

1979 - 81

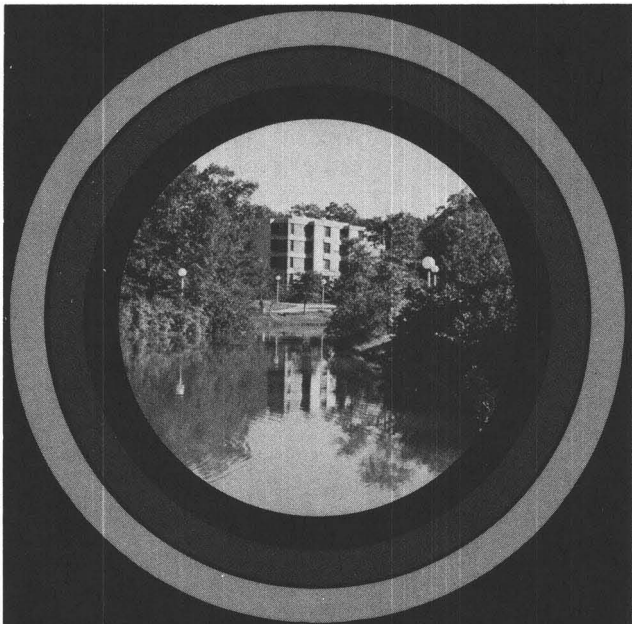
undergraduate  
bulletin



state university  
of new york  
at stony brook

For Reference

Not to be taken from this room



1979 - 81  
undergraduate  
bulletin

state university  
of new york  
at stony brook



For Reference  
Not to be taken from this room

*If you are considering Stony Brook as your undergraduate college, don't let yourself be overwhelmed by the weight of words in this Bulletin. Because Stony Brook is a large institution with an immense variety of academic offerings for undergraduates, a single book describing them all needs to be large. Rather than attempt to read it at one sitting, use it as a reference work. Read the introduction; look in the index for programs that might interest you as an individual; flip through to see what catches your eye.*

*In this very variety lies Stony Brook's potential interest for you. You won't be able to sample all the academic programs, nor would you wish to if you could. But you will have opportunities to try a variety of possible options when you enter. The chances are good that as your interests become more focused you will find faculty at Stony Brook who share those interests.*

*The Undergraduate Studies Office provides students with information and advice about the great array of academic opportunities available at the University. The Advancement on Individual Merit Program, the campus's Educational Opportunity Program, provides special counseling and financial aid for educationally and economically disadvantaged students. Financial aid is also available under a variety of State and Federal programs. Stony Brook, as part of the State University of New York, is committed to providing challenging educational opportunities and to making them widely accessible. This Bulletin invites students and prospective students to experience the exciting possibilities that Stony Brook offers.*

Robert D. Marcus  
Dean for Undergraduate Studies

## **Volume XVI**

**Press Date, October 9, 1978**

*Design: Pat Costello*

*Editor: Barbara Becker*

*Cover Photo: Pat Costello*

*Title Page Photo: Charles Marshall*

*Other Photos: Thomas Bennett, Pat Costello, Ann Carvalho, Dave Friedman, Charles Marshall, Media Services, University Relations*

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

*The State University of New York at Stony Brook does not discriminate on the basis of sex, race, religion, national origin, age, physical disability or marital status in education programs and activities, including employment therein and admission to such programs and activities.*



Courses of Study .....	6
Academic Calendar .....	10
An Introduction to Stony Brook .....	17
Academic Programs .....	29
Facilities, Services, and Activities .....	33
Admission .....	43
Financial Information .....	59
General Academic Information .....	88
College of Arts and Sciences .....	115
W. Averell Harriman College for Urban and Policy Sciences .....	381
College of Engineering and Applied Sciences .....	385
Health Sciences Center .....	447
Directories .....	457
Maps .....	468
Index .....	472



COURSES  
OF  
STUDY



Undergraduates at the State University of New York at Stony Brook may take courses in any of the following subject areas. Subjects students can major in are listed with the HEGIS code number and the degree. (*Note:* Students who enroll in programs not registered or otherwise approved may jeopardize their eligibility for certain student aid awards.)

Africana Studies (Interdisciplinary Major), 2211, B.A. ( <i>see also</i> Minors) . . .	126
Anthropology, 2202, B.A. ( <i>see also</i> Minors) . . . . .	130
Applied Mathematics and Statistics, 1799, B.S. . . . .	398
Art (Department of) . . . . .	138
Art History and Criticism, 1003 (B.A.) . . . . .	138
Asian Studies (Minor) . . . . .	354
Astronomy/Planetary Sciences ( <i>see</i> Earth and Space Sciences) . . . . .	186
Astrophysics ( <i>see</i> Earth and Space Sciences or Physics) . . . . .	186
Basic Health Sciences, School of . . . . .	451
Biochemistry, 0414, B.S. . . . .	149
*Biological Sciences, 0401, B.S. . . . .	149
Biomathematics ( <i>see</i> Health Sciences Center) . . . . .	448
Biophysics ( <i>see</i> Health Sciences Center) . . . . .	448
Cardiorespiratory Therapy ( <i>see also</i> Health Sciences Center Bulletin) . . . . .	448
Certification ( <i>see</i> Teacher Preparation) . . . . .	123
Chemistry, 1905, B.A., B.S. . . . .	168
Chinese (Complementary to degree major) . . . . .	177
Classical Civilization (Minor) . . . . .	177
Comparative Literature (Interdisciplinary Major), 1503, B.A. ( <i>see also</i> Minors) . . . . .	180
Computer Engineering (Interdepartmental Major) . . . . .	410
Computer Science, 0701, B.S. ( <i>see also</i> Minors) . . . . .	404
*Earth and Space Sciences, 1999, B.A., B.S. . . . .	186
East European Languages ( <i>see</i> Germanic and Slavic Languages and Literatures) . . . . .	234
Economics, 2204, B.A. . . . .	197
Electrical Engineering, 0909, B.E. ( <i>see also</i> Engineering and Applied Sciences, College of) . . . . .	412
Electronics and Instrumentation (Minor) . . . . .	417
Energy Technology (Major Concentration) . . . . .	423
Engineering and Applied Sciences, College of, B.S., B.E. (Applied Mathematics and Statistics, Computer Science, Electrical Engineering, Materials Science, and Engineering, Mechanical Engineering) . . . . .	385
Engineering Chemistry (Interdisciplinary major), 1999, B.S. . . . .	424
Engineering Science, 0901, B.E. . . . .	426
*English, 1501, B.A. ( <i>see also</i> Minors) . . . . .	207
Federated Learning Communities . . . . .	121
Foreign Language Teacher Preparation Program . . . . .	219
*French Language and Literature, 1102, B.A. ( <i>see also</i> Minors) . . . . .	221
*Germanic and Slavic Languages and Literatures, 1103, B.A. . . . .	234
Geological Oceanography ( <i>see</i> Earth and Space Sciences) . . . . .	189
Geology ( <i>see</i> Earth and Space Sciences; <i>see also</i> Minors) . . . . .	191
Greek ( <i>see</i> Classics and Classical Languages) . . . . .	177
Hebrew ( <i>see</i> Judaic Studies) . . . . .	268
Hispanic Bilingual—Bicultural Studies (Minor) . . . . .	241
*Hispanic Languages and Literature, 1105, B.A. . . . .	241
History, 2205, B.A. ( <i>see also</i> Minors) . . . . .	248
*Teacher Preparation courses offered	

Humanities (Interdisciplinary Major), 4903, B.A. . . . .	262
Interdisciplinary Courses . . . . .	267
*Italian, 1104, B.A. (see also Minors) . . . . .	221
Journalism (Minor) . . . . .	212
Judaic Studies Program (Complementary to degree major) . . . . .	268
Kiswahili (see Africana Studies) . . . . .	126
Latin (see Classics and Classical Languages) . . . . .	177
Liberal Arts (Interdisciplinary Major), 4901, B.A. . . . .	270
Linguistics (Interdisciplinary Major), 1505, B.A. (see also Minors) . . . . .	271
Marine Sciences (see Biological Sciences, Earth and Space Sciences) . . . . .	149, 186
Materials Science and Engineering (see Engineering and Applied Sciences, College of) . . . . .	385
*Mathematics, 1701, B.S. (see also Minors) . . . . .	276
Mechanical Engineering, 0910, B.E. (see Engineering and Applied Sciences, College of) . . . . .	385
Medical Technology (see Health Sciences Center) . . . . .	448
Microbiology (see Health Sciences Center) . . . . .	448
Minors	
Africana Studies . . . . .	126
Anthropology . . . . .	130
Asian Studies . . . . .	354
Child Care and Family Studies . . . . .	357
Classical Civilization . . . . .	177
Comparative Literature . . . . .	180
Computer Science . . . . .	404
Electronics and Instrumentation . . . . .	417
English . . . . .	207
Federated Learning Communities . . . . .	121
French . . . . .	221
Geology . . . . .	191
Hispanic Bilingual—Bicultural Studies . . . . .	241
History . . . . .	248
Italian . . . . .	221
Journalism . . . . .	212
Linguistics . . . . .	271
Mathematics . . . . .	276
Methods of Social Research . . . . .	365
Philosophy . . . . .	300
Photography . . . . .	141
Spanish . . . . .	241
Technology and Society . . . . .	444
Women's Studies . . . . .	355
Music, 1005, B.A. . . . .	289
Nursing (see Health Sciences Center) . . . . .	448
Ocean Engineering (Interdepartmental Major) . . . . .	387
Pathology (see Health Sciences Center) . . . . .	448
Pharmacological Sciences (see Health Sciences Center) . . . . .	448
Philosophy, 1509, B.A. (see also Minors) . . . . .	300
Photography (Minor) . . . . .	141
Physical Education (Complementary to degree major) . . . . .	310
Physical Therapy (see Health Sciences Center) . . . . .	448
Physician's Assistant Education, Program for (see Health Sciences Center) . . . . .	448
*Teacher Preparation courses offered	

*Physics, 1902, B.S. (see also Earth and Space Sciences, Astrophysics) .....	314
Physics of Materials (see Physics or Materials Science and Engineering) .....	
Physiology (see Basic Health Sciences, School of) .....	448
Polish (see Germanic and Slavic Languages and Literatures) .....	234
Political Science, 2207, B.A. ....	328
Portuguese (see Hispanic Languages and Literature) .....	241
Psychology, 2001, B.A. ....	338
Religious Studies (Interdisciplinary Major), 1510, B.A. ....	348
*Russian, 1106, B.A. (see Germanic and Slavic Languages and Literatures) .....	234
Scandinavian Languages and Literatures (see Germanic and Slavic Languages and Literatures) .....	234
Slavic (see Germanic and Slavic Languages and Literatures) .....	234
Social Research, Methods of (Minor) .....	365
*Social Sciences (Interdisciplinary Major), 2201, B.A. ....	352
Social Sciences and Humanities, Division of (see Health Sciences Center) .....	455
Social Studies (Secondary Teacher Certification Program) .....	361
Social Welfare (see Health Sciences Center) .....	448
Sociology, 2208, B.A. ....	362
Spanish, B.A. (see Hispanic Languages and Literatures; see also Minors) .....	241
Structural Engineering (Interdepartmental Major) .....	387
Studio Art, 1002, B.A. ....	138
Swahili (see Africana Studies) .....	126
Swedish (see Germanic and Slavic Languages and Literatures) .....	234
Teacher Preparation and Certification in	
Biology .....	159
Earth Science .....	191
English .....	210
Foreign Languages .....	219
French .....	227
German .....	236
Italian .....	227
Russian .....	236
Spanish .....	243
Mathematics .....	287
Physics .....	320
Social Studies .....	361
Technology and Society (Minor) .....	444
Theatre Arts, 1007, B.A. ....	371
Tibetan (see Religious Studies) .....	348
Urban and Policy Sciences, W. Averell Harriman College for .....	381
Women's Studies (Minor) .....	355
Yiddish Language and Literature (see Germanic Languages and Literatures) .....	234

\*Teacher Preparation courses offered



academic  
calendar

## ***Fall Semester 1979***

August 20, Monday	Foreign students must arrive New foreign student residence halls check-in
August 20-24 Monday-Friday	Final registration and payment (or proper deferral) of fees for all students not previously reg- istered (schedule announced prior to registration). CED final registration to be announced Foreign student orientation
August 22, 23 Wednesday, Thursday	All residence halls open for new student check-in
August 22-24 Wednesday-Friday	Undergraduate student orien- tation for all students not hav- ing previously participated
August 25, 26 Saturday, Sunday	Returning students check into residence halls
August 27, Monday	Classes begin (all except CED) Late registration period begins with \$20 late fee assessed Add/drop and/or section change period begins
September 3, Monday	Labor Day (no day or evening classes)
September 4, Tuesday	CED classes begin
September 7, Friday	End of late registration period Last day for undergraduate students to add a course Last day for all students to drop courses without receiving a recorded W (Withdrawal)
September 21, Friday	Last day for all students who have not previously filed (except CED and graduate stu- dents) to file for December graduation at the Office of Records

September 21, Friday	Last day for graduate students to add or withdraw from a course (W will be recorded for withdrawal)  Last day for graduate students to file degree cards in the Graduate School Office for December graduation
September 22, 23 Saturday, Sunday	Rosh Hashanah
September 28, Friday	Last day for CED students to file for December graduation at the CED Office  Final bills for fall semester 1979 to be mailed
October 1, Monday	Yom Kippur (no day or evening classes)
October 3, Wednesday	All classes will follow Monday's schedule
October 11, Thursday	Last day for final payment of fees for the fall semester
October 20, Saturday	First quarter fall housing period ends
October 26, Friday	Last day for undergraduate students to change courses to or from Pass/No Credit  Last day for undergraduate students to withdraw from a course without withdrawing from the University
November 1, Thursday	Last day for removal of incompletes and NR (No Record) grades for all students from the spring semester and the summer session
November 6, Tuesday	Election Day (no day or evening classes)
November 12, Monday	Advance registration period begins for the spring semester for all students (schedule

	announced prior to registration)
November 21, Wednesday	Thanksgiving recess begins at close of classes
November 26, Monday	Classes resume
December 7, Friday	Bills for spring semester 1980 to be mailed to pre-registered students
December 14, Friday	Last day of classes. Last day to withdraw from the University
December 15, 16 Saturday, Sunday	Reading days
December 17, Monday	Final examinations begin Final grades due in the Registrar's Office 72 hours after last class meeting or after scheduled examination, or as arranged Last day for graduate students to submit theses and dissertations for December graduation
December 21, Friday	Final examinations end CED classes end Fall semester ends Residence halls close for fall semester Winter recess begins at close of exams Last day for departments to submit completion statements for December master's and doctoral candidates
December 22, Saturday	Intersession housing begins
January 3, Thursday	Last day for mail payment of spring semester fees for all students registered in advance
January 9, Wednesday	Last day for students pre-registered for spring semester

1980 to pay fees in person  
without late penalty  
January 15, Tuesday Intersession housing ends

### *Spring Semester 1980*

January 11, Friday Final registration and payment  
(or proper deferral) of fees for  
all students not previously reg-  
istered (schedule announced  
prior to registration)  
CED final registration to be  
announced

January 14, Monday Foreign students must arrive

January 16, Wednesday Residence halls open for  
spring semester

January 17, Thursday Classes begin  
Late registration period begins  
with \$20 late registration fee  
assessed  
Add/drop and/or section  
change period begins

January 30, Wednesday End of late registration period  
for all students including CED  
students  
Last day for undergraduate  
students to add a course  
Last day for all students to  
drop courses without receiving  
a recorded W (Withdrawal)

February 6, Wednesday Last day for all students who  
have not previously filed  
(except CED and graduate stu-  
dents) to file for May gradua-  
tion at the Office of Records  
Final bills for spring semester  
1980 to be mailed

February 13, Wednesday Last day for graduate students



- to add or withdraw from a course (W will be recorded for withdrawal)
- February 20, Wednesday Last day for graduate students to file degree cards in the Graduate School Office for May graduation
- March 4, Tuesday Last day for final payment of fees for the spring semester to be received by the Bursar
- March 15, Saturday First quarter spring housing period ends
- March 17, Monday Last day for removal of incompletes and NR (No Record) grades for all students from the fall semester
- March 19, Wednesday Last day for undergraduate students to change courses to or from Pass/No Credit
- Last day for undergraduate students to withdraw from a course without withdrawing from the University
- April 4, Friday Spring recess begins at close of classes
- April 14, Monday Classes resume
- April 14-18 Advance room reservations and deposits due for fall semester 1980
- Monday-Friday
- April 28, Monday Advance registration period begins for fall semester (schedule announced prior to registration)
- Bills for fall semester 1980 to be mailed approximately July 1 with payment date during latter part of July
- Last day for graduate students to submit theses and dissertations for May graduation

	Last day for departments to submit completion statements for May doctoral candidates
May 5, Monday	Advance registration begins for summer session 1980 for all students, with summer session fees payable at time of registration
May 7, Wednesday	Last day of classes Last day to withdraw from the University
May 8-11 Thursday-Sunday	Reading days
May 12, Monday	Final examinations begin Final grades due in the Registrar's Office 72 hours after last class meeting, or after scheduled examination, or as arranged
May 16, Friday	Final examinations end Spring semester ends
May 18, Sunday	Commencement All residence halls close
May 19, Monday	Last day for departments to submit completion statements for May master's candidates

*1980 Summer Session  
To Be Announced*

**1980-81 ACADEMIC CALENDAR**  
*To Be Announced*

*Summer Session 1981  
To Be Announced*



an  
introduction  
to  
stony brook

# AN INTRODUCTION TO STONY BROOK

## *Background*

Established less than two decades ago as New York's comprehensive State University Center for the downstate-metropolitan area, the State University of New York at Stony Brook is recognized as one of the nation's finest universities. Stony Brook offers excellent programs in a broad spectrum of academic subjects, and conducts major research and public service projects. Over the past decade, externally funded support for Stony Brook's research programs has grown faster than at any other major university in the nation. Internationally renowned faculty offer courses from the undergraduate to the doctoral level for 16,000 students through 45 departmental majors and interdisciplinary programs. Extensive resources and expert support services help foster intellectual and personal growth.

In 1960, the State Board of Regents and the late Governor Nelson Rockefeller established Stony Brook's mandate as a comprehensive University Center, to "stand with the finest in the country." The quality of Stony Brook's programs was praised by a distinguished national team of scholars in a recent reaccreditation report, which recognized Stony Brook's spectacular achievements in so quickly becoming "an institution of national stature in the time-honored and traditional terms of the outstanding private universities, and of such public institutions as Berkeley, Michigan and Illinois. . . The University is in an excellent position to make major contributions in policy and problem oriented research of regional, as well as national, importance."

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

Since then, Stony Brook has grown to encompass 83 buildings on 1000 acres. The faculty has grown from about 175 to 1000, the student body from 1000 to 16,000, and the annual operating budget from about \$3 million to \$112 million.

The University serves its region, one of the nation's fastest

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

### ***Location***

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

### ***Degree Programs***

The broad range and high quality of programs at Stony Brook give undergraduates opportunities to pursue both traditional and innovative curricula. Students are encouraged to sample widely, or to delve deeply into one field, guided by nationally famous scholars.

The University presently offers undergraduate degree study in 45 majors organized within four basic academic units. The *College of Arts and Sciences*, the largest unit, encompasses the departments which traditionally are found in a liberal arts curriculum, plus a number of interdisciplinary programs (see p. 115). The *Health Sciences Center* (including its new 540-bed teaching and research hospital to open in 1980) is the fastest growing University unit; it is the largest and most sophisticated health professions center being developed anywhere for medical, dental, and related health professions work. (See also pp. 447-456.) The *College of Engineering and Applied Sciences* has gained wide recognition for its

innovative programs emphasizing the intensive relationship between technology and people, programs which define engineering as the intelligent use of science for the benefit of people. It provides students with opportunities to work with industry in a wide variety of engineering fields. The *W. Averell Harriman College for Urban and Policy Sciences* is devoted to comprehensive education and research for the public sector, with programs to prepare governmental service professionals who can combine highly technical expertise with broad analysis of policy.

Several thousand students, for the most part teachers and other professionals, are enrolled in the *Center for Continuing Education*. Courses offered, which are taught by faculty from all campus departments, vary from the general to the specialized and lead to an interdisciplinary, 30-unit, non-thesis Master of Arts in Liberal Studies degree. Admission requires a bachelor's degree. The University's *Graduate School* draws on the resources of all University units to offer 24 graduate programs leading to the master's degree and 21 leading to the doctorate. Several are unique in New York State. Stony Brook's advanced graduate programs have consistently received exceptionally high ratings from external evaluation agencies and many are internationally recognized. In addition, two interdisciplinary master's degree programs, a special master's in music, and a master's degree track for teachers are also offered. New degree programs include the Ph.D. and D.M.A. in music, the M.A. and Ph.D. in comparative literature (under the auspices of the English Department), and the Ph.D. in coastal oceanography. (See Index for detailed section listings for each college and for the Health Sciences Center.)

