect, acid rain, and global ozone loss, in a format accessible to non-science majors. The social and political steps being taken to limit global atmospheric pollution and climate change are discussed. Not for major credit. Crosslisted with PHY 237.

Prerequisites: One D.E.C. category E course; satisfaction of entry skill in mathematics requirement

3 credits

ATM 247-E Weather Prediction I

The application of principles of thermodynamics and fluid dynamics, and empirical knowledge of the ways weather systems operate to develop principles of weather forecasting. Operational weather products such as weather maps, National Weather Service model predictions, and station data are used to analyze the behavior of past weather systems as well as to make real-time weather predictions.

Prerequisite: ATM 205

3 credits

ATM 305-E Global Atmospheric Change

An application of chemical principles to the analysis and prediction of climate changes on earth. The course analyzes climates that have occurred in the earth's past and uses this information to infer climate changes that are likely to occur in the near and distant future. Topics covered include atmospheric chemistry, paleoclimates, greenhouse warming, ozone changes, and urban pollution.

Prerequisites: MAT 125 or 131 or 141 (or the discontinued MAT 124); CHE 131 or 141

Advisory Prerequisite: PHY 119 or 132 or 142 or 127

3 credits

ATM 345-E Theoretical Meteorology

An introduction to the quantitative interpretation of the thermal and dynamical structure of planetary atmospheres. Topics 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.

Prerequisite: ATM 205

3 credits

ATM 346-E 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; and climate and the general circulation of the atmosphere.

Prerequisite: ATM 205

3 credits

ATM 347-E Weather Prediction II

The application of theoretical meteorology to the analysis of the current state and prediction of the future state of the atmosphere. The latest numerical and statistical weather prediction models are discussed, as are the application of mesoscale diagnostics, interpretation of weather satellite imagery, Doppler weather radar data, vertical profiler data, and lightning detection displays.

Prerequisites: ATM 247 and 345 and 346

3 credits

ATM 348-E 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.

Prerequisite: PHY 132 or 142 or PHY 126 and 127

3 credits

ATM 397-E 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.

Prerequisites: PHY 119 or 132 or 142 or PHY 126, 127; CHE 131 or 141 or 198; MAT 125 or 131 or 141 (or the discontinued MAT 124); U3 or U4 standing

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 are held with a faculty member. May be repeated once.

Prerequisite: Permission of instructor and MSRC Undergraduate Studies Committee

1-3 credits

ATM 487 Senior Research in Atmospheric Sciences

Under the supervision of a faculty member, a student majoring in Atmospheric and Oceanic Sciences may conduct research for academic credit. A research proposal must be prepared by the student and submitted to the MSRC Undergraduate Studies Committee 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 MSRC Undergraduate Studies Committee

0-3 credits

ATM 488 Internship

Participation in research at off-campus laboratories, including the National Weather Service. Students are required to submit to the department a proposal at the time of registration and a report at the end of the semester. May be repeated up to a limit of 12 credits.

Prerequisites: ATM 347; permission of instructor and department

1-6 credits, S/U grading

BCP

Pharmacology

BCP 394 Environmental Toxicology and Public Health

Principles of toxicology are presented and problems associated with major classes of toxic chemicals to human and environmental health are examined. Case studies dealing with current waste management issues are also discussed. May not be taken for credit in addition to MAR 336. Crosslisted with MAR 394.

Prerequisites: BIO 201 (or the discontinued BIO 151); CHE 131

3 credits

BCP 400 Writing in Pharmacology

See requirements for the major in pharmacology, upper-division writing requirement.

Prerequisites: Pharmacology major; U3 or U4 standing; permission of instructor

0 credits, S/U grading

BCP 401 Principles of Pharmacology

Basic principles and mechanisms of drug distribution, absorption, metabolism, and elimination. Principles of chemical carcinogenesis and tumor promotion. Autonomic, smooth-muscle, and CNS pharmacology. Pharmacology of specific drugs of historical interest including alcohol, antibiotics, aspirin, nicotine, and morphine. Review of anticoagulants and thrombolytic agents, antiparasitics, and drugs for the treatment of allergic conditions and gout.

Prerequisites: BIO 362; CHE 322 and 327; a g.p.a. of 3.0 or higher in these courses and their prerequisites.

Corequisite for pharmacology majors: BCP 403

3 credits

BCP 402 Advanced Pharmacology

Advanced concepts of drug metabolism, pharmacokinetics, biochemical and molecular mechanisms of drug action, and drug resistance in human disease states. Toxicological agents and environmental pollutants. The pharmacology of autotoxins, anti-inflammatories, immunosuppressants, and antiasthmatics. Rational drug design and drug receptor interactions using computer molecular modeling techniques.

Prerequisites: BCP 401 and 403; minimum of B- in BCP 401

Corequisite: BCP 404

3 credits

BCP 403 Principles of Pharmacology Laboratory

Illustrations of the principles of drug absorption, distribution, metabolism, and elimination. In vitro assays that demonstrate dose response relationships. Principles of bioassays. Determination of drug potency using isolated tissue preparations. Determination of the affinity of an antagonist for an agonist at a receptor site. Evaluation of potencies of anesthetics, analgesics, and anticonvulsant agents. The use of computer software for data collection and analysis.

Prerequisite: Permission of instructor

Corequisite: BCP 401

2 credits

BCP 404 Advanced Pharmacology Laboratory

The use of molecular modeling software for the understanding of structure activity relationships. In vivo studies to demonstrate the pharmacological mechanism of action of drugs acting on the autonomic, cardiovascular, and renal systems. Pharmacokinetic studies, using HPLC, to determine the rate of absorption, distribution, and excretion of therapeutic agents.

Radio- and enzyme-immunoassays for the detection of circulating hormones. Cell culture techniques for drug determination and evaluation.

Prerequisites: BCP 401 and 403; permission of instructor

Corequisite: BCP 402
2 credits

BCP 406 Pharmacology Colloquium

Seminars on research in pharmacology and toxicology presented by faculty and distinguished scientists from academic and industrial institutions. Students are expected to develop an understanding of the scientific principles presented in the colloquium. Speakers meet with the students after the seminar to discuss research concepts and to answer questions. May be repeated.

Prerequisites: BIO 202 and 203 (or the discontinued BIO 152); CHE 322; a g.p.a. of 3.0 in these courses and their prerequisites
1 credit

BCP 475 Undergraduate Teaching Practicum in Pharmacology

Prerequisites: Pharmacology major; U4 standing; permission of department
3 credits, S/U grading

BCP 487 Research in Pharmacology

Completion of an individual student research project under the supervision of a faculty member. Previously acquired laboratory course techniques and new procedures are utilized. Experimental results must be submitted to the department for grade evaluation in the format of a research report. Not for credit in addition to HBH 396, 398, and 399. May be repeated.

Prerequisites: BIO 202 and 203 (or the discontinued BIO 152); CHE 322 and 327; a g.p.a. of 3.0 in these courses and their prerequisites; permission of instructor and department.
0-3 credits

BCP 488 Internship

Research participation in off-campus laboratories, the pharmaceutical industry, and other academic and public agencies. Repeatable up to 12 credits.

Prerequisites: BIO 361; CHE 322; g.p.a. of 3.0 or higher in these courses and their prerequisites; permission of department
1-6 credits, S/U grading

BIO

Biology

BIO 101-E, 102-E 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.

Prerequisite to BIO 102: BIO 101
3 credits per course

BIO 111-E The Aquatic World

An introduction to the natural history of the animals and plants of the sea, rivers, and lakes, along with a consideration of water-land transitions. Weekly on-campus exhibits which students attend in addition to the regularly scheduled classtime. Not for major credit.

Prerequisite: High school biology
3 credits

BIO 113-E General Ecology

A survey of the principles of ecology in the context of finding solutions to local, national, and global environ-

mental problems. Not for major credit.

3 credits

BIO 114-E Dinosaur Evolution and Ecology

The study of the anatomy, ecology, behavior, physiology, and evolution of dinosaurs. The benefits of studying the history of extinct forms of life on earth are emphasized, particularly with regard to mass extinction and the need to maintain biodiversity. Not for major credit.

3 credits

BIO 115-E 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 are considered.

Advisory Prerequisite: One biology course.
3 credits

BIO 150-E The Living World

An exploration of life from organisms to molecules. The connections between biodiversity, molecules, and evolution are examined. Recitations/laboratories familiarize students with the tools, models, and concepts of modern biology. Two hours of lecture and one one-and-a-half hour recitation/laboratory per week. Not for credit after the discontinued BIO 151 or 152.

Prerequisites: High school biology and chemistry; satisfaction of entry skill in mathematics requirement.
3 credits

BIO 201-E Fundamentals of Biology: Organisms to Ecosystems

An introduction to the major groups of living organisms. Structure, functions, the ecological roles of organisms in communities and ecosystems, and their evolutionary history are covered. Genetics and demography are discussed in the context of evolution by natural selection. Three hours of lecture and one three-hour laboratory per week. Not for credit in addition to the discontinued BIO 151.

Prerequisite: BIO 150
4 credits

BIO 202-E Fundamentals of Biology: Molecular and Cellular Biology

The fundamentals of cell biology, biochemistry, and genetics. The biochemical and molecular bases of cell structure, energy metabolism, gene regulation, heredity, and development in living organisms from bacteria to man are discussed. Three hours of lecture and one three-hour laboratory per week. Not for credit in addition to the discontinued BIO 152.

Prerequisite: BIO 150

Pre- or Corequisites: CHE 111 or 121 or 131 or 141; MAT 125 or higher (or the discontinued MAT 124)
4 credits

BIO 203-E Fundamentals of Biology: Cellular and Organ Physiology

The fundamentals of cell and organ physiology in mammalian and non-mammalian organisms. The structure and function of cell membranes and the physiology of cell to cell signaling, cellular respiration, and homeostasis of organs and organisms are examined with an emphasis on the comparative physiology of vertebrates and invertebrates. Three hours of lecture and one three-hour laboratory per week.

Prerequisite: BIO 150

Pre- or Corequisite: CHE 111 or 121 or 131 or 141; MAT 125 or higher (or the discontinued MAT 124)
4 credits

BIO 208-H Cell, Brain, Mind

An introduction to the human brain and how it is the

target of diseases, drugs, and psychological disturbances. The course explores these topics through a knowledge of basic cell neurobiology. The implications of brain science for human behavior in society are also considered. Not for major credit.

Prerequisite: High school chemistry or CHE 111 or CHE 121; BIO 101 or 150 (or the discontinued BIO 152)

3 credits

BIO 232 Physiology Laboratory for Pre-Nursing Students

Laboratory studies in mammalian physiology. One hour of lecture, one hour of recitation, and one three-hour laboratory per week. May not be taken for credit after BIO 335. Not for major credit.

Prerequisite: BIO 328

3 credits

BIO 241-E General Botany

A survey of the plant and fungal kingdoms. Topics include cellular structure and function, photosynthesis and respiration, gross anatomy, taxonomy and the diversity of organisms, fungal and plant ecology, agriculture, and aspects of fungal and plant evolution.

Prerequisites: BIO 201 and 202 (or the discontinued BIO 151, 152)

3 credits

BIO 242-E Zoology

Aspects of the natural history, morphology, and evolution of protozoans, multicellular invertebrates, and vertebrates. Three hours of lecture and one three-hour laboratory per week. Not for credit in after BIO 343 or 344 or 346.

Prerequisite: MAR 104 or BIO 113 or BIO 201 (or the discontinued BIO 151)

4 credits

BIO 300-H Biology of Human Reproduction

The chromosomal, genetic, hormonal, and molecular basis of human sex determination; the embryology of gonadal and genital formation; the formation of chimeras, hermaphrodites, and pseudohermaphrodites; controversies on the biological role in gender differences, homosexuality, and transsexualism; sexually transmitted diseases; history of sex perception by society. Not for major credit.

Prerequisites: BIO 101, 102 or BIO 202, 203 (or the discontinued BIO 151, 152)

3 credits

BIO 307 Computer Modeling of Biological Systems

Tools for visualizing and modeling biological systems. Tools include graphics programs, spread sheets, software for modeling dynamical systems, and instruments for real-time data collection and data analysis including image acquisition and analysis. Study of models of population growth, ecology, the neuron, and other biological systems. Crosslisted with EST 307.

Prerequisites: BIO 201 or 202 or 203 (or the discontinued BIO 151 or 152); CHE 132; MAT 125 or higher (or the discontinued MAT 124)

3 credits

BIO 310-E 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: C or higher in BIO 202 and 203 (or the discontinued BIO 152); CHE 321 or 331

3 credits

BIO 311 Techniques in Molecular and Cellular Biology

Techniques used in recombinant DNA and cell biology research. Topics include DNA manipulation and analysis, protein expression and analysis, and advance microscopy.

Prerequisites: CHE 132 or 142; BIO 202 and 203 (or the

discontinued BIO 151, 152); MAT 125 or higher; permission of instructor
3 credits

BIO 314-E 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 chemical and molecular genetic techniques; entrainment and coupling pathways; biochemical and molecular models of circadian oscillators; pacemaker dysfunction; cellular aspects of chrono-pharmacology and chronotherapy; and cellular clocks in development and aging.

Prerequisite: BIO 310 or 325 or 361 or 374
3 credits

BIO 315-E Microbiology

The organization, structure, energetics, and reproduction of microorganisms. Interactions of bacteria and viruses are discussed.

Prerequisites: BIO 201 and 202 (or the discontinued BIO 151, 152); CHE 322
3 credits

BIO 317-E Principles of Cellular Signaling

Basic principles of cellular signaling and maintenance of cellular and organismic homeostasis through intra- and intercellular signaling mechanisms. Emphasis is on relationships between nuclear events and ongoing processes of the cell. The roles of membrane receptors and second-messenger pathways in mediating such diverse events as bacterial chemotaxis, protozoan locomotion, and secretion are discussed.

Prerequisites: BIO 202 and 203 (or the discontinued BIO 152)
3 credits

BIO 320-E 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 202, 203 (or the discontinued BIO 151, 152)
Pre- or Corequisite: CHE 131 or 141
3 credits

BIO 321-E Animal Embryology

A survey of the developmental anatomy of vertebrates. Laboratory exercises consist of the study of embryonic development from sectioned material 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.

Prerequisite: BIO 201 or 202 or 203 (or the discontinued BIO 151 or 152)
4 credits

BIO 325-E Animal Development

The development of form and function in multicellular animals, emphasizing experimental analysis of diverse animal systems, through basic processes, including molecular genetics, cell biology, and biochemistry of developmental control, signaling, positional information, and specification of cell fate.

Prerequisite: C or higher in BIO 320
Pre- or Corequisite: CHE 321 or 331
3 credits

BIO 328-E 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 HBV 350.

Prerequisite: BIO 203 (or the discontinued BIO 152)
Advisory Prerequisite: CHE 111 or 131 or 141
3 credits

BIO 330-E 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 or 343 or 353
3 credits

BIO 334-E 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 are discussed.

Prerequisites: BIO 203 (or the discontinued BIO 152); CHE 131 or 141
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, one hour of recitation, and one three-hour laboratory per week.

Prerequisites: CHE 132, 133
Pre- or Corequisite: BIO 328
3 credits

BIO 343-E Invertebrate Zoology

Aspects of the diversity, comparative and functional morphology, natural history, evolution, and water-land transitions of invertebrates exclusive of arthropods. Three hours of lecture and one three-and-one-half hour laboratory per week.

Prerequisite: BIO 201 (or the discontinued BIO 151) or MAR 104
4 credits

BIO 344-E 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-hour laboratory per week. Not for credit in addition to BIO 346.

Prerequisite: BIO 201 (or the discontinued BIO 151)
4 credits

BIO 346-E Aquatic Arthropods and Vertebrates

Aspects of the diversity, comparative and functional morphology, natural history, and evolution of arthropods and vertebrates. Water-land transitions are considered. Three hours of lecture and one three-and-one-half-hour laboratory per week. Not for credit in addition to BIO 344.

Prerequisite: BIO 201 (or the discontinued BIO 151) or MAR 104
4 credits

BIO 350-H Darwinian Medicine

Evolutionary mechanisms are presented as background to interpret the ultimate causes of degenerative and infectious diseases and their symptoms. The evolution of human resistance to infection by pathogens, evolution of pathogens in response to natural and technological defenses, and the ecological context of several medically important phenomena are discussed. Evolutionary phenomena are treated from molecular, organismal, populational, and ecological levels.

Prerequisite: BIO 201 and 202 (or the discontinued BIO 151 and 152)
3 credits

BIO 351-H 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 201 (or the discontinued BIO 151);

completion of biology major's mathematics requirement
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, and one hour of recitation per week. Three all-day Saturday field trips.

Pre- or Corequisite: BIO 351; permission of instructor
3 credits

BIO 353-E 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 are discussed. Crosslisted with GEO 353.

Prerequisite: MAR 104 or BIO 201 (or the discontinued BIO 151)
Advisory Prerequisite: BIO 343
3 credits

BIO 354-E 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.

Prerequisite: BIO 201, 202 or BIO 320
3 credits

BIO 356 Applied Ecology and Conservation Biology Laboratory

A computer laboratory course introducing students to ecological risk analysis and conservation biology. Laboratories are based on interactive software. Computer simulation techniques for addressing problems in applied ecology are emphasized.

Prerequisites: MAT 126 or higher; BIO 201 or 202 or 203 (or the discontinued BIO 151 and 152)
2 credits

BIO 357-E General Microbial Ecology

An introduction to the study of the interaction of microorganisms with their natural or artificial environments. The course includes 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 201 and 202 (or the discontinued BIO 151, 152); CHE 322 or 332
3 credits

BIO 358-H Biology and Human Social and Sexual Behavior

Major features of human social and sexual behavior are examined from a biological perspective. Insights from ethology, evolutionary biology, and neurobiology are synthesized into a picture of human nature and behavior. Implications of this picture for human sexual and social behavior are considered.

Prerequisites: U3 or U4 standing; one of the following: BIO 101, 201, 202, or 203 (or the discontinued BIO 151 or 152)
3 credits

BIO 359-E Behavioral Ecology

A consideration of the patterns of animal behavior in relation to ecological circumstances and evolutionary history. Vertebrate examples are emphasized.

Prerequisites: BIO 201 and 203 (or the discontinued BIO 151, 152)
3 credits

BIO 360-E Behavioral Ecology Laboratory

Laboratory/field exploration of animal behavior seen as the end product of a series of physiological, developmental, and evolutionary processes. Consideration of such processes as the physics of signalling, the biomechanics of movement, and the genetic and chemical basis of the behavior of the individual and the population. Students engage in independent research in the laboratory or field and are involved in the design and execution of experiments. Three all-day field trips are required. Crosslisted with MAR 360.

Prerequisite: BIO 359

3 credits

BIO 361-E, 362-E 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 transcription, 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 peptide chain initiation, elongation, and termination.

Prerequisites to BIO 361: C or higher in BIO 202 (or the discontinued BIO 152); CHE 322 or 332

Prerequisite to BIO 362: C or higher in BIO 361

3 credits per course

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, recombinant DNA technology, photosynthesis, electrophoresis, and column chromatography. Four hours of laboratory and discussion per week.

Pre- or Corequisite: BIO 310 or 361

2 credits

BIO 374-E Molecular Neurobiology

Cellular and molecular processes of nerve excitability, neurotransmission, and higher-order functions such as learning and memory. Molecular events underlying those aspects of neural development that contribute to the plasticity of the adult nervous system are emphasized. Invertebrate and vertebrate model systems are used to illustrate the relation of cellular processes to behavioral adaptation.

Prerequisite: BIO 310 or 328 or 334 or 361

3 credits

BIO 379-E 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 310 or 334

Advisory Prerequisite: BIO 361

3 credits

BIO 380-E 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. Three hours of lecture and three hours of laboratory per week.

Prerequisites: BIO 201 and 202 (or the discontinued BIO 151, 152)

4 credits

BIO 383-E Herpetology

Overview of the vertebrate classes Amphibia and Reptilia, with emphasis on evolutionary history, extant diversity, ecology, morphology, and behavior. Laboratories expose students to world-wide diversity and use of general keys, but emphasize local species and collection techniques. Classes and fieldwork are conducted at the University's Swan Pond facility. A trip to New York City exhibits is required. Offered summer only.

Prerequisites: BIO 201 (or the discontinued BIO 151)

4 credits

BIO 385-H Plant Ecology

Basic ecological principles as applied to the biology of individual plants, plant populations, communities, and ecosystems in relation to their environments. Examples from Long Island pine barrens, tropical rain forests, beaches, deserts, and other plant communities are studied. Examination of the connections between human societies and plant communities, which are rapidly being altered or destroyed worldwide.

Prerequisites: BIO 201 (or the discontinued BIO 151, 152)

Advisory Prerequisite: BIO 351

3 credits

BIO 386-H Ecosystem Ecology in a Changing World

Ecosystem ecology with an emphasis on biogeochemical cycling and biosphere-atmosphere interactions. The course focuses on terrestrial ecosystems and their roles in earth system processes such as climate and atmospheric composition.

Prerequisite: CHE 322

Pre- or Corequisite: MAT 125

Advisory Prerequisite: BIO 201 (or the discontinued BIO 151) or MAR 104

3 credits

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 the topic changes.

Prerequisite: Permission of instructor

2-3 credits per course

BIO 407 Colloquium in Ecology and Evolution for Biology Majors

Students attend the weekly departmental colloquia in ecology and evolution. The content of each session is discussed during a separate class meeting. Conducted as a seminar.

Prerequisites: BIO 201, 202 and 203 (or the discontinued BIO 151, 152); at least one course from biology major areas 4 or 5 with grades of B or higher; CHE 132; U3 standing as a biology major

2 credits

BIO 409 Selected Topics in Biochemistry, Cell Biology, and Developmental Biology

Topics of interest in biochemistry, cell biology, and developmental biology, including current research on each topic. May be repeated as the topic changes.

Prerequisite: Changes with topic

2 credits

BIO 430 Approaches to Current Researches in Neuroscience

Use of the scientific method, focusing on neurosciences. Topics are chosen from neuroanatomy, molecular and cellular neurobiology, integrative and system neurophysiology, and neuroethology. Intended to prepare students for research in neuroscience.

Prerequisites: BIO 203 (or the discontinued BIO 152); CHE 321 or 331; permission of instructor.

Corequisite: BIO 317 or 328 or 334

2 credits

BIO 444, 446, 447, 449 Readings in Biological Sciences

BIO 444 Readings in Biology and Society
BIO 446 Readings in Neurobiology and Physiology
BIO 447 Readings in Molecular, Cellular, and Developmental Biology

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 biology major requirements. Limit of one topic per semester.

Prerequisites to BIO 444, 446, and 449: Written permis-

sion of instructor and undergraduate studies committee

Prerequisites to BIO 447: Permission of instructor and Department of Biochemistry and Cell Biology

1-2 credits per course; S/U grading

BIO 475, 476 Undergraduate Teaching Practicum in College Biology I, II

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. Students may not serve as teaching assistants in the same course twice.

Prerequisites to BIO 475: Permission of instructor and undergraduate studies committee

Prerequisites to BIO 476: BIO 475; permission of instructor and undergraduate studies committee

2-3 credits per course; S/U grading

BIO 484, 486, 487, 489 Research in Biological Sciences

BIO 484 Research in Biology and Society

BIO 486 Research in Neurobiology and Physiology

BIO 487 Research in Molecular, Cellular, and Developmental Biology

BIO 489 Research in Ecology and Evolution

In these courses, the student works 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 prepares an appropriate report on the project. Any of the courses may be taken for more than two semesters, but no more than four credits of research and internship 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.

Prerequisites to BIO 484, 486, and 489: Written permission of instructor and undergraduate studies committee. 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 to BIO 487: Permission of instructor and Department of Biochemistry and Cell Biology

0-4 credits per course; S/U grading

BIO 488 Internship in Biological Sciences

May be repeated, but no more than four credits of research and internship may be counted toward the biology major.

Prerequisites: BIO 201, 202, 203 (or the discontinued BIO 151, 152); CHE 132; permission of faculty sponsor and biology internship committee

1-6 credits per course; S/U grading

BNG

Bioengineering

BNG 201-H Engineering Responses to Society

The roles that engineers and engineering scientists play in supporting the societal infrastructure of urban and rural populations throughout the world. Focuses on relating examples of engineering achievement so that students may expand their perspective with regard to the increasingly scientific and technological mode of current culture. Includes the relationship between engineering and aesthetics, the engineering design process, forensic engineering, and biology-related engineering. Crosslisted with ESG 201.

Prerequisite: One D.E.C. category E course

3 credits

BNG 301 Bioelectricity

Introduces the importance of electricity and magnetism in biological systems from the atomic level to the global level. The intermediate levels of cell, tissue, and organism are explored in depth to provide both an

overview of accepted scientific understanding of the influence of electric and magnetic fields on biology, as well as controversial topics and theories. Emphasis on the bioengineering of physiological electromagnetic detectors (both plant and animal) and the consequences (both beneficial and harmful) of natural and man-made electromagnetic fields on biological tissues. *Prerequisites:* MAT 125; BIO 201 or 202 or 203 (or the discontinued BIO 151 or 152); ESG/BNG 201
3 credits

BNG 302 Biofluids

Introduces properties of fluids and forces governing fluid flow. Physical mechanisms of drag and lift generation are examined in the context of the vastly different contexts in which organisms live. Nature's devices for controlling motion in fluids, including principles of lift, drag, airfoils, thrust from flapping, and unsteady flow effects in review of the performance of insects, birds, and fish. Introduces principles of wind tunnels. Considers how flows are measured and visualized, invasively and non-invasively. *Prerequisites:* MAT 125; BIO 201 or 202 or 203 (or the discontinued BIO 151 or 152); ESG/BNG 201
3 credits

BNG 303 Biomechanics

Illuminates the principles of mechanics and dynamics that apply to living organisms, from cells to humans to Sequoia trees. The behavior of organisms is examined to observe how they are constrained by the physical properties of biological materials. Locomotion strategies (or the lack thereof) are investigated for the forces and range of motions required and energy expenditures. Includes the relationship between form and function to illustrate how form dominates behavior. Presents the physiological effects of mechanical stresses on organs, pathologies that develop from abnormal stress, and how biological growth and adaptation arise as a natural response to the mechanics of living. *Prerequisites:* MAT 125; BIO 201 or 202 or 203 (or the discontinued BIO 151 or 152); ESG/BNG 201
3 credits

BNG 401 Design in Bioengineering

Through review of innovative solutions to a variety of engineering problems solved by nature, the importance of identifying assumptions and constructing design solutions from experience obtained in disparate fields is emphasized. Includes current problems in biotechnology, environmental studies, and medicine. Design solutions are undertaken by students in group projects using engineering techniques. *Prerequisites:* Two from BNG 301, 302, 303
3 credits

BNG 499 Research in Bioengineering

An independent research project with faculty supervision. *Prerequisite:* B average in all science courses; permission of instructor and department.
0-3 credits

BUS

Business Management

BUS 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.
3 credits

BUS 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:* BUS 114
3 credits

BUS 339 The Nonprofit Sector : Institutions, Policy, and Practice

An examination of the legal regulations that define the nonprofit sector, its magnitude, its scope, and policy issues. Explores the effect of government actions on charitable giving, and revenue accumulation in the form of sales, business activity, and fund-raising. Compares labor markets and firms in the nonprofit and for-profit sectors. *Prerequisite:* ECO 109
3 credits

BUS 340 Management Information Systems

An introductory course in management information systems (MIS). Its objectives are to develop a basic understanding of the concepts and techniques needed in analyzing, designing, and managing these systems, and to explore the applications of computers and information technology to improve the efficiency and effectiveness of individuals, groups, and organizations. *Prerequisites:* MAT 122 or MAT 123 or AMS 102
3 credits

BUS 341, 342 Special Topics in Management

May be repeated as the topic changes. *Prerequisite:* Permission of instructor
3 credits per course

BUS 343 Expert Systems in Business

Examines the technology of expert systems, with special attention to business applications, including manufacturing and service facilities. Included are the history of expert systems; issues in knowledge acquisition, implementation and validation; actual applications in the world of business; hands-on development of a simple expert system. *Prerequisite:* BUS 340
3 credits

BUS 346 Operations Management

Analysis and design of manufacturing and service systems. Topics include quality management, product and service design, process selection and capacity planning, design of work systems, inventory management, aggregate planning, material requirements planning, and just-in-time systems. *Prerequisite:* AMS 102, BUS 349
3 credits

BUS 347 Business Ethics

An introduction to traditional ethical theories and their application to business. A basis for understanding how ethical issues in business arise, and some strategies to control or resolve them, are derived from an examination of the work of philosophers and other writers relating to business ethics. Recent business case studies enable students to develop their own perspectives. *Prerequisites:* U3 or U4 standing; PSY 103 or SOC 105
3 credits

BUS 348 Principles of Marketing

Basic marketing concepts and their applications. Issues include strategy, market segmentation, individual consumer behavior, marketing research, promotion, pricing and international marketing. The emphasis is on analysis of the challenges facing business with respect to all relevant constituencies, including the company in general, managerial colleagues across functional areas, consumers, stockholders, and government. *Prerequisites:* BUS 114; MAT 122 or 123; AMS 102; ECO 109
3 credits

BUS 349 Management Science

An introduction to modeling in management and

policy analysis. The course treats the basic concepts of management science and offers different models in quantitative decision making, demonstrating the applicability of such models in business. Not for credit in addition to ECO 348. *Prerequisites:* AMS 102 or MAT 122 or 123 or level 4 on the mathematics placement examination
3 credits

BUS 351 Human Resource Management

Major trends in personnel management, including problems and issues faced by organizations and individuals in times of change. Responsibilities of the human resources department and the roles that every manager plays, both as a supervisor and as a client of the human resources department, are studied. Topics include human resources forecasting and planning job design, employee selection, test development and validation, equal employment opportunity laws and judicial rulings, performance appraisal, compensation, benefits, career development, safety, and labor relations. *Prerequisites:* U3 or U4 standing and one of the following: AMS 102, BUS 114, ECO 109, PSY 103, or SOC 105
3 credits

BUS 353 Entrepreneurship

The essential qualities of new and growing enterprises are examined. Examples of both successful and failed new ventures are given by entrepreneurs. Students develop a business plan for their own business and present it to venture capitalists for their expert analysis. *Prerequisites:* BUS 114; two D.E.C. category F courses; U3 or U4 standing
3 credits

BUS 355-F Investment Analysis

The theoretical and empirical study of financial markets. Topics include portfolio selection, asset pricing, market efficiency, evaluation of fixed income securities, options and futures pricing. *Prerequisites:* AMS 102 or ECO 303
3 credits

BUS 356 Financial Engineering

Financial engineering applied to corporations and investments. The financial mathematics of leveraged buyouts, refinancings, mergers and acquisitions. Modeling and investment analysis of stocks, bonds, commodities, foreign currency and financial futures, options and other derivatives. Stochastic differential equations for options pricing. Quadratic optimization and portfolio performance attribution. *Prerequisites:* MAT 127 or 132; U3 or U4 standing
3 credits

BUS 440 International Management

Analysis of international competition, markets, cross-cultural relations, and change and stability in various countries and in the global economy. Managerial techniques for U.S. firms in international settings are included. *Prerequisites:* BUS 349 or ECO 348; BUS 355 or ECO 389; BUS 347 or SOC 381
3 credits

BUS 441 Business Strategy

Capstone course that builds on tools and concepts introduced in more specialized business courses and on students' general business knowledge. Includes: methods for analysis of forces driving competition; identification of strengths, weaknesses, opportunities, and threats faced by individual corporations; and practical strategies for enabling new or existing firms to compete successfully within an industry. Case studies and in-class situations challenge students to develop skills in handling multidimensional business problems. Crosslisted with AMS 441. *Prerequisites:* BUS 114 and 340; POL 319; BUS 347 or BUS 351 or SOC 381
3 credits

BUS 475 Undergraduate Teaching Practicum I

The student assists the instructor of a business management course by conducting office hours, participating in class discussions and business games, preparing case studies, reading and criticizing written work, and presenting selected topics in the classroom. The student receives regularly scheduled supervision from the instructor.

Prerequisites: Grade of A or A- in the course in which the student is to assist and permission of undergraduate program director
3 credits; S/U grading

BUS 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 business management courses. Students are expected to assume greater responsibility in such areas as leading discussions, analyzing results of tests that have already been graded, and observing teaching. Students may not serve as teaching assistants in the same course twice.

Prerequisites: BUS 475 and permission of undergraduate program director
3 credits; S/U grading

BUS 487 Independent Research

Provides the opportunity for students to undertake a special independent project entailing advanced readings, reports, and discussion, or research on a topic of their own choosing with the guidance of a faculty member. May be repeated.

Prerequisite: Permission of instructor and undergraduate program director
0-6 credits

BUS 488 Internship

Participation in local, state, national, or international private enterprises, public agencies, or nonprofit institutions.

Prerequisites: BUS major, U4 standing; permission of undergraduate program director
3-6 credits; S/U grading

CBN

Center for Behavioral Neuroscience

CBN 241-F Survey in Biopsychology

Introduction to the neural basis of sensor processes, motor control, attention, emotion, and learning. Crosslisted with PSY 250.

Prerequisite: PSY 103 or BIO 101 or 150 (or the discontinued BIO 151)
3 credits

CBN 340 Physiological Psychology

An advanced survey of the neurobiological bases of complex behavior. A review of basic neurophysiology, neuroanatomy, and neurochemistry is followed by considerations of the circuitry and neural processing supporting perception, motion, emotion, sleep, attention, learning, language, and higher cognitive mechanisms. Crosslisted with PSY 356

Prerequisite: BIO 202 or BIO 203 or CBN 241/PSY 250 (or the discontinued BIO 152)
3 credits

CBN 350 Neurobiology of Learning and Memory

A survey of research on the neural basis of learning and memory in humans and laboratory animal models. Topics include cellular mechanisms of neural plasticity, learning and memory in simple nervous systems, the organization of memory in the mammalian brain, and the neurobiology of memory decline during aging.

Prerequisite: CBN 340/PSY 356 or BIO 334
3 credits

CCS

Cinema and Cultural Studies

CCS 101 Images and Texts: Understanding Culture

The images and texts of advertising, television, art, writing, film, and performance and how they come to characterize and shape our everyday lives. Using case studies, students learn how to recognize, read, and analyze culture within a particular social, cultural, or political context, touching upon such important issues as race, gender, class, ideology, and censorship.

3 credits

CCS 201 Writing About Culture

The course teaches research methodology, develops critical thinking, and hones argumentative writing skills. A range of cultural artifacts, issues, and approaches are considered along with the ways that various discourses appropriate or critique them. Students gain extensive training in the methods essential to the use of resources and to critical writing.

Prerequisite: Completion of D.E.C. category A
3 credits

CCS 301-G Theorizing Cinema and Culture

Recent trends in critical theory applied to the study of film, television, literature, popular music, and other types of "cultural production." In-depth analyses of specific literary, visual, and musical texts are situated within structures of power among communities, nations, and individuals. Exploration of how identities of locality, gender, ethnicity, race, and class are negotiated through cultural forms.

Prerequisites: Two courses toward the major in cinema and cultural studies
3 credits

CCS 311-G Gender and Genre in Film

Examination of the notion of genre as a category of analysis and its often conflictive relationship to gender in the context of specific genres (the western, film noir, the horror film) and film story. Attention is paid to a particular genre's appeal to men and/or women as well as its relationship to larger social, cultural, and political issues.

Prerequisite: CCS 201 or HUM 201 or 202 or THR 117
3 credits

CCS 401 Senior Seminar in Cinema and Cultural Studies

Emphasis on the ways that cultural forms interact with one another and with their contexts; on how reception of cultural productions depends on values and beliefs one brings to reception; and how, at the same time, cultural forms may also shape spectators' beliefs and values. May be repeated as the topic changes.

Prerequisites: Two courses toward the major in cinema and cultural studies
3 credits

CCS 487 Independent Research

Intensive readings and research on a special topic undertaken with close faculty supervision. May be repeated.

Prerequisites: Permission of instructor and department
0-3 credits

CCS 488 Internship

May be repeated up to a maximum of 6 credits, but only 3 credits may be applied toward the cinema and cultural studies major.

Prerequisite: Permission of program advisor
1-6 credits; S/U grading

CHE

Chemistry

CHE 108-E The Extraordinary Chemistry of Ordinary Things

An introductory chemistry course for non-science majors. Basic concepts of structure, equilibrium, and reactivity are interspersed with applications to environmental, technological, and biological topics. Lecture demonstrations, lectures, and class discussions. Not for major credit.

Prerequisite: Level 3 or higher on the mathematics placement examination
Advisory Prerequisite: High school chemistry
3 credits

CHE 111-E Elementary Chemistry I

An introduction to the concepts of chemical composition, structure, and reactions, illustrated with examples from the life sciences. Appropriate for liberal arts students, and those lacking high school preparation for CHE 121 or 131. Any student who has completed high school chemistry or a college chemistry course needs permission to take this course.

Pre- or Corequisite: MAP 103 or level 3 on the mathematics placement examination.
3 credits

CHE 112-E 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.

Prerequisite: CHE 111 or 121 or 131
3 credits

CHE 121-E Concepts and Methodologies of General Chemistry

Topics selected from both semesters of General Chemistry are examined to develop the broad range of skills in information processing, critical thinking, and problem solving required for successful completion of subsequent courses. Two hours of lecture and two hours of recitation per week.

Prerequisite: Level 2 on the mathematics placement examination and high school chemistry or level 3 on the mathematics placement examination
Corequisite: MAP 103 (for students who score level 2 on the mathematics placement examination) or appropriate MAT course
Advisory Corequisite: CHE 133
4 credits

CHE 131-E, 132-E 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. Three lecture hours and one 80-minute workshop per week. CHE 131 may not be taken for credit in addition to CHE 141, and CHE 132 may not be taken for credit in addition to CHE 142 or 198.

Prerequisite to CHE 131: High school chemistry or CHE 111 or 121
Pre- or Corequisite to CHE 131: MAT 123 or higher
Prerequisite to CHE 132: C or higher in CHE 131
Pre- or Corequisite to CHE 132: MAT 125 or higher (or the discontinued MAT 124)
4 credits per course

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. CHE 133 may not be taken for credit in addition to CHE 143, and CHE 134 may not be taken for credit in addition to CHE 144 or 199.

Pre- or Corequisite to CHE 133: CHE 121 or 131 or 198

Prerequisite to CHE 134: CHE 133

Pre- or Corequisite to CHE 134: CHE 131 or 132 or 198

1 credit per course

CHE 141-E, 142-E Honors Chemistry

The topics covered in this sequence are similar to those in CHE 131, 132, but draw more on students' previous background in science and mathematics in order to present the material in a more quantitative manner. Recommended for students with strong backgrounds in mathematics and science, especially chemistry and physics. Three lecture hours and one 80-minute workshop per week. CHE 141 may not be taken for credit in addition to CHE 131, and CHE 142 may not be taken for credit in addition to CHE 132 or 198. Priority given to students in the University's honors programs.

Prerequisite to CHE 141: High school chemistry

Pre- or Corequisite to CHE 141: MAT 125 or higher or equivalent by placement exam or transfer evaluation

Prerequisite to CHE 142: C or higher in CHE 141

Pre- or Corequisite to CHE 142: MAT 126 or higher

4 credits per course

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. CHE 143 may not be taken for credit in addition to CHE 133, and CHE 144 may not be taken for credit in addition to CHE 134 or 199. Priority given to students in the University's honors programs.

Corequisite to CHE 143: CHE 141

Prerequisite to CHE 144: CHE 143

Corequisite to CHE 144: CHE 142

1 credit per course

CHE 198-E Chemistry for Engineers

A quantitative introduction to chemistry (stoichiometry, bonding, states of matter, equilibrium) with emphasis on topics of interest to students in engineering (metals and semiconductors; thermochemistry; electrochemistry and corrosion; polymers). May not be taken for credit in addition to CHE 132 or 142.

Prerequisite: High school chemistry

Corequisite: CHE 199

Pre- or Corequisites: PHY 132 or 142 or PHY 126 and 127; MAT 127 or 132 or 142

4 credits

CHE 199 General Chemistry Laboratory for Engineers

A laboratory course to accompany CHE 198, including an introduction to analytical techniques, electrochemistry, and chemical synthesis. Both quantitative and qualitative methods are emphasized. May not be taken for credit in addition to CHE 134 or 144.

Corequisite: CHE 198

1 credit

CHE 221-E Introduction to Chemistry of Solids

Introduction to the synthesis, structure, properties, and applications of solid materials. Topics include preparation and characterization of solids (introduction to X-ray diffraction), thermal decomposition, crystal structure, crystal defects, and solid-state properties that influence chemical reactivity. Crosslisted with ESM 221.

Prerequisites: CHE 132 or 142 or 198; CHE 134 or 144 or 199; CSE 114 or MEC 111; PHY 131; MAT 132 or 127

3 credits

CHE 301-E Physical Chemistry I

The quantitative study of microscopic and macroscopic chemical systems, covering introductory quantum theory of atoms and molecules (energy levels and states), statistical thermodynamics, and fundamental thermodynamics with application to chemical reactions and simple systems.

Prerequisites: CHE 132 or 142 or 198; MAT 132 or 142 or 127

Pre- or Corequisite: PHY 121/123 or 125 or 131 or 141

4 credits

CHE 302-E Physical Chemistry II

Applications of thermodynamics to chemical equilibria, electrochemistry, and ideal solutions. Applications of quantum theory to chemical bonding, molecular structure, and spectroscopy.

Prerequisites: CHE 301; MAT 211 or 203 or 205 or AMS 261

Pre- or Corequisite: PHY 122/124 or 132 or 142 or PHY 126 and 127

4 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 is introduced. Six hours of laboratory and discussion.

Prerequisite: CHE 134 or 144 or 199

Corequisite: CHE 301

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.

Prerequisite: CHE 303

Corequisite: CHE 302

Advisory Prerequisite: Knowledge of computer programming

2 credits

CHE 305-E Physical Chemistry III

Application of the principles of physical chemistry to real-world systems, both microscopic and macroscopic. Among the topics to be addressed are chemical kinetics and dynamics, nonideal solutions and electrochemical systems, transport properties, and applications of statistical mechanics and quantum theory to chemical systems.

Prerequisite: CHE 302

3 credits

CHE 310-H 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.

Prerequisite: CHE 112 or 132 or 142 or 198

3 credits

CHE 312-E 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. Not for major credit.

Prerequisites: CHE 132 or 142 or 198; MAT 127 or 132 or 134

Pre- or Corequisite: PHY 121/123 or 125 or 131 or 141

3 credits

CHE 321-E, 322-E 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, is emphasized. CHE 321 may not be taken for credit in addition to CHE 331, and CHE 322 may not be taken for credit in addition to CHE 332.

Prerequisites to CHE 321: CHE 132 or 142; CHE 134 or 144

Prerequisite to CHE 322: C or higher in CHE 321

3 credits per course

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. Four laboratory hours and one lecture hour per week. Not for credit in addition to CHE 333.

Prerequisite: CHE 134 or 144

Pre- or Corequisite: CHE 321 or 331

2 credits

CHE 331-E, 332-E 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. CHE 331 may not be taken for credit in addition to CHE 321, and CHE 332 may not be taken for credit in addition to CHE 322.

Prerequisites to CHE 331: CHE 132 or 142; CHE 134 or 144

Prerequisite to CHE 332: C or higher in CHE 331

3 credits per course

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 require substantial laboratory skills, such as those planning careers in research. CHE 333 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

2 credits per course

CHE 344-E 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

3 credits

CHE 345-E 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 are covered.

Prerequisite: CHE 322 or 332

Pre- or Corequisite: CHE 301 or 312

3 credits

CHE 346-E Biomolecular Structure and Reactivity

The reactivity and physiological function of biological macromolecules and their monomeric constituents are described at the chemical level. The course reflects the most recent advances at the interface of organic chemistry and biochemistry. Specific topics include catalysis, biomimicry, protein and DNA modification, binding and target recognition, and correlation between three-dimensional structure and reactivity.

Pre- or Corequisite: BIO 361
3 credits

CHE 351-E 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 203 or 205
3 credits

CHE 353-E 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 203 or 205
3 credits

CHE 357 Molecular Structure and Spectroscopy Laboratory

Optical and magnetic resonance spectroscopy are used to investigate the structural, dynamic, and quantum mechanical properties of some basic chemical systems. Emphasis is on the quantitative measurement of molecular parameters and transformations.

Prerequisites: CHE 304 and 333
2 credits

CHE 361-E Nuclear Chemistry

Properties of radioactive substances and their use in the study of chemical problems, nuclear stability and structure, nuclear reactions, radioactive decay, interactions of radiation with matter, nuclear medicine, isotope applications, and environmental control. Offered in summer only.

Prerequisites: Four semesters of chemistry; PHY 132 or 142 or 126, 127; MAT 127 or 132 or 142; permission of department through application by January 30
Corequisite: CHE 362
3 credits

CHE 362 Nuclear Chemistry Laboratory

Detection and measurement of radiation, electronic instrumentation, radiation safety, and application of radioactivity to chemical problems. Offered in summer only.

Corequisite: CHE 361
3 credits

CHE 375-E 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; CHE 321 or 331
3 credits

CHE 376-E Inorganic Chemistry II

The chemistry of the elements with an emphasis on the transition metals. Reaction mechanisms, synthesis, and structure are covered. Specific areas of concern include coordination chemistry, organometallic chemistry, bioinorganic chemistry, and selected topics from solid-state and non-transition metal chemistry.

Prerequisite: CHE 375
3 credits

CHE 377 Inorganic Chemistry Laboratory

Synthesis of inorganic and organometallic compounds and characterization by physical and chemical methods.

Prerequisites: CHE 303; CHE 327 or 333; CHE 375
2 credits

CHE 461 Selected Topics in Chemistry

May be repeated as topic changes.

Prerequisite: Varying with topic
1-3 credits

CHE 475, 476 Undergraduate Teaching Practicum I, II

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is 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. In CHE 476, students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have already been graded. Students may participate only in courses in which they have excelled.

Prerequisite to CHE 475: Permission of department
Prerequisites to CHE 476: CHE 475; permission of department

3 credits per course; S/U grading

CHE 487 Research in Chemistry

Students pursue research or tutorial study in specialized areas of chemistry. May be repeated.

Prerequisites: Permission of instructor and department
0-6 credits

CHE 488 Internship

Research participation in off-campus laboratories. Students are 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 and department
1-6 credits, S/U grading

CHE 490 Current Trends in Biological Chemistry I

A discussion of current topics of research and methodology in modern biological chemistry. The course includes directed readings, attendance, and discussion at seminars presented by speakers from various academic and industrial institutions. May be repeated.

Prerequisite: CHE 322 or 332
Pre- or Corequisite: CHE 301 or 312
1 credit

CHE 495-496 Senior Research (Formerly CHE 491-492)

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 is given an oral examination in May by a faculty committee consisting of the student's supervisor and three other faculty members. Students receive only one grade upon completion of the sequence.

Prerequisites: U4 standing; permission of instructor and department
3 credits per course

CHI

Chinese Language

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.

Prerequisite to CHI 112: CHI 111
4 credits per course

CHI 211-J, 212-J Intermediate Chinese I, II

An intermediate course in Chinese Mandarin to develop audiolingual skills and reading and writing ability. Selected texts serve as the basis for practice in reading comprehension and composition. Intensive exercises in character writing will be required to develop writing technique.

Prerequisite to CHI 211: CHI 112
Prerequisite to CHI 212: CHI 211

3 credits per course

CHI 311-J, 312-J Advanced Chinese I, II

An advanced course in Chinese Mandarin to increase comprehension and writing ability. Selected reading materials include newspapers, contemporary Chinese literature, and other samples of different writing styles.

Prerequisite to CHI 311: CHI 212
Prerequisite to CHI 312: CHI 311

3 credits per course

CHI 475 Undergraduate Teaching Practicum

Each student conducts a weekly recitation section that supplements a lecture course. The student receives regularly scheduled supervision from the instructor. Responsibilities may include preparing material for discussion and helping students with practice sessions.

Prerequisites: Interview; permission of instructor
3 credits, S/U grading

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: Interview; permission of instructor
0-3 credits

CLS

Classics

CLS 113-B Greek and Latin Literature in Translation

Historical and analytical study of the development of classical Greek and Latin literature. Extensive readings in translation include works illustrating epic, lyric, drama, history, oration, and literary criticism.

3 credits

CLS 215-I Classical Mythology

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.

Advisory Prerequisite: One course in literature
3 credits

CLS 320-I Topics in Classical Civilization

May be repeated as the topic changes.

Prerequisites: Two courses in ancient Greek or Latin language, literature, mythology, religion, art, or history

3 credits

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 instructor

1-4 credits

CLT

Comparative Literature

NOTE: The designator for Comparative Literature courses has been changed from CSL to CLT.

CLT 211-I Literary Survey: Medieval through Late Renaissance

Historical and analytical study of representative works illustrating medieval epic, romance, and lyric. The course also examines the beginnings of humanism through the late Renaissance.

Advisory Prerequisite: One course in literature

3 credits

CLT 212-I Literary Survey: Enlightenment through Modern

Historical and analytical study of literature from the late 17th century, the neoclassical era, the romantic revolution through the 19th century (realism, naturalism, symbolism), leading to the culmination of modernism.

Advisory Prerequisite: One course in literature

3 credits

CLT 220-J Non-Western Literature

A survey of the major themes and forms of non-Western literature, such as Asian, Indian, and African. May be repeated as topic changes.

Advisory Prerequisite: Completion of D.E.C. category A

3 credits

CLT 235-K American Pluralism in Film and Literature

An exploration of the diversity of American culture as expressed in literary and cinematic texts from a variety of traditions within the American fabric. Topics may include representations of the immigrant experience, fictional accounts of African-American or Latino music, and intensive examination of novels and films from a specific American ethnic tradition.

Advisory Prerequisite: Completion of D.E.C. categories I and J

3 credits

CLT 266-G The 20th-Century Novel

A study of major works and developments in the modern and contemporary novel. Crosslisted with EGL 266.

Prerequisite: Completion of D.E.C. category A

3 credits

CLT 301-G Theory of Literature

An introduction to the different modes of analyzing literature by periods, ideas, traditions, genres, and aesthetic theories. Stress is placed on classical theory and on developments in the 20th century.

Prerequisite: U3 or U4 standing

Advisory Prerequisites: Two courses in comparative literature

3 credits

CLT 320-K Multicultural Experience in American Literature

An exploration of the roles of ethnicity and race in American culture through the fiction and poetry of three or more of the following ethnic groups: Native American, African American, Italian, Irish, Jewish, Greek, Latino, and Asian.

Prerequisite: U3 or U4 standing

Advisory Prerequisites: One 200-level course in literature; completion of D.E.C. categories I and J

3 credits

CLT 331-G Literary Genres: Poetry

Analysis of poetic form as illustrated by various kinds of poetry, e.g., epic and lyric. Works selected from different national literatures and literary movements.

Prerequisite: U3 or U4 standing

Advisory Prerequisites: Two courses in literature

3 credits

CLT 332-G 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.

Prerequisite: U3 or U4 standing

Advisory Prerequisites: Two courses in literature

3 credits

CLT 333-G Literary Genres: Novel

Historical and analytical study of the novel form. Works selected from different national literatures and literary movements.

Prerequisite: U3 or U4 standing

Advisory Prerequisites: Two courses in literature

3 credits

CLT 334-G Other Literary Genres

Historical and analytical study of such literary genres as satire, fable, romance, epistle, saga, allegory, etc.

Prerequisite: U3 or U4 standing

Advisory Prerequisites: Two courses in literature

3 credits

CLT 335-G 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.

Prerequisite: U3 or U4 standing

Advisory Prerequisites: One course in literature; HUM 201 or 202 or THR 117

3 credits

CLT 361-G 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.

Prerequisite: U3 or U4 standing

Advisory Prerequisites: Two courses in literature

3 credits

CLT 362-G 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.

Prerequisite: U3 or U4 standing

Advisory Prerequisites: Two courses in literature

3 credits

CLT 363-G 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.

Prerequisite: U3 or U4 standing

Advisory Prerequisites: Two courses in literature

3 credits

CLT 475, 476 Undergraduate Teaching Practicum I, II

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is 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. In CLT 476, students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have already been graded. Students may not serve as teaching assistants in the same course twice.

Prerequisites to CLT 475: U4 standing; permission of instructor and chairperson

Prerequisites to CLT 476: CLT 475; permission of instructor and chairperson

3 credits per course; S/U grading

CLT 487 Independent Reading and Research

Intensive reading and research on a special topic undertaken with close faculty supervision. May be repeated.

Prerequisite: Permission of instructor and department

0-3 credits

CLT 495 Comparative Literature Honors Project

A one-semester project for comparative literature majors who are candidates for the degree with departmental honors. The project involves independent study under close supervision of an appropriate faculty member, and the written and oral presentation to the department faculty colloquium of an honors thesis.

Prerequisites: Permission of instructor and department

3 credits

CNH

Chinese Studies in Humanities

CNH 447 Readings in Chinese Studies

Individually supervised reading in selected topics in Chinese Studies in the humanities. May be repeated for different topics.

Prerequisite: Permission of instructor

3 credits

CNH 461 Senior Seminar in Chinese Studies

A seminar exploring in depth a single theme in Chinese studies in the humanities, such as Chinese art, literature, etc. May be repeated once as the topic changes.

Prerequisites: U3 or U4 standing; Chinese or Korean or Japanese studies minor; permission of instructor

3 credits

CNH 487 Research in Chinese Studies

Individual research projects in Chinese studies in the humanities, carried out under the direct supervision of a faculty member. May be repeated once.

Prerequisites: Interview; permission of instructor

0-3 credits

CNS

Chinese Studies in Social Sciences

CNS 249-J Chinese Culture and Society: Traditional China

An interdisciplinary consideration of those cultural and social elements in traditional China that have had a lasting impact and given unique shape to Chinese

civilization. Topics include land and resources; religion and philosophy; art and architecture; science and technology; language and literature; and socioeconomic development. Crosslisted with SSI 249.

3 credits

CNS 250-J Chinese Culture and Society: Modern China

An interdisciplinary consideration of themes that dominate the development of modern China. Topics include history and geography; ideology and organization; the individual and the state; the family and society; conflict in society; the economy; literature and the arts; science and technology; and future prospects. Crosslisted with SSI 250.