The following degrees are offered: 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 Music, M.Mus.; 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 Philosophy, Ph.D.; and Doctor of Musical Arts, D.M.A.

### ***Campus***

A thousand acres of fields and woodland encircle a bustling academic community. Bicycle paths, an apple orchard, park benches, a duck pond, and spacious plazas complement modern laboratories, classroom buildings, and the new Fine

Arts Center, giving Stony Brook spirit and cultural vitality.

Surrounding the Frank Melville, Jr. Memorial Library at the center of the campus (see map. p. 470) are the major academic buildings for arts and sciences and engineering, the Van de Graaff nuclear accelerator, the Administration Building, Lecture Center, Laboratory-Office Building, Educational Communications Center, Computing Center, Stony Brook Union, Gymnasium, and other service and activities buildings. Stony Brook's new Fine Arts Center has opened, between the Library and Administration Building, providing superb performing arts facilities and housing the departments of Theatre Arts, Music, and Art. A spacious outdoor plaza in which concerts may be held connects the Library, Stony Brook Union, and Fine Arts Center in the middle of the campus. A new Social and Behavioral Sciences Building houses five departments as well as the Center for Continuing Education.

Encircling the academic buildings are six residential quadrangles with living space for 1000 students each. They are the basic social units for on-campus students, providing residence halls, dining rooms, and a diversity of student-sponsored enterprises and social facilities. Each quadrangle consists of 3-5 coeducational "colleges," or residence halls, housing 200-400 students each. About half the undergraduate students live on campus. Construction of a 240-bed apartment complex is scheduled to begin in spring 1979.

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

The Health Sciences Center, east of Nicolls Road, has completed a ten-year cycle of planning and construction. The concrete and steel Teaching-Research Building which opened in 1976 is already a landmark as Long Island's tallest building; the Basic Sciences Tower was ready for occupancy in 1978. A 540-bed University Hospital has been completed and is scheduled to admit its first patients in 1980. Construction of the permanent facility for the School of Dental Medicine is underway with a 1983 completion date. A 1000-car parking structure for the Health Sciences complex is located adjacent to the Teaching-Research Building, a new 1000-car parking facility for the Hospital is being planned.

Campus support services and facilities, including libraries and the Computing Center, are described on pp. 34-42.

### **Students**

Stony Brook's recent enrollment was about 16,000 (11,000 undergraduates and 5000 graduate students, including about 2000 part-time graduate students enrolled in continuing education programs). Approximately 70% of Stony Brook's undergraduates come from Nassau and Suffolk counties, 89% are from the New York metropolitan area, and 97% are from New York State. Foreign students from some 66 countries represent about 4% of the total student body. Graduate students come from all over the country and the world.

Typical retention and graduation rates for first-time, full-time Stony Brook students are as follows:

Entering Stony Brook—	Fall '72	1,350
Registering	Fall '73	83%
	Fall '74	70%
	Fall '75	66%
	Fall '76	60%
	Fall '77	10%
	Fall '78	3%
Graduating	Spring '75	5%
	Spring '76	49%
	Spring '77	5%

One cannot generalize about students' experience at Stony Brook. The wide range of undergraduate programs means that some will be highly selective and competitive while others are far less so, although the University aims at high standards in all its programs. Its record in placing graduates in the nation's best graduate and professional programs indicates the campus's successes in making high quality programs available to a broad and diverse student body.

### **Faculty and Research**

The vast majority of Stony Brook's 1000 faculty members hold doctoral degrees and 90% or more are engaged in active research leading to publication, much of it supported by external grants and contracts. The Middle States Association had high praise for Stony Brook's faculty in its recent campus reaccreditation report, noting that "*several departments rank among the top in the country and most are of a*



very high level of quality as measured in terms of professional reputation and scholarly activities." The faculty-student ratio is about one faculty member for every 16 students.

Among the faculty with whom undergraduates study are Distinguished Teaching Professors John Truxal in engineering and Elof Carlson in biological sciences, and several recipients of the State University Chancellor's Award for Excellence in Teaching. In recent years undergraduate courses have been taught by such eminent faculty as Einstein Professor C.N. Yang, the Nobel Laureate in physics; Distinguished Professors Lewis Coser and Justus Buchler in sociology and philosophy respectively; Pulitzer Prize winning poet Louis Simpson in English; musician-scholars Charles Rosen and Richard Dyer-Bennet; and art critic Lawrence Alloway.

Autistic children, cancer, lasers, moon rocks, the psychology of political attitudes and behavior, the social history of American slavery, and urban problems are but a few of hundreds of research subjects currently under examination by faculty and students at Stony Brook. This past year Stony Brook faculty attracted some \$20 million from the federal government and private foundations and individuals to support research.

Academic publications emanating from the University include: *American Comparative Literature Association Newsletter*, *American Naturalist*, *Anthropology*, *Art Criticism*, *Bulletin of Research in the Humanities*, *Journal of Applied Behavior Analysis*, *Journal of Biological Psychiatry*, *Journal of Biomedical Materials Research*, *The Physics Teacher*, and the *Quarterly Review of Biology*.

### **Community Ties**

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

With more than 5000 people on the overall campus payroll, Stony Brook is one of Long Island's largest employers. Recent studies indicate that the University generates over \$250 million annually in direct and indirect economic impact on Long Island.

In many ways, the University works with surrounding communities to provide services and to help solve area problems. The Computing Center assists numerous colleges, research centers, and governmental agencies. Student secondary

teachers serve in local schools and numerous educational projects involve close University-school cooperation. The Point of Woods School at the University provides opportunities for disruptive elementary schoolchildren to be productive students. In health fields, Stony Brook students learn and work in Long Island hospitals and other health-related facilities. The Marine Sciences Research Center, the State-wide center for marine research, undertakes projects on a wide variety of marine related subjects ranging from regional erosion and pollution problems to management of the fishing industry; the W. Averell Harriman College for Urban and Policy Sciences works with governmental agencies at all levels to help solve problems in fields such as government efficiency and organization, sanitation, waste disposal, zoning, and transportation. The Economic Research Bureau conducts research, training, and service activities in fields such as educational planning, property ownership, shipping, taxation, and poverty. A thousand or more Stony Brook students annually participate in community volunteer programs in tutoring, recreation, health care, and other areas. Ecology students recently, for example, developed plans for a community nature study preserve near the Stony Brook campus. The Association for Community-University Cooperation works to develop positive relationships between the University and the community through an annual series of "town-gown" programs and events.

### *Special Centers and Institutes*

The **Center for Contemporary Arts and Letters** develops campus art and library holdings and sponsors visits by practitioners and critics of the arts; the **Center for Industrial Cooperation** links the research resources of the University to the needs of Long Island industry, especially in areas of high technology; the **Economic Research Bureau** brings together the University and public and private agencies in regional research efforts of mutual interest; the **Educational Communications Center** helps develop more effective teaching methods through the use of media and other technical aids; Stony Brook's branch of **Empire State College**, the State University of New York's non-traditional learning arm, offers degree study without formal class attendance; the **Engineering Concepts Curriculum Project** is a national cooperative program, headquartered at Stony Brook, to develop technological literacy in non-science-oriented high school students

nationwide; the privately endowed **Institute for Advanced Study of World Religions** with its 40,000 volume library seeks to facilitate the study and development of world religions and philosophy with emphasis on Buddhism, Islam and Hinduism; the **Institute for Energy Research** explores new areas of energy policy and related research and regularly conducts energy management training programs for energy experts from around the world; the **Institute for Theoretical Physics** has a faculty of a dozen scholars researching all areas of theoretical physics.

The **Institute for Urban Sciences Research** organizes and carries out research pertaining to urban policy problems and issues; the privately endowed **Institute of American Studies** conducts a summer graduate program for outstanding high school social studies teachers; the privately endowed **International Art of Jazz** conducts concerts and educational programs throughout New York State in cooperation with art groups and secondary schools, among others; the **Marine Sciences Research Center** administers statewide research projects, conducts research cruises, and performs studies in oceans, bays, harbors, lakes, and a University-owned tidal salt marsh near campus; the **Museum Computer Network**, now headquartered on campus, works to help many of the world's major museums and other institutions make their collections and related information more accessible by computerizing museum files and archives; the recently opened **Museum of Long Island Natural Sciences** is designed to provide programs in Long Island's geological and ecological developments for secondary and primary school students; members of the **Nuclear Structure Laboratory** conduct high-energy physics research on an FN tandem Van de Graaff accelerator; currently they are developing the only University-based super-conducting LINAC booster in the world to expand research capability in heavy ion research; the **Poetry Center** houses a collection of poetry in English and foreign languages, over 100 current poetry magazines, and both video and audio cassette recordings of poets reading their own work.

The **Research Group for Human Development and Educational Policy** studies the academic and non-academic functioning of Stony Brook and other educational institutions and participates in the implementation of its recommendations; the **Research Foundation** administers grants and contract funds supporting sponsored research, training, and

related programs carried out by, or supervised by, University faculty; the **Science and Mathematics Teaching Center** assists Long Island math and science teachers in curriculum planning and the development of special resource materials; the **Stony Brook Foundation** seeks and encourages non-state support for the development and enrichment of programs at Stony Brook and administers the majority of the University's scholarships, loans, and endowment accounts in conjunction with the Financial Aid Office; the **Stony Brook Radiation Laboratory** is an organized research unit in which members work primarily on a variety of problems on the frontiers of nuclear physics and elementary particle physics; **Taproot Workshops, Inc.** is a non-profit, county-wide center supported by grants from the New York State Council on the Arts and the Suffolk County Legislature. It teaches creative writing to elderly people in congregate centers and nursing homes. The newest institute on campus is the privately endowed **Long Island Research Institute**, which works closely with the Department of Psychiatry in mental health and behavioral sciences research.

### *Campus Activities*

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

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

The Fine Arts Center's Pre-Inaugural concert series in 1978-79 brought internationally acclaimed performers to Long Island this past year, including Rudolph Serkin, Lazar Berman, the Bartok Quartet, and Eugene Fodor. Recent campus theatrical productions included "Albee Directs

Albee," in which the Pulitzer Prize winning American playwright directed his own works; a production of "Diversions and Delights: An Evening with Oscar Wilde," starring Vincent Price; and Mozart's light opera "The Marriage of Figaro."

Popular concerts recently on campus have included performances by Paul Winter, Jerry Garcia, 10CC, Peter Gabriel, Van Morrison, Jerry Willard, Frank Zappa, and the Doobie Brothers.

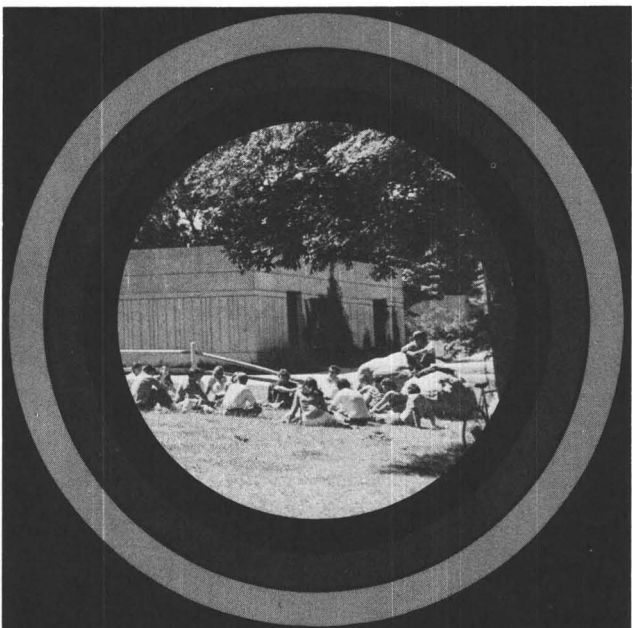
Stony Brook fields varsity teams in 13 intercollegiate sports competing through the NCAA, the ECAC, and the Association for Intercollegiate Athletics for Women (IAIW). In 1977-78 the men's varsity basketball team recorded its finest season, compiling a 27 and 4 record, and was the Eastern representative at the NCAA Division III National Basketball Championship Tournament. In 1978 the varsity squash team ranked ninth in the country. In recent years, other Stony Brook teams have achieved national recognition in soccer, ice hockey, crew, and intercollegiate club football. Stony Brook scholar-athletes have achieved all-American recognition in a variety of sports.

Polity, the undergraduate student organization (which annually administers over a half million dollar student activities budget), and its related groups, particularly the Student Activities Board, sponsor many campus activities. Polity presently funds more than 80 student interest clubs and organizations which in many cases complement students' academic work. Varied student interests are represented by groups as diverse as the Biological Sciences Society, the Chess Club, the Pre-Law Society, Stony Brook Karate Club, and Aztec Society for students interested in Central and South American history. Groups of 25 students or more interested in forming such organizations are eligible for Polity funding.

The campus student newspaper, *Statesman*, is published twice weekly during the academic year with a circulation of 10,000 on campus and in the local community. Its writers receive favorable attention from potential newspaper employers and journalism schools through the practical experience which the publication offers. Other student publications include *Black World*, a newspaper focusing primarily on news of interest to the black community on campus; *Fortnight*, a bi-weekly feature magazine; *Soundings*, the literary magazine; and *Specula*, the campus yearbook.

Campus ministries serve student religious concerns through the new Interfaith Center, offering regularly scheduled Jewish, Catholic, Lutheran, and Episcopalian services and activities which are open to all. Religious counseling services for students of these and other denominations also are provided through the Interfaith Center. United Ministries in Higher Education (UMHE) on Long Island, the ministry of six Protestant denominations, conducts a project-oriented ministry which seeks to promote a creative, reciprocal interaction between campus, church and community-at-large in the service of human needs from the perspective of the communities of faith it represents. The B'nai B'rith Hillel Foundation offers religious social and cultural services as well as personal counseling for students and faculty. It is the umbrella organization for all the Jewish activities at Stony Brook.

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



academic  
programs

# ACADEMIC PROGRAMS

## *Undergraduate Programs*

The undergraduate curriculum at Stony Brook benefits from the special resources that a comprehensive university center can provide. The calibre of faculty, strong in pure and applied research, results in excellent teaching and in program offerings at the forefront of rapidly changing areas of knowledge.

Stony Brook was an early participant in the national effort toward a revival of general education. Our primary intent is to offer a broad exposure to the world of scholarship to our students, whatever their career ambitions or major field choices. The curriculum is designed to encourage students to explore a variety of study areas, especially during the first two years. After the freshman year non-engineering students choose a degree program leading to the Bachelor of Arts or Bachelor of Science degree in one of the traditional department majors or in an interdisciplinary or interdepartmental major.

Within the College of Arts and Sciences, students may select a departmental major in anthropology, art history and criticism, biochemistry, biological sciences, chemistry, earth and space sciences, economics, English, French, German, history, Italian, mathematics, music, philosophy, physics, political science, psychology, Russian, sociology, Spanish, studio art, or theatre arts. An interdisciplinary or interdepartmental major allows a student to explore a broad study area through a coordinated program of courses given by several different departments. Existing programs are in Africana studies, comparative literature, engineering chemistry, humanities, liberal arts, linguistics, religious studies, and social sciences. Programs leading to provisional certification in secondary education are available in biology, earth science, English, foreign languages (French, German, Italian, Russian, and Spanish), mathematics, physics, and social studies.

Within either of the degree programs in the College of Arts and Sciences, a student may undertake independent study projects. This option allows the student, in consultation with



appropriate faculty members, to develop an individual course of academic investigation and study. Through this option, also, qualified upper-division students may participate in the research projects of faculty members.

Twenty-six minor programs are available to students. (These are not majors for which in themselves degrees may be earned.) Those offered by the College of Arts and Sciences are: Africana Studies; anthropology; Asian studies; child care and family studies; cities, utopias, and environments; classical civilization; comparative literature; English; French; geology; Hispanic bilingual-bicultural studies; history; Italian; journalism; linguistics; mathematics; methods of social research; philosophy; photography; Spanish; technology, values, and society; women's studies; and world hunger. The College of Engineering and Applied Sciences offers the following three minors designed for Arts and Sciences students: computer science; electronics and instrumentation; and technology and society. Other minors are being developed.

The College of Engineering and Applied Sciences with six departments—applied mathematics and statistics, computer science, electrical engineering, materials science and engineering, mechanical engineering, and technology and society—grants the Bachelor of Science degree in applied mathematics and statistics and in computer science and the Bachelor of Engineering degree in engineering science, electrical engineering, or mechanical engineering.

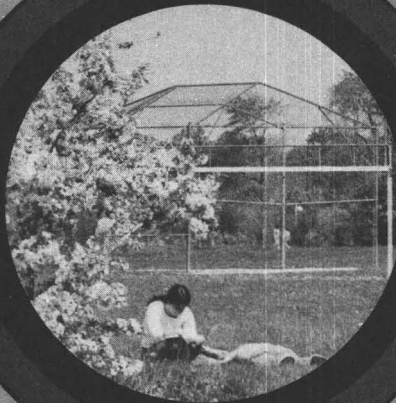
The undergraduate program in engineering has been designed to allow the student to follow any one of three paths: 1) programs in the disciplines of electrical, mechanical, or materials engineering; 2) programs in new interdisciplinary fields such as ocean, urban, computer, or biomedical engineering, and in engineering chemistry; 3) programs of breadth appropriate for later professional school specialization in architecture, medicine, dentistry, law, or business.

In order to realize these objectives, the curriculum is much more flexible than at many other schools of engineering and applied sciences. The engineering degree programs place a strong emphasis on individual design and/or research projects in the junior and senior years, when students are encouraged to work closely with members of the faculty on projects of interest to them. Programs in the applied science area emphasize applications of analytical techniques to a wide variety of technical and societal problems. A double degree between engineering and applied science programs is

possible; for example, a student can earn a Bachelor of Science degree in computer science and a Bachelor of Engineering degree in Electrical Engineering, or a Bachelor of Science degree in Applied Mathematics and a Bachelor of Engineering degree in Mechanical Engineering.

The W. Averell Harriman College for Urban and Policy Sciences, established in September 1975, is an extensive outgrowth of the graduate Program for Urban and Policy Sciences, established in 1971. Named for one of New York's most distinguished public servants, its purpose is to train students for careers in public service primarily as analysts, planners, and managers. The curriculum and degree requirements are described in the *Graduate Bulletin*.

Although the College's main program is at the graduate level, it also offers an accelerated curriculum in which a student who has completed 60 credits and demonstrated aptitude for quantitative analysis and an interest in public service can earn the B.A. and M.S. degree in three years (a total of five undergraduate/graduate years). See page 383 of this *Bulletin* for course descriptions.



facilities  
services and  
activities

# FACILITIES, SERVICES, AND ACTIVITIES

## *University Libraries*

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

Five branch science libraries are located in departmental buildings—biology, chemistry, earth and space sciences, engineering, and mathematics/physics. There is also a Health Sciences Library in the Health Sciences Center. Collectively, the University Libraries contain over 1,000,000 bound volumes and 1,200,000 publications in microformat.

## *Library Hours*

During the academic year, the library is generally open Monday through Thursday, 8:30 a.m. to 12 midnight; Friday, 8:30 a.m. to 5 p.m.; Saturday, 1 p.m. to 5 p.m.; and Sunday, 2 p.m. to 12 midnight.

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

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

### ***Gymnasium***

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

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

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

### ***Computing Center***

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

The central computer complex consists of a UNIVAC 1110-3x2 system with 3 million characters of main memory, 2 billion characters of on-line disk storage, and a peripheral complement of tape drives, printers, and card processing equipment. More than 120 remote devices are located on the campus and are connected via a communication network. A tape library of more than 6,000 magnetic tapes provides for storage of users' programs and data in machine accessible

form. An upgrading of the facility to an 1100/80-2 x 1 system is planned for spring 1979, designed to increase memory to over 4 million characters in order to provide for growth in interactive usage.

The Computing Center operates three shifts each day, seven days a week. The Center is open for authorized student access each weekday from 8:30 a.m. to 11:30 p.m. and from 9 a.m. to 4 p.m. on Saturdays.

### ***Student Affairs***

The Office of Student Affairs, located in the Administration Building, is responsible for admissions, financial aids, and records services; and for the support and direction of the Office of Residence Life, the University Counseling Center, Career Development, Special Programs, and the Stony Brook Union. The Office also serves as a student referral and information center for campus and community resources.

### ***Residence Life***

Residence life at Stony Brook is an integral part of students' educational experience, offering opportunities for social, intellectual, interpersonal, and intercultural development. Governance and activities vary, but within each residential college students are encouraged to become involved in all aspects of residential living. Students take part in college legislatures, in student-run businesses, and in campus-wide committees and task forces concerned with life in the residence halls. The professional staff, student staff, and residents establish regulations and customs by which each building functions within the larger University. This emphasis on individual responsibility is intended to promote personal growth and a positive experience for those students who live on campus.