3 credits

CNS 379-J Ethnicity and Nation in China

Focusing on the material and social contexts that have shaped perceptions of cultural groups in China, both past and present, the course explores issues of ethnic identification and minority status, civilizing projects and autonomous movements, and notions of race, ethnicity, and nation. Drawing on case studies from the Himalayan plateau, the Central Asian steppes, Taiwan, and diaspora communities, students examine how ecology and livelihood, social organization and exchange, politics and religion influence constructions of identity. Crosslisted with ANT 379.

Prerequisite: U3 or U4 standing

Advisory Prerequisite: CSN 249 or 250 or HIS 219

3 credits

CNS 447 Readings in Chinese Studies

Individually supervised reading in selected topics in Chinese studies in the social and behavioral sciences. May be repeated for different topics.

Prerequisite: Permission of instructor

3 credits

CNS 461 Senior Seminar in Chinese Studies

A seminar exploring in depth a single theme in Chinese studies, e.g., ideological and political campaigns, educational policies and practices, foreign trade and tourism, etc. May be repeated once as the topic changes.

Prerequisites: U3 or U4 standing; Chinese or Korean or Japanese studies minor; permission of instructor

3 credits

CNS 487 Research in Chinese Studies

Individual research projects in Chinese studies in social and behavioral sciences, carried out under the direct supervision of a faculty member. May be repeated once.

Prerequisites: Interview; permission of instructor

0-3 credits

CSE

Computer Science

CSE 101 Introduction to Computers and Information Technologies

An introduction to the basics of personal computing and information technologies intended primarily for students majoring in humanities, social and behavioral sciences, or business management. Topics include principles of personal (single-user) computer systems, office automation, and information in a modern, networked (multi-user) computing environment. Emphasis is on conceptual understanding of personal computing rather than use of specific hardware or software. Required participation in computer laboratories. May not be taken for credit in addition to EST 100 or after any CSE or ISE course.

Prerequisite: Satisfaction of entry skill in mathematics requirement

3 credits

CSE 103 Introduction to the Internet

The basics of searching the Internet in a laboratory setting, providing students with experience in navigating the World Wide Web for information retrieval. Skills covered include using MOSAIC or NETSCAPE; remote logic with TELNET; accessing databases and international library resources; downloading information from FTP sites; subscribing to LISTSERVS and participating in Usenet Newsgroups. Not for computer science or information systems major credit or for credit in addition to any CSE or ISE course.

1 credit

CSE 106 Introduction to Programming

An introduction to programming in a high-level programming language. Students gain experience in programming by solving problems. Primarily for students planning to take CSE 114. May not be taken for credit in addition to CSE 110.

1 credit, *SIU grading*

CSE 110-C 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 gain experience using a modern higher-level computer programming language to solve a variety of numeric and nonnumeric problems. May not be taken simultaneously with CSE 114 or MEC 111. Students who have a C or higher in CSE 114 or MEC 111 may not take CSE 110.

Prerequisite: MAT 122 or 123 or level 4 on the mathematics placement examination

3 credits

CSE 113 Foundations of Computer Science I

A rigorous introduction to the conceptual and mathematical foundations of computer science. Problem-solving techniques and mathematical concepts that aid in the thinking processes required for problem analysis and designing computer-based solutions. Emphasis on general problem-solving principles, logical reasoning, recursion and induction, and relevant discrete mathematics concepts. Extensive laboratory experience using logic-based theorem provers, logic programming, and functional programming.

Prerequisite: One MAT course that satisfies D.E.C. category C or score of level 4 on the mathematics placement examination

Pre- or Corequisite: AMS 151 or MAT 125 or 131 or 141; CSE 106 recommended

3 credits

CSE 114 Computer Science I

Introduces fundamental computer science concepts and applies principles the student has learned from ISE 112 or CSE 113 to the modeling, analysis, and development of software in a modern higher-level programming language. Concepts emphasized include software design, verification and validation, object-oriented design and development, data abstraction, recursive programming, and basic machine architecture. Students develop software systems for a broad range of computer applications. May not be taken simultaneously with CSE 110 or MEC 111.

Prerequisites: CSE 106 or equivalent programming experience; grade of C or higher in ISE 112 or CSE 113

CSE 127 Introduction to C Programming

An intensive introduction to programming in the C programming language. Students gain experience with C by solving programming problems. Primarily for students planning to take upper-division computer science courses that require knowledge of C.

Prerequisites: CSE major; U3 or U4 standing

1 credit

CSE 213 Foundations of Computer Science II

Builds a rigorous foundation for reasoning about algorithms and computer programs. Introduces formal techniques for specifying, verifying, and analyzing algorithms and programs, including mathematical logic, proof techniques, BNF, formal grammars, algebraic structures, finite-state machines, and combinatorics (pre- and post-conditions, logical assertions, invariants). The use of graphs and other structures for representing and solving problems. These concepts are enhanced through extensive laboratory experience using mathematical symbol processing software, logic and functional programming, and finite-state machine simulators.

Prerequisites: CSE 113 or ISE 112; CSE 114

3 credits

CSE 214 Computer Science II

Development of advanced software techniques with emphasis on data representation and manipulation. Rigorous treatment of abstract data types (e.g., lists, stacks, and queues), tree structures, recursive data structures, and algorithms for searching, sorting, and translation. Reinforces modern software engineering concepts, including modular and object-oriented analysis and design, systems specifications, software reuse, documentation, and verification and validation techniques. Students develop applications using a modern high-level programming language.

Prerequisite: Grade of C or higher in CSE 114

4 credits

CSE 220 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 114

4 credits

CSE 230 Introduction to C and UNIX

A systematic introduction to the principles and practice of programming in the C language. The course covers control structures, expressions, data types and structured data, functions, and parameter passing. Emphasis is placed on writing C programs that follow structured programming principles. Aspects of the UNIX operating system relevant to developing C programs (utilities, systems calls, standard libraries) are also covered.

Prerequisite: CSE 114 or one year of programming experience

3 credits

CSE 300 Writing and Oral Skills in Computer Science

See Requirements for the Major in Computer Science, Upper-Division Writing and Oral Skills Requirement.

Prerequisites: CSE major; U3 or U4 standing

1 credit, *SIU grading*

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.

Prerequisites: CSE 213 and 214

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. Students undertake a semester project that includes the design and implementation of a compiler for a language chosen by the instructor.

Prerequisites: CSE 214, 220, and 303
3 credits

CSE 305 Principles of Database Systems

The design of database management systems to obtain consistency, integrity, and availability of data. Conceptual models and schemas of data: relational, hierarchical, and network. Students undertake a semester project that includes the design and implementation of a database system. Crosslisted with ISE 305.

Prerequisites: CSE 214 and 220
4 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 operating system are performed.

Prerequisites: CSE 214 and 220 and AMS 310 (or, for electrical engineering majors, CSE 214 and ESE 306 and 380)
3 credits

CSE 307 Principles of Programming Languages

Presents examples of important programming languages (PL) and paradigms such as LISP, ALGOL, ADA, ML, Prolog, and C++. 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.

Prerequisites: CSE 214 and 220
3 credits

CSE 308 Software Engineering I

Introduces the basic concepts and modern tools and techniques of software engineering. Stresses the development of reliable and maintainable software via systems requirements and specifications, software design methodologies including object-oriented design, implementation, integration, and testing; software project management; life-cycle documentation; software maintenance; and consideration of human factors issues. Students become familiar with a state-of-the-art Computer-Aided Software Engineering (CASE) tool set and begin to apply these tools to actual software development projects. Crosslisted with ISE 308.

Prerequisite: CSE 214
3 credits

CSE 309 Software Engineering II

Students apply the concepts, tools, and techniques covered in CSE 308 to a large-scale software development project, working in teams consisting of at least five members so that they can acquire group management skills. Emphasis on the use of Computer-Aided Software Design (CASE) tools and object-oriented design and programming. Crosslisted with ISE 309.

Prerequisite: CSE/ISE 308
3 credits

CSE 310 Data Communication and Networks

Study of communication networks. Local area networks (LAN), integrated voice and data systems (IVDS), and wide area networks (WAN). Their topologies: bus, token passing, tree, point to point. Protocols, speed, and distance limitations: RS232, TCP/IP, MAP/TOP, ONS, OSI. Network design and management will be studied in various environments. May not be taken by students with credit for CSE/ESE 346.

Crosslisted with ISE 310.

Prerequisites: CSE 214 and 220
3 credits

CSE 315 Database Transaction Processing Systems

Theory and practice of design for applications involving transactional access to a database. Transaction design, schema design, restart and recovery, journaling, concurrency control, distributed databases. Student groups perform design and implementation of significant database application. Crosslisted with ISE 315

Prerequisite: CSE/ISE 305
3 credits

CSE 326 Digital Image Processing

Covers digital fundamentals, image transforms, image enhancement, image restoration, image compression, segmentation, representation and description, recognition and interpretation. Crosslisted with ESE 357.

Prerequisites for computer science majors: CSE 214 and 220
Prerequisites for electrical engineering majors: ESE 124 and 305
3 credits

CSE 327 Computer Vision

Introduces fundamental concepts, algorithms, and computational techniques in visual information processing. 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 human visual system from an information processing point of view. Crosslisted with ESE 358.

Prerequisites for computer science majors: CSE 114 and ESE 318
Prerequisites for electrical engineering majors: ESE 271 and 318
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 214 and 220; permission of instructor
3 credits

CSE 332 Introduction to Scientific Visualization

Visualization of scientific, engineering, medical, and business data sets. Mechanisms to acquire sampled, computed, or synthetic data and methods to transform symbolic into visual into the visual. Topics include classic visualization process; visual perception; volume and surface visualization; methods for visualizing sampled, simulated, and geometric objects; and visualization systems. Emphasis on applications and case studies. Crosslisted with ISE 332.

Prerequisites: CSE 114; MAT 211 or AMS 210
3 credits

CSE 333 User Interface Development

Survey of user interface systems, including topics such as command language, windowing, multiple input/output devices, architecture of user interface management systems, and tool kits for designing user interfaces. Additional topics may include human factors, standards, or visual languages. Students participate in a project involving the design and implementation of a user interface system. Crosslisted with ISE 333.

Prerequisites: CSE 214; PSY 103 recommended
3 credits

CSE 334 Introduction to Multimedia Systems

Survey of technologies available for user interfaces. Discussion of hypertext; voice, music, and video together with tools and models for capturing, editing, presenting, and combining them. Capabilities and characteristics of a range of peripheral devices including devices based on posture, gesture, head movement, and touch. Case studies of academic and commercial multimedia systems including virtual reality systems. Students participate in laboratory exercises and build a multimedia project. Crosslisted with ISE 334.

Prerequisites: CSE or ISE major; U3 or U4 standing
3 credits

CSE 345 Computer Architecture

Starts with functional components at the level of registers, buses, 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 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.

Prerequisite for electrical engineering majors: ESE 380
Prerequisites for computer science majors: CSE 220; ESE 318
3 credits

CSE 346 Computer Communications

Basic principles of computer communications; performance evaluation of protocols. Protocols covered include those for local, metropolitan, and wide area networks; routing, high speed packet switching, circuit switching, and optical data transport. Crosslisted with ESE 346.

Prerequisite for computer science majors: CSE 220
Prerequisite for electrical engineering majors: ESE 271
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 214 and 303
3 credits

CSE 366 Introduction to Virtual Reality

An introduction to the practical issues in the design and implementation of virtual environments. Topics covered include the fundamentals of systems requirements, transformations, user-interaction models, human vision models, tracking systems, input/output devices and techniques, and augmented reality. The topics covered are explained through the use of real-life applications of virtual-reality systems in engineering, science, and medicine.

Prerequisites: CSE 328, CSE/ISE 332 and 333
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 or CSE 213
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 is required for the implementation and comparison of algorithms. Crosslisted with AMS 373 and MAT 373.

Prerequisites: MAT 211 or AMS 210; CSE 214
3 credits

CSE 475 Undergraduate Teaching Practicum

Students assist the faculty in teaching by conducting a recitation or laboratory section including teaching, grading, and consulting (3 credits). or assisting students with homework and laboratory assignments (1 credit). The student receives regularly scheduled supervision from the faculty instructor. May be used as an open elective only and repeated up to a maximum of seven credits.

Prerequisites: U4 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

1 or 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, ESE 499, ESM 499, ISE 487, and MEC 499) may be counted toward engineering technical elective requirements. May not be taken for more than six credits.

Prerequisite: Permission of instructor and department

0-6 credits

CSE 488 Internship in Computer Science

Participation in local, state, national, or international private enterprise, public agencies, or nonprofit institutions. May be repeated up to a limit of 12 credits, but only 3 credits of CSE or ISE 488 may be used as an elective to satisfy CSE or ISE major requirements.

Prerequisites: CSE major, U3 or U4 standing; permission of department

3 credits, S/U grading

CSE 491 Honors Seminar

Designed for upper-division computer science majors who have demonstrated excellence in computer science courses or a special interest in the topic being offered. Each time the course is taught, a topic is selected comprising material not otherwise presented in undergraduate courses. May be repeated as the topic changes.

Prerequisites: Computer science major; U3 or U4 standing; permission of department

3 credits

EAS

Engineering and Applied Sciences

EAS 101 Engineering and Applied Sciences 101

A course intended to integrate first-semester Stony Brook freshmen into the university community and particularly into the College of Engineering and Applied Sciences. Special emphasis is placed on basic computing skills, internet access, and the programs, laboratories, and library of the college.

1 credit, S/U grading

EAS 201 Oral Communication for Engineers

An examination and application of oral communication in a variety of contexts, including interpersonal, small group, and public speaking. Focuses on the importance of communication in professional life as related to the technical field of engineering. The various roles and functions of speaking in such contexts are the primary aim with emphasis on: communicating with co-workers and supervisors; leadership in task groups problem-solving; writing and presentation of diverse and relevant speeches including informative oral reports and persuasive speeches.

Prerequisite: U3 or U4 CEAS major

3 credits

ECO

Economics

ECO 107-F Introduction to Economic Reasoning

An introduction to basic concepts used in microeconomics (the study of markets) and macroeconomics (the study of national production, employment, and inflation), and international trade. Historical and institutional elements of the U.S. economy are presented.

Prerequisites: WRT 101; MAP 103 or level 3 on the mathematics placement examination

4 credits

ECO 109-F Introduction to Analytical Economics

An exploration of the fundamental concepts of micro- and macroeconomics in the context of various economic models. The course will stress the development of problem-solving skills and the use of the personal computer as an analytical tool. No previous knowledge of computers is assumed. Students are expected to have access to the Internet outside of class meeting hours.

Prerequisite: WRT 101; C or higher in MAT 122 or MAT 123 or AMS 151 or level 4 on the mathematics placement examination

4 credits

ECO 255 Strategic Thinking for Business

A focus on modeling strategic interaction in business management and industrial organization. Concepts from game theory and economics are brought to bear on the analysis of these models, with a view to devising optimal strategies that a manager or corporate executive should adopt. Simplified versions of case studies typically used in MBA courses are used.

Prerequisite: ECO 107 or 109

3 credits

ECO 303-F 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.

Prerequisites: ECO 107 and 109

4 credits

ECO 305-F 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.

Prerequisites: ECO 107 and 109

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 303

4 credits

ECO 317-F Marxist Political Economy

A Marxian analysis of capitalism, including some of the writings of Marx, Lenin, and Mao Zé Dong. The method of dialectical, historical materialism is applied to the historical development of capitalism, the opera-

tion of modern advanced monopoly capitalism, and such phenomena as economic crisis, war, and the capitalist conditions that give rise to socialism.

Prerequisite: ECO 107 or 109

3 credits

ECO 318-F Labor Economics

Analysis of labor demand and supply, wage determination, and collective bargaining. Evaluation of labor legislation and of institutional responses to employment problems are discussed.

Prerequisite: ECO 107 or 109

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, and point and interval estimation. Regular problem sets and occasional projects are required. Not for credit in addition to AMS 310.

Prerequisites: ECO 107 and 109

4 credits

ECO 321-F 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.

Prerequisites: ECO 320 or AMS 310 and ECO 107 and 109

4 credits

ECO 326-F Industrial Organization

A study of the structure of firms and markets and interactions between them. Price theory, strategic theory and transaction costs analysis are used to illuminate the sources of and limitations on market power of firms. Some empirical evidence, drawn primarily from the U.S. economy, is explored. A brief introduction to antitrust policy and regulatory policy are included.

Prerequisite: ECO 303

3 credits

ECO 334-J Demographic Economics of Developing Countries

Problems related to both economics and demography. In scope, the material deals with both contemporary and historical situations in developing 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 303 and 305

Pre- or Corequisite: ECO 321

3 credits

ECO 335-F 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 are presented in the light of the actual experience of developing countries.

Prerequisite: ECO 305

3 credits

ECO 337-F 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 303

3 credits

ECO 339-J 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.

Prerequisite: ECO 107 or 109
Advisory Prerequisite: ECO 305
3 credits

ECO 340-J Japanese Economy

An overview of the Japanese economy from the post World War II period to the present. Topics may include particular industries (e.g., computer and automobile) as well as trade, industrial, and technological policies.

Prerequisite: ECO 107 or 109
3 credits

ECO 341-I European Economic Integration

Analysis of European economic integration since 1945, using the principles of macroeconomics and international trade; analysis of the political reasons for integration and of the institutional infrastructure and major policies of the European Union.

Prerequisite: ECO 107 or 109
3 credits

ECO 343-F Transformation in Economic Systems

Analysis of change in economic systems, stressing decision-making, information, and incentive structures, and their roles in the allocation of economic resources with the distribution of income. The course involves case studies of both advanced and less advanced economic systems.

Prerequisite: ECO 107 or 109
3 credits

ECO 345-F Law and Economic Issues

An application of economic issues to major fields of law, to study their effects on market and non-market behavior. The consequences that laws may have on the realization of efficient outcomes, as well as an exploration of the legal process from an economic perspective, are emphasized.

Prerequisite: ECO 303
3 credits

ECO 348-F 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 makes decisions on large-scale and detailed cases in realistic managerial situations and is introduced to the use of the computer. Not for credit in addition to BUS 349.

Prerequisite: ECO 303
4 credits

ECO 351-F, 352-F, 353-F, 354-F, 356-F, 357-F Special Topics in Economics

May be repeated as the topic changes.

Prerequisites: ECO 107 or 109; at least one other course to be specified when the topic is announced.
3 credits per course

ECO 355 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. Crosslisted with AMS 335.

Prerequisite: MAT 126 or 131 or 141 or AMS 161
3 credits

ECO 358-J Topics in Developing Economies

May be repeated as the topic changes.

Prerequisite: ECO 303
3 credits

ECO 360-F Money and Banking

An introduction to modern monetary institutions and mechanisms, their relationship to the economy, and governmental policies in this area.

Prerequisite: ECO 107 or 109
3 credits

ECO 373-H Economics of Environment and Natural Resources

Analysis of economic policies designed to deal with environmental problems. Issues involving the management of renewable and exhaustible resources such as timber and oil as well as the advantage of market-based solutions over the conventional demand approach are discussed.

Prerequisite: ECO 303
3 credits

ECO 383-F 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 303 and 305
3 credits

ECO 389-F 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, conglomeration, reorganization; bankruptcy; regulation; public responsibility.

Prerequisite: ECO 303
Advisory Prerequisite: ECO 305
3 credits

ECO 475, 476 Undergraduate Teaching Practicum I, II

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is 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. In ECO 476, students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have already been graded. Students may not serve as teaching assistants in the same course twice.

Prerequisites: to ECO 475: Permission of instructor and department
Prerequisites: to ECO 476: ECO 475; permission of instructor and department
3 credits per course, S/U grading

ECO 487 Independent Research

May be repeated.

Prerequisite: Permission of department
0-6 credits

ECO 488 Internship

May be repeated up to a limit of 12 credits, but only counts as one course toward major requirements.

Prerequisites: ECO 303 and 305; permission of department internship coordinator,
1-6 credits, S/U grading

EEL

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.

Prerequisite: to EEL 112: EEL 111
3 credits per course

EGL

English

EGL 191-B Introduction to Poetry

Intensive analysis of poems in English of various periods and types and varying complexity. (Not for English major credit.)

Prerequisite: Completion of D.E.C. category A
3 credits

EGL 192-B 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.)

Prerequisite: Completion of D.E.C. category A
3 credits

EGL 193-B 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.)

Prerequisite: Completion of D.E.C. category A
3 credits

EGL 199-G 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.)

Prerequisites: Permission of department; completion of D.E.C. category A or acceptance in a University honors program
3 credits

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 includes frequent demanding writing assignments and is designed for students beginning their major study in English.

Prerequisite: Completion of D.E.C. category A
3 credits

EGL 205-I Survey of British Literature I

The study of British literature from the Old English period to Milton.

Prerequisite: Completion of D.E.C. category A
3 credits

EGL 206-I Survey of British Literature II

The study of British literature from Dryden to the end of the 19th century.

Prerequisite: Completion of D.E.C. category A
3 credits

EGL 207-G The English Language

A survey of the history of the English language from its Indo-European roots to the present, with particular emphasis on Old and Middle English, as well as Modern English grammar and usage.

Prerequisite: Completion of D.E.C. category A
3 credits

EGL 217-K American Literature I

The study of American literature from 1607 to 1865.

Prerequisite: Completion of D.E.C. category A
Advisory Prerequisites: Completion of D.E.C. categories I and J
3 credits

EGL 218-K American Literature II

The study of American literature from 1865 to 1945.

Prerequisite: Completion of D.E.C. category A
Advisory Prerequisites: Completion of D.E.C. categories I and J
3 credits

EGL 224-G 20th-Century Literature in English

The study of literature in English in the 20th century from Great Britain, Africa, the Caribbean, Canada, Australia, Ireland, New Zealand, and other countries and areas that produce material written in the English language.

Prerequisite: Completion of D.E.C. category A
3 credits

EGL 226-K Contemporary American Literature: 1945 to the Present

A survey of major works reflecting the regional, ethnic, and traditional interests of contemporary American writers.

Prerequisite: Completion of D.E.C. category A
Advisory Prerequisites: Completion of D.E.C. categories I and J
3 credits

EGL 231-I Saints and Fools

An introduction to literature about the lives of saints and the holy fool tradition in major texts of Russian and English literature. Emphasis is placed on the ways authors have used fundamental religious values of humility, the transcendent irrational, and kenosis to confront their own times. Authors considered include Dickens, Chaucer, Gogol, and Pushkin; films include *Murder in the Cathedral* and *Forrest Gump*. Crosslisted with HUR 231.

Advisory Prerequisite: One D.E.C. category B course
3 credits

EGL 235-G World Literature in Translation

The study in English translation of selected works of world literature that have influenced or achieved importance within English literature or literary criticism, thereby contributing to a greater understanding of English literature. Selections may be related to one another thematically or by historical period.

Advisory Prerequisite: One D.E.C. category B course
3 credits

EGL 243-I Shakespeare: The Major Works

A study of major works in several genres. Designed for students who want a one-semester survey of Shakespeare.

Prerequisite: Completion of D.E.C. category A
3 credits

EGL 249-K African-American Literature and Music in the 19th and 20th Centuries

A detailed look at African-American literature and

music and their importance for American literature and music of the 19th and 20th centuries. An examination of the literature with attention to the special stylistic devices, tones of literary voice, and characterization that writers use in their efforts to match the music experience with the written word. Selections from the recordings of African-American and African-American-inspired musicians—from Bessie Smith and Louis Armstrong to Jimi Hendrix and the Rolling Stones. Crosslisted with AFH 249.

Advisory Prerequisites: One D.E.C. category B or D course; completion of D.E.C. categories I and J
3 credits

EGL 260-G Mythology in Literature

The analysis of myth in literature from antiquity to the present. The course explores 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.

Prerequisite: Completion of D.E.C. category A
3 credits

EGL 261-B The Bible as Literature

A literary approach to the Bible that explores the characteristic principles of the Bible's narrative and poetic art. Crosslisted with JDH 261.

Prerequisite: Completion of D.E.C. category A
3 credits

EGL 266-G The 20th-Century Novel

Major works and developments in the modern and contemporary novel. Crosslisted with CLT 266.

Prerequisite: Completion of D.E.C. category A
3 credits

EGL 274-K Black American Literature

A survey of 19th- and 20th-century Black American literature.

Prerequisite: Completion of D.E.C. category A
Advisory Prerequisites: Completion of D.E.C. categories I and J
3 credits

EGL 276-B Feminism: Literature and Cultural Contexts

An examination of works written by or about women reflecting conceptions of women in drama, poetry, and fiction. The course focuses on literature seen in relation to women's sociocultural and historical position. Crosslisted with WST 276.

Prerequisite: Completion of D.E.C. category A
3 credits

EGL 285 Writing Workshop: Fiction

A workshop in the development of skills in writing fiction through practice supplemented by readings.

Prerequisites: Permission of instructor; completion of D.E.C. category A
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; completion of D.E.C. category A
3 credits

EGL 300-G Old English Literature

The study of Old English language and the literature written in it from its beginnings to the 11th century.

Prerequisite: EGL 204
Advisory Prerequisite: EGL 205
3 credits

EGL 302-G Medieval Literature in English

Major authors, themes, and forms of British literature from the 13th to the early 16th century, usually excluding Chaucer.

Prerequisite: EGL 204
Advisory Prerequisite: EGL 205
3 credits

EGL 304-G Renaissance Literature in English

The study of English literature of the 16th century.

Prerequisite: EGL 204
Advisory Prerequisite: EGL 205
3 credits

EGL 306-G English Literature of the 17th Century

The study of English literature from the late Renaissance to the age of Dryden.

Prerequisite: EGL 204
Advisory Prerequisite: EGL 205
3 credits

EGL 308-G The Age of Dryden

The study of English literature of the Restoration period.

Prerequisite: EGL 204
Advisory Prerequisite: EGL 206
3 credits

EGL 310-G Neoclassical Literature in English

The study of English literature from about 1700 to 1790.

Prerequisite: EGL 204
Advisory Prerequisite: EGL 206
3 credits

EGL 312-G Romantic Literature in English

The study of English literature from the end of the neoclassical period to the beginning of the Victorian Age, 1798-1832.

Prerequisite: EGL 204
Advisory Prerequisite: EGL 206
3 credits

EGL 314-G Victorian Literature

Prerequisite: EGL 204

Advisory Prerequisite: EGL 206
3 credits

EGL 316-G Early American Literature

Prerequisite: EGL 204

Advisory Prerequisite: EGL 217
3 credits

EGL 318-G 19th-Century American Literature

Prerequisite: EGL 204

Advisory Prerequisite: EGL 217
3 credits

EGL 320-G Literature of the 20th Century

Prerequisite: EGL 204

Advisory Prerequisite: EGL 218
3 credits

EGL 340-G Chaucer

Prerequisite: EGL 204

Advisory Prerequisite: EGL 205
3 credits

EGL 342-G Milton

Prerequisite: EGL 204

Advisory Prerequisite: EGL 205
3 credits

EGL 344-G Major Writers of the Renaissance Period in England

May be repeated for credit as the topic changes.

Prerequisite: EGL 204
Advisory Prerequisite: EGL 205
3 credits

EGL 345-G Shakespeare I

A study of the comedies and the history plays. Designed to complement EGL 346.

Prerequisite: EGL 204
Advisory Prerequisites: EGL 205 and 243
3 credits

EGL 346-G Shakespeare II

A study of the tragedies and the romances. Designed to complement EGL 345.

Prerequisite: EGL 204

Advisory Prerequisites: EGL 205 and 243
3 credits

EGL 347-G Major Writers of the Neoclassical Period in England

May be repeated for credit as the topic changes.

Prerequisite: EGL 204

Advisory Prerequisite: EGL 206
3 credits

EGL 348-G Major Writers of the Romantic Period in England

May be repeated for credit as the topic changes.

Prerequisite: EGL 204

Advisory Prerequisite: EGL 206
3 credits

EGL 349-G Major Writers of the Victorian Period in England

May be repeated for credit as the topic changes.

Prerequisite: EGL 204

Advisory Prerequisite: EGL 206
3 credits

EGL 350-G Major Writers of American Literature, Colonial Period to 1900

May be repeated for credit as the topic changes.

Prerequisite: EGL 204

Advisory Prerequisite: EGL 217.
3 credits

EGL 352-G Major Writers of 20th-Century Literature in English

May be repeated for credit as the topic changes.

Prerequisite: EGL 204

Advisory Prerequisite: EGL 218 or 224.
3 credits

EGL 354-G Major Writers of Contemporary British and American Literature

May be repeated for credit as the topic changes.

Prerequisite: EGL 204

Advisory Prerequisite: EGL 226
3 credits

EGL 361-G Poetry in English

The study of the development of form, theme, and language of poetry in English. May be repeated for credit as the topic changes.

Prerequisite: U3 or U4 standing

Advisory Prerequisite: A literature course at the 200 level or higher
3 credits

EGL 362-G Drama in English

The study of the development of plot, structure, character, theme, and language of drama in English. May be repeated for credit as the topic changes.

Prerequisite: U3 or U4 standing

Advisory Prerequisite: A literature course at the 200 level or higher
3 credits

EGL 363-G Fiction in English

The study of the development of plot, structure, character, theme, and language of fiction in English. May be repeated for credit as the topic changes.

Prerequisite: U3 or U4 standing

Advisory Prerequisite: A literature course at the 200 level or higher
3 credits

EGL 364-G Prose in English

The study of the various forms of prose such as the essay, utopia, memoir, autobiography, biography, and nonfictional narrative. May be repeated for credit as

the topic changes.

Prerequisite: U3 or U4 standing

Advisory Prerequisite: A literature course at the 200 level or higher
3 credits

EGL 365-G Literary Criticism and Theory

A survey of major texts and perspectives in literary criticism and theory.

Prerequisite: EGL 204

3 credits

EGL 366-G Topics in Literary Criticism and Theory

May be repeated for credit as the topic changes.

Prerequisite: EGL 204

3 credits

EGL 367-G Contemporary African-American Literature

The study of contemporary African-American literature focused in varying ways, including literary and cultural traditions, and relations to other writers and traditions in American literature.

Prerequisite: U3 or U4 standing

Advisory Prerequisite: EGL 274 or AFH 206
3 credits

EGL 369-K Topics in Ethnic Studies

May be repeated for credit as the topic changes.

Prerequisite: U3 or U4 standing

Advisory Prerequisites: A literature course at the 200 level or higher; completion of D.E.C. categories I and J
3 credits

EGL 371-G Topics in Gender Studies

May be repeated for credit as the topic changes.

Prerequisite: U3 or U4 standing

Advisory Prerequisite: A literature course at the 200 level or higher
3 credits

EGL 372-G Topics in Women and Literature

The study of texts written by and about women and of issues they raise relating to gender and literature. May be repeated for credit as the topic changes. Crosslisted with WST 372.

Prerequisite: U3 or U4 standing

Advisory Prerequisite: A literature course at the 200 level or higher
3 credits

EGL 373-J Literature in English from Non-Western Cultures

The study of literature in English from a nation or a region of the world that is significantly different from the United States and Europe. May be repeated for credit as the topic changes.

Prerequisite: U3 or U4 standing

Advisory Prerequisite: A literature course at the 200 level or higher
3 credits

EGL 374-G Literature in English in Relation to Other Literatures

The study of literature in English as it affects and is affected by other literatures. May be repeated for credit as the topic changes.

Prerequisite: U3 or U4 standing

Advisory Prerequisite: A literature course at the 200 level or higher
3 credits

EGL 375-G Literature in English in Relation 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. May be repeated for credit as the topic changes.

Prerequisite: U3 or U4 standing

Advisory Prerequisite: A literature course at the 200 level or higher

3 credits

EGL 376-G 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 presents 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. May be repeated for credit as the topic changes.

Prerequisite: U3 or U4 standing

Advisory Prerequisite: A literature course at the 200 level or higher
3 credits

EGL 378-J Contemporary Native American Fiction

The study of novels by contemporary Native American writers with particular attention to the way these novels develop imaginative perspectives on contemporary culture and values.

Prerequisite: One literature course at the 200 level or higher
3 credits

EGL 379-J Native American Texts and Contexts

The study of Native American writings in a variety of genres, including autobiography, short stories, novels, poetry, the oral tradition, and history.

Prerequisite: One literature course at the 200 level or higher
3 credits

EGL 385 Advanced Fiction Workshop

A fiction writing workshop. Students receive detailed criticism of their work. May be repeated with permission of the director of undergraduate studies.

Prerequisites: EGL 285; permission of instructor
3 credits

EGL 386 Advanced Poetry Workshop

A poetry writing workshop. Students receive detailed criticism of their work. May be repeated with permission of the director of undergraduate studies.

Prerequisites: EGL 286; permission of instructor
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 instructor
3 credits

EGL 451 Supervised Student Teaching: Middle School Grade Levels 7-9**EGL 452 Supervised Student Teaching: High School Grade Levels 10-12**

Prerequisites: Enrollment in English Teacher Preparation Program; permission of instructor
Corequisite: EGL 454
6 credits per course, S/U grading

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. The seminar also includes a unit on identifying and reporting child abuse and maltreatment. Students in this course are required to pay a fee; it is used to secure the New York State Certificate in Identifying and Reporting Child Abuse and Maltreatment.

Corequisites: EGL 451 and 452
3 credits

EGL 475, 476 Undergraduate Teaching Practicum I, II

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is 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. In EGL 476, students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have been graded. Students may not serve as teaching assistants in the same course twice.

Prerequisites: to EGL 475: Upper-division standing; 12 credits in English; permission of instructor and director of undergraduate studies.

Prerequisites: to EGL 476: EGL 475; permission of instructor and director of undergraduate studies
3 credits per course, S/U grading

EGL 487 Independent Project

Intensive study of a special topic undertaken with close faculty supervision. Request for project approval of undergraduate studies committee must be submitted no later than the last week of classes of the prior semester. May be repeated.

Prerequisites: Permission of instructor and director of undergraduate studies.
0-3 credits

EGL 488 Internship

Participation in local, state, and national public and private organization. The work must involve skills related to the educational goals of the department. Request for approval of the undergraduate studies committee for internships must be submitted no later than the last week of classes of the prior semester.

Prerequisites: 12 credits of English; 2.5 g.p.a.; permission of instructor and department
1-6 credits S/U grading only

EGL 490 Honors Seminar

Advanced work in periods, genres, and authors of English and American literature is offered in small classes. One or more seminars are given each semester. May be repeated for credit with the permission of the director of undergraduate studies as the topic changes.

Prerequisite: Permission of instructor
3 credits

EGL 496 Senior Honors

Prerequisites: EGL 490; permission of department
3 credits

ENS

Environmental Studies

ENS 101 Prospects for Planet Earth

An introduction for non-science majors to global environmental change. Exploration of the natural science of Earth's environment; the scientific, socioeconomic, and political issues that influence human impact on the global environment and responses to environmental changes; the strategies for humans to live in greater harmony with planet Earth. Global issues are related to the particular issues of the United States, the Northeast, and the greater metropolitan New York

City-Long Island area. Priority given to residents of Dreiser College.

Prerequisite: Permission of minor coordinator required for students who do not reside in Dreiser College
3 credits

ENS 102 Opportunities in Environmental Studies

An introduction to the nature of environmental studies in college and careers. Topics include the use of environmental libraries, environmental courses and programs offered in college, careers in environmental fields, and individualized advising. May not be taken for credit in addition to USB 101, LSE 101 or EAS 101. Priority given to residents of Dreiser College.

Prerequisites: U1 standing; permission of minor coordinator required for students who do not reside in Dreiser College or more advanced students
1 credit, S/U grading

ENS 119-E Physics for Environmental Studies

The principles of physics as they apply to environmental issues. A review of mathematics, followed by a discussion of Newton's laws, conservation principles, topics in fluids and wave motion, optical instruments, and radioactivity. Crosslisted with PHY 119.

Prerequisite: MAT 125 or 131 or 141 (or the discontinued MAT 124)
4 credits

ENS 190 Forum in Environmental Issues

Consideration of selected environmental issues based on lectures by distinguished experts, who may include scientists, politicians, environmentalists, and social scientists. Lectures are preceded by a preparatory discussion and readings and followed by interactive discussion with the speaker. Priority given to residents of Dreiser College

Prerequisite: Permission of minor coordinator required for students who do not reside in Dreiser College
1 credit

ENS 301-H Seminar in Environmental Studies

An examination of the scientific and socioeconomic aspects of the environment. Students are required to conduct library research on five different environmental topics and then make oral and written presentations to the class and to invited experts in the field. Possible topics include environmental implications of population growth, socioeconomic of emerging technologies, environmental racism, conflicting uses of the coastal ocean, and uncertainties in global climate forecasting. Priority given to residents of Dreiser College.

Prerequisites: ENS 101 and 102; permission of minor coordinator required for students who do not reside in Dreiser College
3 credits

ENS 311-H The Global Environment

The principal constituents of rocks, water, and life as they circulate through the land, sea, and air. Topics include the hydrological cycle, cycling of chemicals such as nutrients and metals in the oceans, the soil cycle, and the fate and transport of materials in the atmosphere. Natural and perturbed systems are discussed. May not be taken for credit in addition to BIO 386.

Prerequisites: BIO 113 and 201 (or the discontinued BIO 151); CHE 131; MAR 340
3 credits

ENS 312-H Population, Technology, and the Environment

A study of the biological, social, and economic factors that influence population growth. The development of new technologies and their influence on resource use and the effects that increasing population and changing

technologies have on the environment are explored.

Prerequisites: BIO 113; MAR 340
3 credits

ENS 443 Environmental Problem Solving

The integration of information and skills from the natural sciences, social sciences, engineering and the humanities to address important environmental problems. An environmental problem of current interest is presented. Working in small groups, students develop a proposal to solve the problem, collect and analyze data, and present results. Data collection may include field and laboratory work outside of scheduled class meetings.

Prerequisites: U3 or U4 standing; ENS minor
2 credits

ENS 488 Internship in Environmental Studies

An experience in developing curricular materials for children and young adults interested in environmental studies. Through the internship, students work with the camp director of Camp Seawolf, Stony Brook's summer environmental camp for eleven- to fourteen-year-old boys and girls. Summer internships may include room and board at the camp, located in Southold, on Long Island's north shore. Other internship activities may also be considered for credit. A maximum of 3 credits may be used toward the minor in environmental studies. May be repeated to a maximum of 6 credits. Priority given to residents of Dreiser College

Prerequisites: ENS 101; permission of minor coordinator for students who do not reside in Dreiser College
1-6 credits, S/U grading

ESE

Electrical and Computer Engineering

ESE 123 Introduction to Electronic Design

The study of basic electronic design principles through the modular design and construction of a specific electronic system. A different design specification is chosen each semester incorporating transducers, analog circuits, and digital circuits. Both analytic and computer-aided design approaches are used. The resulting design is built in the laboratory and basic electronic test equipment is used to verify its performance.

Corequisites: AMS 151 or MAT 125 or 131 or 141; PHY 125 or 131 or 141
4 credits

ESE 124 Computer Techniques For Electronic Design

An extensive introduction to problem solving in electrical engineering using the ANSI C language. Topics covered include data types, operations, control flow, functions, data files, numerical techniques, pointers, structures, and bit operations. Students gain experience in applying the C language to the solution of a variety of electrical engineering problems, based on concepts developed in ESE123. Knowledge of C at the level presented in this course is expected of all electrical engineering students in subsequent courses in the major.

Pre- or Corequisite: AMS 151 or MAT 125 or 131 or 141; ESE 123 or equivalent
3 credits

ESE 211 Electronics Laboratory A

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.

Prerequisites: AMS 161 or MAT 127 or 132 or 142; PHY

127 or 132 or 142
 Corequisite: ESE 271
 2 credits

ESE 271 Electrical Circuit Analysis I

Kirchoff's Laws, Ohm's Law, nodal and mesh analysis for electric circuits, capacitors, inductors, and steady-state AC; transient analysis using Laplace Transform. Fundamentals of AC power, coupled inductors, and two-ports.
 Prerequisites: AMS 161 or MAT 127 or 132 or 142; PHY 127 or 132 or 142
 4 credits

ESE 275 Fundamentals of Electrical Engineering

Introduces fundamental concepts and techniques of electrical engineering. Topics covered include DC and sinusoidal steady-state linear circuit analysis; diode, transistor and electronic circuits; gates, flip-flops, and simple combinational and synchronous sequential circuits; and an introduction to rotating electrical machinery. For mechanical engineering majors only.
 Prerequisites: AMS 161 or MAT 127 or 132 or 142; PHY 126 and 127, or 132 or 142
 4 credits

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
 1-3 credits

ESE 300 Writing in Electrical/Computer Engineering

See Requirements for the Majors in Electrical and Computer Engineering, Upper-Division Writing Requirement.
 Prerequisites: ESE or ECE major, U3 standing
 Corequisite: ESE 324
 1 credit, S/U grading

ESE 304 Electronic Instrumentation and Operational Amplifiers

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 is considered.
 Prerequisite: ESE 372
 3 credits

ESE 305 Deterministic Signals and Systems

Introduction to signals and systems. Manipulation of simple analog and digital signals. Relationship between frequencies of analog signals and their sampled sequences. Sampling theorem. Concepts of linearity, time-invariance, causality in systems. Convolution integral and summation; FIR and IIR digital filters. Differential and difference equations. Laplace transform, Z-transform, Fourier series and Fourier transform. Stability, frequency response and filtering. Provides general background for subsequent courses in control, communication, electronics, and digital signal processing.
 Pre- or Corequisite: ESE 271
 3 credits

ESE 306 Random Signals and Systems

Random experiments and events; random variables, probability distribution and density functions, continuous and discrete random processes; Binomial, Bernoulli, Poisson, and Gaussian processes; system reliability; Markov chains; elements of queuing

theory; detection of signals in noise; estimation of signal parameters; properties and application of auto-correlation and cross-correlation functions; power spectral density; response of linear systems to random inputs.

Prerequisite: ESE 271
 3 credits

ESE 307 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 LC elements, active circuits, and surface wave filters.

Prerequisite: ESE 271
 3 credits

ESE 310 Electrical Circuit Analysis II

Network elements, graph theory, linear network analysis; fundamental loops and cutsets, matrix solutions, nonlinear network analysis; state variables, small and large signal analysis, numerical methods.

Prerequisite: ESE 271
 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: ESE 372
 3 credits

ESE 312 Microwave Electronics

Fundamentals of microwave and RF electronics. Includes S-parameter theory, Smith charts, amplifier and oscillator design, matching network synthesis, large-signal and broadband methods, and power combiners. Computer-aided design packages are used throughout the course.

Prerequisite: ESE 372
 3 credits

ESE 314 Electronics Laboratory B

Coordinated with, and illustrates and expands upon, concepts presented in ESE 372. Experiments include diode circuits, class A BJT, FET and differential amplifiers as well as analog signal processing. Laboratory fee required.

Prerequisite: ESE 211
 Pre- or Corequisite: ESE 372
 3 credits

ESE 315 Control System Design

Analysis and design of linear control systems. Control components, development of block diagrams. Computer simulation of control systems and op-amp circuit implementation of compensators. Physical constraints in the design. Pole-placement and model matching design using linear algebraic method. Selection of models using computer simulation and quadratic optimal method. Root-locus method and Bode plot method. Use of PID controllers in practice.

Prerequisite: ESE 271
 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. The use of computer-aided circuit analysis is included.

Prerequisite: ESE 372
 3 credits

ESE 318 Digital Systems Design

Develops methods of analysis and design of both combinational and sequential systems regarding digital circuits as functional blocks. Utilizes demonstrations and laboratory projects consisting of building hardware on breadboards and simulation of design using CAD tools. Topics include: number systems and codes; switching algebra and switching functions; standard combinational modules and arithmetic circuits; realization of switching functions; latches and flip-flops; standard sequential modules; memory, combinational, and sequential PLDs and their applications; design of system controllers.

Prerequisite for engineering majors: PHY 127 or 132 or 142 or ESE 124

Prerequisite for computer science majors: CSE 220
 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; transmission line theory.

Prerequisite: ESE 271
 3 credits

ESE 320 Microwave Electronics Laboratory

Introduces microwave measurement techniques as well as the design, fabrication and experimental characterization of various microwave components. Utilizes microwave CAD techniques for the design of microwave components and for experimental characterization, including the measurement of scattering parameters over a band of frequencies, employing a network analyzer. The first half of the course is in the format of lectures that introduce the concepts and theory behind the experiments. The second half is dedicated to performing the experiments on a rotation basis between various student groups of two or three students per group.

Prerequisite: ESE 319
 2 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
 3 credits

ESE 324 Electronics Laboratory C

Illustrates and expands upon advanced concepts presented in ESE 372. Experiments include multistage amplifiers, class B and class C power amplifiers, speech processing, active RC and switched-capacitor filters, oscillators, and switching power supplies. Laboratory fee required.

Prerequisites: ESE 211, 372; ESE or ECE major; U3 standing
 Corequisite: ESE 300
 2 credits

ESE 330 Integrated Electronics

An overview of the design and fabrication of integrated circuits. Topics include gate-level and transistor-level design; fabrication material and processes; layout of circuits; automated design tools. This material is directly applicable to industrial IC design and provides a strong background for more advanced courses.

Prerequisite: ESE 372
 3 credits

ESE 331 Introduction to Semiconductor Devices

Basic principles of semiconductor band theory, transport properties, and generation recombination phenomena in bulk semiconductors. Includes the actions of semiconductor junctions and metal-semiconductor junctions. The character of physical phenomena in semiconductors and the principles of operation of diodes, transistors, light detector, and light emitting devices. A background for subsequent courses in solid state electronics.

Prerequisites: ESE 211 and 271
3 credits

ESE 332 Semiconductor Device Characterization

Basic experimental experience in characterization of microelectronic and optoelectronic semiconductor devices including diodes, transistors, light emitting diodes, lasers, and photodetectors. Measurement of I-V and L-I (light-current) device characteristics; practice in the techniques of determining various device parameters; analysis of aggregate experimental data to determine the relationships between device and output characteristics, device band diagrams, and device designs. Includes study of modern methods of silicon and compound semiconductor devices and systems technologies.

Prerequisites: ESE 372
3 credits

ESE 337 Digital Signal Processing: Theory

Introduces digital signal processing theory sequences, discrete-time convolution, difference equations, sampling and reconstruction of signals, one- and two-sided Z-transforms, transfer functions, and frequency response. Design of FIR and IIR filters. Discrete and fast Fourier transforms and applications.

Prerequisite: ESE 305
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; pulse modulation schemes.

Prerequisites: ESE 305 and 306
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: ESE 271
3 credits

ESE 342 Digital Communications Systems

Pulse modulation and sampling. All-digital networks. Pulse code modulation. Digital modulation techniques including ASK, FSK, PSK, DPSK. Equalization. Error control coding. Exchange of reliability for rate. Synchronous and asynchronous systems. ARQ schemes.

Prerequisite: ESE 340
3 credits

ESE 343 Modern Electronic Communications Laboratory

Experimental study of communications systems and components. Design, test, and measurement techniques. AM and FM modulators and demodulators. Spectra, bandwidth measurement, analog and digital signaling equipment. Applications in communication and radar systems.

Prerequisite: ESE 340.
Pre- or Corequisite: ESE 342
2 credits

ESE 344 Software Tools for Engineers

Trains students to use computer systems to solve engineering problems. Includes the UNIX programming environment, the C programming language, basic data structures and algorithms, and familiarization with graphic displays.

Prerequisites: ESE 124 and 318
3 credits

ESE 345 Computer Architecture

Starts with functional components at the level of registers, buses, 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 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.

Prerequisite for electrical and computer engineering majors: ESE 380

Prerequisites for computer science majors: CSE 220; ESE 318
3 credits

ESE 346 Computer Communications

Basic principles of computer communications; performance evaluation of protocols. Protocols covered include those for local, metropolitan, and wide area networks; routing, high speed packet switching, circuit switching, and optical data transport. Crosslisted with CSE 346.

Prerequisite for electrical and computer engineering majors: ESE 271

Prerequisite for computer science majors: CSE 220
3 credits

ESE 347 Digital Signal Processing: Implementation

Fundamental techniques for implementing standard signal-processing algorithms on dedicated digital signal processing chips. Includes a review of discrete-time systems, sampling and reconstruction, FIR and IIR filter design, FFT, architecture and assembly language of a basic signal processing chip, and an introduction to adaptive filtering.

Prerequisite: ESE 305
4 credits

ESE 349 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 discussion 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
3 credits

ESE 350 Electrical Power Systems

Fundamental engineering theory for the design and operation of an electric power system. Modern aspects of generation, transmission, and distribution are considered with appropriate inspection trips to examine examples of these facilities. The relationship between the facilities and their influence on our environment is reviewed. Topics include 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 AC and DC transmission.

Prerequisite: ESE 271
3 credits

ESE 351 Energy Conversion

Natural and secondary energy sources; methods of energy conversion including thermionic, thermoelec-

tric, and magneto-hydrodynamic converters, fuel cells, and solar cells.

Prerequisites: ESE 271; MEC 301 or ESG 302
3 credits

ESE 352 Electromechanical Energy Converters

Basic principles of energy conversion; DC, 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: ESE 372
3 credits

ESE 357 Digital Image Processing

Covers digital fundamentals, image transforms, image enhancement, image restoration, image compression, segmentation, representation and description, recognition and interpretation. Crosslisted with CSE 326.

Prerequisites for electrical and computer engineering majors: ESE 124 and 305

Prerequisites for computer science majors: CSE 214 and 220
3 credits

ESE 358 Computer Vision

Introduces fundamental concepts, algorithms, and computational techniques in visual information processing. 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 for electrical and computer engineering majors: ESE 271 and 318

Prerequisites for computer sciences majors: CSE 114 and ESE 318
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, 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 on the behavior of light in crystals.

Prerequisite: ESE 372
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: ESE 344 or CSE 214
4 credits

ESE 372 Electronics

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- and small-signal analysis of amplifiers; amplifier frequency response; and rectifiers and wave-shaping circuits.

Prerequisite: ESE 271
4 credits

ESE 380 Embedded Microprocessor Systems Design I

Fundamental concepts and techniques for designing electronic systems that contain a microprocessor or microcontroller as a key component. Topics include system level architecture, microprocessors, ROM,

RAM, I/O subsystems, address decoding, PLDs and programmable peripheral ICs, assembly language programming and debugging. Hardware-software trade-offs in implementation of functions are considered. Hardware and software design are emphasized equally. Laboratory work involves design, implementation, and testing of microprocessor controlled circuits.

Prerequisite: ESE 318
4 credits

ESE 381 Embedded Microprocessor Systems Design II

A continuation of ESE 380. The entire system design cycle, including requirements definition and system specifications, is covered. Topics include real-time requirements, timing, interrupt driven systems, analog data conversion, multi-module and multi-language systems. The interface between high-level language and assembly language is covered. A complete system is designed and prototyped in the laboratory.

Prerequisites: ESE 271 and 380
4 credits

ESE 382 Digital Design Using VHDL and PLDs

Digital system design using the hardware description language VHDL and system implementation using complex programmable logic devices (CPLDs) and field programmable gate arrays (FPGAs). Topics include design methodology, VHDL syntax, entities, architectures, testbenches, subprograms, packages, and libraries. Architecture and characteristics of PLDs and FPGAs are studied. Laboratory work involves writing the VHDL descriptions and testbenches for designs, compiling, and functionally stimulating the designs, fitting and timing simulation of the fitted designs, and programming the designs into a CPLD or FPGA and benchtesting.

Prerequisite: ESE 318
4 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 is made available at registration time. May be repeated for different topics but only three credits may be counted as technical electives.

Prerequisite: Permission of department
1-6 credits

ESE 440 Engineering Design I

Lectures by faculty and visitors on typical design problems encountered in engineering practice. During this semester each student will choose a senior design project for Engineering Design II. A preliminary design report is required. Not counted as a technical elective. Laboratory fee required.

Prerequisites: ESE 314, 324, two ESE technical electives (excluding ESE 390 and ESE 499); ESE or ECE major, U4 standing
3 credits

ESE 441 Engineering Design II

Student groups carry out the detailed design of the senior projects chosen during the first semester. A comprehensive technical report of the project and an oral presentation are required. Not counted as a technical elective. Laboratory fee required.

Prerequisite: ESE 440
3 credits

ESE 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: U4 standing, 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.
3 credits

ESE 488 Internship in Electrical/Computer Engineering

An independent off-campus engineering project with faculty supervision. May be repeated but only three credits of internship electives may be counted toward the non-ESE technical elective requirement.

Prerequisites: ESE major; U3 standing; 3.0 grade point average in all engineering courses; permission of department
3 credits

ESE 499 Research in Electrical Sciences

An independent research project with faculty supervision. Permission to register requires a 3.0 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, MEC 499, ESM 499, EST 499, ISE 487) may be counted toward non-ESE technical elective requirements.

0-3 credits

ESG Engineering Science

ESG 100 Introduction to Engineering Science

An overview of the development and application of engineering principles in response to social, industrial, and environmental problems from ancient times to the present. Engineering methods and theory through case studies and real-world applications. Creativity and problem solving techniques of modern engineering through participation in a design project as well as learning through analyses of engineering disasters.

3 credits

ESG 201-H Engineering Responses to Society

The roles that engineers and engineering scientists play in supporting the societal infrastructure of urban and rural populations throughout the world. Focuses on relating examples of engineering achievement so that students may expand their perspective with regard to the increasingly scientific and technological mode of current culture. Includes the relationship between engineering and aesthetics, the engineering design process, forensic engineering, and biology-related engineering. Crosslisted with BNG 201.

Prerequisite: One D.E.C. category E course
3 credits

ESG 217 Engineering Science Design I

An introduction to the philosophy of engineering design, emphasizing the integration of problem-solving techniques with choices of available technology and materials in order to respond to a particular human need. Engineering ethics are also examined from both historical and decision-making perspectives. Basic science of design, including system viability and project management, is discussed through examples, flowcharts, and optimization techniques with an emphasis on design for manufacturing and reliability.

Prerequisite: U2 standing
4 credits

ESG 281 An Engineering Introduction to the Solid State

A discussion of relativity followed by review of the atom and its constituents. Lectures treat the quantization of light and of atomic energy levels, matter waves, and introduce the Schrodinger equation, first in one dimension, then in three dimensions. Electron spin and magnetic effects are discussed, followed by multi-electron atoms and the periodic table. Radiation and lasers, molecules and solids, including conductors,

semiconductors, and insulators.

Prerequisites: PHY 132 or 142 or 126, 127
4 credits

ESG 300 Writing in Engineering Science

See Requirements for the Major in Engineering Science, Upper-Division Writing Requirement.