The residence halls, each housing from 200 to 400 students, are arranged in complexes called quadrangles, which normally accommodate approximately 1,000 students each. Every quadrangle, although an integral part of the entire residential community, has its own unique atmosphere. All colleges house both men and women with varying academic interests from all four classes, as well as graduate students. Both new and returning students have an opportunity to request assignment to specific residence halls, although

returning students have the higher priority for such choices.

Each building has public lounges, study areas, laundry rooms, and recreational facilities. Some residential quadrangles have dining halls in operation. Students may choose to participate in one of several meal plans or they may pay a Cooking Fee and prepare their own meals.

A full-time Residence Hall Director (RHD) lives in each building. RHD's are staff members of the Office of Residence Life. The RHD is assisted by a staff of Resident Assistants and Managerial Assistants, part-time student staff members on each corridor or wing. The staff combines building management with a strong emphasis on enhancing individual and group life within the buildings through community development, programs, advising, and counseling.

Unmarried new students under the age of 21 are usually required to live in the residence halls *when there is space available*.

Information regarding the above Residence Life programs and/or procedures for applying for housing can be obtained by writing to:

Residence Life Office  
Administration Building  
State University of New York at Stony Brook  
Long Island, New York 11794  
Telephone: (516) 246-7006, 7007

### ***Off-Campus Housing Service***

An off-campus housing service is available to assist students in finding off-campus living arrangements. This service, including listings for available facilities and tenant information, can be obtained by visiting the Off-Campus Housing Office.

### ***Commuter College***

The Commuter College, located in the basement of Gray College in G Quad, provides non-resident students with a special place to study, relax between classes, or just get to know other commuters. There are social and study lounges and a typing room; coffee and light snacks are available. The Commuter College also sponsors campus events such as films, holiday parties, and theatre or ski trips, sometimes with reduced rates for commuters.

## ***Counseling Center***

The University Counseling Center, located on the second floor of the Infirmary, provides individual, group, family, and marital counseling and psychotherapy for students experiencing psychological difficulties. The Center also offers programs for personal growth and enrichment. For information, please call the Center at 444-2280, 2281, or 2282.

## ***Career Development***

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

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

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

Each spring, the office sponsors the Career Information Conference. Its purpose is to bring representatives from various career fields onto the campus to inform students about the work they do, *i.e.*, its nature, entry requirements, potential for the future, and so forth. The Conference thereby provides information which supplements, in "real-life" terms, the career materials in the Melville Library, and offers students the opportunity to ask questions on matters of personal interest or concern.

Group workshops are held to assist seniors in writing resumes and to develop individual systems for applying for employment.

As part of the Career Development Office's Out-Reach Program, career counselors visit the residence halls and other campus departments in order to provide students with a broad exposure to career-related information.

The Career Development Resource Library has information pertaining to employment opportunities in business,



government, social service, and education. Relevant materials are available on career planning, teaching certification, health careers, graduate and professional school admissions testing, graduate school and financial aid information, and recruitment options.

It is suggested that students visit the office and become familiar with the services provided by Career Development. The office, located in the Melville Library, Room W-0550, is open weekdays from 8:30 a.m. to 5:00 p.m. Its telephone number is (516) 246-7023, 7024.

### ***Special Programs***

The Special Programs Office, 133 Humanities Building, comprises the Offices of Veterans Affairs, Foreign Student Affairs, Upward Bound, English as a Second Language, the Campus Judiciary, the Disabled, and Day Care.

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

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

The Office of Upward Bound administers a compensatory education program for high school students from Eastern Suffolk County. The purpose of the program is to motivate high school students to go on to some form of post-secondary education.

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

The Campus Judiciary Office administers the University Student Conduct Code, the regulations and procedures for student discipline in non-academic matters.

The Office for the Disabled coordinates services to dis-

abled students and will assist them in application to the University, admission, and orientation procedures. (The academic admission requirements and procedures for disabled students are the same as for all other applicants, including possible application under the 30% category as described on page 44.) The Office will also help in the following areas: housing, meals, medical assistance (coordination with the Director of the University Health Service), recreation, academic needs and progress, special parking permits, facilities, financial aid, and transportation.

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

It is strongly recommended that after admission students who are disabled identify themselves prior to the start of classes. An early start will permit the evaluation of possible problems and will provide time to work out solutions. It is recommended that these students contact the Special Programs Office by calling 246-7011.

The University has day care services for children ranging in age from two months to five years. There are three on-campus facilities staffed with professionals who are assisted by students enrolled in course work practice. Each of the three centers specializes in a particular age group and curricular approach. The centers are open from 7:30 a.m. to 6:00 p.m., and fees are charged on a sliding scale. More information can be obtained by calling 246-3590.

### ***Stony Brook Union***

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

The Union is a place to relax, to gather with friends. It is a place to take in a film or a concert, or to watch TV (in our new television lounge, with the super-wide screen). You can take a craft or photography course, buy books, buy records at discount prices, have your hair cut, bowl, play billiards, eat a quick snack, or enjoy a leisurely meal.

The volunteer Union Governing Board (UGB), composed of student, faculty and staff members, makes usage policies and

develops programs for the facility. Current UGB programs include the "Tuesday Flicks" and "Midday Classics" film and concert series. The UGB also sponsors discos, film festivals, and crafts fairs. The committees are open to all, and new members are welcome. The UGB office is in Room 265.

The Union has space for all kinds of events. There are ten meeting rooms, each holding up to 120 people. An auditorium seats 365, and the ballroom can accommodate up to 600. The Art Gallery displays the works of campus and community artists, and is open weekdays for browsing.

The Union has hosted "China Day," "Caribbean Day," "Handicapped Awareness Day" and a "Career Development Symposium."

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

When planning an event for your group, visit the Office of Student Activities in Room 270A. A professional staff member will assist you with the programming and staging of your event.

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

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

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

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

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

The major student publications (*Statesman*, the student newspaper; *Specula*, the yearbook; *Blackworld*; and *Fortnight*), the University radio station WUSB-FM (90.1), and the campus-wide audio-visual service all operate from the Union. For information call 246-3316.

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

### *Hours of Operation*

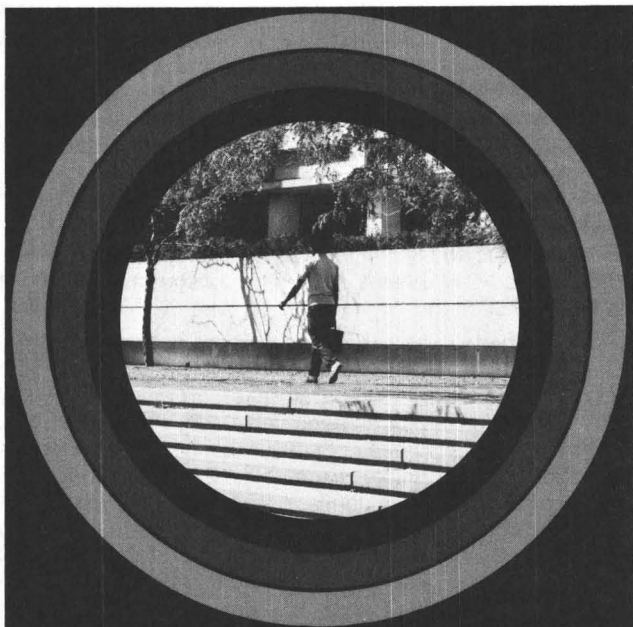
During the fall and spring semesters, the Union is open Monday through Thursday, 8 a.m. to 1 a.m.; Friday, 8 a.m. to 2 a.m.; Saturday, 10 a.m. to 2 a.m.; and Sunday, 10 a.m. to 1 a.m. During recesses or intersession it is open Monday through Friday, 8 a.m. to 5 p.m., and is closed Saturday and Sunday.

Summer session hours are Monday through Friday, 8 a.m. to 9 p.m.; and Saturday and Sunday, 10 a.m. to 5 p.m. The Union is closed New Year's Day, Easter Sunday, Memorial Day, Independence Day, Labor Day, Thanksgiving, and Christmas Day.

*Note:* Union hours are subject to change from year to year and even within the year, depending on constraints imposed by budgetary limitations.

### *Health Service*

The University Health Service, located in the Infirmary, primarily concerns itself with student health needs. (It is available to faculty and staff on an emergency basis only.) There is a registered nurse on duty in the Infirmary 24 hours a day. During the week there are scheduled hours for physicians; a physician is on call at other times. Specialty services, such as for gynecological or dermatological problems, are also available. For further information or help, call the Infirmary at 444-2273 (4-CARE).



admission

# ADMISSION

## ***Undergraduate Admission to the University***

*(College of Arts and Sciences, College of Engineering and Applied Sciences, W. Averell Harriman College for Urban and Policy Sciences)*

A strong, broadly-based academic preparatory program is advised for all applicants to Stony Brook. A high school diploma (academic or college preparatory program), high school equivalency diploma, or an acceptable substitute is required. While the University does not actively seek students for early admission, such candidates are routinely evaluated and offered admission when admissions criteria are met. The University does require a letter from the secondary school supporting the student's application. Since Stony Brook receives many more applications than it has places available for new students, those applicants presenting the strongest preparation for advanced academic study normally will be more favorably considered. Students who intend to enter an engineering, mathematics, or science program are urged to take four years of high school mathematics, and a year of chemistry and physics whenever possible. The aforementioned secondary school programs are strongly recommended rather than required, since it is felt that a student may develop a similar level of academic competence and intellectual facility in various ways, both within and outside the context of the classroom.

Stony Brook evaluates applicants by two criteria: academic admission for those meeting the minimum academic criteria of an 85 unweighted high school average and a place in the top 10-15 percent of their high school graduating classes, or alternate admissions for those not in this first category. Recognizing that some students acquire academic and intellectual excellence outside their academic experience, the University is prepared to admit up to 30% of its first year applicants entering the Colleges of Arts and Sciences, and Engineering and Applied Sciences, on the basis of high promise demonstrated by means other than traditional academic

criteria. Criteria include creative ability in music, theatre, literary arts; special academic strength in such areas as mathematics, foreign languages, philosophy and engineering as assessed by the appropriate academic departments; leadership potential; personal situations in which such factors as age, cultural background, family circumstances, among others, are considered. Exceptionally strong motivation will also be taken into account. Applicants whose academic records have been adversely affected by a physical handicap may also apply in the 30% category. A supplementary questionnaire for consideration under the Alternative Admission Program is used to give candidates an opportunity to clarify their high school records—their strengths and weaknesses. Counselor, teacher and student recommendations are employed to add depth and dimension to statistical data. Additional information which might help interpret or clarify an application is welcomed.

The information in this section on “Admissions” refers only to the Colleges of Arts and Sciences, and Engineering and Applied Sciences. Students who seek admission to the W. Averell Harriman College for Urban and Policy Sciences should contact the College’s Director of Education, 305 Old Physics; there is no freshman admission. Students who seek admission to any of the undergraduate programs in the Health Sciences Center should consult the Health Sciences Center section in this *Bulletin* and the separate *Health Sciences Center Bulletin*. There are no freshman admissions to the baccalaureate programs in the Health Sciences Center; all undergraduate Health Sciences Center programs—with the exception of the Physician’s Assistant Education certificate program—begin in the junior year. The section of the Health Sciences Center in this *Bulletin* and the separate *Health Sciences Center Bulletin* provide information on the application procedure for transfer students and for current Stony Brook students who are interested in being admitted to health sciences programs.

### ***Application Procedures for New Freshmen***

Undergraduate students are admitted to the University rather than to a particular program. All applicants must submit a completed “Application for Admission to Undergraduate Study” available with instruction booklet and return envelope from either a high school guidance counselor or the Office of

Undergraduate Admissions at Stony Brook, located on the first floor of the Administration Building. All applications go first to the Applications Processing Center (APC) in Albany and are then forwarded to Stony Brook.

Candidates for admission in the fall semester are strongly urged to file their applications in time to be received in the Applications Processing Center by January 5. Applications received by APC after January 5 will be considered as they are received (on a rolling basis) for the remaining vacancies, if any exist. Candidates for alternate admission will be sent a Supplementary Questionnaire (SQ) which should be returned to the Admissions Office by the deadline date indicated. All required supplemental materials (SQ) should be received at the Stony Brook Undergraduate Admissions Office by January 5 or within two weeks of the date that the materials are mailed to the applicant. It is the student's responsibility to insure that application materials are received by the specified dates. The University reserves the right to close fall application consideration at any time after January 5.

Applications for admission to the spring semester should be filed by October 15. Applications received after that date will be considered on a space-available basis.

### ***Examinations***

Freshman and transfer applicants with less than 24 semester hours' credit from New York State high schools who have sat for the Regents Scholarship Examination (RSE), the College Entrance Examination Boards (CEEB), the Scholastic Aptitude Test (SAT), or the American College Testing Program (ACT) are asked to submit the results to the Undergraduate Admissions Office along with an official high school transcript or a copy of their General Equivalency Diploma.

Applicants planning to submit SAT scores should take the test sufficiently in advance to insure that Stony Brook receives the scores no later than January 5.

Applicants interested in being evaluated on the basis of unusual academic strength in one or more areas under the Alternate Admission Program are urged to sit for the appropriate CEEB achievement tests and to request that the scores be forwarded to the Stony Brook Admissions Office. Scores on these tests are an important factor in evaluating applications in this category.



## ***Tours and Interviews***

Tours of the campus are conducted every Wednesday and Friday at 3 p.m. and every Saturday and Sunday from 11 a.m. to 2 p.m. during the academic year (except during Thanksgiving, Christmas and spring recesses). The tour leaders, trained undergraduate students, have proven very effective in presenting Stony Brook to visitors and in responding to student questions. For information about campus tours and individual interviews, write or telephone the Undergraduate Admissions Office, (516) 246-5126, from 9:00 a.m. to 4:30 p.m. Monday through Friday. It is best to telephone during the week to confirm weekend tour schedules.

An interview is not required unless requested by the Admissions Office, although candidates may request interviews for purposes of information or clarification. Discussions with counselors tend to be of greater usefulness after the Admissions Office has received the completed application.

Information from interviews may be used in the decision-making process.

## ***Advancement on Individual Merit (AIM): An EOP Program***

As an Educational Opportunity Program, the specific goal of the AIM Program at Stony Brook is to provide access to higher education for New York State residents who have been economically and educationally disadvantaged. Students who would otherwise not be able to continue their education can, if they are accepted into the AIM Program, become degree-seeking candidates at Stony Brook. The AIM Program is designed to promote the individual academic growth of each student and offers a variety of services to meet academic, financial, and personal needs of participating students.

By providing five years of support services, the AIM program eases students into Stony Brook's rigorous academic atmosphere. Upon acceptance into the program, each AIM student is assigned a professional counselor-advisor to answer questions, advise, encourage or just listen. A course in Achievement Motivation (AIM 103) is required during the freshman year and a course in Reading Techniques (AIM 101) is often recommended to help students improve their reading skills. Knowledgeable advice in the selection of courses,

tutorial assistance, and continuous monitoring are some of the services offered by the AIM Program. Because personal and academic growth are so closely related, the AIM staff provides students with social and career counseling as well as legal and financial advising. AIM also sponsors a cultural program which offers speakers, films, art, music, and theatrical productions that supplement other more formal educational activities and introduce AIM students to the many cultural heritages represented in the program.

For applicants with sufficient financial need, the AIM Program offers a stipend to help meet the expense of attending college. The amount of money granted varies with a student's individual circumstances and income level.

Freshman applicants whose three-year high school unweighted averages are below 85 (B) may be considered for admission to the AIM Program. Transfer students will be considered on an individual basis but must be able to document their economic and educational disadvantage according to the appropriate state guidelines. Information regarding financial eligibility is available in the instruction booklet that accompanies each SUNY application.

Students who think they might qualify for AIM should contact their school guidance office, the AIM Office (246-4016), or the Undergraduate Admissions Office, State University of New York at Stony Brook, Long Island, New York 11794, for detailed application and eligibility information. Decisions on applications will be mailed beginning February 15 for the following fall semester.

## ***Transfer Students***

### ***A. General Information***

Stony Brook encourages application by transfer students and urges them to seek information prior to transfer about the University's requirements for admission, as well as the requirements for their intended majors. Transfer students who have planned their first two years of study with some knowledge of the probable expectations of their future transfer college are able to make a smoother transition than those unprepared. General application guidelines and minimum University requirements for transfer follow; see pp.        for specific College and departmental major requirements. Faculty Information Sessions, held every weekend through April each aca-

ademic year, have also proven a valuable source of information for prospective students. For further details, please call the Office of Undergraduate Admissions, (516) 246-5126,7.

In order to earn a baccalaureate degree from Stony Brook, transfer students, including part-time matriculated students, must maintain a minimum cumulative grade point average of 2.0 at Stony Brook based on completion of at least 36 credits earned at the University after achieving upper-division status (57 credits). While, in most cases, credits taken previously will transfer to Stony Brook for general University requirements, only certain courses may be accepted by the department whose major transfer students have chosen. In addition, new graduation requirements for proficiency in English, mathematics, and foreign languages and expanded distribution requirements apply to students entering the class of 1982 who plan to major in the College of Arts and Sciences. (The College of Engineering and Applied Sciences has different graduation requirements: see p. 389.) Forty-five credits earned must be upper level (junior-senior). These must be either transfer credits evaluated as upper division or upper-level courses taken in residence at Stony Brook.

Any student who has been registered previously (summer and part-time study included) at an educational institution since graduating from high school must apply as a transfer student. If no grades were earned, a statement of attendance and honorable dismissal is required. A grade point average of 2.5 (A = 4.0) is usually the lowest base considered for transfer. In addition to completing the application, transfer students must submit an official transcript from each post-secondary institution attended.

Applicants for the spring semester should file an application by October 15. Applicants for the fall semester are urged to file their applications by March 1.

All applications received by the Applications Processing Center in Albany by March 1 will receive first priority in consideration for admission. Applications received after March 1 will be reviewed as they are received (on a rolling basis) should any space still be available.

Transfer applicants who are seeking admission to one of the undergraduate programs in the Health Sciences Center should refer to the Health Sciences Center section of this *Bulletin* and to information in the separate *Health Sciences Center Bulletin* for information about eligibility and the appropriate procedure for filing an application.

## *B. Two-Year College Graduates*

The University is committed to offering admission to qualified graduates of university-parallel programs, i.e., A.A. and A.S. degree recipients from community and agricultural and technical colleges within the State University of New York. Such students will be given preference if the number of applicants necessitates establishing priorities. Graduates of career-oriented programs (A.A.S.) will be considered for admission on an individual basis and in competition with other transfer applicants.

To facilitate students' transfers from community colleges to Stony Brook and to maximize the University's service to these applicants, Stony Brook strongly encourages two-year college matriculants to file applications in the fall of their sophomore year for the following fall semester. (Applicants for admission to the spring semester are reminded that applications are not available until September and should be received by the Applications Processing Center in Albany by October 15. Applications accepted for consideration after October 15 will be reviewed on a space-available basis.) Earlier receipt of the completed application by the Undergraduate Admissions Office will make possible earlier decisions which in turn will improve services to students, enabling more transfer students to participate in orientation and pre-registration, expand consideration for financial aid resources, and provide transfer credit evaluation prior to academic advisement. The University is prepared, therefore, to render decisions to two-year college matriculants on the basis of two semesters of full-time work at the two-year college, since its offer of admission is conditional on the student's final transcript showing award of the A.A. or A.S. degree.

## *C. Transfer Credit Policies*

1. All credits earned at previously attended accredited institutions are accepted for transfer and will be applied toward the number required for graduation.
2. Students will be classified according to the following schedule of semester hours accepted for credit: freshman, 0-23; sophomore, 24-56; junior, 57-84; senior, 85 or more.
3. Courses satisfactorily completed in the intended major or needed to fulfill the 45 upper-division credit requirement are evaluated by the appropriate academic department for specific applicability. No transfer course with a grade lower

than C may be counted among the 45 upper-division credits. Forms for requesting the evaluation of specific courses for major or upper-division credit are distributed during Orientation and are available at the Undergraduate Admissions Office. Any applicant who has completed college-level study at an institution outside of the United States must request an evaluation of each course.

4. Credits earned at community and agricultural and technical colleges will usually be considered lower-division credit with the exception of two-semester courses of organic chemistry with laboratories.

5. Transfer credit will be entered on the official University transcript with the understanding that neither previous grades nor cumulative averages will be shown. Consult an admissions counselor for additional information.

### ***Part-Time Matriculation***

Students who, for a variety of reasons, are unable to pursue their degrees full-time may wish to apply for study towards a baccalaureate degree in the University's Part-Time Matriculation Program. Of special concern to the University are students working full time, Stony Brook students unable to continue as full-time students, and homemakers whose duties prohibit full-time attendance. The program, however, is open to anyone who meets the general criteria for admission and for whom the University has a place.

### ***Extended Day Program***

An extended day program offering classes into the evening hours and leading to a bachelor's degree in the humanities, the interdisciplinary social sciences, or the liberal arts is available to part-time matriculated students.

The University will consider applications for this program *only* from students who have earned a minimum of 57 transferable credits. A grade point average of 2.5 (A = 4) is usually the lowest base considered for admission. Part-time matriculants may enroll for up to eleven credits per semester and are subject to all academic rules and regulations appropriate to that status.

Students interested in part-time matriculation who have never matriculated at Stony Brook must follow application procedures described elsewhere in this section for transfer students. Former Stony Brook students and those currently attending must contact the Undergraduate Admissions Office

for additional information and instructions. Continuing matriculated students who desire to change their status from full-time to part-time, or from part-time to full-time, must file an application available in the Admissions Office not later than the final day of late registration. (Students are not authorized to change their status as either full-time or part-time undergraduates without consulting an Admissions Counselor.) A full-time student who registers for eleven or fewer credits without authorization will be charged tuition as a full-time student.

### ***Disabled Students***

The academic admission requirements and procedures for disabled students are the same as for all other applicants. After admission, it is advisable that students who are disabled identify themselves to both the University Infirmary (444-2273) and to the Office of Special Programs (246-3590). (See also p. 39.) The Office of Special Programs will evaluate possible problems, and will provide the special assistance disabled students need.

### ***Foreign Students***

The University admits a number of international students each year. In addition to meeting the academic requirements for admission, international students are also expected to have fulfilled the following University and Immigration and Naturalization Department regulations:

1. Completion of a University Financial Affidavit which indicates that the student has sufficient funding to pay for his/her educational and personal expenses while in the United States.

2. A score on the TOEFL examination as follows:

550—Admission with a course in English as a Second Language required.

600—Admission with no further English as a Second Language course required.

*OR*

Completion of a recognized course in English as a Second Language at an accredited school in the United States.

*OR*

Successful completion of two courses in English as part of a course of study at another accredited college or university in the United States.

Please write to the Undergraduate Admissions Office for application materials and information as these differ from the application materials filed by United States citizens and permanent residents.

### ***Notification of Admission***

It is anticipated that admissions decisions for fall will be mailed beginning February 15. All offers of admission are conditional subject to receipt of official records showing successful completion of academic work in progress. A significant drop in grades will necessitate a review of the application and may result in withdrawal of the offer of admission. When an admitted transfer student's index for the semester immediately preceding registration falls below 2.5 (A = 4), the student is advised to contact an admissions counselor as soon as possible to help resolve potential difficulties.

In all cases it is the student's responsibility to see that a final high school or college transcript is sent to the Admissions Office. For new freshmen this includes certification of graduation from high school. Community college applicants who expect to be degree recipients (A.A. or A.S.) must present evidence of receipt of the degree prior to enrollment. Also, ALL transfer students must present a final transcript to the Stony Brook Admissions Office PRIOR to final registration. Requirements for an authorization to register and completion of registration (including a medical report and payment of necessary deposits) are explained with the offer of admission.

### ***Deferred Enrollment***

Stony Brook permits a limited number of admitted freshmen to defer enrollment for one year. The University expects such students to use this opportunity to travel, work, perform service, or otherwise enrich their life experience through activities exclusive of formal academic endeavor within the United States. Applicants granted deferred enrollment who subsequently seek to transfer credit earned at institutions within the United States during the year of their absence void the University's responsibility to reserve a place for them at the time agreed upon for their enrollment. Their status then changes to that of transfer students and they must file new applications in competition with all other

transfer applicants. Completion of course work in institutions of higher learning outside the United States, while acceptable in the spirit of this policy, would be considered more valuable when used as a supplement to non-classroom activities.

Since it is the student's responsibility to return to the University at the beginning of the semester following completion of the year of deferred enrollment, the University's obligation to reserve a place terminates at that time. A student would then have to file a new application for subsequent consideration.

Instructions for applying for deferred enrollment are mailed with the offer of admission. Applications must be received in the Admissions Office by May 1. Decisions will be rendered by June 1 to all who requested consideration. Students offered admission after May 1 may be considered for deferred enrollment should any spaces still be available.

### ***Pre-Enrollment Deposit and Refund Policy***

Each new student is required to pay an advance tuition deposit of \$50 and an additional \$75 deposit when housing is requested. Fall deposits, due either May 1 or 30 days after admission is offered, whichever is later, are applied against charges incurred by the student in the first semester. Housing deposits are refundable until July 1. Spring deposits are due 30 days after admission is offered. Requests for refunds should be sent to Student Accounts, State University of New York at Stony Brook, Long Island, New York 11794, to be received by the University not later than the expiration of the due date. To insure timeliness and receipt of the deposit refund request, the University suggests letters be sent certified mail, receipt requested.

### ***Advanced Standing by Examination***

Credit by examination (AP, CLEP, CPE) may not be used to satisfy more than one course in each area of the general University requirements. In addition, such credit does not count as part of the semester credit required for good academic standing. Credit by examination cannot be used to fulfill the Stony Brook residency requirement (see p. 103).

### ***Advanced Placement Credit***

Advanced placement credit may be extended to freshman students who have completed advanced placement courses



in secondary school and who have taken the appropriate CEEB advanced placement examination. Students must request that their test scores be forwarded to Stony Brook. While each academic department determines the minimum test score required for semester hour credit in a particular subject, general elective credit is guaranteed with a score of 3.

### *College Level Examination Programs*

The University will award credit for the CLEP (College Level Examination Program) subject examinations and the CPE's (College Proficiency Examination). The scores received must be equivalent to a grade of C. Credit will not be given for the CLEP General Examinations. Credit requested for other forms of examinations or programs (i.e., military) must be substantiated by the appropriate documentation. Requests for reviews of students' qualifications must be submitted in writing to the Undergraduate Admissions Office.

### *Challenge Program for Advanced Credit*

The University has established a Challenge Program which permits undergraduates to earn advanced placement and semester hour credit by taking examinations in place of regular courses. Students seeking further information about the Challenge Program should consult the section entitled, "General Academic Information" in this *Bulletin*.

### *Non-Degree Study*

A growing number of individuals are exploring non-traditional college programs such as Stony Brook's non-matriculated study, designed for those who do not meet general academic criteria for matriculated admission or who are not interested in studying for a degree. Non-matriculated students cannot be graduated from the University in this status; however, courses and grades earned may be applied toward a degree program at Stony Brook and used to fulfill the University's residence requirement should a student subsequently matriculate. As with matriculated students, a permanent record is kept by the University's Office of Records.

### *Part-Time Non-Matriculated Study*

Part-time non-matriculated (PTNM) study benefits high school students who, with the approval of their high school principal

or guidance counselor, enroll in University-level courses while continuing their studies in high school; baccalaureate degree holders who wish to take additional undergraduate courses for career development, or to prepare for application to law, medical, or other professional schools, or for self-enrichment; students attending a nearby college who wish to take a course or two a semester at Stony Brook; and students who are seeking to make a change in their lives and/or to resume educational studies abandoned years earlier.

In most instances, completion of a PTNM application, available *only* in the Undergraduate Admissions Office, is all that is necessary for admission to this status. There are, however, two important exceptions:

1) Students who have been placed on probation or suspension during the semester immediately preceding application to PTNM status at Stony Brook generally are not eligible for admission. Students who believe their probation or suspension at their previous institution resulted from extenuating or unusual circumstances are advised to consult an admissions counselor.

2) Students who were graduated from high school within the year preceding application are not eligible for PTNM study.

Students accepted into this program are admitted for one semester at a time only and may take up to eleven credits of work. Currently PTNM students may not advance register for more than eleven credits without authorization from the Admissions Office.

PTNM students choose from among regularly scheduled classes and register as space permits. Part-time non-matriculated students are not eligible for financial aid and their requests for housing will be considered only after the needs of matriculated students have been met.

PTNM students' academic performance will be reviewed at the conclusion of each semester by the Undergraduate Admissions Office. Students earning less than a 2.00 (C) grade point average will not be permitted to continue. Those earning less than a 2.00 (C) grade point average who believe there were extenuating circumstances contributing to their poor performance should consult an admissions counselor.

Generally, students who did not initially qualify for matriculation and who wish to do so must successfully complete either 18 credits at Stony Brook as part-time non-matriculated students with a cumulative grade point average of at

least 2.5 (C+), or 15 credits with a cumulative grade point average of 3.0 (B) or better.

### ***Visiting Student (Full-Time Non-Matriculated) Status***

The Full-Time Non-Matriculated (non-degree) Visiting Student Program allows students to explore possibilities of academic life in a new setting such as Stony Brook. The greatest number of FTNM students are visiting students from other institutions studying on a full-time basis through a cooperative statewide program. Other students who may benefit from this status include those whose family, financial, business, or other responsibilities interrupted their educations.

Full-time non-matriculated students follow the same guidelines as PTNM students (see above) regarding continuation. FTNM students must earn a 2.5 grade point average in that status in order to be admitted as transfer students to a degree program.

Non-matriculated students pay the same tuition and other fees as matriculated students.

*Please Note:* Full-time matriculated students have housing priority at Stony Brook. Also, non-matriculated students are ineligible to receive most kinds of financial aid.

Non-matriculated students who wish to apply for matriculation may secure the appropriate forms in the Admissions Office.

### ***Orientation/Academic Advising Program***

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

Separate freshman and transfer student orientations are conducted during June, July, and August for fall entrants, and in January for the spring semester. The mandatory English Proficiency Examination and the Mathematics Diagnostic Test are offered, and results, available during the program, are used for careful preparation of individualized academic programs.

Detailed information concerning the content, costs and dates of orientation is usually sent at the time of, or subsequent to, the offer of admission. Students unable to attend the Summer Orientation Program are urged to attend the one-day program offered each semester. At the one-day session,

students take the English Proficiency Examination and register for the courses they will take that semester.

***Withdrawal, Readmission, Leave of Absence, Visiting Student Program***

Information concerning withdrawal, readmission or leave of absence from the University is presented on page 112. The Visiting Student Program is described on page 110.



financial  
information

# FINANCIAL INFORMATION

Registration is not complete until a student has paid all fees and charges which are due and payable prior to the first day of classes unless properly deferred. *ALL FEES AND CHARGES ARE SUBJECT TO CHANGE WITHOUT NOTICE.*

<i>Charge or Fee</i>	<i>First Semester</i>	<i>Second Semester</i>	<i>Year</i>
<i>Tuition</i>			
<i>Undergraduates:</i>			
N.Y. State resident— Lower Division .....	\$ 375.00	\$ 375.00	\$ 750.00
N.Y. State resident— Upper Division .....	450.00	450.00	900.00
Non-resident— Lower Division .....	600.00	600.00	1,200.00
Non-resident— Upper Division .....	750.00	750.00	1,500.00
<i>Graduates:</i>			
N.Y. State resident .....	700.00	700.00	1,400.00
Non-resident .....	900.00	900.00	1,800.00
<i>Professionals (Medicine and Dental Medicine):</i>			
N.Y. State resident .....	1,500.00	1,500.00	3,000.00
Non-resident .....	2,200.00	2,200.00	4,400.00
<i>Part-time Undergraduates (Less than 12 credits—12 credits or more is Full-time):</i>			
<i>(Charge per semester credit hour)</i>			
N.Y. State resident— Lower Division .....	25.00	25.00	
N.Y. State resident— Upper Division .....	30.00	30.00	
Non-resident— Lower Division .....	40.00	40.00	
Non-resident— Upper Division .....	50.00	50.00	

*Part-time Graduates:*

(Charge per semester credit hour)

N.Y. State resident .....	58.50	58.50	
Non-resident .....	75.00	75.00	

*College Fee*

(Per semester credit hours for less than 12 credits)

Full-time student (12 credits or more) .....	12.50	12.50	25.00
Part-time student .....	.85	.85	

*Health Fee*

Full-time student (12 credits or more) .....	8.50	8.50	17.00
Part-time student (11 credits or less) .....	3.00	3.00	6.00

*Housing—Double Occupancy* 375.00 375.00 750.00

Meal Plan ..... To be Announced

Cooking Fee (On-campus resident not on Meal Plan) .....	25.00	25.00	50.00
---	-------	-------	-------

<sup>a</sup>*Student Activity Fee*

(Undergraduate Full-time) .....	40.00	30.00	70.00
Lost Identification Card ...	3.00		

*Student Health Insurance* To be Announced

<sup>b</sup>*Orientation (Optional)*

Freshmen .....	3 days	46.00	
	4 days	50.00	
Transfer Students	1 day	11.00	

*Returned Check Fee* ..... 5.00

*Late Registration Fee* ..... 20.00

*Late Payment Fee* ..... 20.00

<sup>c</sup>*Advance Tuition Deposit*

(Freshmen and transfers only) .....	50.00		
-------------------------------------	-------	--	--

<sup>c</sup>*Advance Housing Deposit* .. 75.00

*Transcript Fee* (One free per degree)..... 2.00 each

<sup>a</sup>This fee set by Polity (Undergraduate Student Government).

<sup>b</sup>Includes orientation fees and charges for room and board.

<sup>c</sup>Applies toward first semester charges.

## ***Payment of Fees and Charges***

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

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

## ***Deferment***

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

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

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

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

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



3) *Basic Educational Opportunity Grant*: Students will receive an award notice (Student Eligibility Report) from the federal government. This notice must be submitted to the Financial Aid Office for approval and processing. The approved student copy of the Student Eligibility Report must be submitted to the Bursar's Office to complete deferment.

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

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

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

5) *Office of Vocational Rehabilitation*: Deferment based upon Office of Vocational Rehabilitation benefits may be obtained by presentation of an award letter indicating the amount of the award and period covered from the Office of Vocational Rehabilitation. All such letters must be accompanied by a Tuition Assistance Award Certificate, if applicable.

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

7) *Hardship Deferments*: Students experiencing severe

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

8) *New York Higher Education Services Corporation Loan (NYHESC)*: Once a student has received the approval from NYHESC and the promissory note from the bank, a deferment will be granted when these forms are submitted to the Financial Aid Office. A deferment letter issued by the Financial Aid Office must then be submitted to the Bursar's Office.

Students with financial hardship may be eligible for short-term bank loans at low interest rates. Eligibility for such loans is determined by the Financial Aid Office.

### ***Refund Policy***

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

#### ***Refund of Pre Enrollment Tuition Deposits***

Each new student is required to pay an advance tuition deposit of \$50. Deposits for the fall semester are due May 1, or 30 days after admission is offered, whichever is later, and are applied against charges incurred by the student in the first semester. Requests for refunds will be granted under the following conditions:

1) If a student is admitted prior to April 1, the written request for refund must be received in the Admissions Office by May 1. Those students admitted after April 1 must submit the written request for refund to the Office of Student Accounts within 30 days of date of admission.

2) If a student has enrolled in another SUNY school he or she must provide satisfactory proof of such enrollment to the Office of Student Accounts.

#### ***Refund of Housing Deposits***

Each student is required to pay a \$75 advance room deposit when requesting a future room assignment; this deposit will be applied to the housing charges of the first semester.

Refunds of the \$75 housing deposit will be made if the student applies in writing for the refund before July 1.

### *Refund of Tuition*

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

<i>Liability During</i>	<i>Semester</i>	<i>Special Session</i>
First week	0	0
Second week	30%	70%
Third week	50%	100%
Fourth week	70%	
Fifth week	100%	

The first day of class session as published by the University shall be considered the first day of the semester, quarter, or other term; and Saturday of the week in which this first class session occurs shall be deemed the end of the first week for refund purposes. (Due to the fact that campus offices are not open for business on Saturday, cancellations and withdrawals must be effected during the Monday through Friday office working hours.)

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

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

No money shall be refunded 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 established for a student who withdraws to enter military service prior to the end of an academic term for those courses in which he or she

does not receive academic credit. Acceptable proof must be submitted.

#### *Refund of Room Fee*

Once a student has registered and occupied a room no refund will be granted for room payments for that quarter.

#### *Refund of Meal Plan Fee*

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

#### *Refund of Student Activity Fee*

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

#### *Refund of Cooking Fee*

Cooking fee will be refundable if the student has enrolled in the Meal Plan. The amount of such refund is to be determined by University policy in effect at the time.

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

These fees are not refundable.

#### *Refunds Caused by Overpayment or Processing Errors*

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

### ***Summer Session***

Summer Session charges are as follows:

#### *Tuition*

Undergraduates (N.Y. State Resident)	
Lower Division . . . . .	\$25.00 per cr. hr.
Undergraduates (N.Y. State Resident)	
Upper Division . . . . .	30.00 per cr. hr.
Undergraduates (Out-of-State Resident)	
Lower Division . . . . .	40.00 per cr. hr.

Undergraduates (Out-of-State Resident)	
Upper Division . . . . .	50.00 per cr. hr.
Graduate and CED Students (N.Y. State Resident) . . . . .	58.50 per cr. hr.
Graduate and CED Students (Out-of-State Resident) . . . . .	75.00 per cr. hr.
Physical Education Courses . . . . .	Charged at the appropriate rate for one cr. hr.

**Fees**

Room, double occupancy . . . . .	\$24.00 per week
College Fee . . . . .	.85 per cr. hr.
Student Service Fee . . . . .	Determined by status
Late Registration Fee . . . . .	20.00

For further information please see the *Summer Session Bulletin*.

**Other Expenses**

**Food**

The University, through a food service contractor, provides several meal plan options. Meals are served at three dining halls located in the residential areas. The options currently range from a Five Meal Plan, offered for 15 or 16 weeks, to a Nineteen Meal Plan, offered for 15 or 16 weeks. For spring 1979 costs will range from \$325 for the minimal plan to \$500 for the maximal plan. Similar plans will be offered in coming years but prices cannot now be predicted. It is expected, however, that future price ranges will not vary greatly from those now in effect, barring unforeseeable inflationary effects.

The residence dining halls also offer meals on a cash basis at prices, depending on the meal and the selection, currently ranging from \$1.50 to \$4.50 per meal. Dining halls are open daily but hours of operation vary from year to year. The student is urged to consult dining hall staff for hours applicable during his/her residency.

In addition to the dining halls, the food service contractor operates a restaurant and several cafeterias. The End of the Bridge restaurant in the Stony Brook Union is open for lunch and dinner, Monday to Friday; prices range from \$3.00 to \$6.00 per meal. The Union Cafeteria is open Monday to Friday from 8 a.m. to 9 p.m. and on weekends from 10:30 a.m. to 9 p.m. Prices range from \$1.50 to \$3.50 per meal.

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

Resident students who do not sign up for a meal plan are required to pay a cooking fee of \$25 per semester. Students who elect to do this may expect to spend between \$20 and \$30 a week for food.

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

### *Books and Supplies*

The average estimated expense is \$200 for 9 months (September-May). This figure is included in the basic student aid budget.

### *Miscellaneous Expenses*

The average estimated personal expense is \$400 for 9 months. This figure is used for the basic student aid budget.

### *Travel Expenses*

The average estimated expense is \$100 for 9 months on campus for a student residing in a dorm. The average estimated expense is \$650 for 9 months for a student residing with parents and commuting to the campus. These amounts are also used for the basic student aid budget.

### *Off-Campus Housing*

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

The common price per month for a furnished room is \$100-\$150. Kitchen privileges are sometimes included in this price. Rooms available in houses rented by other students are also listed. That is, arrangements can sometimes be made to share a complete house for \$75-\$150 per month plus a

percentage of the utilities cost.

Apartment listings cover those available in standard apartment building complexes and those available in private homes. The usual rental rate of a studio apartment (one large room, bathroom, closets, kitchenette) in a house is approximately \$175-\$200 per month. A studio apartment in one of the apartment facilities is usually \$200-\$250. 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 \$275-\$325 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 \$200-\$500 per month, not including utilities. The price depends on the number of rooms in the house and the distance from the campus.

### ***Financial Aids***

The Financial Aid Office administers several federal and state programs which provide funds to assist "needy" students in pursuing their academic goals. These programs are the National Direct Student Loan (NDSL), Supplemental Educational Opportunity Grant (SEOG), College Work Study Program (CWSP), Educational Opportunity Program (EOP), and some private scholarships. The office also manages certain portions of the Basic Educational Opportunity Grant (BEOG), Guaranteed Student Loan program (GSL), and New York Higher Education Services Corporation programs (NYHESC). These programs are described below together with other state and federal assistance for which prospective students might qualify while attending Stony Brook.

The basic application for programs administered by the Financial Aid Office is the Student's Financial Aid Form (FAF). These forms and the Stony Brook Institutional Financial Aid applications are available from the Financial Aid Office. The application period for *continuing* students begins January 1 and closes February 1 of each year. The application period for *new students* begins February 1 and closes April 1 of each year.