Prerequisites: ESG major; U3 or U4 standing
Corequisite: ESG 316
0 credits, S/U grading

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.

Prerequisites: CSE 114 or MEC 111; CHE 198
Pre- or corequisite: AMS 361 or MAT 303
4 credits

ESG 312 Engineering Laboratory

Laboratory exercises and lectures covering the theory, practice, and design of engineering experimentation. The course has three components: error analysis and data message; electrical circuits and experiment control; and mechanical and optical measurement. Laboratory fee required.

Prerequisites: PHY 126 and 127 or PHY 132; U3 standing
Pre- or Corequisite: ESG 332
4 credits

ESG 316 Engineering Science Design II: Methods

Design and design-planning methods are developed from the conceptual stages through the application stages using lecture and laboratory. Includes synthesis, optimization, modeling, and simulation and systems engineering. Case studies illustrate the design process. Students undertake a number of laboratory projects employing various design tools. Laboratory fee required.

Prerequisites: ESG 217 and 312; ESG major; U3 standing
Corequisite: ESG 300
4 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.

Prerequisite: CHE 131 or 141 or 198
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.)

Prerequisite: PHY 251 or ESG 281
3 credits

ESG 339 Thin Film Processing of Advanced Materials

Fundamental aspects of thin film materials design, fabrication, and characterization. Overviews of semiconductor fabrication, surface analysis, and vacuum system design. This course includes a design content of one credit, achieved through a design exercise related to thin film fabrication. Crosslisted with ESM 339.

Prerequisite: ESG 332, or ESE 331 for ESE majors
4 credits

ESG 440 Engineering Science Design III

Lectures by faculty members and visitors on typical design problems encountered in engineering practice. During this semester each student chooses a senior design project. A preliminary design report is required. Not counted as a technical elective. Laboratory fee required.

Prerequisites: ESG 316; ESG major; U4 standing
3 credits

ESG 441 Engineering Science Design IV

Student groups carry out the detailed design of the senior projects chosen during the first semester. A final and detailed design report is prepared. Not counted as a technical elective. Laboratory fee required.

Prerequisites: ESG 440
3 credits

ESG 487 Cooperative Research in Technological Solutions

An independent research course in which students apply principles of engineering design, technological problem solving, mathematical analysis, computer-assisted engineering, and effective teamwork and communication to develop solutions for a need in a governmental, educational, non-profit, or community organization in a multidisciplinary setting.

Prerequisites: U3 or U4 standing; an abstract of the project; permission of instructor
0-3 credits

ESL

English as a Second Language

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. Diagnostic test during first week of classes determines placement in the course.

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. Diagnostic test during first week of classes determines placement in the course. A through C/Unsatisfactory grading only.

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. Diagnostic test during first week of classes determines placement in the course. A through C/Unsatisfactory grading only.

3 credits

ESL 194 Academic English Skills for U.S. Residents

The study of spoken and written English for students who are graduates of American high schools but are non-native speakers of English. The focus of the course is on helping students to speak, write, and understand English in academic contexts. Particular attention is paid to understanding lectures, increasing vocabulary, and improving knowledge of English sentence structure. Priority given to Language Enhancement Program students.

3 credits

ESL 197 Advanced Grammar

Review of complex grammar of English, both oral and written. Material reinforces the work done in ESL 193 and 198 and is intended to supplement those courses. Topics include all modals, indirect speech, the conditional and subjunctive, sequence of tenses, and more, depending on the needs of the class. Diagnostic test during first week of classes determines placement in the course.

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 accents 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: Completion of ESL 191 with a grade of B or TSE or SPEAK score of 50 or higher.
3 credits

ESL 475 Undergraduate Teaching Practicum I

Students have the opportunity to apply the methodology learned in LIN 375 in small tutorial sections under the direction of a master teacher. They work with students in the oral/aural skills ESL courses, emphasizing communicative competency. There is a seminar component to the course, meeting weekly.

Prerequisites: LIN 375; permission of instructor.
3 credits, S/U grading

ESL 476 Undergraduate Teaching Practicum II

Students have the opportunity to apply the methodology learned in LIN 375 in small tutorial sections under the direction of a master teacher. They work with students in the reading/composition skills ESL courses, emphasizing preparation for university writing.

Prerequisites: ESL 475; permission of instructor.
3 credits, S/U grading

ESM

Materials Science

ESM 216 Materials in Art, Design, and Technology

The historical roots of modern art and technology based on natural and artificially formed materials are explored. Considers how artistic, societal, political, and technological developments are tied to the economics, properties, and availability of materials. Faculty and other experts provide an overview of the sources and uses of materials, ranging from the fine arts and industrial design to biomedical applications and high-performance engineering systems. Engineering background not required.

3 credits

ESM 221 Introduction to Chemistry of Solids

Introduction to the synthesis, structure, properties, and applications of solid materials. Topics include preparation and characterization of solids (introduction to X-ray diffraction), thermal decomposition, crystal structure, crystal defects, and solid-state properties that influence chemical reactivity. Crosslisted with CHE 221.

Prerequisites: CHE 132 or 142 or 198 and CHE 133 or 143 or 199; CSE 114 or MEC 111; MAT 132 or 127 or AMS 161; PHY 125 and 126, or PHY 131 or 141
3 credits

ESM 302 Introduction to the Crystalline State

A laboratory/lecture course introducing the concept that crystallography is based on a few easily understood ideas. These provide a working knowledge of crystal geometry and the ability to interpret X-ray powder photographs and electron diffraction patterns. Includes structures and lattices, planes and directions, crystal geometry, atomic coordinates, stereographic projections, X-ray Laue photographs, the reciprocal lattice, and electron diffraction.

Prerequisites: CHE/ESM 221; ESG 332
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: MEC 301 or ESG 302
3 credits

ESM 325 Diffraction Techniques and Structure of Solids

X-ray diffraction techniques are emphasized. Topics 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
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 absorption/desorption processes.

Prerequisite: ESG 281 or PHY 251
3 credits

ESM 334 Materials Engineering

The selection and use of engineering materials. Metals, ceramics, polymers, and composite materials are reviewed relative to properties, microstructures, and applications in diverse industries. Includes the processing and design of materials and materials systems.
Prerequisite: ESG 332
4 credits

ESM 335 Mechanical Properties of Materials

An integrated review of the response of solid matter to stress with emphasis on the importance of microstructure. Elasticity, anelasticity, plasticity, and fracture are analyzed from the bases of interatomic bonding and dislocation theory. Crystalline materials are emphasized but amorphous solids are included in the topics covered.
Prerequisites: ESM 334; AMS 261 or MAT 203; ESM 302
4 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 nonequilibrium 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
3 credits

ESM 338 Engineering Ceramics: Properties, Processing, and Microstructures

The development, synthesis, properties, applications, and machining methods of advanced ceramics. Includes the mechanical, electrical, superconducting, magnetic, thermal, chemical, and optical properties and their relationship to processing, to characterization of microstructures, and to technological (including biological) applications.
Prerequisite: CHE 132 or 142 or 198
3 credits

ESM 339 Thin Film Processing of Advanced Materials

Fundamental aspects of thin film materials design, fabrication, and characterization. Overviews of semiconductor fabrication, surface analysis, and vacuum system design. This course includes a design content of one credit, achieved through a design exercise related to thin film fabrication. Crosslisted with ESG 339.
Prerequisites: ESG 332, or ESE 331 for ESE majors
4 credits

ESM 350 Structure and Electronic Properties of Solids

A laboratory course. Crystallographic properties of solids are studied by X-ray and electron-diffraction experiments and microstructural properties by light and electron microscopy. Electronic properties are investigated by conductivity, dielectric, and optical-absorption measurements.
Prerequisites: ESG 312 and 332
Corequisite: ESG 333
3 credits

ESM 353 Biomaterials: Manufacture, Properties, and Applications

The engineering characteristics of materials, including metals, ceramics, polymers, composites, coatings, and adhesives, that are used in the human body. Emphasizes the need of materials that are considered for implants to meet the material requirements specified for the device application (e.g., strength, modu-

lus, fatigue and corrosion resistance, conductivity) and to be compatible with the biological environment (e.g., nontoxic, noncarcinogenic, resistant to blood clotting if in the cardiovascular system).

Prerequisite: ESG 332
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
3 credits

ESM 369 Polymers

An introductory survey of the physics, chemistry, and technology of polymers. 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
3 credits

ESM 450 Phase Changes and Mechanical Properties of Materials

A laboratory course. Phase diagrams and microstructural changes in solids are investigated by thermal experiments. Other experiments demonstrate the mechanical properties of ductile and brittle materials.
Prerequisite: ESG 332
3 credits

ESM 475 Undergraduate Teaching Practicum

May be used as an open elective only and repeated once.
Prerequisites: U4 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
3 credits

ESM 488 Cooperative Industrial Practice

A design engineering course oriented toward both research/development and manufacturing technology. Students work in actual industrial programs carried out cooperatively with companies established as university incubators or with regionally located organizations. Supervised by a committee of faculty and industry representatives to which students report.
Prerequisite: Permission of department
0-3 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, EST 499, ISE 487, MEC 499) may be counted toward technical elective requirements.
0-4 credits

EST

Technology and Society

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 is made of economic, legal, and moral issues involved in the utilization of these capabilities. May not be taken for credit in addition to CSE 101.
3 credits

EST 102-E 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.
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 socio-technological case studies that are used.
3 credits

EST 194-C 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.
Prerequisite: Satisfaction of entry skill in mathematics requirement.
3 credits

EST 210 Learning to Learn New Technologies

Developing processes for learning new technology that continues to change at an increasing rate. The key issues covered are: learning new software tools, the problem solving process, applying tools, debugging, choosing a tool, helping others to learn new software packages, how networks change the use of tools, ethical issues, Internet and the information explosion. Classes are held in computer laboratories. Students are required to work in campus computer consulting situations.
3 credits

EST 290-H 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.
Prerequisite: One D.E.C. category E course
3 credits

EST 291-H 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.

Prerequisites: Two D.E.C. category E courses (except those designated ANP); any AMS or MAT course
3 credits

EST 300 Computer Modeling and Experiments in Mathematics and Science Education

Focus on computer-based experimentation and modeling to enhance mathematics and science education. Students construct their own computer-enhanced experiments using probe/software systems to study the behavior of real-world systems and computer simulation software packages to model the behavior of those systems.

Prerequisite: EST 100 or CSE 101
3 credits

EST 302 Assessment of Computer-Based Technologies

Methodologies for assessing the impact of computer-based technologies on economics, decision making, division of labor, and societal issues such as privacy and ethics. Frameworks for assessing technologies, as well as applications of standard approaches such as benefit-cost analysis. Case studies drawn from robotics, banking, automation in the U.S. postal system, and other areas.

Prerequisite: EST 100 or any CSE course
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 audit ability, 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 100 or CSE 101
3 credits

EST 307 Computer Modeling of Biological Systems

Tools for visualizing and modeling biological systems. Tools include graphics programs, spread sheets, software for modeling dynamical systems, and instruments for real-time data collection and data analysis including image acquisition and analysis. Study of models of population growth, ecology, the neuron, and other biological systems. Crosslisted with BIO 307.

Prerequisites: BIO 201 or 202 or 203 (or the discontinued BIO 151 or 152); CHE 132; MAT 125 or higher (or the discontinued MAT 124)
3 credits

EST 320-H Communication Technology Systems

Emphasizes basic science and engineering concepts underlying design and usage of modern telecommunications systems. Considers effects of human factors and societal constraints on design and development of nascent technological systems. Includes the electromagnetic spectrum, analog and digital signals and resonance as well as societal considerations of government regulations, international competition, and environment.

Prerequisites: MAT 123; one D.E.C. category E course
3 credits

EST 325-H Technology in the Workplace

A study of automation and information technologies in both manufacturing and service industries. Considers how technology is changing the work and lives of everyone from production workers to executives. Case studies are used to understand how technology can improve quality and productivity and how incorrect use produces disappointing results.

Prerequisites: Two D.E.C. category E courses
3 credits

EST 330-H 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.

Prerequisites: U3 or U4 standing; one D.E.C. category E course
3 credits

EST 391-H Technology Assessment

A multidisciplinary analysis of the environmental, economic, scientific, engineering, social, and ethical impacts of a technology and of policies for controlling them. Each class, often working with research teams and visiting area facilities, concentrates on topics such as plastics recycling, the future of the automobile, nuclear power, nanotechnology, space stations, virtual reality, biotechnology, smart weapons, and the Internet.

Prerequisites: PHY 132 or CHE 132 or BIO 201 or 202 or 203 (or the discontinued 152); MAT 127 or 132, or 142
3 credits

EST 392-F 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: U3 or U4 standing in a CEAS or economics major
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: U3 or U4 standing; ECE, ESE, ESG, or MEC major
3 credits

EST 411-H 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 411.

Prerequisites: U3 or U4 standing; one D.E.C. category E course
3 credits

EST 412 Intelligence Organizations, Technology, and Democracy

The role of intelligence organizations in decision making through analysis of agency practices in support of U.S. national security policy. The course also explores the roles of intelligence agencies and practices in democratic societies. Crosslisted with POL 412.

Prerequisites: U3 or U4 standing; POL 101 and 102; one D.E.C. category E course
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
3 credits

EST 421 Starting the High-Technology Venture I

Introduces engineering and applied science students to start-up and early development of a new high-technology venture. Turning a concept into a new venture. Identifying and evaluating product and market. Issues of feasibility, patents, and prototypes.

Prerequisites: CEAS major; U4 standing
3 credits

EST 422 Starting the High-Technology Venture II

Overall strategy for the start-up of the high-technology venture. Development of a business plan including consideration of product, market, competitive analysis, marketing plan, manufacturing estimates and issues, financing plan. Organization and management for early stages of the venture.

Prerequisite: EST 421
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: U4 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
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, EMS 499, EST 499, ISE 487, MEC 499) may be counted toward engineering technical elective requirements.

0-3 credits

EXT

Internship

EXT 488 Internship

Participation in an off-campus or on-campus agency or organization that provides students the opportunity to learn to apply their university studies to areas of work experiences. Internships must be sponsored by a faculty member. Request for approval of the internship

manager in the Career Placement Center must be submitted no later than two days prior to the last day of the add period as scheduled in the academic calendar. Students may register for only one 488 course per semester. May be repeated up to a limit of 12 credits.

Prerequisites: Minimum g.p.a. of 2.5; U3 standing; one prior semester of attendance at Stony Brook; acceptance by faculty sponsor; permission of appropriate department and internship manager.

1-6 credits; S/U grading

FLA

Foreign Language Secondary Education

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 audiolingual techniques and other recent developments. Special attention is 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

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 have the opportunity to enjoy clinical experiences in the actual classroom each week for at least two hours. Clinical experiences are discussed in a weekly seminar.

Prerequisite: C or higher in FLA 339

3 credits

FLA 439 Introduction to Technology for Language Teaching

An introduction for potential teachers to how technologies are used for language learning and teaching. Technologies include audio, video, satellite, computer and internet. Students explore the interaction between second language acquisition, language pedagogical theory, and technology.

Prerequisite: FLA 339

3 credits

FLA 451 Supervised Student Teaching: Middle School Grade Levels 7-9

FLA 452 Supervised Student Teaching: High School Grade Levels 10-12

Prerequisite: Enrollment in the Foreign Language Teacher Preparation Program; permission of instructor

Corequisite: FLA 454

6 credits each, S/U grading

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. The course includes a unit on identifying and reporting child abuse and maltreatment. Students in this course are required to pay a fee; it is used to secure the New York State Certificate in Identifying and Reporting Child Abuse and Maltreatment.

Prerequisites: FLA 339 and 340

Corequisites: FLA 451 and 452

3 credits

FLC

Federated Learning Communities

FLC 299 Federated Learning Communities Special Seminar

Analysis and investigation of particular aspects and components of the FLC program theme. May be repeated with permission of FLC director.

Corequisites: To be announced for each FLC program

1-3 credits, varying with topic

FLC 301, 302 Program Seminar I, II

Seminar integrating the material of its corequisite courses, topics determined by the problems, difficulties, and interests of the students. Discussions and frequent written and oral reports focus on assisting students in learning how to learn and comparing, contrasting, and synthesizing the material of the corequisite courses. May be repeated for different FLC minors.

Corequisites: Varying according to FLC theme

3-4 credits, varying with FLC program

FLC 399 Federated Learning Communities Special Seminar

Analysis and investigation of particular aspects and components of the FLC program theme. May be repeated with permission of FLC director.

Corequisites: To be announced for each FLC program

1-3 credits, varying with topic

FLC 487 Directed Research

Independent projects arranged in consultation with the program director. May be repeated.

Prerequisite: Permission of FLC director

0-6 credits

FLC 475 Teaching Practicum

Supervised participation with the master learner in teaching the program seminars of the FLC. Responsibilities include researching material appropriate for seminar discussions and helping students with interdisciplinary research papers.

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

Corequisites: At least two courses federated with the program seminar

3 credits, S/U grading

FRN

French

FRN 101 Intensive Elementary French

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 any other course in French.

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 supplements 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. May not be taken for credit in addition to FRN 101.

Prerequisite to FRN 112: FRN 111

4 credits per course

FRN 201-I Intensive Intermediate French

Review of grammar and discussion of simple French texts through reading, writing, and discussion. Language laboratory supplements class work. May not be taken for credit in addition to FRN 211 or FRN 212.

Prerequisite: FRN 101 or 112

6 credits

FRN 211-I, 212-I Intermediate French I, II

Intermediate courses in conversation, composition, and the interpretation of French texts.

Prerequisite to FRN 211: FRN 101 or 112

Prerequisite to FRN 212: FRN 211

3 credits per course

FRN 311-I Conversation and Composition (Formerly FRN 221)

A course in the active use of spoken and written French. Language laboratory supplements class work.

Prerequisite: FRN 212 or 201

3 credits

FRN 312-I Introduction to Stylistics (Formerly FRN 222)

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 311

3 credits

FRN 313 Vocabulary Through Music (Formerly FRN 223)

A course designed to increase the vocabulary and oral comprehension of students of French, and to enrich their understanding of the poetry and culture of France. It includes poetry of recognized poets (Ronsard, Baudelaire, Verlaine, Prévert) put to music, folk songs, and "chansons."

Prerequisite: FRN 311

1 credit

FRN 331-G 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 312

3 credits

FRN 332-G The French Comedy from Molière to Ionesco

The study of the comic tradition from Molière to the contemporary theatre.

Prerequisite: FRN 312

3 credits

FRN 395-G, 396-G Readings in French Literature: Analysis and Interpretation

These courses teach literary analysis and its application to representative texts chosen from various periods of French literature. All readings are done in French. Discussions are in French.

Prerequisite: FRN 312

3 credits per course

FRN 410 Business French (Formerly FRN 320)

A course designed for students who wish to become more proficient in reading, writing, and translating French. Students also are trained in the use of French in business, in administration, and in everyday professional life. Emphasis is placed on the idiomatic peculiarities of the French language and the relation of French to the structure of English.

Prerequisite: FRN 312

3 credits

FRN 411 Phonetics and Diction (Formerly FRN 321)

A course designed to develop mastery of the spoken language. Students learn to express themselves in the current idiom with fluency and accuracy. At least one hour of laboratory is required weekly.

Prerequisite: FRN 312
3 credits

FRN 412 Stylistics (Formerly FRN 322)

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 312
3 credits

FRN 413 Advanced French Conversation (Formerly FRN 323)

A course designed to develop and maintain complete fluency in the language.

Prerequisite: FRN 312
3 credits

FRN 432-G Studies in Renaissance Literature

May be repeated as topic changes

Prerequisites: FRN 395 or 396
3 credits

FRN 433-G Studies in 17th-Century Literature

May be repeated as topic changes

Prerequisite: FRN 395 or 396
3 credits

FRN 434-G Studies in 18th-Century Literature

May be repeated as topic changes

Prerequisite: FRN 395 or 396
3 credits

FRN 435-G Studies in 19th-Century Literature

May be repeated as topic changes

Prerequisite: FRN 395 or 396
3 credits

FRN 436-G Studies in 20th-Century Literature

May be repeated as topic changes

Prerequisite: FRN 395 or 396
3 credits

FRN 438-J Caribbean and African Literature in French

A study of representative texts (tales, novels, poems, plays, etc.) from the French-speaking world outside continental France, with special emphasis on the literature of the Caribbean and Africa.

Prerequisite: FRN 395 or 396
3 credits

FRN 441-I 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 serves as a point of departure; the institutions and life in France are considered, along with the development of art, architecture, music, and literature. The emphasis is on discussion (in French) and individual projects. Visiting lecturers contribute to the variety of topics and points of view.

Prerequisite: FRN 395 or 396
3 credits

FRN 442-G Free Seminar

A seminar built around themes like "Women in French Literature," "Self-Deception in the

17th-Century Moralists 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 as topic changes.

Prerequisite: FRN 395 or 396
3 credits

FRN 447 Directed Readings in French

Individually supervised readings in selected topics in 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
1-6 credits

FRN 475 Undergraduate Teaching Practicum in French

Each student conducts a regular problem or tutorial section that supplements a regular language course under the guidance of a master teacher. Responsibilities may include preparing material for discussion and helping students with problems. Not for major or minor credit.

Prerequisites: Fluency in French; permission of instructor and department
3 credits; S/U grading

FRN 495 Senior Honors Project in French

A one-semester project for seniors. Arranged in consultation with the department, the project involves writing a paper, under the close supervision of an appropriate instructor, on a suitable topic. Students who are candidates for honors take this course.

Prerequisite: Permission of department
3 credits

GEO

Geology

GEO 101-E Environmental Geology

A survey of the role that geologic factors play in local, national, and global environmental problems. Topics include: soil as a resource; water as a resource; threats posed by soil erosion and water pollution; how environmental geology impacts health; sewage treatment; waste disposal; stream flooding; coastal erosion; and energy and mineral resource utilization. Included with each topic is a consideration of the environmental problems on Long Island or in metropolitan New York and how individuals can reduce their personal environmental impact.

3 credits

GEO 102-E 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 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.

3 credits

GEO 103-E The Earth Through Time

The history of the earth from its formation 4.5 billion years ago to the present. Major issues to be addressed include formation and early history of the earth and moon; evolution of continents, oceans, and atmosphere within the framework of plate tectonics; origin of life; and evidence of past climates.

3 credits

GEO 106-E Planetary Geology

A study of Earth in the light of growing knowledge of the Moon, Mercury, Venus, Mars, the minor planets or asteroids, and comets. May not be taken for credit in addition to AST 105.

3 credits

GEO 107-E 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. 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.

3 credits

GEO 111 Environmental Geology Laboratory

Emphasis on collecting geologic data in the field and laboratory and preparing professional quality reports. Exercises include basic field mapping; determination of hydraulic properties of sediment; analysis of soil and water; and observing a drill site, a water supply well system, a sewage treatment system, and a waste to energy system.

Pre- or Corequisite: GEO 101
1 credit

GEO 112 Physical Geology Laboratory

Rock and mineral identification, introduction to topographic and geologic maps.

Pre- or Corequisite: GEO 102
1 credit

GEO 113 Historical Geology Laboratory

An introduction to basic techniques used for interpreting geological history. Topics include interpretation of topographic and geological maps and cross sections, introduction to fossils, and basic stratigraphic techniques. One three-hour laboratory.

Pre- or Corequisite: GEO 103
1 credit

GEO 122-E 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.

Advisory Prerequisite: High school chemistry or CHE 111
4 credits

GEO 133 Methods and Ethics of Science Research

Introduction to the methods and ethics of scientific research. The foundation of the course is a weekly one-hour seminar in which students discuss assigned readings on the history and ethics of research. In addition, students are assigned to a research laboratory and visit the laboratory to interview faculty, post-doctoral fellows, and graduate students about their research. Students write a feature news article about the research and make an oral presentation.

Advisory Prerequisite: An introductory course in geology, chemistry, or physics
1 credit

GEO 201-H Environmental Geology of Long Island and Metropolitan New York

The role of geologic factors in regional environmental problems, especially those related to development,

sewage treatment, municipal garbage disposal, and the potential for contamination of our drinking water.
Prerequisite: One of the following: GEO 101, 102, 103, 107, or 122
 3 credits

GEO 287 Introductory Research in Geology

Prerequisites: U1 or U2 standing; one GEO course; permission of instructor and departmental research coordinator
 0-3 credits

GEO 302-E 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 per week.
Prerequisites: GEO 103 and 113
 4 credits

GEO 304-H 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.
Prerequisite: GEO 101 or 102 or 122
Advisory Prerequisite: CHE 111 or high school chemistry
 3 credits

GEO 305 Field Geology

A field course that may be taken at any one of several approved university field stations.
Advisory Prerequisite: U4 standing
 1-6 credits

GEO 306-E Mineralogy and Petrology I

An introduction to mineralogy and petrology. Topics in mineralogy include basic crystallography, crystal chemistry, and identification of the important rock-forming and ore minerals. Topics in petrology focus on the processes that govern the formation and distribution of igneous and metamorphic rocks. Laboratory exercises include crystallography, mineral and rock identification, and interpretation of igneous and metamorphic histories of selected rock suites. Two hours of lecture and two three-hour laboratories per week.
Prerequisite: GEO 122 or GEO 102 and 112
Pre- or Corequisite: CHE 132 or 142
 4 credits

GEO 309-E Structural Geology

Principles of structural geology, including classification, criteria for recognition, and mechanics of formation of crustal structural features. Elementary concepts of rock mechanics. Discussion 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 visits classical structural localities in the East.
Prerequisite: GEO 122 or GEO 102 and 112
 4 credits

GEO 310-E Introduction to Geophysics

The study of the techniques and results of geophysics. The course covers 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

GEO 102 and 112; PHY 122 or 132 or 142 or PHY 126 and 127
 3 credits

GEO 311-H Geoscience and Global Concerns

An exploration of how technologically-based problems facing the United States and the world are related to the basic scientific principles that explain the properties of the lithosphere, hydrosphere, and atmosphere. The set of issues include such geoscience-based topics as global warming, fossil fuel resources, nuclear waste disposal, and earthquake prediction and preparedness.
Prerequisite: GEO 101 or 102 or 107 or 122
 3 credits

GEO 315-E 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 or 122; MAT 127 or 132 or 142
 3 credits

GEO 316-E Geochemistry of Surficial Processes

Chemical principles used in the study of surface and near-surface water, rocks, and soils. Application of equilibrium concepts and reaction rates to reactions involving gases, fluids, and minerals in nature. Consideration of soil properties and processes.
Prerequisites: GEO 122 or 102 and 112; CHE 132 or 142
 4 credits

GEO 318-E Engineering Geology and Coastal Processes

Fundamental concepts of soil, sediment, and rock mechanics and the physics of surficial processes. Application is made to problems of geotechnical and coastal engineering. Topics include consolidation, loose boundary hydraulics, slope stability, underground excavations and beach and tidal inlet stability, and channel sedimentation. Crosslisted with MAR 318.
Prerequisites: GEO 122 or GEO 102 and 112; MAT 127 or 132 or 142
 3 credits

GEO 353-E 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 are discussed. Crosslisted with BIO 353.
Prerequisite: BIO 201 (or the discontinued BIO 151) or MAR 104
Advisory Prerequisite: BIO 343
 3 credits

GEO 401 Optical Mineralogy

An introduction to the use of optical crystallography for mineral identification using polarized light microscopy. Topics include indices of refraction of isotropic, uniaxial, and biaxial minerals; optical indicatrix theory; interference figures, and other optical characteristics of minerals. Laboratory exercises provide hands-on experience in using the polarizing light microscope for mineral identification.
Prerequisite: GEO 306
 1 credit

GEO 403-E 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, subsurface stratigraphy, and the

application of stratigraphy to geological problems. Laboratory emphasizes practical techniques in stratigraphy.
Prerequisite: GEO 306
Corequisite: GEO 401
 4 credits

GEO 407-E Mineralogy and Petrology II

Topics focus on the use of thin sections to interpret evolutionary histories of igneous and metamorphic rocks, integrating petrography, phase equilibria, and the physical properties of magma and rocks. Two hours of lecture and two three-hour laboratories per week.
Prerequisites: GEO 306 and 401
 3 credits

GEO 420 Environmental Analysis Using Remote Sensing and Geographic Information Systems

The use of aerial and satellite imagery in environmental analysis and the manipulation of geographic data sets of all types using Geographic Information Systems. Concentrating on Long Island, each student designs and completes a research project on a particular section of the area, focusing on the habitats of local wildlife, the locations of archaeological sites, coastal regimes, etc. Students should expect to spend approximately 10 hours per week beyond regularly scheduled classes in a University computer laboratory. Crosslisted with ANT 420.
Prerequisites: Upper-division course in ANT or BIO or GEO or MAR
 4 credits

GEO 447 Senior Tutorial in Geology

Independent readings in advanced topics. May be repeated once.
Prerequisites: Permission of instructor and chairperson
 1-3 credits

GEO 452-E 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 303 or 305 or AMS 361; PHY 132 or 142 or PHY 126 and 127
 3 credits

GEO 475, 476 Undergraduate Teaching Practicum I, II

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is 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. In GEO 476, students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have already been graded. Students may not serve as teaching assistants in the same course twice.
Prerequisites: to GEO 475: U4 standing; previous preparation in subject field; interview; permission of instructor
Prerequisites: to GEO 476: GEO 475; previous preparation in subject field; interview; permission of instructor and department
 3 credits per course, S/U grading

GEO 487 Senior Research in Geology

Under the supervision of a faculty member, a major in the department may conduct research for academic credit.
Prerequisite: Permission of instructor and chairperson
 0-3 credits

GEO 488 Internship

Participation in local, state, or national private enterprises, public agencies, or nonprofit institutions. May

be repeated to a limit of 6 credits.