The application forms required for certain of these programs are briefly described after the individual program listings (see p. 86).

### ***“Emancipated” or “Independent” Student Status***

The University adheres to current federal guidelines for validating status of a student as independent or emancipated for financial aid purposes. These guidelines currently require that:

1) The student has not resided with parents for more than a total of six weeks in the prior year and six weeks in the current year, and will not exceed such residence with parents during the coming year.

2) The student has not been claimed as a dependent on any income tax return filed by the parents for the prior year, or for the current year, and will not be so claimed for the next year.

3) The student has not received more than \$750 annually in gifts or aid from parents in the prior year, nor in the current year, and does not anticipate such receipt in the next year.

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

### ***STATE PROGRAMS: 1979-80***

*NOTE:* Where any question of eligibility exists, the student or prospective student should consult the Financial Aid Office.

### ***Tuition Assistance Program (TAP)***

#### ***Application Procedures***

Applicants must apply annually to the New York State Higher Education Services Corporation (HESC), Tower Building, Empire State Plaza, Albany, NY 12255. The application deadline for the 1979-80 academic year is March 31, 1980. TAP application forms will be mailed, beginning in April 1979, to all: (1) students who received a TAP grant or Regents Scholarship award in 1978-79; (2) high school seniors who applied for a 1979-80 Regents Scholarship; and (3) approved postsecondary institutions and high schools in New York State.

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

The Higher Education Services Corporation determines the



applicant's eligibility and mails an award certificate directly to the applicant indicating the amount of the grant. The applicant presents the Institutional Copy of the certificate at the time of payment of tuition. (See "Deferment," p. 62.)

### *Selection of Recipients and Allocation of Awards*

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

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

- 1) 35 years of age or older on July 1, 1979; or
- 2) 22 years of age or older on July 1, 1979 and not:
  - a) resident in any house, apartment, or building owned or leased by parents for more than 2 consecutive weeks in calendar years 1978, 1979, 1980;
  - b) claimed as a dependent by parents on their Federal or State income tax returns for 1978, 1979, 1980;
  - c) recipient of gifts, loans, or other financial assistance in excess of \$600 from parents in calendar years 1978, 1979, 1980; or
- 3) under 22 years of age on July 1, 1978 and meeting all other requirements of 2) above, and in addition able to meet at least *one* of the following requirements:
  - a) both parents deceased, disabled or incompetent, or
  - b) receiving public assistance other than Aid to Dependent Children (ADC) or food stamps, or
  - c) ward of a court, or
  - d) unable to ascertain parents' whereabouts, or
  - e) unable, due to an adverse family situation, to submit parents' income.

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.

---

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

Graduate students may receive awards for four years. No student (including opportunity students) may receive awards for more than a total of eight years of undergraduate and graduate study.

### *Award Schedule*

The amount of the TAP award is scaled according to level of study, tuition charge, and net taxable income.\*\* Four award schedules are in effect, as shown in the following table. These awards are examples, and are based on the payment schedules as of February 28, 1978.

### ***Regents College Scholarships***

#### *Application Procedures*

Applicants may obtain information and application forms from the high school and file them with the high school principal.

#### *Selection of Recipients and Allocation of Awards*

Regents College Scholarships are awarded competitively for full-time postsecondary study in New York State in: (1) an approved degree, certificate or diploma program offered by a college or other degree-granting institution; (2) a hospital school program leading to licensure or certification; and (3) a two-year program in a registered business school not authorized to grant a degree.

Basis of the award is the Scholastic Achievement Test (SAT) or American College Testing Program Assessment (ACT) score. A registration fee, currently \$7.25, is charged for either of these examinations. A limited number of fee waivers are available for economically disadvantaged applicants and may be applied for. These examinations may be taken more than once, with the highest score used as the basis for the award.

A total of 18,843 scholarships is allocated by county. Additional scholarships are allocated to insure that each approved high school has at least one scholarship for each 40 graduates of the previous year.

---

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

## Example Awards for the Tuition Assistance Program (TAP) as of February 28, 1978\*

Income (Net Taxable Balance)	UNDERGRADUATE						GRADUATE Awards for all Annual Tuition Greater Than \$600	
	Schedule C (Dependent or Married) Annual Tuition			Schedule E** (Independent and Single) Annual Tuition			Schedule B Dependent or Married	Schedule D** Independent and Single
	\$775	\$925	\$1,500	\$775	\$925	\$1,500		
\$0- 1,000	\$775	\$925	\$1,500	\$775	\$925	\$1,500	\$600	\$600
2,000	775	925	1,500	385	535	1,110	600	350
3,000	715	865	1,440	175	325	900	533	100
4,000	655	805	1,380	100	100	500	466	100
5,000	595	745	1,320	100	100	300	400	100
6,000	525	675	1,250	-0-	-0-	-0-	333	-0-
7,000	455	605	1,180	-0-	-0-	-0-	266	-0-
8,000	385	535	1,110	-0-	-0-	-0-	200	-0-
9,000	305	455	1,030	-0-	-0-	-0-	133	-0-
10,000	225	375	950	-0-	-0-	-0-	100	-0-
11,000	145	295	870	-0-	-0-	-0-	100	-0-
12,000	100	195	770	-0-	-0-	-0-	100	-0-
13,000	100	100	670	-0-	-0-	-0-	100	-0-
14,000	100	100	570	-0-	-0-	-0-	100	-0-
15,000	100	100	450	-0-	-0-	-0-	100	-0-
16,000	100	100	330	-0-	-0-	-0-	100	-0-
17,000	100	100	210	-0-	-0-	-0-	100	-0-
18,000	100	100	100	-0-	-0-	-0-	100	-0-
19,000	100	100	100	-0-	-0-	-0-	100	-0-
20,000	100	100	100	-0-	-0-	-0-	100	-0-
OVER \$20,000	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-

\* Note that the 1978 Legislature is considering changes to the TAP awards which are *not* reflected in these tables.

\*\* Independent students must have a net taxable balance income below \$5,667 to receive an award.

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

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

### *Award Schedule*

The award is \$250 per year, for up to five years, depending on the normal length of the program in which the recipient is enrolled.

### *Guaranteed Student Loan Program*

#### *Application Procedures*

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

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

#### *Selection of Recipients and Allocation of Awards*

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

#### *Loan Schedule*

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

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

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

A student's eligibility to receive interest benefits is based on adjusted annual family income\* at the time the loan is guaranteed. A student whose adjusted family income is less than \$25,000 is eligible for a full interest subsidy, during the time he/she is in school, and for a following nine-month grace period before repayment must begin. An annual insurance premium of 1 percent of the loan amount is payable in full at the time the check is issued. This information is shown in the following table:

Adjusted Family Income*	Annual rate of interest and fee	Interest paid by student in school and during grace period	Interest paid by N.Y.S. in school and during grace period	Insurance fee paid by student in school and during grace period	Annual rate of interest during repayment
0 - below \$25,000	8%	0%	7%	1%	7%
\$25,000, below \$30,000**	8%	3%	4%	1%	7%
\$30,000 and over**	8%	7%	0%	1%	7%

#### *Rights and Responsibilities of Recipients*

A student may borrow at a relatively low interest rate (currently 7 percent) with no repayment as long as he/she remains enrolled at least half-time, and for nine months after he/she ceases to be at least a half-time student. Payment of principal may further be deferred during study under a graduate

\*Gross family income less 10 percent, less dollar value of deductions claimed, on most recent Federal income tax return.

\*\*A student whose adjusted family income is \$25,000 or over *may* qualify for full interest subsidy based on results of a needs analysis conducted by a designated official of the institution attended.

fellowship program approved by the U.S. Commissioner of Education, during up to three years of active U.S. armed forces service, during up to three years as a full-time Peace Corps or VISTA or similar national program volunteer, or during up to 12 months of unsuccessful search for full-time employment.

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

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

1) Depending on the amount of the loan, the minimum monthly payment will be \$30 plus interest. Under unusual and extenuating circumstances the lender, on request, may permit reduced payments.

2) The maximum repayment period is 10 years.

3) The maximum period of a loan from date of the original note may not exceed 15 years, excluding authorized deferments of payments.

4) Repayment in whole or part may be made at any time without penalty.

## ***Educational Opportunity Program (EOP)***

### ***Application Procedures***

Application is by means of a standard application form on which the applicant identifies the two- or four-year college of the State University of New York (SUNY) at which enrolled or applying for admission. EOP application forms are available from the EOP office at the institution.

### ***Selection of Recipients and Allocation of Awards***

An applicant must be: (1) a New York State resident; and (2) academically disadvantaged according to definitions promulgated by the State University; and (3) economically disadvantaged according to guidelines approved by the Board of Regents and the Director of the Budget. Selection of eligible applicants is conducted by the SUNY unit and/or the EOP on campus.

### ***Award Schedule***

The amount of financial assistance and other support provided to EOP participants is dependent on need as determined

by the SUNY unit and the program, within the State guidelines. The maximum EOP award is currently \$2,200.

### ***Regents Nursing Scholarships***

#### ***Application Procedures***

Applicants may obtain information and application forms from the high school and file them with the high school principal.

#### ***Selection of Recipients and Allocation of Awards***

Regents Nursing Scholarships are awarded competitively for full-time study in New York State in an undergraduate program approved for the training of registered professional nurses, in a college, or in a hospital school.

Basis of the award is the Scholastic Achievement Test (SAT) or American College Testing Program Assessment (ACT) score. A total of 800 awards is allocated annually by county.

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

#### ***Award Schedule***

The award is \$250 per year, for up to five years, depending on the normal length of the program in which the recipient is enrolled. The Regents Nursing Scholarship may not be applicable to certain prerequisite liberal arts course work, at some colleges.

### ***Regents Awards for Children of Deceased or Disabled Veterans***

#### ***Application Procedures***

A special application, obtainable from the high school principal or counselor, must be filed with the New York State Higher Education Services Corporation (HESC), Tower Building, Empire State Plaza, Albany, NY 12255. Documentary evidence to establish eligibility is required with the ap-

plication. Any high school counselor can provide assistance with this.

### *Selection of Recipients and Allocation of Awards*

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

April 16, 1917 - November 11, 1918

December 7, 1941 - December 31, 1946

June 25, 1950 - July 27, 1953

October 1, 1961 - March 29, 1973

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

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

### *Award Schedule*

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

## ***State Aid to Native Americans***

### *Application Procedures*

Application forms may be obtained from the Native American Education Unit, New York State Education Department, Albany, NY 12234. The completed application form should be forwarded by the applicant to the Native American Education Unit along with the following materials: (1) official transcript of high school record or photostat of General Equivalency Diploma; (2) letter(s) of recommendation from one or more leaders in the community attesting to personality and character; (3) personal letter, setting forth clearly and in detail educational plans and desires; (4) signatures of the parents of minor applicants, approving education plans; and (5) official tribal certification form.



### *Selection of Recipients and Allocation of Awards*

The applicant must: (1) be a member of one of the Native American tribes located on reservations within New York State; (2) have graduated from an approved high school, or have earned a General Equivalency Diploma, or be enrolled in a program in an approved postsecondary institution leading to degree-credit status and the General Equivalency Diploma; and (3) be enrolled in an approved postsecondary institution in New York State.

State Aid to Native Americans is an entitlement program. There is neither a qualifying examination nor a limited number of awards.

### *Award Schedule*

The award is \$1,100 per year for a maximum of four years of full-time study, a minimum of 12 credit hours per semester. Students registered for less than this number will be funded at approximately \$46 per credit hour.

### *Rights and Responsibilities of Recipients*

Students are responsible for notifying the Native American Education Unit in writing of any change in student status or program or institutional enrollment.

## **FEDERAL PROGRAMS: 1979-1980**

### ***Basic Educational Opportunity Grants (BEOG)***

#### *Application Procedures*

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

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

### *Method of Selection of Recipients and Allocation of Awards*

The Basic Educational Opportunity Grant Program is an entitlement program. Scholastic accomplishment has no bearing on eligibility. The applicant must be enrolled as an undergraduate student, at least on a half-time basis, in an approved postsecondary institution and must need financial assistance to continue his/her education.

Financial need is determined by a formula applied to all applicants. It was developed by the U.S. Office of Education and is reviewed annually by Congress. The student eligibility index is calculated by this formula.

Basic Grant awards are usually paid for up to four years of study. If the student is enrolled in a program which requires five years of study for a first degree, or if he/she is required to complete noncredit remedial courses to prepare for degree-credit enrollment, a fifth year award may be paid.

Copies of the booklet *Determination of Basic Grant Eligibility Index in Academic Year 1979-80*, *1979-80 Student Guide: Basic Grants*, and a list of approved eligible postsecondary institutions, may be obtained by writing to: BEOG, P.O. Box 84, Washington, DC 20044.

### *Award Schedule*

Currently awards range from \$200 to \$1,800 but not more than one-half the total cost of attendance. The amount of the award will be affected by costs of attendance and full- or part-time enrollment status. The BEOG award is not duplicative of State awards.

### *Rights and Responsibilities of Recipients*

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

Before receiving payment, the student must sign an affidavit, available from the institutional financial aid office, that all money received will be used for the costs of attendance only.

Award payments made by check must be picked up by the student within a reasonable time. The institution must notify the student of the availability of the award check, and where it is being held.

## ***Supplemental Educational Opportunity Grants (SEOG)***

### ***Application Procedures***

Application is through the institutional financial aid office, which is responsible for determining who receives a Supplemental Grant, and the amount. The applicant must file FAF and SBI FAA.

### ***Selection of Recipients and Allocation of Awards***

The applicant must be: (1) in exceptional financial need, to the extent that without a Supplemental Grant award his/her education could not be continued; (2) enrolled at least half-time as a matriculated undergraduate student in an approved postsecondary institution; and (3) enrolled in an institution which will provide the applicant with additional financial assistance at least equal to the amount of the Supplemental Grant award.

### ***Award Schedule***

The award ranges from \$200 to \$1,500. Normally an award may be paid for up to four years, or for five years for certain courses of study. However, the total amount that may be awarded is \$4,000 for a four-year course of study; \$5,000 for a five-year course of study.

### ***Rights and Responsibilities of Recipients***

The student must continue to make satisfactory academic progress.

## ***National Direct Student Loan Program (NDSL)***

### ***Application Procedures***

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

### ***Selection of Recipients and Allocation of Awards***

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

### *Award Schedule*

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

### *Rights and Responsibilities of Recipients*

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

### *College Work-Study Program (CWSP)*

#### *Application Procedures*

Application is made through the postsecondary institutional financial aid office. Eligibility is determined and work arrangements made at this point. (Eligibility for SEOG, NDSL, and CWS is determined by means of the same application form.) The student must file FAF and SBI FAA forms.

#### *Selection of Recipients and Allocation of Awards*

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

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

### *Award Schedule*

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

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

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

### *Rights and Responsibilities of Recipients*

Satisfactory academic progress must be maintained.

### ***Social Security Payments to Children of Deceased or Disabled Parents***

#### *Application Procedures*

Application may be made at any Social Security Office. Applicant should present the Social Security card, if one has been issued, and provide the following information: name and address of the institution; dates of past attendance; student ID number if any; number of credit hours carried; and full- or part-time status planned for next academic period.

#### *Selection of Recipients and Allocation of Awards*

The applicant must be: (1) single and between 18 and 22 years of age; (2) financially dependent and have a deceased or disabled or retired parent who worked long enough to qualify for Social Security; and (3) enrolled in a postsecondary institution (including trade and vocational schools) as a full-time undergraduate.

#### *Award Schedule*

The amount of Social Security benefits may be affected by earnings from employment or self-employment, if these are greater than \$3,000 per year. Earnings of a parent may also affect size of the applicant's checks, even if the applicant is not employed. Checks can continue until the end of the academic period in which the student becomes 22.

### *Rights and Responsibilities of Recipients*

Applicants already receiving benefits will be notified several months before turning 18, by the Social Security Administration, about what must be done upon becoming a full-time postsecondary student so that benefits will continue.

Applicants who become eligible for benefits after reaching

18, by the death, disability, or retirement of a parent, must apply for benefits upon beginning full-time study.

Eligible applicants who apply late may receive back payments for up to 12 months.

### ***United States Bureau of Indian Affairs Aid to Native Americans—Higher Education Assistance Program***

#### ***Application Procedures***

Application forms may be obtained from the Bureau of Indian Affairs Office. An application is necessary for each year of study. An official needs analysis from the college financial aid office is also required each year.

Each first-time applicant must obtain tribal enrollment certification from the Bureau agency or tribe which records enrollment for the tribe.

#### ***Selection of Recipients and Allocation of Awards***

To be eligible, the applicant must: (1) be at least one-fourth American Indian, Eskimo, or Aleut; (2) be an enrolled member of a tribe, band, or group recognized by the Bureau of Indian Affairs; (3) be enrolled in or accepted for enrollment in an approved college or university, pursuing at least a four-year degree; and (4) have financial need.

#### ***Rights and Responsibilities of Recipients***

For grants to be awarded in successive years, the student must make satisfactory progress toward a degree, and show financial need. Depending on availability of funds, grants may also be made to graduate students and summer session students. Eligible married students may also receive living expenses for dependents.

### ***United States Bureau of Indian Affairs Aid to Native Americans—Adult Vocational Training Program***

#### ***Application Procedures***

(Same as Higher Education Assistance Program)

#### ***Selection of Recipients and Allocation of Awards***

The Vocational Training Program is for short-term vocational training (up to two years).

To be eligible, the applicant must: (1) be at least one-fourth American Indian, Eskimo, or Aleut; (2) be an enrolled member of a tribe, band, or group recognized by the Bureau of Indian

Affairs; (3) reside on a reservation; (4) be enrolled in or accepted for enrollment in an approved training school; and (5) have financial need.

### *Rights and Responsibilities of Recipients*

For grants to be awarded the following year, the student must make satisfactory progress toward a degree and show financial need.

### **Veterans Administration (VA) Educational Benefits**

#### *Application Procedures*

Application forms are available at all VA offices, active duty stations, and American embassies. Completed forms are submitted to the nearest VA office.

#### *Selection of Recipients and Allocation of Awards*

Persons who served over 180 days between January 31, 1955 and January 1, 1977, and: (1) continue on active duty, (2) were honorably discharged at the end of their tours of duty, or (3) who qualify because of service-connected disabilities, are eligible for benefits. Veterans are entitled to benefits for full-time study at an approved postsecondary institution for 1½ months for each month of active service, up to 45 months. Eligible veterans who served for 18 continuous months are entitled to benefits for 45 months of full-time study. In each case, the equivalent in part-time study may be authorized.

Eligibility extends for 10 years after release from service, but not after December 31, 1989.

Children, spouses and survivors of veterans whose deaths or permanent total disabilities were service-connected, or who are listed as missing in action, may be eligible for postsecondary education benefits under the same conditions as veterans.

#### *Award Schedule*

Current monthly benefit rates are shown below:

Status	Dependents			Each additional
	None	1	2	
Full Time	\$311	\$370	\$422	\$26
Three-quarters	233	277	317	19
Half-Time	156	185	211	13

Veterans enrolled in full-time study may agree to part-time employment under VA supervision and receive extra benefits. For 250 hours of work, the student will receive 250 x the minimum wage, but not less than \$625. Lesser numbers of hours are paid proportionately.

Veterans may borrow up to \$2,500 for an academic year of full-time study through a special loan program for veterans.

### *Rights and Responsibilities of Recipients*

Educational and vocational counseling will be provided by the VA on request.

A program of education outside the United States may be pursued at an approved institution of higher learning.

Institutions are required to report promptly to the VA interrupted attendance or termination of study on the part of students receiving benefits.

### *Application Forms*

The following describes some of the forms required for application to aid programs listed above. The program description references the required form by the program initials. For instance, the form required for application to the Guaranteed Student Loan Program is identified as GSL. The reference to the following under GSL describes the information required on that application form.

1) *Student's Financial Aid Form (FAF)*: A two-page document obtainable as of November 1 at high school counselor's office and at college financial aid offices. It requires information regarding family/student data: taxable income, non-taxable benefits, assets, family composition, number of students in college; indebtedness, business assets/liabilities; and independency and dependency status of student.

2) *Stony Brook Institutional Financial Aid Application (SBI FAA)*: A two-page document requiring both general and specific information: student educational objectives; historical financial aid data; desired forms of financial aid; acknowledgment of any scholarships or external funds to be received by the student; and a required HEW student affidavit as to educational intent of monies and student responsibilities.

3) *Tuition Assistance Program (TAP)*: A one-page document requiring taxable income for prior calendar year of parent/applicant; information regarding school to be attend-



ed; number of family members in college; and student college status.

4) *Educational Opportunity Program (EOP)*: A one-page document requiring information as to family composition and number of family members in college.

5) *Basic Educational Opportunity Grant (BEOG)*: A two-page document requiring family/student data: taxable income, non-taxable income, assets, indebtedness; business assets/liabilities; family composition and number of members in college; independency and dependency status of student.

6) *Guaranteed Student Loan Program (GSL)*: A one-page document requiring family/student data: taxable income; exemptions; student college status; loan agency address; loan references; indebtedness; and affidavit of educational intent and responsibilities.

7) *IRS 1040 or 1040A*: A copy of the most recent Internal Revenue Service form showing taxable income and taxes paid.



general  
academic  
information

## ***Semester Registration***

Completion of registration each semester in accordance with instructions issued by the Registrar (Office of Records) is a prerequisite to class attendance. Although the Registrar will attempt to send individual instructions to every eligible student in advance of each registration period, changes in status and address make it impossible to guarantee that every student will automatically receive these instructions. Eligible students who fail to receive final registration information two weeks before the first day of classes each semester should contact the Office of Records without delay.

Registration after the close of the announced final registration period in the academic calendar requires the payment of a late registration fee of \$20. Registration is not permitted after the end of the second week of classes. *A student is not considered registered until the appropriate forms have been filed with the Office of Records and payment or proof of proper deferment of tuition and fees has been made to the Bursar's Office prior to the first day of classes or by the end of the late registration period.*

## ***Course Registration***

With the assistance of an academic advisor each student selects a program of courses, and it is the student's responsibility to see that the program conforms with academic regulations and meets degree requirements. Normally, a student will complete a preliminary registration, including a selection of courses, before the beginning of a semester.

## ***Change in Course Registration***

During the first two weeks of classes a student may, within the regulations, add or drop courses by submitting the appropriate form to the Office of Records/Registrar. No record is made of courses dropped before the end of the second week. After that date, a course may be added only with the approval of the Committee on Academic Standing and Appeals (CASA), for Arts and Sciences students (see page 101 "Committee on Academic Standing and Appeals"), or the

---

Please see the chapter on the Health Sciences Center in this *Bulletin* and the *Health Sciences Center Bulletin* for information relating to the Health Sciences Center.

Undergraduate Academic Affairs Committee (UAAC), for Engineering and Applied Sciences students (see page 101 "Undergraduate Academic Affairs Committee").

From the third through the ninth week a course may, within the regulations, be dropped (see below "Course Load," and page 94, "Grading System"). After the ninth week, a student may withdraw from a course only by withdrawing from the University by the last day of classes, or, in exceptional circumstances, by the approval of the Committee on Academic Standing and Appeals for Arts and Sciences students or the Undergraduate Academic Affairs Committee for Engineering and Applied Sciences students. See Academic Calendar, page 10, for specific deadline dates.

### ***Auditing***

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

### ***Course Load***

A normal course load for full-time matriculated students is a program totaling 12 to 19 semester hours. Any other program requires approval by the Committee on Academic Standing and Appeals or the Undergraduate Academic Affairs Committee. Before the beginning of classes, no student may register for more than 19 nor fewer than 12 semester hours. Requests for permission to register for more than 19 or fewer than 12 hours should be submitted directly to the appropriate academic standing committee.

Although the University regards full-time matriculated students who have received official permission during a particular semester to carry an underload (fewer than 12 semester hours) as full-time students during said semester, some outside agencies do not. Therefore, before requesting an underload a student should determine the consequences in terms of scholarships and loans. The student should also consider whether dropping below 12 semester hours will adversely affect his or her ability to complete sufficient credits to maintain acceptable academic standing (see page 99).

### ***Full-time/Part-time Status Change***

Students are not authorized to change their status as either full-time or part-time undergraduates without consulting an admissions counselor. The Admissions Office is not able to approve status change requests after the second week of the semester. Students wishing to change from full-time to part-time or from part-time to full-time should file the appropriate application in the Admissions Office not later than the final day of late registration. A full-time student who registers for eleven or fewer credits without authorization will be required to pay full-time tuition.

### ***Academic Advising***

The Undergraduate Studies Office, located in the Library Building, has overall responsibility for the academic advising of all new students until such time as they officially select a major. Designated faculty from each academic department and program are also available to advise students. Prior to their first registration at the University all new students are expected to participate in an orientation program during which, in addition to taking the English composition proficiency examination and diagnostic tests in mathematics and some sciences, they receive academic information and advice from faculty, professional staff, and student orientation leaders. Students who have not yet selected a major are expected to consult advisors in the Undergraduate Studies Office and in the departments for assistance in planning their academic programs. Students who have selected a major department are expected to seek assistance in academic planning from that department.

Stony Brook students interested in preparing for undergraduate or graduate health professions should stop in the Undergraduate Studies Office for a "Basic Information" pamphlet, which details academic and other information helpful for preparation and application to undergraduate and graduate health professional schools.

### ***Selection of Major, Change of Major, Addition of a Second Major***

Freshmen in the College of Arts and Sciences usually enter the University under the General University Program (GEN) and wait to select a major officially until after they have had an opportunity to test various academic interests by taking

college-level courses in those fields. They may, however, declare a major as early as the Advance Registration period for their second semester. Freshmen who indicated an interest in engineering on their application material are usually listed as being ESG majors from the beginning, but still are encouraged to explore various academic fields. It is strongly recommended that other freshmen who are interested in the programs of the College of Engineering and Applied Sciences declare their major during their first year. All students are expected to declare no later than the end of the second semester of their sophomore year or before attaining upper-division status. Failure to do so may result in a delay in meeting graduation requirements. The Change/Selection-of-Major form available from the Office of Records/Registrar is used to officially designate a major.

In order to change officially from one academic major program to another, students should discuss the change with advisors in both programs and secure their signatures on a Change/Selection-of-Major form available from and returned to the Office of Records/Registrar.

Students who wish to add a second major (double major) must obtain the approval of the Undergraduate Studies Office.

Students who wish to enter one of the upper-division programs in the Health Sciences Center must apply for admission to that program during the fall semester and be formally accepted in the spring of their sophomore year. Admission to any of the Health Sciences Center programs is *not* accomplished through the change-of-majors mechanism.

### ***Selection of Minor***

Students wishing to elect a minor do so by signing up with the faculty coordinator of the minor. It is important for students to consult this coordinator periodically, for it is only through the coordinator, after completion of all requirements, that participation in the minor is reported to the Office of Records /Registrar and recorded on the transcript.

### ***Two Baccalaureate Degrees***

*Bachelor of Engineering and Bachelor of Arts or of Science*  
Qualified students whose special interests and career plans make such study appropriate may be granted permission to earn two degrees at the undergraduate level by planning a

program which leads to a Bachelor of Engineering degree and a Bachelor of Arts or a Bachelor of Science degree. Written approval to undertake this curriculum must be obtained from the Engineering Undergraduate Student Office and the Undergraduate Studies Office subject to review and final authorization by the Academic Vice President. In addition to meeting all University graduation requirements and distribution and proficiency requirements of both Colleges, the candidate for two degrees must earn a total of 144 credits and must fulfill the requirements of the Bachelor of Engineering degree and the requirements of either a Bachelor of Arts or a Bachelor of Science degree.

### *Health Sciences and Arts and Sciences*

Students at Stony Brook may simultaneously earn baccalaureate degrees from both the College of Arts and Sciences and the Health Sciences Center if they have been admitted formally to each unit and fulfilled the criteria and requirements outlined below. Written approval to undertake this curriculum must be obtained from the dean of the Health Sciences school in which the student is enrolled and from the Undergraduate Studies Office subject to review and final authorization by the Academic Vice President. The double degree may include either a Bachelor of Arts or a Bachelor of Science degree from the College of Arts and Sciences and a Bachelor of Science degree from the Health Sciences Center.

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

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

point average and minimum unduplicated course work as required for each degree.

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

### ***Grading System***

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

A student who withdraws from a course after the second week of the semester is assigned a grade of W, indicating withdrawal.

Unless a student receives a withdrawal grade, a temporary grade of Incomplete or No Record, or an R grade (described below) in a course, he or she is assigned one of the following grades:

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

Students registered in a year-long course for which the final grade is assigned only after the completion of two semesters will be given the grade of R (Registered) at the end of the first semester.

At his or her discretion, an instructor or supervisor may assign the following temporary mark: I (Incomplete), which indicates inability to complete all course requirements because of circumstances beyond the student's control. The instructor will set a date for completion no later than November 1 for courses in the preceding spring semester or summer session and no later than March 15 for courses in the preceding fall semester. An Incomplete does not count toward the earned semester credits required to remain in



good academic standing. (See "Academic Standing.") In unusual circumstances, an instructor may extend the completion date beyond these limits by written notification to the Registrar. Any extension should normally be limited to the last day of classes of the semester following that in which the course was taken. Longer extensions must be approved by the Dean for Undergraduate Studies for Arts and Sciences or the Dean of the College of Engineering and Applied Sciences. If the final grade is not reported by the applicable or extended deadline date, the grade F is assigned.

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

Grades, other than Incomplete, appearing on a student's academic record may not be changed after one calendar year from the start of the term in which the grade was incurred. Exceptions may be made if the instructor is on leave in the term following the one in which the grade is assigned or if the student is on leave because of illness in that term.

Grades appearing on a student's academic record at the time of his or her graduation cannot be changed to any other grade subsequent to the graduation date. No student will be permitted to graduate with the grade of "I" or "NR" on his or her academic record. Degree candidates wishing to make up incomplete work must file an application to postpone their graduation until the end of the following term. The deadlines for such applications are the same as the deadlines for initial degree applications as stated in the academic calendar.

### ***Pass/No Credit Academic Record Option***

With the possible exception of courses in the major program, a student may elect to have the final grade in any course recorded on the official academic record either as P (Pass) if the reported grade is A, B, C, or D or as NC (No Credit) if the reported grade is F. The following provisions reflect the intent

of this option, which is to permit exploration of less familiar areas of study without weakening standards of evaluation or masking a record of poor performance.

A. Election of the P/NC option is limited to the first nine weeks of each semester. After the specified date as shown in the academic calendar, no changes either to or from the P/NC option may be made.

B. The Office of Records/Registrar does not communicate to the instructor in a course the names of students who elected the P/NC option.

C. The requirements for a major program may make the P/NC option unavailable in a course used to meet requirements for that major. Specific information may be obtained from the department or other agency which supervises the program.

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

### ***Satisfactory/Unsatisfactory Grading***

The Curriculum Committees of the College of Arts and Sciences and of the College of Engineering and Applied Sciences have the authority to approve the offering of certain courses on a Satisfactory/Unsatisfactory grading basis, where finer grading distinctions are impractical. The only grades given in such courses will be S and U. The grading policy for each course is to be announced in the description of the course in the *Undergraduate Bulletin*. For the purposes of determining academic standing, the S/U grade shall be equivalent to P/NC. Students may not elect to take such a course for P/NC.

### ***Final Examinations***

The academic calendar always provides five days each semester for a final examination period. A minimum of two days—usually the weekend—is allowed between the last day of classes and the first day of the final examination period. No examinations may be given in the last week of classes without permission of the Dean for Undergraduate Studies (for Arts and Sciences courses) or the Dean of Engineering and Applied Sciences (for Engineering and Applied Sciences courses). Such permission may be granted only for compelling academic reasons.

### ***Grade Point Average***

For the purpose of determining the grade point average specified in degree requirements, grades are assigned point values as follows: A = 4, B = 3, C = 2, D = 1, F = 0. Other grades do not enter into the grade point average, nor do course credits transferred from other institutions. For a collection of courses with quantitative grade values as shown above, the grade point average is found by multiplying the number of credit hours for each course by the point value of the grade assigned, adding the results, and then dividing by the sum of the credit hours for all of the courses.

### ***Semester Grade Reports***

Grade reports, which are advisory, are prepared as quickly as possible after the conclusion of each semester. Credit for repeated courses is included in the cumulative credits shown, even though not all such credits may ultimately count toward the degree. Consistent with the University's efforts to encourage mature and responsible behavior in all aspects of a student's development, it is felt appropriate to place upon the student the responsibility for communicating information regarding academic programs and progress to parents. Accordingly, grade reports are addressed to the student at the end of each semester.

### ***Repeating Courses***

Students may register again in a course for which they have already received a grade recorded as D, W, NC, or F. In such cases each grade is recorded and computed separately except that the credit hours earned in a given course may be counted only once toward the quantitative credit-hour degree requirements (120 semester hours for the B.A. and the B.S., 128 semester hours for the B.E.). Such a course will, however, count as part of the semester credit load. The same guideline applies to courses that have been renumbered and are listed under the new number, followed by the former number in parentheses, in the next *Bulletin* published and, until then, in the "Undergraduate Studies Newsletter."

### ***Challenge Program for Advanced Credit***

The University has established a Challenge Program which permits undergraduates to earn advanced placement and credit by taking examinations in place of regular courses.

Each department determines the courses for which it will offer Challenge examinations. No student may take a Challenge examination in a course which is a prerequisite for a course already passed. The maximum number of courses in which a student can accumulate Challenge credit (including credit from advanced placement examinations) is five. No more than 12 credits may be earned by Challenge examinations in a foreign language and those credits may be for a pass grade only, not a letter grade. Challenge credit may not be used to fulfill the residence requirement of 36 credit hours at Stony Brook after achieving upper-division status, and it does not count as part of the semester credit required for good academic standing.

Students seeking further information about the Challenge Program should consult the program guidelines which are available in the academic departments and the Undergraduate Studies Office.

### ***Attendance***

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

### ***Equivalent Opportunity/Religious Absences***

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

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

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

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

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

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

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

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

### ***Class Status***

As used in academic regulations and degree requirements, class designations are based on the following schedule of credits earned: freshman, 0—23; sophomore, 24—56; junior, 57—84; senior, 85 or more.

### ***Academic Standing***

Minimal acceptable academic progress is established in terms of the rate at which course credit is earned. The number of credit hours earned in a semester is the total

number of credit hours assigned to courses with recorded grades of A, B, C, D, S, or P (degree requirements specify, however, that a cumulative grade point average of at least 2.00 is required for all work undertaken after entrance into the junior year, 57 earned credit hours). A student who has not been dismissed under criteria B, E, or F below is considered to be in good academic standing. Any student dismissed for academic reasons may apply for readmission after a minimum of one semester's absence from the State University of New York at Stony Brook. A student dismissed twice may not apply for readmission. A student will be placed on notice or dismissed according to the following provisions:

### *Freshmen*

A. A student who in any given semester is classified as a freshman (0—23 earned credit hours) and who, in that semester and the preceding semester, earns a total of at least 16 but not more than 20 hours of credit will be placed ON NOTICE in the succeeding semester.

B. A student who in any given semester is classified as a freshman (0—23 earned hours) and who, in that semester and the preceding semester, earns a total of fewer than 16 hours of credit will be DISMISSED.

### *Students with 24 Credits or More*

C. A student other than a freshman (one who has earned 24 or more credit hours) who, in that semester and the preceding semester, earns a total of at least 18 but not more than 23 hours of credit will be placed ON NOTICE in the succeeding semester.

D. An upper-division student (one who has earned 57 or more credit hours) who in any semester earns less than a 2.00 grade point average will be placed ON NOTICE in the succeeding semester.

E. A student other than a freshman (one who has earned 24 or more credit hours) who, in that semester and the preceding semester, earns a total of fewer than 18 hours of credit will be DISMISSED.

F. A student who would otherwise be ON NOTICE for a third successive semester will be DISMISSED.

### *Part-Time Students*

A part-time matriculated student (registered for 11 or fewer

credits in any semester) must successfully complete two-thirds of the total number of credits attempted in any semester. Failure to do so will place the student ON NOTICE, or the student may be dismissed under terms set by the Committee on Academic Standing and Appeals or the Undergraduate Academic Affairs Committee.

### ***Committee on Academic Standing and Appeals for College of Arts and Sciences Students***

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

### ***Undergraduate Academic Affairs Committee for College of Engineering and Applied Sciences Students***

The Undergraduate Academic Affairs Committee in the College of Engineering and Applied Sciences considers petitions for exceptions to regulations regarding such matters as registration changes, course loads and academic standing. Information about academic regulations and advice about individual requests to the Committee may be obtained from the Undergraduate Student Office, Engineering 127.

### ***Academic Dishonesty***

Intellectual honesty is the cornerstone of all academic and scholarly work. Therefore the University views any form of academic dishonesty as a serious matter. The Academic Judiciary Committee of the College of Arts and Sciences and the Undergraduate Academic Affairs Committee of the College of Engineering and Applied Sciences are responsible for the establishment of guidelines for dealing with academic dishonesty in each College and for the consideration of individual cases, either initially or on appeal. Detailed procedures for hearings and other functions of the Academic Judiciary Committee are available from the Undergraduate Studies Office and those of the Undergraduate Academic Affairs Committee in Engineering 127.

## ***Academic Grievances***

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

The Committee considers only charges of clearly improper academic practices; it will not intervene in disagreements about an instructor's intellectual judgment. Grievances should be brought to the Committee only after other avenues of redress (e.g., discussion with the instructor or department chairman) have been pursued without success. Grievances should be put in writing, including names, dates, and other pertinent details, and should be submitted to the Committee at the Undergraduate Studies Office within two months after the date of the alleged impropriety. Further information about Committee procedures may be obtained from that office.

College of Engineering and Applied Sciences students seeking information on procedures should consult the Engineering Undergraduate Student Office.

## ***Research Involving Human Subjects***

All experiments conducted by Stony Brook personnel in which human subjects are involved are required to be reviewed and approved by the campus Committee on Research Involving Human Subjects. Since undergraduates are often asked to act as subjects, they should be aware that it is the right of any subject to know if such an experiment has received such approval and that State University policy forbids individual campuses to require the participation of students as subjects in human research. In almost every instance an informed consent form is required of the subject. This form serves to outline the risks, if any, to the subject and describes the subject's participation. Inquiries about such experiments should



be directed to the Executive Secretary of the Committee on Research Involving Human Subjects (246-7935).

### ***University Graduation Requirements***

All candidates for any of the bachelor's degrees conferred must satisfy all University graduation requirements described below, as well as the College and departmental requirements for the specific degree.

#### ***Credit Hour Requirement***

For graduation, a minimum of 120 credit hours of passing work must have been completed for the Bachelor of Arts and Bachelor of Science degrees except in certain areas of study where additional credits may be required. The Bachelor of Engineering degree requires 128 credit hours.

#### ***Grade Point Average Requirement***

A cumulative grade point average of at least 2.00 is required for all work undertaken after achieving upper-division status (57 earned credit hours). In order to obtain a baccalaureate degree from Stony Brook, transfer students, including part-time matriculated students, must attain a minimum cumulative grade point average of 2.00 based on completion of at least 36 credits earned at Stony Brook, after achieving upper-division status.

#### ***Residence Requirement***

For a student to be certified for a degree, he or she must have earned at least 36 credit hours at Stony Brook after achieving upper-division status.

#### ***Upper-Division Course Requirement***

Each candidate must earn at least 45 credit hours in upper-division courses (numbered 300 or higher).

#### ***Transfer of Credit***

Subject to certain limitations and conditions, course credit earned at other institutions may be applied to meet Stony Brook degree requirements.\* Courses taken at colleges offer-

---

\*See also page 54, Advanced Placement and page 55, Challenge Program for Advanced Credit.

ing only two-year (lower-division) programs will be presumed to be lower-division courses. Upper-division credit for transferred courses will be granted only on a course evaluation basis and only on the written approval of the undergraduate director of a department which might offer such a course.

Once a student has matriculated, prior approval normally will be required before he or she may take an upper-division course for credit in another institution. This is handled by the Admissions Office for Arts and Sciences students and by the Office of the Dean of Engineering and Applied Sciences for Engineering and Applied Sciences students. Those offices should be consulted by currently enrolled Stony Brook students before work is undertaken at any other institution.

### ***Awards and Honors***

The University pays tribute to its outstanding students through the conferring of awards, election to honorary societies, and granting of departmental and University honors. The following University awards are presented each year:

#### ***Ward Melville Valedictory Award***

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

#### ***William J. Sullivan Award***

The William J. Sullivan Award is presented annually by the Council of the State University of New York at Stony Brook in honor of Justice William J. Sullivan, retired Chairman of the Council. The Sullivan Award is the most prestigious service award the University can present 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.

#### ***H. Lee Dennison Award***

The H. Lee Dennison Award, named in honor of Suffolk County's first chief executive, is presented by the Council of the State University of New York at Stony Brook to the graduating senior who entered Stony Brook as a transfer student, com-

pleted at least 60 credits of letter grade work at Stony Brook, and attained the most outstanding academic record at Stony Brook in that work.

#### *The Distinguished Community Service Award*

The Distinguished Community Service Award is presented annually by the Stony Brook Foundation to a graduating senior in recognition of particularly outstanding contributions to public service in the Long Island region. This award is sponsored through a grant from the Suffolk Federal Savings and Loan Association.

#### *United University Professions Award*

The State University of New York at Stony Brook presents the United University Professions Award to that member of the graduating class who has most displayed an unselfish concern for the promotion and protection of human rights and values.