Prerequisites: Permission of instructor and department

1-6 credits, S/U grading

GER

German

GER 101 Intensive Elementary German

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.

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 four 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.

Prerequisite to GER 112: GER 111

4 credits per course

GER 211-I, 212-I Intermediate German I, II

The reading and interpretation of a wide variety of German texts, with a review of German grammar, composition, and conversation. Work in the language laboratory further develops audiolingual skills.

Prerequisite to GER 211: GER 101 or 112

Prerequisite to GER 212: GER 211

3 credits per course

GER 311-I, 312-I German Conversation and Composition

The active use of spoken and written German.

Prerequisite: GER 212

3 credits per course

GER 343-G 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 212

3 credits

GER 344-G 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 are in German.

Prerequisite: GER 343

3 credits

GER 401-G German Drama

A survey of German drama and its subgenres. All work is done in German.

Prerequisite: GER 344

3 credits

GER 402-G German Prose

A survey of German prose and its subgenres. All work is done in German.

Prerequisite: GER 344

3 credits

GER 403-G German Poetry

A survey of German poetry and its subgenres. All work is done in German.

Prerequisite: GER 344

3 credits

GER 404-G Goethezeit

An intensive study of German literature in the period 1750-1832. All work is done in German.

Prerequisite: GER 344

3 credits

GER 411, 412 Advanced German Conversation and Composition I, II

These courses are designed to develop fluency in spoken and written German. Students practice expressing themselves idiomatically and fluently and become acquainted with the subtleties of German grammar and style.

Prerequisites: GER 311 and 312

3 credits per course

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 is done in German. May be repeated as the topic changes.

Prerequisites: GER 411 and 412

3 credits

GER 431, 432 Business German I, II

Designed to broaden knowledge of German by emphasizing business terminology and conversational skills. Students practice expressing themselves idiomatically and fluently in a style appropriate to the world of commerce. Materials covered should prepare the student for the "Certificate Wirtschaftsprüfung Deutsch International" examination.

Prerequisites: GER 311 and 312

3 credits per course

GER 438 Structure of German

Development of the German language from Indo-European to modern High German. Special emphasis is placed on modern phonology, graphemics, morphology, syntax, and semantics. Conducted as a seminar.

Prerequisite: GER 212

3 credits

GER 447 Directed Readings in German

Independently supervised readings in selected topics in German language and literature, which may focus on a specific German language author or the literature of a specific period or genre. May be repeated.

Prerequisite: Permission of instructor and department

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.

Prerequisites: GER 311 and 312; permission of instructor and department; specific placement examinations where applicable

1-6 credits, S/U grading

GER 495 Senior Honors Project in German

A one-semester project for seniors. Arranged in consultation with the department, the project involves writing a paper, under the close supervision of an appropriate instructor, on a suitable topic. Students who are candidates for honors take this course.

Prerequisite: Permission of department

3 credits

GRK

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

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

3 credits

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 instructor

HAD

Clinical Laboratory Sciences

HAD 210 Introduction to the Clinical Laboratory Sciences

Defines basic clinical laboratory sciences terminology and application. Introduces the specialties within the clinical laboratory sciences profession including microbiology, hematology, chemistry, immunohematology, and immunology and their roles in patient care. Reviews professional organizations and licensures. Examines employment opportunities. Visitation of clinical laboratories included.

Prerequisite: Permission of instructor

1 credit

HAT

Respiratory Care

HAT 210 Introduction to Respiratory Care

An introduction to the science of respiratory care. Current trends in professional practice are discussed and students have the opportunity to observe clinical practice at a variety of affiliated health care facilities. This course is specifically designed for lower-division students considering a major in respiratory care.

Prerequisite: Permission of instructor

1 credit

HBA

Anatomical Sciences

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.

Prerequisites: U3 or U4 standing; permission of instructor

1-2 credits per course

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: U3 or U4 standing; laboratory experience; permission of supervising instructor
0-4 credits per course

HBH

Pharmacological Sciences**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. May not be used toward the requirements for the major in pharmacology.

Prerequisites: U3 or U4 standing; permission of instructor
1-5 credits per course

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. May be repeated. May not be taken for credit in addition to BCP 487.

Prerequisites: U3 or U4 standing; laboratory experience; permission of supervising instructor
0-6 credits per course

HBM

Microbiology**HBM 320 General Microbiology**

A study of the molecular structure, functional anatomy, energetics, genetics, and pathogenic mechanisms of microbial organisms, with an emphasis on bacteria and viruses. Non-specific and specific host defenses and the control of microorganisms also will be covered. Satisfies the microbiology requirement for admission to most allied health, nursing, optometry, and veterinary medicine professional schools.

Prerequisites: BIO 202 (or the discontinued BIO 152); CHE 112 or 132
3 credits

HBM 321 General Microbiology Laboratory

Complementing the lecture material of HBM 320, this optional laboratory covers basic and applied microbiological methods. Students are introduced to methods for isolating pure cultures, microscopy and staining, quantitation of bacteria and determination of sensitivity to antimicrobial agents. This laboratory is limited to pre-allied health, pre-nursing, and pre-veterinary students.

Prerequisites: BIO 202 (or the discontinued BIO 152); CHE 112 or 132; permission of instructor
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. May be repeated.

Prerequisites: U3 or U4 standing; permission of instructor
1-2 credits per course

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. Project report required. May be repeated.

Prerequisites: U3 or U4 standing; prior laboratory experience; permission of instructor
0-4 credits per course

HBP

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: U3 or U4 standing; BIO 202 and 203 (or the discontinued BIO 151, 152); permission of instructor
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.

Prerequisites: U3 or U4 standing
Pre- or corequisite: BIO 361
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. May be repeated.

Prerequisites: U3 or U4 standing; permission of instructor
1-2 credits per course

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. May be repeated.

Prerequisites: U3 or U4 standing; laboratory experience; permission of supervising instructor
0-4 credits per course

HBW

Hebrew**HBW 111, 112 Elementary Hebrew I, II**

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.

Prerequisite: to HBW 112: HBW 111
3 credits per course

HBW 211-J, 212-J Intermediate Hebrew I, II

Intermediate courses in conversation, composition, and the reading of texts in modern Hebrew.

Prerequisite: to HBW 211: HBW 112
Prerequisite: to HBW 212: HBW 211
3 credits per course

HBW 311-J 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 212
3 credits

HBW 312-J Advanced Hebrew II

Readings in modern Hebrew authors. Oral and written reports. Discussion is conducted mainly in Hebrew.

Prerequisite: HBW 311
3 credits

HBW 405-G Studies in Hebrew Literature

May be repeated as the topic changes.

Prerequisite: HBW 311 or 312
3 credits

HBW 415 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 311
3 credits

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
1-4 credits

HBV

Physiology and Biophysics**HBV 350 Physiology**

The normal functioning of human tissues and organs and their regulation by the nervous and endocrine systems. Special emphasis is given to physiological control systems and the preservation of the constancy of the internal environment. Lectures, conferences, demonstrations. Priority given to Health Sciences students. Modules 1 through 3.

Prerequisites: U3 or U4 standing; college courses in biology and chemistry; permission of instructor
Advisory Prerequisite: Some background in physical science
4 credits

HBV 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. May be repeated.

Prerequisites: U3 or U4 standing; permission of instructor
1-2 credits per course

HBV 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. May be repeated.

Prerequisites: U3 or U4 standing; laboratory experience; permission of supervising instructor
0-4 credits per course

HDH

Dental Health

HDH 301 Independent Readings and Research

The student conducts 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 when topic is (Health Care Delivery); approval of department chairperson
3 credits

HDO

Oral Biology and Pathology

HDO 320, 321 Oral Biology Research I, II

The student conducts 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. A copy of the student's transcript must be submitted with the application to the Department.

Prerequisite to HDO 320: U3 standing; permission of the Department prior to registration

Advisory Prerequisites: BIO 202 (or the discontinued BIO 152); CHE 132 and 134 or 142 and 144

Prerequisite to HDO 321: HDO 320
0-4 credits per course

HDO 420, 421 Oral Biology Research III, IV

The student conducts 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. A copy of the student's transcript must be submitted with the application to the Department.

Prerequisite to HDO 420: U4 standing; permission of department prior to registration

Advisory Prerequisites: BIO 202 (or the discontinued BIO 152); CHE 132 and 134 or 142 and 144

Prerequisite to HDO 421: HDO 420
0-4 credits per course

HDP

Periodontics

HDP 320, 321, 322 Introduction to Periodontal Research

The student is taught various techniques and procedures used in current periodontal research. The student is expected to undertake a small research project implementing these techniques.

Prerequisites: CHE 132 and 134 or 142 and 144; BIO 202 (or the discontinued BIO 152); permission of instructor

0-4 credits per course

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 eight credits.

Prerequisites: HDP 320, 321; permission of instructor
0-4 credits per course

HIN

Hindi

HIN 111, HIN 112 Elementary Hindi I, II

An introduction to spoken and written Hindi, stressing pronunciation, speaking, comprehension, reading, and writing. No student who has had two or more years of Hindi in high school (or who has otherwise acquired an equivalent proficiency) is permitted to register for HIN 111 without written permission from the supervisor of the course.

Prerequisite to HIN 112: HIN 111

3 credits per course

HIN 211-J, HIN 212-J Intermediate Hindi I, II

Advanced speaking, comprehension, reading, writing, and grammar. Selected texts are read. Practice in the language laboratory supplements class work. No student who has had more than four years of Hindi in high school (or who has otherwise acquired an equivalent proficiency) may receive credit for HIN 211, 212 without the written permission of the supervisor of the course.

Prerequisite to HIN 211: HIN 112

Prerequisite to HIN 212: HIN 211

3 credits per course

HIS

History

HIS 101-F Early Modern European History: From Renaissance to Revolution

A study of European ideas and institutions from the Renaissance to the French Revolution, including the heritage of the Middle Ages; Renaissance art, politics, and thought; the Reformation and Counter-Reformation; the rise of the modern state; the new science; the Enlightenment; and the course of the French Revolution to 1815.

3 credits

HIS 102-F Modern European History from 1789 to 1945

An introduction to the revolutionary events in politics and the economy, principally the industrialization of society, and the national, class, ethnic, and gender conflicts that dominated the period, including their cultural and ideological aspects. The course begins with the French Revolution, characterized by high hopes for the rational mastery of nature and society, and ends with the Second World War, a period of mass destruction and total war.

3 credits

HIS 103-F American History to 1877

A survey of American history from the Age of Discovery to the end of Reconstruction. Topics include 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.

3 credits

HIS 104-F United States Since 1877

A survey of modern American history from the end of Reconstruction to the present. The course focuses 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.

3 credits

HIS 109-F History Through Documents

Introduction to social-historical issues and problems focusing on well-defined topics. Students work with primary materials and consider the conjunction between published and accepted interpretations and what the documents seem to say.

Prerequisite: U1 standing

3 credits

HIS 110-H Introduction to the Social History of Medicine

Introduction to the themes in the social history of medicine: the social construction of disease, cultural significance of bodily fluids, medical politics, religions and medicine, international considerations. Themes are explored through the history of a particular medical event such as AIDS or the Black Death.

Pre- or Corequisite: One biology course

3 credits

HIS 208-I 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.

3 credits

HIS 209-I 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.

3 credits

HIS 210-I 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.

3 credits

HIS 213-J Colonial Latin America

From conquest to independence: Spanish and Portuguese colonialism in the New World and the forging of Latin American societies.

Advisory Prerequisite: LAC 200

3 credits

HIS 214-J 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. Crosslisted with POL 214.

Advisory Prerequisite: LAC 200

3 credits

HIS 216-J 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 considers changes in American policy toward Latin America, as well as the varying responses of Latin American nations to U.S. intervention and influence. Crosslisted with POL 216.

Advisory Prerequisite: One HIS course

3 credits

HIS 219-J Introduction to Chinese History and Civilization

Introductory survey examining key concepts and significant themes in Chinese history. Topics include Confucianism, popular religion, government, foreign policy, the economy, Western influence, Chinese revolution, and modernization.

Advisory Prerequisite: One HIS course

3 credits

HIS 220-J Introduction to Japanese History and Civilization

An introduction to the history of the Japanese people from antiquity to the present, including the origins of the emperor system, early cultural influences from the Asian mainland, Japanese permutations of Buddhism such as Zen, the civil wars and the rise of the shogunate and samurai, and the Meiji Restoration and Japan's subsequent interaction with the West.

Advisory Prerequisite: One HIS course
3 credits

HIS 221-J Introduction to Modern African History

Historical themes in 19th and 20th century Africa. Topics include social and political relations in African states; slavery and the slave trade in West Africa; the impact of Christianity and Islam on African colonialism; colonialism and its consequences; nationalist movements and de-colonization; pan-Africanism and the politics of African unity; the postcolonial state project; economic planning in postcolonial Africa; and African states and international politics in the Cold War era. Crosslisted with AFS 221.

Advisory Prerequisite: One D.E.C. category F course
3 credits

HIS 225-J The Formation of the Judaic Heritage

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.

Advisory Prerequisite: RLS 101 or 110 or one HIS course
3 credits

HIS 226-F 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.

Advisory Prerequisite: RLS 101 or 110 or one HIS course
3 credits

HIS 235-I The Early Middle Ages

A survey of Europe in the Early Middle Ages (300-1100) from the emergence of Christianity and the decline of the Roman Empire in the West through the Investiture Struggle and the early Crusades. The course covers social, political, cultural, and religious developments. Emphasis is placed on the reading of primary sources—literary and religious texts and the public record.

3 credits

HIS 236-I The Late Middle Ages

A survey of Europe in the Later Middle Ages (1100-1500) from the Crusades and rise of towns and feudal monarchy through the years of war, plague, and the Great Schism and Conciliarism. The course covers social, political, cultural, and religious developments. Emphasis is placed on the reading of primary sources—literary and religious texts and the public record.

3 credits

HIS 237-H, Science, Technology, and Medicine in Western Civilization I

An examination of science, technology, medicine, and their social organization from 1450-1790 (from the Renaissance to the French Revolution) and the origin of those systems in Western cultures. Among the topics covered are experimentation and mathematics, funding of technological development by the state, organizations of scientists, the place of science and

technology in cultural life, industrialization, and the character and organization of medical practice.

Advisory Prerequisite: One D.E.C. category E course
3 credits

HIS 238-H Science, Technology, and Medicine in Western Civilization II

An examination of science, technology, medicine, and their social organization from 1790 to the present (from the French Revolution to the end of the Cold War) and the development of these systems world wide. Among the topics covered are professionalization of medicine, implications of physics for defense industries, growth of biotechnology, and the impact of Darwinism on culture.

Advisory Prerequisite: HIS 102
3 credits

HIS 241-I The Holocaust: The Destruction of European Jewry—Causes and Consequences

The rise of modern anti-Semitism and its political application in Nazi Germany. Topics include the destruction process, ghetto life, resistance, foreign response, and the war crimes trials. Crosslisted with JDS 241.

Advisory Prerequisite: JDS/HIS 226 or HIS 101 or 102
3 credits

HIS 248-I 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.

Advisory Prerequisite: HIS 101 or 102
3 credits

HIS 249-I Modern Europe, 1914-1945

European history from the outbreak of the First World War to the post-World War II period, with emphasis on political and social developments, but also including economic and cultural trends.

Advisory Prerequisite: HIS 102
3 credits

HIS 250-F 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.

Advisory Prerequisite: HIS 102
3 credits

HIS 251-I Europe Since 1945

A study of contemporary Europe emphasizing political developments beginning with the Cold War, de-colonization, the problems of postindustrial society, managed capitalism, and intellectual and cultural movements such as existentialism and Marxist humanism.

Advisory Prerequisite: HIS 102
3 credits

HIS 261-K Change and Reform in the United States, 1877-1919

The growth of industrialism, class conflict, and ethnic diversity in America and the rise of social reform movements to address resulting problems. Emphasis on modern liberalism as a response to major changes in American society.

Advisory Prerequisite: HIS 104
3 credits

HIS 262-K American Colonial Society

Political, economic, social, and cultural characteristics of the American colonies from their founding until their separation from Great Britain. Particular attention is devoted to the interaction of cultures and peo-

ples in the making of colonial societies as reflected in the institution of slavery and ethnic, racial, and provincial identities.

Advisory Prerequisite: HIS 103
3 credits

HIS 263-K 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.

Advisory Prerequisite: HIS 103
3 credits

HIS 264-K 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 the 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.

Advisory Prerequisite: HIS 103
3 credits

HIS 265-K Civil War and Reconstruction

An examination of the political and social roots of the conflict between the slave South and free-labor North that led to the Civil War. Major themes include how two very different societies fought the war; the political battles over the nature of the reunited nation; the Black Experience during slavery, wartime, and Reconstruction; and changing white racial attitudes throughout this era.

Advisory Prerequisite: HIS 103
3 credits

HIS 268-K 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, the 1960s and after.

Advisory Prerequisite: HIS 104
3 credits

HIS 277-K The Modern Color Line

An exploration of the significance of race in 20th century America. Topics include forms of political organization and collective struggle, the social and psychic consequences of racial subjection; the relationship among race, racism, and culture, and the cultural politics of race and gender. Crosslisted with AFS 277.

Advisory Prerequisites: AFS 101 and 102; completion of D.E.C. categories I and J
3 credits

HIS 300-F Global History

The origins and structure of global history. Topics include the transition from world history to global history, multinational corporations and international trade, global electronic networks, and the politicization of ecology and biotechnology. The focus of the course is on the range of transnational possibilities and problems that have emerged since World War II.

Prerequisite: One course in 20th-century history
3 credits

HIS 301 Reading and Writing History

How modern historians have written history, focusing on the methods of three types of history—social, cultural, and political—and how historians have addressed three major problems of historical analysis—causation, motivation, and the significance or meaning of events. Readings include material from U.S., European, and Latin American history.

Prerequisites: At least six credits in history
3 credits

HIS 307-I European Radicalism from the Protestant Reformation to the Russian Revolution

An examination of radical movements in Europe that have required people to choose between the rights of the individual and the rights of the community, between personal autonomy and equality of condition. The course focuses on the ideological debates over these opposed principles, and the outcome of the struggles that followed from them.

Prerequisite: U3 or U4 standing
Advisory Prerequisite: HIS 101 or 102
3 credits

HIS 309-I 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: HIS 102
3 credits

HIS 310-I 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: HIS 102
3 credits

HIS 311-I The Rise of Imperial Germany, 1806-1890

The course of German history from the Napoleonic to the Bismarckian era, examining the power struggles of traditional authoritarianism versus liberalism and socialism in an age of drastic economic transformation.

Prerequisite: HIS 102
3 credits

HIS 312-I From Empire to Third Reich: Germany, 1890-1945

From Bismarck's dismissal through the Wilhelmian 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.

Prerequisite: HIS 102
3 credits

HIS 316-F 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 also treats the development of organized medicine and its impact upon female healers and patients. Crosslisted with WST 316.

Prerequisite: U3 or U4 standing
Advisory Prerequisite: One HIS course or WST/SSI 102 or WST 103
3 credits

HIS 317-F 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 de-colonization are studied. The course emphasizes comparisons and original documents.

Prerequisite: One 200-level course on modern Europe
3 credits

HIS 318-I Social and Intellectual History of Europe

An examination of the great movements of ideas in their social and historical contexts in modern European history. Themes may include liberalism, conservatism, romanticism, 19th-century realism, and the discovery of the unconscious.

Prerequisite: U3 or U4 standing

Advisory Prerequisite: HIS 101 or 102
3 credits

HIS 321-F Long Island History

An exploration of Long Island's rich but neglected history, from colonial times to the present. Topics include the island's Native Americans, colonial settlement, towns and counties, the Revolution, slavery, whaling, farming, the Long Island Rail Road, social reform, art and literature, the Civil War, the "gold coast" estates, suburban growth, the "roaring twenties," the Great Depression, Robert Moses, post-World War II expansion, aviation and aerospace, the turbulent sixties, the "post-suburban" era, and problems of the 21st century.

Prerequisite: U3 or U4 standing
3 credits

HIS 325-K 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.

Prerequisite: U3 or U4 standing
Advisory Prerequisite: HIS 104 or AFS 101 or 102
3 credits

HIS 326-F History of Popular Culture

The development of popular culture in Europe and the United States. The course examines different aspects and genres of popular mentality beginning with peasant cultures in the 18th 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: U3 or U4 standing
Advisory Prerequisite: HIS 103 or 104
3 credits

HIS 327-K Origins of American Society

An inquiry into the origins of a distinctive American social order. The aspects of economics and class; slavery and race; and ethnic, provincial, and national identities as they evolved in America between the founding of the American colonies and the era of Jackson and Tocqueville.

Prerequisite: One course in U.S. history
Advisory Prerequisite: HIS 103
3 credits

HIS 333-K 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 is 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 WST 333.

Prerequisite: HIS 103 or 104 or WST/SSI 102 or WST 103
Advisory Prerequisite: Completion of D.E.C. categories I and J
3 credits

HIS 336-I 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 is 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 are domestic work, prostitution, sexual attitudes and mores, child-rearing practices, women and revolutionary movements, and the growth of feminism. Crosslisted with WST 334.

Prerequisite: HIS 102 or WST/SSI 102 or WST 103
3 credits

HIS 341-J 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 is given to the theory and practice of Chinese communism.

Prerequisite: One HIS course
Advisory Prerequisite: HIS 219
3 credits

HIS 343-J Roots of Modern Japan

The history of Japan from prehistory to the 20th century, emphasizing those aspects of history and culture that are still shaping Japanese society today.

Prerequisite: One HIS course
Advisory Prerequisite: HIS 220
3 credits

HIS 344-J 20th-Century Japan

The history of Japan from the beginning of its imperialistic expansion in 1895 to World War II and postwar reconstruction, including such contemporary topics as educational issues, economic policies, and foreign relations.

Prerequisite: One HIS course
Advisory Prerequisite: HIS 220
3 credits

HIS 345-J Women and Gender in Chinese History

Exploration of traditional cultural practices and values, and the 20th-century changes in Western and Asian relations in China brought about by nationalism, interaction with Western influences, and socialist rule. Crosslisted with WST 345.

Prerequisite: One of the following: HIS 219, HIS 220, CNS 249, CNS 250, or any WST course
3 credits

HIS 346-J Political and Social History of Africa

An exploration of theoretical perspectives in the historical sociology and comparative politics of Africa. Topics include the crisis of state legitimacy; the patriarchal society; ethnicity, religion, and politics; the politics of modernization; development and the environment; population growth and underdevelopment; globalization, neo-liberal economic policy and the postcolonial state; and the history of state and society relations. Crosslisted with AFS 346.

Prerequisite: U3 or U4 standing
Advisory Prerequisites: Two AFS or HIS courses
3 credits

HIS 348-J History of British India

The rise, development, and decline of British power in India from the mid-eighteenth century to the mid-twentieth century; the nature and extent of British power; British social, cultural, and economic policies, and their impact on Indian society. Indian responses to British rule, resistance and collaboration, religious and cultural movements, and the rise of Indian nationalism; Hindu-Muslim conflict; partition and the transfer of power.

Prerequisite: One of the following: HIS 101, 102, 219, or 220 or SAS 240
3 credits

HIS 349-J 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. Not for credit in addition to the discontinued HIS 395.

Prerequisite: HIS 101 or 102
Advisory Prerequisite: AFS 221
3 credits

HIS 360-I Women in Premodern Europe

An examination of the position of women in European

society from ancient Greece through the Italian Renaissance. The course emphasizes 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. Crosslisted with WST 360.

Prerequisite: One HIS course or any WST course
3 credits

HIS 361-K American History/American Film

A study of classic American films as a reflection on their times and an influence upon style and belief. The course tries to teach students to view film as a product of history and a reflection of the social and ideological tone and culture of America.

Prerequisite: U3 or U4 standing
3 credits

HIS 362-K Making Peace With the Sixties

A study of the 1960's, emphasizing conflict within American liberalism between cold warriors and anti-war activists, advocates of the bureaucratic welfare state versus those favoring small-scale community operations, and technocratic liberalism versus a policy of immediacy and moral witness. Special attention is given to the paradigmatic qualities of the civil rights movement, the domestic side of the Vietnam War, and the relationship of liberalism to radicalism.

Advisory Prerequisite: U3 or U4 standing
3 credits

HIS 365-F Environmental History of North America

The history of interactions between human beings and their natural environment on this continent, with special attention to the Northeastern region. Transformations of forests, homes, farms, and industrial workplaces will be considered. Cultural, economic, political and technological perspectives on the relationship between humans and nature from preColumbian to late twentieth-century times.

Prerequisites: HIS 103 and 104
3 credits

HIS 369-K American Social History to 1860

The development of American society from the 17th century to the beginning of industrialization, with emphasis on changing concepts of class and community relations, work, and family and gender roles. Special attention to how the diversity of the American people shaped the evolution from a traditional world view to the more modern, competitive society of the 19th century.