#### *Elizabeth D. Couey Award*

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

#### *Charles D. Breitel Pre-law Scholarship*

The Charles D. Breitel Pre-law Scholarship, named in honor of the Chief Judge of the New York State Court of Appeals, is presented annually by the University and the Suffolk County Bar Association. The award of \$500, supported by the generosity of the Bar Association, is made on the basis of scholarship, character, and need. Seniors whose permanent home address is in Suffolk County, and who are admitted to at least one accredited law school, are eligible.

#### *Junior Class Award*

The Junior Class Award is presented annually by the Women's Club of the State University of New York at Stony Brook to two outstanding juniors in recognition of academic

excellence and personal contributions to the University community.

#### *Faculty-Student Association Campus Life Award*

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

#### *The Elisabeth Luce Moore Fellowship*

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

#### *The George B. Costigan Scholarship*

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

#### *The Martin Buskin Scholarship*

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

#### *The Health Sciences Undergraduate Award*

The Health Sciences Undergraduate Award is presented annually by the Women's Club of the State University of New York at Stony Brook to a junior in the Health Sciences Center

for academic excellence and outstanding, non-academic service activities on campus and in the community.

#### *The Sylvia Green and Rosalind Polinsky Scholarship*

The Sylvia Green and Rosalind Polinsky Scholarship is presented annually by the Stony Brook Foundation to an undergraduate student of the College of Arts and Sciences who has demonstrated academic excellence and financial need.

#### *The Mortimer Kreuter Scholarship*

The Mortimer Kreuter Scholarship is awarded each year by a Fund committee to a mature person who needs financial assistance in order to return to or continue his or her undergraduate or graduate education.

#### *Richard B. Moore Scholarship*

The Richard B. Moore Scholarship, established by the Stony Brook Foundation to honor the memory of the distinguished civil rights activist and historian, provides annual recognition for a Stony Brook minority student with outstanding academic potential; it carries an award of \$1000.

#### *Departmental Awards*

Department awards include: *Chemistry*—CRC Freshman Award, Emerson Award to Outstanding Junior, American Institute of Chemists' Senior Award. *Earth and Space Sciences*—Myron Fuller Award for the outstanding major emphasizing geology and Sherman Raftenberg Award for the outstanding major emphasizing astronomy. *French*—French Cultural Institute Awards to outstanding graduating majors. *Hispanic Languages*—Best Student Award. *History*—Staudenraus Award. *Italian*—Dante Medal to the best graduating major, Italian Cultural Institute prizes to the best student of Italian on each level. *Physics*—the John S. Toll Prize to the outstanding graduating physics major. *Sociology*—Outstanding Scholarship Award and Outstanding Service Award to graduating majors.

#### *Honorary Societies*

Besides the annual awards listed above, induction into an honorary society acknowledges the student's outstanding

academic performance.

*Phi Beta Kappa* is a national honorary society devoted to the promotion of scholarly attainment in liberal arts and sciences. Election to Phi Beta Kappa is based not only on high grades but also on breadth, balance, and proportion in the candidates' programs.

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

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

Various disciplines have their own honorary societies. Those with chapters at Stony Brook include *Sigma Gamma Epsilon* (Earth Science), *Omicron Delta Epsilon* (Economics), *Phi Sigma Iota* (Romance languages), *Pi Sigma Alpha* (Political Science), and *Alpha Kappa Delta* (Sociology).

### *Departmental Honors Programs*

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

### *University Honors*

The criteria for University honors include 1) completion of at least 60 credits at Stony Brook, and 2) letter grades assigned to at least 80 percent of the student's work. Students in the 98th percentile or higher shall receive highest honors; those in the 93rd-97.9th percentile shall receive high honors; and

those in the 85th-92.9th percentile shall receive honors. Interested students should consult the Undergraduate Studies Office.

### ***Application for Graduation***

In order to become a candidate for graduation, a student must file an "Application for Graduation" form with the Office of Records. The deadline for such application is the end of the third week of the candidate's final semester. Prospective August graduates must apply by the end of the second week of Summer Session. No changes of grades can be made on a student's academic record after the degree has been awarded.

### ***Student Educational Records***

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

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

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

### ***Student Directory***

It is the policy of State University at Stony Brook to publish a Student Directory including student name, home address, telephone number, major and level. If a student does not wish to be listed in the Directory, or in the case of a minor student, if a parent does not wish such listing, he or she will be required to so indicate at the time of registration.

## ***Transcripts***

Students who desire transcripts of their academic record at Stony Brook, either for their own use or for forwarding to some other institution or agency, are asked to submit their request in writing to the Office of Records/Registrar at least two weeks before the transcript is needed except at the end-of-semester peak period when additional time should be allowed. The charge for transcripts is \$2 per copy. Payment should be made directly to the Bursar's Office and the receipt submitted to the Office of Records along with the transcript request. Partial transcripts of a student's record are not issued. Students will be provided with one free transcript upon request. Transcripts are sent only if the student's financial record is clear.

## ***Study at Other Institutions***

Students currently enrolled at Stony Brook have several options for transferring academic credit for study at other institutions.

## ***Summer Study Elsewhere***

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

## ***Visiting Student Program***

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



To qualify for the program a student must have the advance approval of his or her academic advisor or department chairman and an official statement from the Office of Records/Registrar that he or she is in good academic standing; the student must also accept full responsibility for tuition, fees, and any similar charges in effect at the host school. Both a "Withdrawal from the University" form and a "Readmission/Leave of Absence" application must be completed prior to leaving Stony Brook.

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

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

### *Foreign Study*

Qualified students may spend a summer, a semester, or a full academic year as a participant in a foreign study program sponsored by the State University of New York. Foreign study offers alternative social and cultural perspectives on studies in the humanities and social sciences and supplements offerings of the University in area studies; many programs provide an opportunity to gain proficiency in the use of a foreign language. Students may select from among a variety of programs available in most countries of Western Europe, the Soviet Union, the Middle and Far East, Canada, the Caribbean, and Latin America. Stony Brook itself sponsors programs in England, Denmark, Colombia, and Poland.

Participating in a semester- or year-long foreign study program requires advance planning. Quite often there are academic prerequisites to foreign study programs. Because the courses available through the programs are more limited than the selections offered on campus at Stony Brook, students who hope to participate in foreign study should project a plan of study that will allow them to complete University, College, and major requirements within an acceptable number of semesters. Interested students should seek infor-

mation and advice about foreign study in the Undergraduate Studies Office.

## ***Leave of Absence and Withdrawal from the University***

### ***Withdrawal from the University***

Withdrawal from the University, for any reason, will be recorded when the form entitled "Withdrawal from the University" has been completed and submitted to the Office of Records/Registrar. These forms may be obtained from the Office of Records. The date upon which the form is filed, and not the date of the last class attendance, is considered the official date of withdrawal. Non-attendance or notification to the instructors does *not* constitute formal withdrawal.

Students who submit withdrawal forms to the Registrar after the first two weeks but not later than the final day of classes in a semester will be assigned a withdrawal grade of W in each course. A withdrawal after the last day of classes is effective at the end of the semester; final grades will be assigned and the withdrawal will not preclude academic dismissal.

### ***Leave of Absence***

Students currently attending Stony Brook who withdraw from the University and wish at the same time to apply for a leave of absence should complete an "Application for Readmission and/or Leave of Absence" form. This form is available from the Undergraduate Admissions Office.

Exit interviews may be arranged with Admissions personnel if there are any questions regarding procedures. AIM (EOP) students must schedule exit interviews through the AIM Office; foreign students, with the foreign student advisor on the staff of Special Programs. Students who are withdrawing from the University without requesting a formal leave of absence and subsequent readmission should arrange an exit interview with the Undergraduate Studies Office.

Each leave of absence/readmission application is evaluated on the basis of previous academic achievement at Stony Brook, circumstances necessitating withdrawal, and the withdrawal date if a semester is interrupted. A student who withdraws from the University during the last four weeks of a semester cannot be considered for readmission until one semester has elapsed except for documented, extenuating circumstances, e.g., health problems. Withdrawal from the University to avoid dismissal or failing grades is not an

acceptable reason for granting a leave of absence for readmission the following semester. A copy of the withdrawal receipt must be attached to the leave of absence application before it will be processed. Petitioning for a leave does not withdraw one from the University; it merely establishes the desired date of readmission.

Filing a leave of absence/readmission application does not mean that it will be automatically approved. Applicants will be notified as final decisions are rendered.

Students granted a leave of absence at the time of their withdrawal from the University are regarded as approved for readmission provided they return at the time prescribed. Failure to return as scheduled cancels the leave agreement unless an extension has been granted by the Undergraduate Admissions Office. Requests for extensions should be submitted to the Undergraduate Admissions Office at least two months prior to the beginning of the semester agreed upon when the leave of absence was approved. Students for whom extensions have not been granted will be considered together with transfer admission candidates if they wish to return at a later time.

The leave of absence form is not the appropriate one for withdrawal from the University; the form entitled "Withdrawal from the University" must be used.

### ***Readmission to the University***

Students who have withdrawn, whether within a term or after the end of a term, or who have been dismissed and wish to be readmitted, must apply for readmission through the Undergraduate Admissions Office. Applications for readmission should be filed at least *two months* prior to the semester for which readmission is desired. Readmit applicants who were not granted a leave of absence will be considered together with transfer admission candidates in accordance with the qualifications and standards that apply to that group. Official transcripts must be submitted to the Undergraduate Admissions Office if students have attended other educational institutions after leaving Stony Brook.

Students under academic or disciplinary dismissal must be removed from that status by the appropriate University body in order to be considered by the Undergraduate Admissions Office for readmission. Clearances are secured in these matters after applications for readmission have been received by

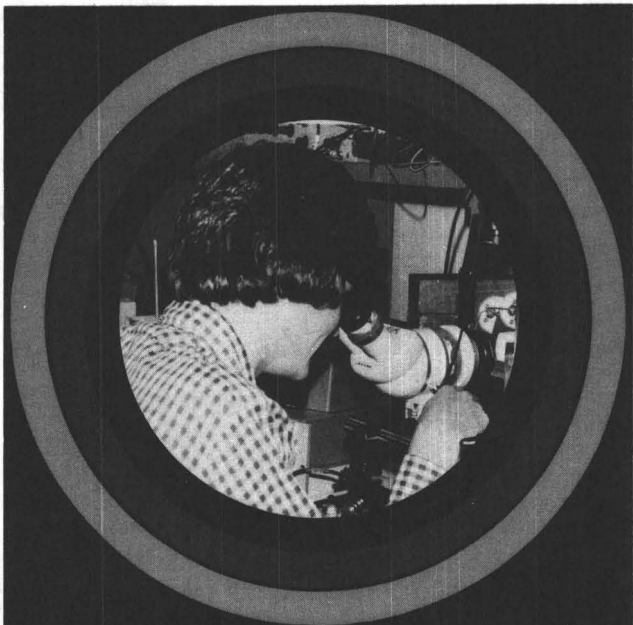
the Undergraduate Admissions Office. Interviews are encouraged with admissions personnel if an applicant wishes to discuss particular situations.

In the case of students who have been dismissed for academic reasons, at least one semester must elapse before they will be considered for readmission, and such readmission requires the approval of the Committee on Academic Standing and Appeals (for Arts and Sciences students) or the Undergraduate Academic Affairs Committee (for Engineering and Applied Sciences students). A student who has been dismissed twice is not eligible for readmission. Students who have been dismissed for academic reasons but whose period of dismissal has been waived by the Committee on Academic Standing and Appeals or the Undergraduate Academic Affairs Committee do not need to apply for readmission.

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

### ***Changes in Regulations and Course Offerings***

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



arts  
and  
sciences

# COLLEGE OF ARTS AND SCIENCES

## ***Degree Requirements***

All candidates for the Bachelor of Arts or Bachelor of Science degree must satisfy the following proficiency and distribution requirements. In addition, candidates must satisfy graduation requirements described on page 103 and the requirements for a major.

## ***Proficiency Requirements<sup>a</sup>***

### *A. Proficiency in English Composition*

All students must demonstrate competence in the clear and logical expression of ideas in written English. Proficiency in English composition shall be determined by performance on an examination given initially to new freshman and transfer students at or before entrance to the University.

1. Satisfactory performance on this examination shall satisfy the College's composition requirement. Students who fail to meet this standard initially shall be required to pass the course assigned. They must pass EGL 101 or LIN 192 before first repeating the examination. Transfer students who do not show proficiency on admission despite a previous composition course may take, with the consent of the examiners, a course from the list discussed in item 2 instead of the prescribed course. This must be passed before such a student may repeat the examination.

2. A student who fails the examination a second time shall be required to pass a course from a designated list (published each semester in the "Undergraduate Studies Newsletter") before retaking the examination. A course from the list must be completed before each subsequent repetition of the examination.

---

<sup>a</sup>Students classified as class of '80 or '81 at matriculation must satisfy the University requirements only. That is, they have neither a mathematics nor a foreign language proficiency requirement, and they may satisfy the English composition proficiency requirement either by passing the proficiency examination or by passing EGL 101.

### *B. Proficiency in Mathematics*

Students may satisfy the mathematics proficiency requirement in any one of the following ways:

1. Having passed while in high school the New York State Regents examination in Mathematics 11 with a score of at least 75.

2. Obtaining transfer credit in a mathematics course at the level of MSM 120 or higher.

3. Passing a special examination at the MSM 102 level administered by the Department of Mathematics several times during each academic year.

4. Enrolling in and passing MSM 102 or a mathematics course at the level of MSM 120 or higher.

Students who are unable to satisfy the mathematics requirement during the first year at Stony Brook must enroll in MSM 101 or MSM 102 in the first semester of the second year at Stony Brook and must pass MSM 102 before graduation.

### *C. Proficiency in a Foreign Language*

The language requirement is set at one year of introductory college work in a foreign language. It may be satisfied in any one of the following ways:

1. Having passed while in high school the New York State Regents examination in a foreign language with a grade of 75 or higher.

2. Having passed the College Entrance Examination Board Achievement Test in a foreign language with a grade of 525 or higher.

3. Passing a Stony Brook proficiency examination in a foreign language.

4. Enrolling in and passing a foreign language course numbered 111, 112; 113; 191 or higher; or obtaining transfer credit for equivalent courses.

### ***Distribution Requirements<sup>a</sup>***

Distribution requirements are normally met by attaining a passing grade in appropriate courses; however, *one* of the courses required in each area may be fulfilled by AP, CPE,

---

<sup>a</sup>Students classified as '80 or '81 *at matriculation* must satisfy only the University distribution requirements, which consist of two semester courses (6-8 credits) in each of the three divisions: Natural Sciences and Mathematics, Social and Behavioral Sciences, and Arts and Humanities.

CLEP, or Challenge credit.<sup>b</sup> No more than two courses with the same designator may be used to fulfill distribution requirements. Courses within the student's major (i.e., those with the same three-letter designator) do not fulfill distribution requirements. Courses in other departments that are required for the major may be used, unless the major department specifically determines that they may not. Only courses bearing 3 credits a semester or more may be used to fulfill distribution requirements.

The following categories of courses do not fulfill distribution requirements:

1. Elementary language courses.
2. Beginning studio and performance courses.
3. Remedial courses.
4. Incoming Student Seminars.
5. Activity-related courses (see page 125).
6. Independent study, directed readings and research courses (447, 448, 449, 482-489, PSY and ISP 287, and FRN and ITL 445).
7. Honors courses (495, 496).
8. Secondary teacher preparation courses, including student teaching and student-teaching seminars (450, 454), methods and materials, and observation.
9. Undergraduate Teaching Practica (475 and LIN 476).
10. Interdisciplinary courses bridging two major academic areas.
11. Statistics courses combining social science and mathematical elements.
12. Courses in which the topic changes each time the course is offered (except CLT 120).
13. Courses in Engineering and Applied Sciences and in the Health Sciences Center except those specifically listed as fulfilling Arts and Sciences distribution requirements.

#### *A. Natural Sciences and Mathematics*

Twelve credits to be chosen from among the offerings of the following Arts and Sciences departments: biological sciences, chemistry, earth and space sciences, mathematics, and physics. In addition, the following courses from the College of Engineering and Applied Sciences meet the requirement: ESC 101, 102, 201; ESG 261, 271, 301, 302, 332, 333,

---

<sup>b</sup>See information on advanced placement and the Challenge Program examinations as a means of earning semester hour credit toward graduation, pages 54 and 55 of this *Bulletin*.



363, 364, 372; ESI 193, 202, 205, 280, 281, 310; EST 220, 222; MSA 101, 110, 210; MSC 110, 111, 112, 120, 201, 205.

NOTE: Not acceptable to satisfy the natural sciences and mathematics requirement (in addition to courses with the numbers listed in the introduction to the Distribution Requirements section) are the following courses: BIO 200, 205, 282, 300; CHE 491-492; ESS 339, 340; MSE (all courses); MSM 101, 102, 105, 106, 300; PHY 339.

#### *B. Social and Behavioral Sciences*

Twelve credits to be chosen from among the offerings of the following departments or interdisciplinary programs: Africana studies,\* anthropology, classics,\* economics, history, Judaic studies,\* linguistics, political science, psychology, social sciences interdisciplinary program, and sociology.

NOTE: Not acceptable to satisfy the social and behavioral sciences requirement (in addition to courses with the numbers listed in the introduction to the Distribution Requirements section) are the following courses: AFS 205; ANT 120 (Prohibition applies to BIO majors only); ECO 114, 320; HIS 397, 398; LIN 191, 192, 333; POL 490; PSY 201, 205; SOC 202; SSI 280, 375, 397, 398, 490.

#### *C. Arts and Humanities*

Twelve credits to be chosen from among the offerings in the following departments or interdisciplinary programs: Africana studies,\* art, Chinese, classics and classical languages,\* comparative literature, English, French and Italian, Germanic and Slavic languages, Hispanic languages, humanities, Judaic studies,\* music, philosophy, religious studies, and theatre arts. One Health Sciences Center course, HSH 331, is also acceptable.

NOTE: Not acceptable to satisfy the Arts and Humanities requirement (in addition to courses with the numbers listed in the introduction to the Distribution Requirements section) are the following courses: Foreign language courses numbered 111, 112, 113, 115, 116; ARS 151, 152, 281, 282; CLT 331-363; EGL 100, 101, 102, 202, 287, 288, 344-368, 372, 374, 390, 393, 394; MUS 160, 261, 262, 263, and the first two semesters of MUS 161-187 or MUS 361-387; PHI 220, 330 (prohibition applies only to students required to take two semesters of calculus for the major); RUS 339; THR 130, 216, 222, 223, 225, 226, 230, 316.

---

\*Appropriate choices are identified in lists heading the sections of the *Bulletin* where the courses are described.

## ***Degree Programs***

Two different degree programs leading to the Bachelor of Arts or Bachelor of Science degree are open to students in the College of Arts and Sciences. (For information about degree programs in the College of Engineering and Applied Sciences, see that section of this *Bulletin*.) Freshmen should postpone formal choice of a degree program until at least the end of the first year, which should be used to explore a variety of fields of study and to complete as many as possible of the College distribution requirements. Before selecting a degree program students may consult an advisor in the Undergraduate Studies Office. The two choices of degree programs are:

### ***I. The Departmental Major***

This program consists of study concentrated in one of the academic departments of the College of Arts and Sciences and allows the student to explore in some depth the content, methods, and achievements of a given academic discipline. Departmental requirements and course offerings are listed in detail, and in alphabetical order by department, in this section of the *Bulletin*. They should be carefully considered and discussed with a member of the department.

### ***II. The Interdisciplinary or Interdepartmental Major***

This choice of degree program allows the student to investigate an area of concern which 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. Interdisciplinary programs are described in detail in this section of the *Bulletin* under individual headings alphabetically arranged. For further information consult the Undergraduate Studies Office or the director of the program.

## ***Special Programs***

### ***I. The Academic Minor***

An academic minor is a specified sequence of courses totaling between 18 and 24 credits, including at least 9 credits of upper-division work, that a student may choose to follow as a way of organizing electives. It does not lead to a degree. Participation in a minor is voluntary and includes not only completing the required sequence but also consulting the minor

coordinator initially and as work in the minor proceeds. Although minors are administered by regular departments or interdisciplinary programs, some include subject matter that cuts across several departments, programs, and colleges. Minor requirements are described in detail in this section of the *Bulletin* under the department or program administering the minor. For further information consult the minor coordinator or the Undergraduate Studies Office.

## *II. Federated Learning Communities*

The Federated Learning Communities offer a unique educational opportunity to concentrate study on a single theme of broad human significance in the perspective of six different academic disciplines and in the context of an academically based community of inquiry.

The heart of each FLC program is a series of seven courses offered over a two-semester span. Six of the courses are departmental courses that are related by their thematic focus (e.g., a philosophy course and a history course on technology). The seventh course is an interdisciplinary course taught by all six of the participating teachers. Optional additions to the FLC program are the Program Seminar and the individual thesis, both described below.