Prerequisite: HIS 103
3 credits

HIS 370-K U.S. Social History, 1860-1930

The evolution of American society from the mid-19th century to the Great Depression. An examination of the impact of the Industrial Revolution, urbanization, and mass immigration on concepts of class, community, family, and gender roles. Special emphasis on how increasing class conflict and changing expectations of family life forced the evolution of new, modern social values and institutions.

Prerequisite: HIS 104
3 credits

HIS 374-K Historical Perspectives on Gender Orientation

An examination of contemporary American gender orientation from an historical perspective. Topics include gay marriage, gay clergy, medical definitions of gender orientation and gays in the military. Crosslisted with WST 374.

Prerequisite: U3 or U4 standing
Advisory Prerequisite: One HIS or WST course.
3 credits

HIS 375-K History of U.S. Foreign Relations to 1920

The rise of the United States from first Atlantic settle-

ments to world power status after the First World War. Special emphasis is placed on the role of domestic politics in foreign policy formulation, from ethnic divisions over mid-19th-century expansionism to the role of race in determining U.S. relations with Latin America and Asia. The importance of ideological factors from debates over the significance of the French Revolution to the principles of the Versailles settlement is considered.

Prerequisite: HIS 103 or 104

Advisory Prerequisites: Completion of D.E.C. categories I and J

3 credits

HIS 376-F History of U.S. Foreign Relations Since 1920

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.

Prerequisite: HIS 104
3 credits

HIS 382-J 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 guerrilla warfare. Crosslisted with POL 382.

Prerequisite: U3 or U4 standing

Advisory Prerequisite: HIS 213 or HIS/POL 214 or HIS/POL 216 or LAC 200

3 credits

HIS 385-J History of Aztec and Inca Societies

An inquiry into the history of native peoples of Mexico and Peru before and after the European invasion. The course considers the nature and dynamics of Aztec and Inca civilizations before Columbus, the significance of Indian-European cultural contact from the perspective of native societies, and the biological and cultural consequences of Spanish colonial rule for native peasantries in Mexico and Peru.

Prerequisite: HIS 213 or HIS/POL 214

Advisory Prerequisite: LAC 200

3 credits

HIS 386-J 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.

Prerequisites: HIS/POL 214; U3 or U4 standing

Advisory Prerequisite: LAC 200

3 credits

HIS 387-J 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 is on women in political protest and revolution. Crosslisted with WST 387.

Prerequisite: HIS 213 or HIS/POL 214 or any WST course

3 credits

HIS 388-J Slavery in Latin America and the Caribbean

The institution of slavery and its impact on plantation societies in the Americas, with particular attention to Brazil and the Caribbean. Topics include conquest and enslavement, the formation of slave communities, African culture in Latin America, resistance and oppression, the process of emancipation, and race relations. Crosslisted with AFS 388.

Prerequisite: HIS 213 or 214 or LAC 200 or AFS 239 or 240 or 277

3 credits

HIS 389-J Modern Mexico

The history of Mexico from independence in 1810 to the present crisis. The course explores the relationships among agrarian development, social movements, and state building in Mexican history. Topics include 19th-century instability and liberal reform, and the 20th-century revolution and its legacy for modern Mexican politics.

Prerequisite: HIS 213 or HIS/POL 214 or 216

3 credits

HIS 390-I Topics in Ancient and Medieval Europe

May be repeated as the topic changes.

Prerequisite: One course in European history

3 credits

HIS 391-I Topics in Early Modern Europe

May be repeated as the topic changes.

Prerequisite: One course in European history

3 credits

HIS 392-I Topics in Eighteenth Century Europe

May be repeated as the topic changes.

Prerequisite: One course in modern European history

3 credits

HIS 393-I Topics in Modern British History

May be repeated as the topic changes.

Prerequisite: HIS 102

3 credits

HIS 394-H Topics in History of Medicine and Reproduction

May be repeated as the topic changes.

Prerequisite: One HIS course

3 credits

HIS 395-I Topics in Russian History

May be repeated as the topic changes.

Prerequisite: One course in modern European history

3 credits

HIS 396-F Topics in U.S. Economic History

May be repeated as the topic changes.

Prerequisite: HIS 103 or 104

3 credits

HIS 397-K Topics in History of U.S. Immigration and Ethnicity

May be repeated as the topic changes.

Prerequisite: HIS 103 or 104 or AFS 102

3 credits

HIS 398-H Topics in History of Science and Technology

May be repeated as the topic changes.

Prerequisite: HIS 237 or 238

3 credits

HIS 399-F Topics in Crime, Law and Justice in the United States

May be repeated as the topic changes.

Prerequisite: HIS 103 or 104

3 credits

HIS 401, 402, 403 Colloquia in European History

May be repeated as the topic changes.

Prerequisite: Permission of instructor

3 credits per course

HIS 404 Colloquium in the History of the Social and Behavioral Sciences

A seminar in the history of the social and behavioral sciences, including sociology, anthropology, and psychoanalysis, the precise subjects varying with faculty interest and student expectations. The focus of the course is on the great impact that social and behavioral science theories have had historically in social practice. Topics may include the origins of social theory, the impact of Marxism on the social sciences, or the history of psychoanalysis in the 20th century. May be repeated as the topic changes.

Prerequisite: Permission of instructor
3 credits

HIS 411-414 Colloquia in American History

Subjects and periods, which vary with student demand and faculty interest, 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 the topic changes.

Prerequisite: Permission of instructor
3 credits per course

HIS 421, 422 Colloquia in Latin American History

Subjects and period, which vary with student demand and faculty interest, include such topics as slavery and race relations, culture and ideology, peasant movements and popular rebellion, and 20th-century revolutions. May be repeated as the topic changes.

Prerequisite: Permission of instructor
3 credits per course

HIS 431, 432 Colloquia in Asian History

Subjects and periods, which vary with student demand and faculty interest, include such topics as Japanese nationalism and expansion, Far Eastern diplomatic history, and nationalism in Southeast Asia. May be repeated as the topic changes.

Prerequisite: Permission of instructor
3 credits per course

HIS 441 Colloquium in World History

Subjects and periods, which vary with student demand and faculty interest, 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 the topic varies.

Prerequisite: Permission of instructor
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 as the topic changes.

Prerequisites: A strong background in history; permission of instructor and department
1-3 credits

HIS 451 Colloquium in Medieval History

Selected topics in medieval history are studied with attention to primary sources and current hagiographic controversies and developments. May be repeated as the topic changes.

Prerequisite: Permission of instructor
3 credits

HIS 461 Colloquium in the History of Science

Topics, which vary with student demand and faculty interest, 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 the topic changes.

Prerequisite: Permission of instructor
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 research coordinator
0-3 credits

HIS 488 Internship

Participation in local, state, and national public and private agencies and organizations. May be repeated up to a limit of 12 credits

Prerequisites: 15 credits in history; permission of instructor and department
1-6 credits, S/U grading

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 writing 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. Students receive only one grade upon completion of the sequence.

Prerequisite: Admission to the history honors program
3 credits per course

HMC

Health and Society

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 focuses on the social, historical, ethical, and humanistic import of the cases. Crosslisted with SOC 200.

3 credits

HMC 331-G 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 are 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 are expected to take part in class discussions and do readings.

Prerequisites: U3 or U4 standing; one D.E.C. category B course
3 credits

HNI

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.

1 credit

HNI 290 Introduction to Nursing

An introduction to nursing for students who plan a career in nursing but are not yet enrolled in a school of nursing. The student is oriented to the nature and scope of the profession of nursing and settings where nursing is practiced.

2 credits

HON

Honors College

HON 101, 102 Progress and Its Discontents

An introduction to social, cultural and intellectual history leading up to the emergence of progress as a dominant concept at the beginning of the 19th century, its incorporation into various disciplines through the 20th century, and its implications for the future. Students will examine through textual examination alternative models and analyze how they served to shape the changing concept of progress.

Prerequisite: Acceptance into the Honors College
3 credits per course

HON 110-120 Honors Topics

An introduction, for Honors students, using informal pedagogical techniques, to a selected aspect of academic or community life in the University, such as musical or theatrical productions, ongoing research projects, artistic and creative endeavors, community service, and disciplinary foci. May be repeated as the topic changes.

Prerequisite: Acceptance into the Honors College
1 credit per course

HON 201 Honors College Interdisciplinary Seminar: Brief Lives

An exploration of the interconnections between art and society, focusing on the biographies and autobiographies of notable artists and writers. Along with consideration of the creative life and work, each week's discussion focuses on an analytical problem to which an understanding of the social sciences can contribute, i.e., art and politics, tradition and charisma, generational change and the life course. Integrated with the readings are analysis and appreciation of the works themselves.

Prerequisite: Acceptance into the Honors College
3 credits

HON 301 Honors College Interdisciplinary Seminar: Science, Values, and Society

An examination of science and technology through social, political, historical, and philosophical perspectives.

Prerequisites: Acceptance into the Honors College; junior standing
3 credits

HON 401 Honors College Interdisciplinary Seminar: Global Issues in the 20th Century

An advanced interdisciplinary seminar focusing on selected topics and regions of the world. Students examine how historical background, geographical context, political systems, and economic structures affect regional and global developments.

Prerequisites: Acceptance into the Honors College; U4 standing
3 credits

HON 495-496 Honors College Senior Project

A two-semester research or other creative project to be arranged with and approved by the Honors College Chair. Students work with the course instructor and selected faculty sponsor to develop appropriate project expectations and provide ongoing supervision. Each

student must submit a written project report and make a presentation at the year-end Honors College Senior Project Colloquium. Students receive only one grade upon completion of the sequence.

Prerequisite: U4 standing in the Honors College
3 credits per course

HUE

European Literature and Culture Courses in English

HUE 269-I 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 as topic changes, but counts toward fulfillment of Russian major requirements only once.
3 credits

HUE 392-I Topics in Slavic Studies (in English)

May be repeated as topic changes, but counts toward fulfillment of Russian major requirements only once.
Prerequisite: U3 or U4 standing
Advisory Prerequisite: A literature course at the 200 level or higher
3 credits

HUF

French Literature and Culture Courses in English

HUF 111-B French Masterpieces in Translation

An introduction to the world of French literature through study, in translation, of a text (or texts) of well-known French authors such as Rabelais's *Gargantua*, Montaigne's *Essays*, Molière's *Tartuffe* and *School for Wives*, Rousseau's *Confessions*, Stendhal's *The Red and the Black*, and Camus's *The Plague*. These are read within the sociocultural contexts of their times as an introduction to literary and philosophical interpretation.
3 credits

HUF 211-D French Cinema (in English)

Introduction to French films as representative of cinematic art. Films are selected to provide a broad historical perspective and range of the director's concerns. Students are taught methods of reading and analyzing filmic works. All films have English subtitles.
3 credits

HUF 212-J French Caribbean Literature (in Translation)

A study of representative texts from the French Caribbean translated into English, focusing on literary manifestations of a search for a specific identity by writers from Martinique, Guadeloupe, French Guiana, and Haiti. Crosslisted with AFH 212.
Prerequisites: Completion of D.E.C. category A; one course in literature
3 credits

HUF 213-G Caribbean and American Connections in Literature (in English)

An exploration of the connections between writers from the French-speaking and English-speaking Caribbean and from the African-American community, who share a similar cultural heritage, historical heritage, and historical experience, but differ in geopolitical situations. Special attention is paid to spirituality, gender, and identity motifs in the literature.

Crosslisted with AFH 213.

Advisory Prerequisite: Completion of D.E.C. category B
3 credits

HUF 216-G French Civilization through the Ages

An overview of French civilization seen through its diverse manifestations in various cultural fields. The heritage of French society is analyzed through the arts, philosophy, science, literature, and theatre.

Advisory Prerequisite: Completion of D.E.C. category B
3 credits

HUF 219-I 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 is given to other French-speaking countries and their relations to France.

3 credits

HUF 235-G The "Stranger" in World Literature

Literary representations of "strangeness" and the strategies adopted by society to contain or expel this subversive presence. Authors include Faulkner, Melville, Camus, Sartre, Plath, and Rousseau. May be used to satisfy English major requirements.

Advisory Prerequisite: Completion of D.E.C. category B
3 credits

HUF 236-G Passion and Reason in the French Enlightenment

A study of literature, opera, theatre, and painting in 18th century France. Discussion focuses on the conflict between reason and passion and how it is expressed in these art forms. Authors studied may include Prevost, Voltaire, Rousseau, Diderot, Graffigny, and Beaumarchais.

Advisory Prerequisite: Completion of D.E.C. category B
3 credits

HUF 311-G French Literature in Translation

A course given in English on a major French author or literary movement in relation to European or American literature. May be repeated as topic changes. May be used to satisfy English or Comparative Literature major requirements with permission of major department.

Prerequisite: U3 or U4 standing
Advisory Prerequisite: A literature course at the 200 level or higher
3 credits

HUF 318-J Pan-African Literature I

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 treats the development, diffusion, and significance of these themes. It involves intensive consideration of selected literary works of African and African-American expression. Crosslisted with AFH 329.

Prerequisite: U3 or U4 standing
Advisory Prerequisites: Two courses in literature
3 credits

HUG

German Literature and Culture Courses in English

HUG 221-D German Cinema Since 1945 (in English)

The theory and history of German film as an art form, from filmmakers such as Alexander Kluge, Bernhard

Wicki, and the "new filmmakers" Rainer Werner Fassbinder, Volker Schlöndorff, Margarete von Trotta, Werner Herzog, and Wim Wenders. Topics include silent film; New German Cinema, 1962-1985; national cinema and national identity; film as literature and from literary models; problems of authors and their audiences; women's film, film in the former German Democratic Republic; and the influence of American filmmakers, subject matter, and settings.
3 credits

HUG 229-I Germany Today (in English)

A survey of contemporary Germany and its political, social, and economic structure, as well as the study of cultural life and institutions with comparisons to American models and standards.

3 credits

HUG 321-G Topics in the Literature of Germany (in English)

A course given in English on a major German author or literary movement, designed primarily to give students in other disciplines an opportunity to become acquainted with the German tradition. (German majors are admitted by special permission of their advisors, and do the reading and term papers in German.)

Prerequisite: U3 or U4 standing
Advisory Prerequisites: Two literature courses
3 credits

HUI

Italian Literature and Culture Courses in English

HUI 216-G Italian Civilization Through the Ages

The historical development of civilization in Italy with reference to literature and connection to artistic expression such as visual arts, music, and theatre.

Advisory Prerequisite: Completion of D.E.C. category B
3 credits

HUI 231-D Sex and Politics in Italian Cinema

The cinematic representation of gender, class, and sexual politics in post-World War II Italian films and the relationship of these themes to Italian history, society, and culture are discussed. Films by directors such as Bertolucci, Fellini, and Wertmüller are studied. Readings include selected works of film history, criticism, and theory.

3 credits

HUI 234-G Introduction to 20th Century Drama

A study of avant-garde drama through the analysis of texts by Marinetti, Bontempelli, Pirandello, Betti, Beckett, Ionesco, and Tennessee Williams. Important questions such as identity and diversity are discussed from a variety of perspectives within the social, psychological, sexual, and multicultural context of our time.

Advisory prerequisite: Completion of D.E.C. category B or THR 101
3 credits

HUI 235-G Sex, Love, and Tragedy in Early Italian Literature

A study of the interactions between the sexes in contrast with man's spiritual needs in the major works of early Italian literature. Dante's *Inferno* and *Purgatorio*, Boccaccio's *Decameron* and Petrarch's poetry are analyzed. May be used to satisfy English major requirements.

Advisory Prerequisite: Completion of D.E.C. category B
3 credits

HUI 236-K The Italian-American Scene

Exploration of the phenomenon of Italian American experiences from immigration and ethnicity and beyond. Studies in anthropology, history, sociology, literature, and culture provide historical and theoretical backgrounds of the experience of Italians in North and South America and their contributions to American culture.

Advisory Prerequisite: One D.E.C. category B course
3 credits

HUI 239-I 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.

3 credits

HUI 331-G Italian Literature in Translation

A topics course given in English on a major Italian author or literary movement in relation to European or American literature. May be repeated as the topic changes. May be used to satisfy English or comparative literature major requirements with permission of major department.

Prerequisite: U3 or U4 standing

Advisory Prerequisite: A literature course at the 200 level or higher

3 credits

HUI 333-K The Italian-American Experience in Literature (in English)

Literary and historical perspectives on the experience of Italians in America and their contribution to American culture. Course is given in English. May be used to satisfy English or comparative literature major requirements with permission of major department.

Prerequisite: U3 or U4 standing

Advisory Prerequisite: A literature course at the 200 level or higher.

3 credits

HUI 336-K Italian Americans and Ethnic Relations (in English)

An historical and sociological examination from colonial America to the present with the major focus on the period from 1870 to today. Comparative experience with other ethnic and minority groups within the U.S., including formation, migration, and conflict.

Prerequisite: U3 or U4 standing

Advisory Prerequisites: One D.E.C. category F course; completion of D.E.C. categories I and J

3 credits

HUI 338-K Images of Italian Americans in Films

Italian-American ethnicity as represented in mainstream and independent American cinema from the silent era to the present. Particular attention is paid to the origin and existence of the traditional stereotypes associated with these representations and how Italian-American filmmakers respond to them.

Prerequisite: U3 or U4 standing

Advisory Prerequisites: HUM 201 or HUM 202; HUI 231

3 credits

HUI 431 Special Topics in Italian Cinema

A topics course given in English on Italian cinema. Topics may include films of a particular actor or director, genre, theme, or historical period.

Prerequisite: HUI 231

Advisory Prerequisite: HUI 338

3 credits

HUI 439-K The Emigrant Experience in Italian Literature

The experience of emigration, from the shock of uprooting to the assimilation into American society, as narrated by Italian writers. The consequences of emigration on the Italian homeland are also studied, through the accounts of authors such as Silone, Pavese, Levi, and Palandri. May be used to satisfy

English or comparative literature major requirements with permission of major department.

Prerequisite: U3 or U4 standing

Advisory Prerequisites: Completion of nine credits of HUI or ITL courses

3 credits

HUI 447 Directed Readings in Italian Studies (in English)

Individually supervised readings in Italian studies. Primarily for students who do not have the language proficiency to take ITL 447. May be repeated.

Prerequisite: Permission of department

1-6 credits

HUI 475, 476 Undergraduate Teaching Practicum in Italian and Italian-American Studies I, II

Students may not serve as teaching assistants in the same course twice.

Prerequisite to HUI 475: Permission of department

Prerequisites to HUI 476: HUI 475; permission of department

3 credits per course, S/U grading

HUL**Romance Language Courses in English****HUL 424 The Linguistics of Romance Languages (in English)**

The linguistic evolution of the Romance languages is studied, along with their synchronic grammars. The course is conducted in English.

Prerequisite: One of the following: FRN 312, ITL 311 or 312, LAT 112, SPN 222, or LIN 201 and 211

3 credits

HUM**Humanities****HUM 101-B Freshman Seminar in the Humanities**

An introduction to the role of the humanities and the arts and in intellectual life. The course investigates the construction and transmission of concepts and practices that shape different civilizations. Frequent writing assignments sharpen students' abilities to understand the expressions of various cultures.

Prerequisites: Completion of D.E.C. category A

3 credits

HUM 109-B Philosophy and Literature in Social Context

The role of literature and philosophy in understanding and critically assessing personal experience and social life. The links among literary texts, philosophical issues, and political and social commitments are explored. Topics include the relations between language and experience, the role of philosophical thinking through literary texts, and the significance of literary expression in different cultural and historical situations. Crosslisted with PHI 109.

3 credits

HUM 121-B Death and Afterlife in Literature

Through discussion of representative contemporary and classical texts, this course addresses the topic of how human beings have chosen to live with the one certainty of their existence, its eventual conclusion in death, and how various images of afterlife or denial of its possibility have shaped those choices.

3 credits

HUM 122-B Images of Women in Literature

An historical and intercultural examination of selected representations of women in world literature ranging from classical literature to modern evocations of women's changing social roles and the rise of feminine self-consciousness.

3 credits

HUM 123-B Sin and Sexuality in Literature

An exploration of the expression and interpretation of sexual experience in literature and culture, through discussion of selections from world literature and art, both classic and contemporary. Themes include temptation and gratification, desire and fulfillment, and how societies shape gender roles and deviance and set limits on sexual representation in literature and art.

3 credits

HUM 201-D Film and Television Studies I

An introduction to the study of film and television through the concept of genre. Special attention is given to how film and television deal with issues of race and gender.

Prerequisite: One D.E.C. category B course

3 credits

HUM 202-D 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 are accompanied by readings in both contemporary and classical film theory. Special attention is given to mainstream Hollywood cinema as well as to experimental traditions originating in the Soviet Union, France, and Germany.

Prerequisite: One D.E.C. category B course

3 credits

HUM 220-G Cross-Cultural Encounters

Introduction to the process and effects of the encounter of two or more previously separate cultures, illustrated by study of historical or contemporary instances of such encounters, and drawing from the art, music, theatre, literature, philosophy or religion of the selected cultures. Examples may include the contemporary East/West encounter in its many dimensions, or formative encounters in the history of particular regions, like the encounter of India and China in the spread of Buddhism or of the ancient Near East and the Hellenistic world in the formation of the Christian Europe. May be repeated as the topic changes.

Prerequisite: One D.E.C. Category B course

3 credits

HUM 495 Humanities Honors Project

A one-semester project for humanities majors who are candidates for the degree with honors. 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

3 credits

HUR**Russian Literature and Culture Courses in English****HUR 141-B Russian Literature and Empire**

A survey in English of major Russian writers of the 19th and 20th centuries, including Pushkin, Dostoevsky, and Solzhenitsyn. 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.

3 credits

HUR 142-B Russian Literature and Revolution

Introduction to the major texts of modern Russian literature. Topics include the social and aesthetic rebellions of writers confronted with political oppression (labor camps, prisons, Stalin's reign of terror) or with literary tradition. Typical cultural modes of rebellion, including avant-garde and popular forms of carnival and folk laughter, in examples from prose and poetry. *3 credits*

HUR 145-D Russian Film and Culture (in English)

Study of Russian films from the 1920s to the present viewed in terms of their interaction with Russian culture. *3 credits*

HUR 231-I Saints and Fools

An introduction to literature about the lives of saints and the holy fool tradition in major texts of Russian and English literature. Emphasis is placed on the ways authors have used fundamental religious values of humility, the transcendent irrational, and kenosis to confront their own times. Authors considered include Dickens, Chaucer, Gogol, and Pushkin; films include *Murder in the Cathedral* and *Forrest Gump*. Crosslisted with EGL 231.

Advisory Prerequisite: One D.E.C. category B course
3 credits

HUR 232-B Rebels and Tyrants

An exploration of literary rebels and tyrants central to Russian and Anglo-American traditions. The subversive tactics of such writers as Shakespeare, Dostoevsky, Sir Walter Scott, Solzhenitsyn, and Salinger are appraised in the light of the dominant social, political and aesthetic systems they confront. *Advisory Prerequisite:* One D.E.C. category B course
3 credits

HUR 235-G Crime and Punishment in World Literature

An exploration of the nature of crime and punishment in literature, including readings from Dostoevsky, Dickens, and Nabokov on the depiction of criminals, villains, acts of violence, and the moral code of their time. May be used to satisfy English major requirements.

Advisory Prerequisite: One D.E.C. category B course
3 credits

HUR 241-I Special Russian 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 counts toward fulfillment of Russian major requirements only once. *3 credits*

HUR 242-I Special Genre or Period of Russian Literature 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 counts toward fulfillment of Russian major requirements only once. *3 credits*

HUR 249-I Russia Today (in English)

Contemporary cultural trends viewed in terms of the social and political context. Recent responses to historical change such as the breakup of the Soviet Union, the new economic order, and the search for Russian national identity are explored in literature, the arts, and media. *3 credits*

HUR 341-G Russian Literature in Translation

A topics course given in English on a major Russian

author or literary movement in relation to European or American literature. May be repeated as the topic changes. May be used to satisfy English or Comparative Literature major requirements with permission of major department.

Prerequisite: U3 or U4 standing

Advisory Prerequisite: A literature course at the 200 level or higher
3 credits

HUR 393-G Literary Analysis of Russian Texts in Translation

Selected topics in literary analysis focusing on the work of one or more Russian authors in translation. Topics may include literature and philosophy, cross-cultural relations, and interdisciplinary approaches to literature. Concentrated study of one or more authors. May be repeated as the topic changes.

Prerequisite: One literature course at the 200 level or higher
3 credits

HUS**Spanish Literature and Culture Courses in English****HUS 254-J Latin America Today (in English)**

An introduction to a continental perspective of 20th-century Latin American culture. Latin America's political, historical, and cultural developments of this century are studied. *3 credits*

HUS 255-I 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. *3 credits*

HUS 361-G Latin American Literature in Translation

A topics course given in English on a major Latin American author or literary movement in relation to European or American literature. May be repeated as the topic changes. May be used to satisfy English or comparative literature major requirements with permission of major department.

Prerequisite: U3 or U4 standing

Advisory Prerequisite: A literature course at the 200 level or higher
3 credits

HUS 371-G United States Latino Literature in Translation

A topics course given in English on a major Latino author or literary movement in relation to European or American literature. May be repeated as the topic changes. May be used to satisfy English or comparative literature major requirements with permission of major department.

Prerequisite: U3 or U4 standing

Advisory Prerequisite: A literature course at the 200 level or higher
3 credits

HUS 390-J Latin American Cinema (in English)

A contextual approach to the national cinemas of Latin America. Students develop their skill in film analysis as they examine the specific role of film in re-focusing the terms of ongoing debates on questions of national identity and the function of culture in society.

Prerequisite: U3 or U4 standing

Advisory Prerequisite: One 200-level course in film or

one course in Latin American literature, culture, or history

3 credits

HWC**Social Welfare****HWC 210 Introduction to Social Work**

Introduces the student to the field of social work. Provides an overview of the variety of settings in which social workers practice. Describes the knowledge, values, and skills which social workers use in order to help individuals, families, groups, and communities.

1 credit

HWC 326 Social Work in Health Care with Diverse Populations

An overview of the many facets of health care delivery and the role of social workers in that delivery. Students look at various health care systems such as community-based health services, hospital care, long term care, and how diverse populations, including women, African Americans, Latinos, the developmentally disabled, children, and the aged, are treated by these systems.

Prerequisites: U3 or U4 standing; permission of instructor or School of Social Welfare Office of Student Services

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 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.

Prerequisites: U3 or U4 standing; permission of instructor or School of Social Welfare Office of Student Services

3 credits

HWC 351 Law and Social Change

Introduces students to the interrelationship of the legal process in the United States and the profession of social work, including the legal process in general and social welfare law in particular, and on the implications for effective social work.

Prerequisites: U3 or U4 standing; permission of instructor and of School of Social Welfare Office of Student Services

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.

Prerequisites: U3 or U4 standing; permission of instructor or School of Social Welfare Office of Student Services

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 homelessness a major social problem.

Prerequisites: U3 or U4 standing; permission of

instructor or School of Social Welfare Office of Student Services
3 credits

ISE

Information Systems

ISE 112 Fundamentals of Computer Information Systems

An introduction to fundamentals of computer science and information technologies for information systems, engineering, or science majors, and computer science minors. Topics include principles of computer systems; algorithms; problem-solving techniques; and an introduction to the UNIX operating system. This course is designed to be taken concurrently with a computer programming course. May not be taken for credit in addition to CSE 113.

Prerequisites: One MAT course that satisfies D.E.C. category C or level 4 on the mathematics placement examination

Pre- or Corequisite: AMS 151 or MAT 125, 131 or 141; CSE 106 recommended
3 credits

ISE 203 Internet for Research

Presents methods of information retrieval from large databases and Internet resources. Emphasis on developing cognitive skills for effective information retrieval from web-based search engines and the very large textual databases that are increasingly available to end-users through the Internet. Includes the use of Boolean operators to retrieve relevant information. Students learn to create search strategies, to develop an understanding of how to discern relevance in the research process, and complete a project in which they apply these skills by thoroughly investigating a research topic and creating a website featuring the subject of their database research. Not for CSE or ISE major credit.

Prerequisites: CSE 103 or equivalent; U3 or U4 standing; permission of instructor
2 credits

ISE 300 Writing and Oral Skills in Information Systems

See Requirements for the Information Systems Major, Upper-Division Writing and Oral Skills Requirement.

Prerequisites: U3 or U4 ISE major

Corequisite: ISE 440
1 credit, S/U grading

ISE 305 Principles of Database Systems

The design of database management systems to obtain consistency, integrity, and availability of data. Conceptual models and schemas of data: relational, hierarchical, and network. Students undertake a semester project that includes the design and implementation of a database system. Crosslisted with CSE 305.

Prerequisites: CSE 214 and 220

4 credits

ISE 308 Software Engineering I

Introduces the basic concepts and modern tools and techniques of software engineering. Stresses the development of reliable and maintainable software via systems requirements and specifications, software design methodologies including object-oriented design, implementation, integration, and testing; software project management; life-cycle documentation; software maintenance; and consideration of human factors issues. Students become familiar with a state-of-the-art Computer-Aided Software Engineering (CASE) tool set and begin to apply these tools to actual software development projects. Crosslisted with CSE 308.

Prerequisite: CSE 214

3 credits

ISE 309 Software Engineering II

Students apply the concepts, tools, and techniques covered in CSE/ISE 308 to a large-scale software development project, working in teams consisting of at least five members so that they can acquire group management skills. Emphasis on the use of the Computer-Aided Software Design (CASE) tools and object-oriented design and programming. Crosslisted with CSE 309.

Prerequisite: CSE/ISE 308

3 credits

ISE 310 Data Communication and Networks

Study of communication networks. Local area networks (LAN), integrated voice and data systems (IVDS), and wide area networks (WAN). Their topologies: bus, token passing, tree, point to point. Protocols, speed, and distance limitations: RS232, TCP/IP, MAP/TOP, ONS, OSI. Network design and management will be studied in various environments. Not for credit in addition to CSE/ESE 346. Crosslisted with CSE 310.

Prerequisites: CSE 214 and 220

3 credits

ISE 315 Database Transaction Processing Systems

Theory and practice of design for applications involving transactional access to a database. Transaction design, schema design, restart and recovery, journaling, distributed databases. Student groups perform design and implementation of significant database application. Crosslisted with CSE 315.

Prerequisites: CSE/ISE 305

3 credits

ISE 332 Introduction to Scientific Visualization

Visualization of scientific, engineering, medical, and business data sets. Mechanisms to acquire sampled, computed, or synthetic data and methods to transform symbolic into visual into the visual. Topics include classic visualization process; visual perception; volume and surface visualization; methods for visualizing sampled, simulated, and geometric objects; and visualization systems. Emphasis on applications and case studies. Crosslisted with CSE 332.

Prerequisites: CSE 114; MAT 211 or AMS 210

3 credits

ISE 333 User Interface Development

Survey of user interface systems, including topics such as command language, windowing, multiple input/output devices, architecture of user interface management systems, and tool kits for designing user interfaces. Additional topics may include human factors, standards, or visual languages. Students participate in a project involving the design and implementation of a user interface system. Crosslisted with CSE 333.

Prerequisites: CSE 214; PSY 103 recommended

3 credits

ISE 334 Introduction to Multimedia Systems

Survey of technologies available for user interfaces. Discussion of hypertext; voice, music, and video together with tools and models for capturing, editing, presenting, and combining them. Capabilities and characteristics of a range of peripheral devices including devices based on posture, gesture, head movement, and touch. Case studies of academic and commercial multimedia systems including virtual reality systems. Students participate in laboratory exercises and build a multimedia project. Crosslisted with CSE 334.

Prerequisites: CSE or ISE major; U3 or U4 standing

3 credits

ISE 390 Special Topics in Information Systems

Lecture or seminar course on a current topic in information systems. May be repeated as the topic changes, but cannot be used more than twice to satisfy ISE major requirements.

Prerequisites: ISE or CSE major; U3 or U4 standing

3 credits

ISE 440 Information Systems Design I

Student groups select an appropriate senior design project; analyze application; and produce detailed documentation for requirements, specification, and high-level design.

Prerequisite: ISE majors; CSE/ISE 305 or 310

Corequisite: ISE 300

3 credits

ISE 441 Information Systems Design II

Continuation of ISE 440. Student groups complete design of project selected in ISE 440; perform coding, testing, and evaluation; and produce a user manual and final design documentation.

Prerequisite: ISE 440

3 credits

ISE 475 Undergraduate Teaching Practicum

Students assist faculty by conducting a recitation or laboratory section including teaching, grading, and consulting (3 credits), or by assisting students with homework and laboratory assignments (1 credit). The student receives regularly scheduled supervision from the faculty advisor. May be used as an open elective only and repeated up to a maximum of seven credits.

Prerequisites: U4 standing as an undergraduate CEAS major; a minimum g.p.a. of 3.0 in all Stony Brook courses; grade of B in the course in which the student is to assist; or permission of department

1 or 3 credits

ISE 487 Research in Information Systems

An independent research project with faculty supervision. Only three credits of research electives (AMS 487, CSE 487, ESE 499, ESM 499, EST 499, ISE 487, MEC 499) may be counted toward engineering technical elective requirements. May not be taken for more than six credits and, if taken for three or more credits, cannot be used more than once as an elective to satisfy ISE major requirements.

Prerequisite: Permission of instructor and department

0-6 credits

ISE 488 Information Systems Internship

Participation in local, state, national, or international private enterprises, public agencies, or nonprofit institutions. Students are required to submit a written proposal, progress reports, and a final report on their experience to the client and to the department. May be repeated up to a limit of 12 credits but cannot be used more than once as an elective to satisfy ISE major requirements.

Prerequisites: ISE major; U3 or U4 standing; permission of faculty sponsor and department

3 credits, S/U grading

ITL

Italian

ITL 101 Intensive Elementary Italian

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 any other course in Italian.

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 are 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. May not be taken for credit in addition to ITL 101.

Prerequisite to ITL 112: ITL 111
4 credits per course

ITL 201-I Intensive Intermediate Italian

An intensive course covering the intermediate Italian program (ITL 211, 212) in one semester. May not be taken for credit in addition to ITL 211, 212.
Prerequisite: ITL 101 or 112
6 credits

ITL 211-1, 212-I Intermediate Italian I, II

Intermediate courses in the reading and discussion of selected Italian texts. An intensive grammar review offers an opportunity to develop conversational ability. May not be taken for credit in addition to ITL 201.
Prerequisite to ITL 211: ITL 101 or 112
Prerequisite to ITL 212: ITL 211
3 credits per course

ITL 311-I Italian Conversation and Composition I

A course in spoken and written Italian, with emphasis on precision and fluency in the spoken form.
Prerequisite: ITL 201 or 212
3 credits

ITL 312-I Italian Conversation and Composition II

A course in spoken and written Italian, with emphasis on precision in written form.
Prerequisite: ITL 201 or 212
3 credits

ITL 313 Italian Vocabulary

A course designed to increase the vocabulary and oral comprehension of students of Italian through media such as television commercials, popular music, folk songs, etc. The particular theme changes each semester. May be repeated twice for credit as the topic changes.
Prerequisite: ITL 201 or 212
1 credit

ITL 395-G, 396-G Readings in Italian Literature I, II

Literary analysis and its application to representative texts chosen from the various periods of Italian literature. Readings, writings, and discussions are in Italian.
Prerequisite: ITL 311 or 312
3 credits per course

ITL 410 Business Italian

A course designed for students who wish to become more proficient in reading, writing, and translating Italian. Students are also trained in the use of Italian in business, in administration, and in everyday professional life. Emphasis is placed on the idiomatic peculiarities of the Italian language and the relation of Italian to the structure of English.
Prerequisite: ITL 311 or 312
3 credits

ITL 411 Advanced Conversation and Composition

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 311 or 312
3 credits

ITL 412 Advanced Conversation and Syntax

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 411
3 credits

ITL 424 History of the Italian Language

A study of the history of the Italian language from

Latin to its present form.
Prerequisite: ITL 311 or 312
3 credits

ITL 425 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 311 or 312
3 credits

ITL 430-G, 431-G Studies in 13th- and 14th-Century Literature

May be repeated as the topic changes.
Prerequisite: ITL 395 or 396
3 credits

ITL 432-G Studies in 15th- and 16th-Century Literature

May be repeated as the topic changes.
Prerequisite: ITL 395 or 396
3 credits

ITL 433-G Studies in 17th- and 18th-Century Literature

May be repeated as the topic changes.
Prerequisite: ITL 395 or 396
3 credits

ITL 434-G Studies in 19th-Century Literature

May be repeated as the topic changes.
Prerequisite: ITL 395 or 396
3 credits

ITL 435-G Studies in Contemporary Literature

May be repeated as the topic changes.
Prerequisite: ITL 395 or 396
3 credits

ITL 440-I 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 312 or 395 or 396
3 credits

ITL 441-G Free Seminar

A seminar built around a theme such as "Cities in Italian Literature," "Women in Italian Literature," "Death and Resurrection in Contemporary Italian Literature," or "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 changes.
Prerequisite: ITL 311 or 312
3 credits

ITL 447 Directed Readings in Italian

Individually supervised readings in selected topics in 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 instructor
1-6 credits

ITL 475 Undergraduate Teaching Practicum in Italian

Each student conducts a regular problem or tutorial section that supplements a regular language course under the guidance of a master teacher. Responsibilities may include preparing materials for discussion and helping students with problems. Not for major or minor credit.
Prerequisites: Fluency in Italian; permission of instructor and department
3 credits, S/U grading

ITL 488 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.
Prerequisites: ITL 410; permission of instructor and department
1-6 credits, S/U grading

ITL 495 Senior Honors Project in Italian

A one-semester project for seniors. Arranged in consultation with the department, the project involves writing a paper, under the close supervision of an appropriate instructor, on a suitable topic. Students who are candidates for honors take this course.
Prerequisite: Permission of department
3 credits

JDH

Judaic Studies in the Humanities

JDH 230-G 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.
3 credits

JDH 261-B The Bible as Literature

A literary approach to the Bible that explores the characteristic principles of the Bible's narrative and poetic art. Crosslisted with EGL 261.
Prerequisite: Completion of D.E.C. category A
3 credits

JDH 320-G 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.
Prerequisite: JDS/HIS 225 or 226 or JDH/RLS 230
3 credits

JDH 366-G 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 from 1917 to the present. The course explores 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: U3 or U4 standing
Advisory Prerequisite: One literature course at the 200 level or higher
3 credits

JDH 369-G Topics in Biblical Interpretation

A study of some of the ways a selected book in the Hebrew Bible, a selection from the prophets, or another book, has been understood through history. The course examines traditional Christian interpretations in contrast with Rabbinic interpretations. Higher biblical criticism is discussed as a reflection of 19th-century historicism and science. Modern interpretations include psychoanalytic, structuralist, anthropological, and literary. May be repeated as the topic changes.
Prerequisite: JDH 230 or one literature course at the 200 level or higher
3 credits

JDH 390-G 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 as the topic changes.

Prerequisite: JDS/HIS 225 or 226 or JDH/RLS 230
3 credits

JDH 415-G 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 is given to the question of long-term continuity and the appearance of innovation in such responses. Crosslisted with RLS 415.

Prerequisite: JDS/HIS 225 or 226 or JDH/RLS 230
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.

Prerequisite: Permission of Instructor
1-4 credits

JDS

Judaic Studies in the Social and Behavioral Sciences

JDS 225-J The Formation of the Judaic Heritage

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 HIS 225.

Advisory Prerequisite: RLS 101 or 110 or one HIS course
3 credits

JDS 226-F 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.

Advisory Prerequisite: RLS 101 or 110 or one HIS course
3 credits

JDS 241-I The Holocaust: The Destruction of European Jewry--Causes and Consequences

The rise of modern anti-Semitism and its political application in Nazi Germany. Topics include the destruction process, ghetto life, resistance, foreign response, and the war crimes trials. Crosslisted with HIS 241.

Advisory Prerequisite: JDS/HIS 226 or HIS 101 or 102
3 credits

JDS 327-F 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 WST 320.

Prerequisite: One JDS or WST course
3 credits

JDS 390-F Topics in Judaic Studies

An examination of selected topics within the social and behavioral sciences area to be announced whenever the course is offered. May be repeated as the topic changes.

Prerequisite: JDS/HIS 225 or 226
3 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
1-4 credits

JNH

Japanese Studies in the Humanities

JNH 240-J Introduction to Japanese Studies

An introduction to Japanese culture as a foundation for a realistic understanding of Japan. The changing historical experiences of the Japanese people are examined, challenging stereotypes and exposing students to the diversity of backgrounds, values, and opinions in Japan. Japanese history and culture are also explored in relation to other countries and peoples, especially Korea and China.

Advisory Prerequisite: Completion of D.E.C. category B
3 credits

JNH 251-J Japanese Literature in Translation

An introduction in English to the literary tradition of Japan. Representative texts chosen from various periods are studied with attention to their historical background and the aesthetic and cultural values that formed them.

Prerequisite: Completion of D.E.C. category A
3 credits

JNH 331-J, 332-J Topics in Japanese Studies

An investigation of a specific area of Japanese studies in the humanities that changes from semester to semester. Topics include Shinto myth, history of the Japanese language, Japanese folktales, and Nisei literature.

Prerequisite: JPN 211 or any course listed in Japanese Studies minor requirement 2
3 credits per course

JNH 351-J Studies in Japanese Literature (in English)

A study in translation of a particular author, period, genre, or theme in Japanese literature, such as Matsuo Basho, the Tokugawa period, haiku, or the spirit world. May be repeated as the topic changes.

Prerequisite: JNH 251 or permission of instructor
3 credits

JNH 447 Independent Study

Directed reading and research in Japanese studies in the humanities. Limited to Japanese studies minors or upper-division students working on advanced problems in Japanese studies. May be repeated.

Prerequisite: Permission of instructor and director of the minor
1-4 credits

JNS

Japanese Studies in the Social and Behavioral Sciences

JNS 331-J, 332-J Topics in Japanese Studies

An investigation of a specific areas of Japanese studies in the social and behavioral sciences. May be repeated as the topic changes.

Prerequisite: JPN 211 or any course listed in Japanese Studies minor requirement 2
3 credits per course

JNS 447 Independent Study

Directed reading and research in Japanese studies in the social and behavioral sciences. Limited to Japanese studies minors or upper-division students working on advanced problems in Japanese studies. May be repeated.

Prerequisite: Permission of instructor and director of the minor
1-4 credits

JPN

Japanese Language Courses

JPN 111, 112 Elementary Japanese I, II

An introduction to spoken and written Japanese with equal attention to speaking, reading, and writing. Linguistic analysis of the characters provides cultural and historical background of the language. No student who has had two or more years of Japanese in high school (or who has otherwise acquired an equivalent proficiency) is permitted to enroll in JPN 111 or 112 without written permission from the supervisor of the course.

Prerequisite to JPN 112: JPN 111
4 credits per course

JPN 211-J, 212-J Intermediate Japanese I, II

An intermediate course in Japanese language to develop aural skills and reading and writing ability. Selected literary texts serve as the basis for practice in reading comprehension and composition. No student who has had three or more years of Japanese in high school (or has otherwise acquired an equivalent proficiency) is permitted to enroll in JPN 211 or 212 without written permission from the supervisor of the course.

Prerequisite to JPN 211: JPN 112
Prerequisite to JPN 212: JPN 211
3 credits per course

JPN 311-J, 312-J Advanced Japanese I, II

An advanced course designed to strengthen students' ability to understand and speak the Japanese language. Students are required to prepare selected texts and to read and translate them in class. They also write essays based on the texts as well as on Japanese videos.

Prerequisite to JPN 311: JPN 212
Prerequisite to JPN 312: JPN 311
3 credits per course

JPN 475, 476 Undergraduate Teaching Practicum I, II

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is 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. In JPN 476, students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have already been graded. Students may not serve as teaching assistants in the same course twice.

Prerequisites to JPN 475: Fluency in Japanese; senior standing; permission of instructor
Prerequisites to JPN 476: JPN 475; permission of instructor
3 credits per course, S/U grading

JRN

Journalism

JRN 287 Basic News Reporting and Writing

In this course, divided into practical and philosophical

parts, students work toward a definition of what is newsworthy. The practical part deals with the basic aspects of reporting and news writing. The philosophical part focuses on the role of the press in a free society. *Prerequisites:* Completion of D.E.C. category A; typing speed of at least 25 words per minute
3 credits

JRN 288 Feature Writing

Consideration of feature stories as the human side of the news, offering insight as well as information. Students examine articles in newspapers and magazines as well as conduct interviews and write feature stories of their own.
Prerequisite: JRN 287
3 credits

JRN 387 Advanced News Reporting and Writing

A continuation of JRN 287. Reporting the story; dynamics of interviewing; using the Freedom of Information Act and finding sources; writing with delayed and focus leads; covering police, courts, public meetings, and government.
Prerequisite: JRN 287
3 credits

JRN 388 Advanced Feature and Magazine Writing

A continuation of JRN 288. The emphasis is on writing for publication in newspapers or magazines. Students do extensive research and write and re-write long features.
Prerequisite: JRN 288
3 credits

JRN 389 Investigative Reporting

An advanced course in the reporting and writing of investigative and complex stories. Emphasis is placed on independent field research, types of proof, confrontational interviews, and the organization and writing of longer stories and story series for publication. The course deals with ethical problems, libel, and invasion of privacy.
Prerequisite: JRN 387
Advisory Prerequisite: JRN 288
3 credits

JRN 390 Computer-Assisted Reporting

An advanced course in the use of computers, data bases and the Internet to develop meaningful and complex stories. Emphasis is placed on finding raw data, interpreting it, organizing it and writing longer stories intended for publication. The course deals with critical thinking and the methodology of using computers as a journalistic tool.
Prerequisites: JRN 288 or 387
Advisory Prerequisite: Computer literacy in Windows
3 credits

JRN 394 Journalism Practicum

Classroom practice in selecting and laying out stories for a front page. The course also covers such media topics as typography, the operation of editorial boards, op-ed articles, wire services, TV news, books, the music business, the history of journalism, and the foreign press.
Prerequisites: JRN 287 or 288
3 credits

JRN 395 News Editing

Editing copy for grammatical correctness, consistency, accuracy, tightness, and brightness; writing headlines. The course also considers the broader aspects of editing, such as assigning stories and handling writers sensitive about their copy.
Prerequisite: JRN 287
Advisory Prerequisite: JRN 288
3 credits

JRN 488 Internship

Students work at local, state, and national newspapers and magazines. The work must involve journalistic skills related to the educational goals of the department.
Prerequisites: 12 credits of journalism courses; 2.5 g.p.a.; permission of instructor and minor coordinator
1-6 credits, S/U grading

KOR

Korean Language Courses

KOR 111, 112 Elementary Korean I, II

An introduction to spoken and written Korean with equal attention to speaking, reading, and writing. Fundamental communication skills are acquired through intensive study of basic grammar and pronunciation. No student who has had two or more years of Korean in high school (or who has otherwise acquired an equivalent proficiency) is permitted to enroll in KOR 111 or 112 without written permission from the supervisor of the course.
Prerequisite: to KOR 112: KOR 111
4 credits per course

KOR 211-J, 212-J Intermediate Korean I, II

Intermediate courses in Korean language to develop audiolingual skills and reading and writing ability. Through the introduction of complex grammatical structures and idioms, speaking, reading, and writing ability in Korean language is further developed.
Prerequisite: to KOR 211: KOR 112 or placement test
Prerequisite: to KOR 212: KOR 211 or placement test
3 credits per course

KOR 311-J Advanced Korean

An advanced course designed for students who wish to enhance reading comprehension and writing ability in Korean. Reading materials are selected from modern Korean literature, journals, and newspapers. Students are trained in samples of various writing styles. Emphasis is also placed on the idiomatic usage of Korean language and the relation of Korean to Chinese characters.
Prerequisite: KOR 212 or placement test
3 credits

KOR 351-J Studies in Korean Literature

A detailed study of a particular author, genre, period, or topic in Korean literature, such as Han Yong-un, the *sijo*, the popular literature of the Yi dynasty, or women writers. The readings, class discussions, and students' written assignments are in Korean. May be repeated as the topic changes.
Prerequisite: KOR 311
Advisory Prerequisite: One additional Asian studies course
3 credits

KOR 475, 476 Undergraduate Teaching Practicum I, II

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is 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. In KOR 476, students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have already been graded. Students may not serve as teaching assistants in the same course twice. Not for Korean Studies minor credit.
Prerequisites: to KOR 475: Fluency in Korean; U3 or U4 standing; permission of instructor and director of Korean Studies minor
Prerequisites: to KOR 476: KOR 475; permission of instructor and director of Korean Studies minor
3 credits per course; S/U grading

KRH

Korean Studies in the Humanities

KRH 240-J Introduction to Korean Culture

A general survey of Korean culture from the earliest recorded periods to the 20th century, including painting, music, dance, ceramic art, sculpture, architecture, literature, and folklore. These are discussed in relation to the intellectual, philosophical, and religious movements of their time.
3 credits

KRH 251-J Korean Literature in Translation

An introduction in English to the literary tradition of Korea. Representative literary texts chosen from various periods are studied with attention to their historical background and the aesthetic and cultural values that inform them.
Prerequisite: Completion of D.E.C. category A
3 credits

KRH 331-J, 332-J Topics in Korean Studies

Investigation of a specific area of Korean studies in humanities. Examples of topics include literature, folklore, aesthetics, philosophy, and religious syncretism. May be repeated with permission of the program director.
Prerequisite: U3 or U4 standing
Advisory Prerequisites: Two courses in Asian studies
3 credits per course

KRH 346-J Philosophy of Education in Korea and Japan

An examination of the philosophical and religious principles of traditional education in Korea and Japan and the way in which these are reflected in actual practice. Since Confucius provides the basic framework for the discussion, special attention is paid to his teachings and the ways in which they were adapted and modified by his followers over the centuries.
Prerequisite: One 200-level course in Asian religion or philosophy
3 credits

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 literary, religious, philosophical, historical, and cultural aspects of Korean life. Use of original texts and other materials is emphasized. May be repeated once as topic changes.
Prerequisites: U3 or U4 standing; permission of instructor
3 credits

KRH 447 Directed Readings in Korean Studies in the Humanities

Individually supervised readings in selected topics in Korean studies in humanities. May be repeated.
Prerequisites: U3 or U4 standing; permission of instructor
3 credits

KRH 475, 476 Undergraduate Teaching Practicum I, II

Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is 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. In KOR 476, students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have already been graded. Students may not serve as teaching assistants in the same course twice. May not count for Korean Studies minor credit.

Academic Calendar

Fall 1999 Semester

August

- 18-31** Wednesday-Tuesday: Final two weeks of advance registration for the Fall 1999 semester. Undergraduate students may now register for up to 19 credits by telephone and in person based on class status.
- 29** Sunday: Campus Residences new student check-in.
- 30** Monday: Campus Residences continuing student check-in.

September

- 1** Wednesday: Classes begin.
- 3** Friday: Senior Citizen Auditor Program registration (telephone 516-632-9493 for information).
- 6** Monday: Labor Day Holiday (Classes will not be in session)
- 7** Tuesday: Classes resume after Labor Day Holiday.
- 8** Wednesday: Students will follow a Monday class schedule. Last day for students to drop a course without incurring tuition liability.
- 9** Thursday: Undergraduates must have "Permission of Instructor" to add a course in the second week of classes (Thursday, September 9 through Wednesday, September 15). Undergraduates may continue to drop a course through Wednesday, September 15.
- 15** Wednesday: End of late registration period for undergraduates and SPD/GSP students. Last day for undergraduates and SPD/GSP students to add a course. Last day for all undergraduate and graduate students to drop a course without a "W" (withdrawal) being recorded. Last day for undergraduate students to change status to or from full-time/part-time. Tuition and fee liability remains applicable; Last day of 30% tuition liability.
- 20** Monday: Yom Kippur (Classes will not be in session).

- 23** Thursday: End of late registration period and last day to add or withdraw from a course for G1-G5 graduate students.
- SPD/GSP graduate students may continue to withdraw. ALL transactions that were handled by the telephone registration system for SPD students must now be done either in-person or by telephoning the Registrar's Office.
- 24** Friday: Last day for students to file applications for December-January graduation. Graduate students should file at the Graduate School, SPD students at the School of Professional Development, and Health Sciences students at the HSC Offices of Student Services.

October

- 11** Monday: Columbus Day (Classes are in session).
- 29** Friday: Last day for undergraduates to withdraw from the University and still be eligible to return next semester. Last day for SPD/GSP students to withdraw from one or all courses. Last day for removal of Incomplete grades from Spring and Summer sessions.

November

- 11** Thursday: Veterans Day (Classes are in session).
- 17-24** Prime Time for students. (Intensive academic advising period. Formal student evaluation of instructors & courses.)
- Wednesday-Tuesday: Telephone registration activities will no longer be available for the Fall 1999 transactions. Withdrawals and P/NC's can be processed in-person at the Registrar's Office.
- 22** Monday: Telephone Registration begins for Spring semester. (Schedules will be announced prior to registration.)
- 23** Tuesday: Last day for undergraduates to withdraw from a course or change courses to or from Pass/No Credit.

- 25-27** Thursday-Saturday: Thanksgiving Recess. Evening classes held on Wednesday. No classes held on Saturday, November 27.
- 29** Monday: Classes Resume.

December

- 11** Saturday: Last day of classes for courses that meet on Saturdays. Finals held Saturday, Dec. 18th during regular class time.
- 13** Monday: Last day of classes (Mon-Friday course offerings). Last day to withdraw from the University, (SPD/GSP students must have SPD approval; See Oct. 29 note above). Last day for graduate students to submit thesis and dissertations to the Graduate School for December graduation.
- 14-15** Reading Days (Tuesday - Wednesday) **Assuming we only have a 5 day Final Exam Period.
- 16** Thursday: Final examinations begin.
- 22** Wednesday: Final examinations end; Fall semester ends. Last day for departments to submit Completion Statements for December master's and doctoral degree candidates.
- **Health Technology and Management (undergraduate) and Basic Sciences, Medicine, Dental Medicine students: see HSC academic calendar for Fall 1999 for modular dates.

Spring 2000 Semester

January

- 19** Wednesday: Classes begin.

March

- 20-24** Monday - Saturday: Spring vacation.
- 27** Monday: Classes resume.

May

- 8** Monday: Reading Day (no classes in session).
- 9** Tuesday: Final examinations begin.
- 16** Tuesday: Final examinations end. Spring semester ends.
- 19** Friday: Commencement.