Although FLC may constitute all or part of a student's program, students who participate fully will have access to several unique learning experiences. In each program will be a Master Learner, a professor who will participate as a *student* in the program, attending classes with other students and assisting them in learning how to learn. This effort will be concentrated in a two-semester *Program Seminar* wherein the Master Learner will assist students to get the greatest intellectual benefit from their shared courses. In time, the Master Learner will place each fully participating student with an advisor who will direct an optional six-credit individual thesis in the theme of the program.

FLC programs are incorporated into the requirements of the University. Full participation in a lower-division program will frequently fulfill a substantial portion of the distribution requirements. Credit for a minor can be earned in most of the upper-division programs. And in all programs it is possible to build substantial credit to be applied subsequently to any one of several departmental majors.

About eight FLC programs are currently planned, roughly half at the lower division and half upper-division. Likely

themes include World Hunger; Technology, Values, and Society; Women and Men; and International Perspectives. For further information, consult the offices of FLC in the Old Physics Building.

### *III. Independent Study Program*

Within each of the two degree programs described above, a student may wish to undertake independent study. This may be done either through Directed Readings and Research under departmental auspices (see below) or through the Independent Study Program. This option is designed to allow the student, in consultation with appropriate faculty members, to develop an individual course of academic investigation and study. The procedure for obtaining approval of an independent study project is as follows: the student prepares a brief written outline of the study project, indicating its scope and purpose and the methods that will be used to conduct it. The student must then obtain from two faculty members written approval of the project and agreement to supervise it and to recommend appropriate academic credit. The completed dossier—project outline and endorsements—is then submitted by the sponsoring faculty member to the appropriate college committee for review. Guidelines for preparing the proposal are available in the Undergraduate Studies Office. The deadline for submitting proposals is announced early each semester for the following semester. Students whose proposals are approved register for either ISP 287, 487, or 488 (S/U grading only); the number is assigned according to whether the project entails lower-division or upper-division work.

If the student wishes to use the ISP project as part of a departmental or interdisciplinary major, written approval must be secured through departmental channels. Independent study projects may be distributed throughout the undergraduate years, although in most cases students should complete the College proficiency requirements and three-quarters of the distribution requirements before proposing independent study. A total of 30 credits of independent work, including all ISP credits and all credits in departmental directed readings and research courses (see below), may be offered toward the degree requirement of 120 credits, and as many as 15 credits may be earned in one semester. For further information consult the Undergraduate Studies Office.

#### *IV. Directed Readings and Research*

Independent study may also be done through procedures established by departments. With departmental permission, a student may enroll for no more than six credits of directed readings or research in a single department in any given semester. More than six credits of such courses are permissible if they are in more than one department. However, a student wishing to do an interdisciplinary project should be directed to the Independent Study Program.

#### *V. Internships*

The University has begun a program of internships with public and private sector agencies in Washington, D.C. and Albany, New York. These internships provide qualified upper-division undergraduates with an opportunity to integrate theory and practice and to explore career possibilities. Through the University's affiliation with the Washington Center for Learning Alternatives, Stony Brook students spend a semester or a summer working in the offices of a United States congressman, in some part of the executive or judicial branch of the Federal government, or in the national headquarters of agencies and organizations located in the capital. Students are also selected for participation in the New York State Assembly Session Intern Program each spring. A registry of internships in local government and social service agencies is being developed.

Interested students may obtain information and advice about available internships in the Undergraduate Studies Office.

#### *VI. Teacher Preparation*

The University offers programs to prepare students to become teachers in secondary schools. Students who complete Stony Brook's approved sequences are eligible for provisional teacher certification by New York State. They should plan to complete the requirements of either a departmental major or an interdisciplinary major and consult their major (or prospective major) department for assistance as early as the second semester of the freshman year. Teacher preparation programs are offered in the following secondary school subjects: biology, earth science, English, foreign languages (French, German, Italian, Russian, and Spanish), mathematics, physics, and social studies. The University does not offer elementary school teacher training.

Certification is not automatic upon successful completion of the program; the student must apply for state certification by completing the necessary application forms available in the Office of Teacher Certification.

### *VII. Incoming Student Seminars*

The Incoming Student Seminars are a special group of courses designed for freshman students and are limited to fifteen participants in each seminar. They afford the new student an opportunity to be introduced to intellectual inquiry in a small group, to meet at least one faculty member on a personal basis, and to improve basic reading, discussion, and writing skills at the outset of his or her college career.

In general, ISS courses are in subject matters not duplicated by the regular departmental offerings. They are credit courses, usually offering three credits toward the bachelor's degree. There are no prerequisites for these courses, and the seminars themselves are not prerequisites to any other courses. A brochure describing the seminars for fall semester is distributed during the summer at freshman orientation.

The instructor of the ISS course is the participating students' academic advisor until such time as they declare a major.

### *Course Credit and Prerequisites*

1. Only courses stating in the description that they may be repeated may be taken more than once for credit.

2. 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. Students registering in courses without proper permission may be de-registered.

3. An Arts and Sciences student may not receive credit for a course that is a prerequisite for a course already completed except with the permission of the Director of Undergraduate Studies of the department concerned.

4. Courses with "Teaching Practicum" in the title are available in some departments to provide credit for upper-division students who serve as teaching assistants. T.A. credit

may be earned only through these courses and can account for only 3 credits out of the 120 credits required for graduation.

5. Upper-division students with superior academic records may, with the permission of the Dean of the Graduate School, take graduate courses for undergraduate credit. Permission should be sought through the instructor and the chairperson of the department offering the course.

6. Under special circumstances undergraduates may receive permission of the instructor and the Dean of the Center for Continuing and Developing Education (CED) to take CED courses. These courses, however, may not be used to fulfill the degree requirement of 120 credits.

7. AFS 205, EGL 393, 394, PSY 205, SSI 280, and all 100-level physical education courses have been designated "activity-related" courses. Students are limited to a total of 9 credits in activity-related courses out of the 120 credits required for graduation. Of these 9 credits no more than 4 credits may be in 100-level physical education courses, and no more than one physical education course may be taken in a single semester.

### ***Undergraduate Numbering System***

- 000-099 Non-credit preparatory courses intended to remove pre-admission deficiencies.
- 100-199 Introductory courses; appropriate for and generally taken by freshmen.
- 200-299 Intermediate courses; appropriate for and generally taken by sophomores.
- 300-399 Upper-division courses; appropriate for and generally taken by juniors and seniors.
- 400-499 Special upper-division courses such as seminars, directed readings and research, teaching practica; appropriate for and generally taken by juniors and seniors. Certain 400-level courses for seniors only are so specified.

Note: The general prerequisite for all upper-division courses is completion of three courses in the same distribution area (Natural Sciences and Mathematics, Social and Behavioral Sciences, and Arts and Humanities). Specific courses are usually listed as some or all of these prerequisites. Where no specific courses are listed, the general prerequisite is understood.

# Interdisciplinary Program in Africana Studies

**Associate Professor:** Leslie H. Owens, Director, Ph.D. University of California at Riverside (Afro-American social history; Black family; civil rights movement; slavery)

**Assistant Professor:** Ernest F. Dube, Ph.D. Cornell University (Cognitive psychology; cross-cultural analysis)

**Lecturer:** William McAdoo, M.A. University of Michigan (United States urban, social, and institutional history; Afro-American history)

The Africana studies program is interdisciplinary in scope and addresses itself to the experiences of persons of African descent throughout the world. It is designed to explore African civilizations and their influences on other parts of the "Black Diaspora." Issues within the black international communities in Africa, the United States, and elsewhere will be examined from both historical and contemporary perspectives. Particular attention will be focused on political concepts, cultural development, legal relations, and social theories.

## **Requirements for the Major in Africana Studies**

The major in Africana studies leads to the Bachelor of Arts degree.

	<i>Credits</i>
1. AFS 101, 102 Themes in the Black Experience	6
2. AFS 206 Great Books of the Black Experience	3
3. AFS 205 Community Service	3
4. Two courses at the 200 level (from AFS 200, 225, 237, 239, 240, or 251). These are to be selected in consultation with a program advisor	6
5. Four upper-division courses other than AFS 447 and 487	12
6. AFS 447 Directed Readings or AFS 487 Directed Research to be taken in the junior or senior year	3
7. Nine credits in a related discipline (or six credits of AFS 111, 112 plus three credits in a related discipline as approved by a program advisor)	9
	<hr/>
	<i>Total</i> 42



## **Requirements for the Minor in Africana Studies**

The minor in Africana studies is intended to reach students interested in exploring aspects of the Black Experience in ways that relate to their own major field of study. It involves a regular sequence of lower- and upper-division courses to give the student a well balanced analysis of the varied aspects of the black past.

	<i>Credits</i>
1. AFS 101, 102 Themes in the Black Experience	6
2. One course selected from AFS 225, 237, or 239	3
3. One course, numbered 200 or higher, selected in consultation with the Minor coordinator	3
4. Three courses selected from upper-division courses other than AFS 447 and 487	9
5. Either AFS 447 Directed Readings or AFS 487 Directed Research to be taken in the junior or senior year	3
	<hr/>
	<i>Total</i> 24

## **Notes Pertaining to the Major and to AFS Courses**

No more than twelve of the thirty-three Africana studies credits may be taken at another institution (exceptions made in the case of planned foreign study). Appropriate choices to satisfy the College distribution requirements in the arts and humanities are the following courses: AFS 329, 330, 333, 346. Appropriate choices to satisfy the College distribution requirements in the social and behavioral sciences are the following courses: AFS 101, 102, 200, 225, 237, 239, 240, 251, 300, 319, 325, 335, 337, 338, 360, 370, 372, 375, 420, 490.

## **Courses\***

### **AFS 101, 102 Themes in the Black Experience I, II**

An historical survey of the experience of people of African descent. This course will examine the similarities and differences among the lifestyles of black people in Africa, the Caribbean, and America, with particular emphasis on the United States. The first semester will treat themes to 1865. The second semester will treat themes from 1865 to the present. *Fall and spring, 3 credits each semester*

### **AFS 111, 112 Elementary Kiswahili I, II**

An introduction to spoken and written Kiswahili, stressing pronunciation, speaking, comprehension, reading, and writing. Selected readings from contemporary texts will be included. Practice in the language laboratory supplements class work. *Fall and spring, 3 credits each semester*

\*See p. 124, Course Credit and Prerequisites, and p. 125, Numbering System.

**AFS 200 American Attitudes Towards Race**

An historical examination of the growth and development of racism in America. The focus will be on black Americans and their relationships with the American system, its institutions, and culture. References will be made to other ethnic groups in order to give balance to social conditions and attitudes shaping American society. *Fall or spring, 3 credits*

**AFS 205 Community Service**

Through field experience, readings, research, and discussion, students will focus on a social and educational problem relating primarily to the Black Experience. Specific programs may include tutoring in a prison setting, working with children from low-income families, and other projects to be announced. Grading in this course shall be Satisfactory/Unsatisfactory only. *Fall or spring, 3 credits*

**AFS 206 Great Books of the Black Experience**

An exploration of some of the key writings—from autobiographies to novels, etc.—important to becoming familiar with central lines of thought and interpretation in the larger Black Experience. Focus and readings will vary depending on each semester's emphasis. Prerequisite: Sophomore standing. *Fall, 3 credits*

**AFS 225 The African Revolution**

An exploration of those events which have been the basis of change in Africa, drawing from social, historical, and political perspectives; the role of Africa in world affairs; the events which have shaped the internal African national movements and liberation struggles, both past and present. *Spring, 3 credits*

**AFS 237 Introduction to the Afro-American Experience**

An exploration of facets of the Afro-American Experience both past and present, assessing some of the key events, personalities, and influences that have helped to shape black consciousness and its drive toward freedom. *Fall, 3 credits*

**AFS 239 Introduction to the Caribbean Experience**

An examination of the economic, social, and political lifestyles evident in the Caribbean region; how a black majority situation has influenced the region as well as the internal politics of select islands. The role of the islands in various phases of black struggle will be investigated. *Spring, 3 credits*

**AFS 240 Issues in Caribbean Society**

An interdisciplinary series of lectures designed to provide students with a broad topical introduction to fundamental issues in Caribbean societies. Topics selected will include education, government, race and identity, religion, tradition, and cultural continuity. Prerequisite: AFS 101, 102. *Spring, 3 credits*

**AFS 251 Education of the Afro-American in America**

An analysis of significant research and publications on the education of the Afro-American in America. Emphasis will be placed upon social, economic, political, and psychological factors which have conditioned educational opportunities for Afro-American citizens. Components of the present social crisis in America will be examined. Prerequisite: permission of instructor. *Fall, 3 credits*

**AFS 300 Blacks in the City**

An examination of the urban experience of black Americans with attention paid to the development of inner cities and the social policy that has helped to shape the urban consciousness of blacks in the twentieth century. *Fall, 3 credits*

**AFS 319 The Politics of Race (Formerly AFS 222)**

An analysis of the role which race plays in national policy formulation in the United States. The following topics will be examined: the institutionalization of racism in the American political culture; how blacks perceive political reality; elitism and pluralism; non-violence; patriotism and black nationalism; black politics and black power; the response of government to the demands of blacks; new political forms; future directions in black-white political relations. AFS 319 is identical with POL 319. Prerequisite: Three courses in the social sciences. *Spring, 3 credits*

**AFS 325 The Civil Rights Movement**

A detailed study of the movement for civil rights from its origins, examining the establishment of the NAACP, race relations between whites and blacks since 1900, the role of the Supreme Court and the federal government, and the turn to militancy in the 1950's and after. This course is identical with HIS 325. *Fall, 3 credits*

**AFS 329, 330 Pan-African Literature I, II**

An examination of the cultural themes of Pan-Africanism and Negritude, drawing on a selection of writers from the U.S., Africa, and the Caribbean. The course will treat the development, diffusion, and significance of these themes. It will involve intensive consideration of selected literary works of African and Afro-American expression. Prerequisites: Two courses in literature. *Fall and Spring, 3 credits each semester*

**AFS 333 Islam and Africa**

The historical development of Islam in Africa: examination of its impact on African societies; historical and philosophical viewpoints that highlight the contrast between the indigenous African value systems and those of Islamic belief. Prerequisite: Permission of instructor. *Fall, 3 credits*

**AFS 335 Contemporary African Problems**

An investigation of the nature of African societies by studying the variety of African political, social and traditional forms necessary to understanding developments in the 19th and 20th centuries. Emphasis will be upon some of the longstanding problems essential to understanding the diversity of ideas and people in the African scene. AFS 335 is identical with POL 335. Prerequisite: Two AFS or POL courses. *Fall, 3 credits*

**AFS 337 The Politics of Africa**

A study of nationalism, political thought, and political institutions in Africa. Consideration is given to the quest for unity, the problems of liberation, and the political implications of social change. This course is identical with POL 337. Prerequisites: Two AFS or POL courses. *Spring, 3 credits*

**AFS 338 Blacks, Personality Theory, and Politics**

An examination of the relationship between politics and personality in the Black Experience, exploring issues in a cross-cultural setting (Africa-U.S.) in an attempt to illuminate the psychological and political activities of peoples of African descent in the western world. Freudian, Marxist, Machiavellian, and Authoritarian Personality theories among others will be applied. Prerequisite: PSY 101, 102. *Spring, 3 credits*

**AFS 346 Black Religion**

A survey of the different forms of religious expression in the Black Diaspora (including such aspects as ritual magic, Obeah, voodoo, astrology, numerology and other divinatory practices). Also explored will be the function of the religious in Black society and its role on the philosophical, psychological, and social planes as it provides a basis for stability in the individual and community. *Fall, 3 credits*

**AFS 360 Black Social Commentary**

A study of black responses to the social order in America. The course will concentrate on the various ways black people have conceptualized and described their condition. Particular attention will be paid to the solutions proposed by black spokespersons during various historical eras. Prerequisites: Three courses in the social sciences. *Fall, 3 credits*

**AFS 370 The Black Family**

The black family in historical perspective. The nature and structure of that family, the obstacles that it has faced, and its interrelationships with the black community. *Fall, 3 credits*

**AFS 372 Contemporary Political Thought and the Black Community**

A critical analysis of the major architects of black political consciousness, and their movements in the context of their distinctive historical development. Emphasis will be upon the intellectual and ideological ferment of the 1920's (DuBois, Randolph, Garvey, et al.) and the 1960's (King, Muhammad, Malcolm, Karenga, Jones, Fanon, Black Panther Party, etc.). Prerequisite: Permission of instructor. *Spring, 3 credits*

**AFS 375 Slavery**

The historical experience of blacks in slavery with emphasis on the American South and with comparative references to slave systems as they developed in the Western Hemisphere. *Fall, 3 credits*

**AFS 420 Topics in Africana Studies**

An examination of a selected topic in the Black Experience to be announced each term. May be repeated. *Fall or spring, 3 credits*

**AFS 447 Readings in Africana Studies**

May be repeated once. Prerequisite: Permission of department. *Fall and spring, 1 to 3 credits*

**AFS 487 Research in Africana Studies**

May be repeated once, but only 3 credits will count toward fulfillment of major requirements. Prerequisite: Permission of department. *Fall and spring, 1 to 3 credits*

**AFS 490 Legal Process and Social Structure**

A critical evaluation of the administration of justice, legal institutions, and legal process in relation to prevailing social structure. Prerequisite: Permission of instructor. *Spring, 3 credits*

## Department of Anthropology

**Professors:** Pedro Carrasco, Chairman, Ph.D. Columbia University (Mesoamerica; social anthropology; culture history); Louis C. Faron, Ph.D. Columbia University (South America; social anthropology); Paula Brown Glick, Ph.D. University of London (Oceania; social anthropology); David

**Hicks**, Ph.D. University of London, D. Phil. University of Oxford (Indonesia; social anthropology); **Edward P. Lanning**, Ph.D. University of California at Berkeley (New World; archaeology; culture history)

**Associate Professors:** **W. Arens**, Ph.D. University of Virginia (Africa; social anthropology); **Nancy Bonvillain**, Ph.D. Columbia University (North American Indians; linguistics; social anthropology); **June Starr**, Ph.D. University of California at Berkeley (Middle East; social anthropology); **Robert F. Stevenson**, Director of Graduate Studies, Ph.D. Columbia University (Africa; social anthropology; culture history); **Phil C. Weigand**, Ph.D. University of Southern Illinois (Mesoamerica; archaeology; culture history); **Margaret C. Wheeler**, Ph.D. Yale University (North America; physical and social anthropology)

**Assistant Professors:** **David Gilmore**, Ph.D. University of Pennsylvania (Social anthropology; Mediterranean); **Theodore R. Kennedy**, Ph.D. Princeton University (America; Caribbean; social anthropology); **Dolores Newton**, Ph.D. Harvard University (South America; material culture); **Elizabeth C. Stone**, Ph.D. University of Chicago (Old World archaeology; Near East)

***Estimated Number of Teaching Assistants: 25***

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 and the humanities. A major or minor concentration also provides an academic background preparatory to a graduate program in anthropology. The curriculum emphasizes the fields of cultural, social, and ecological anthropology. The University Museum operates in conjunction with the Anthropology Department and offers a program of training and research in material culture and museology.

***Requirements for the Major in Anthropology***

The major in anthropology leads to the Bachelor of Arts degree. The following courses are required and must be taken for a letter grade.

<i>A. Study within the area of the major</i>	<i>Credits</i>
1. ANT 102 Introduction to Social and Cultural Anthropology	3
2. ANT 104 Introduction to Archaeology	3
3. ANT 200 Foundations of Social Anthropology	3
4. ANT 230 World Ethnography	3
5. One of the following two courses: ANT 120 Physical Anthropology ANT 363 Language and Culture	3
6. Two ethnographic area courses to be selected from the following: ANT 201, 203, 204, 206, 207, 209, 212, 216, 217, 218, 219, 313, 359	6
7. Two topical courses in society and culture to be selected from the following: ANT 251, 255, 280, 320, 350, 352, 353, 354, 356, 358, 361, 366, 367, 368, 371	6
8. Two 400-level courses. (Note that only 3 credits of ANT 447 Readings in Anthropology may be applied to fulfill this requirement.)	6
	<i>Total 33</i>

**B. Related courses**

Two courses selected with departmental approval from the following departments: Africana Studies, Economics, History, Linguistics, Political Science, Psychology, Social Science, and Sociology

***Requirements for the Minor in Anthropology***

Twenty-four credits in anthropology, 9 credits of which must be in upper-division courses, will constitute an anthropology minor. The course requirements follow those of the major program, with two exclusions. The program is:

1. ANT 102
2. ANT 104
3. ANT 200
4. ANT 230
5. Two area courses
6. Two topical courses

Students interested in an anthropology minor should consult with the department to plan an appropriate sequence for their particular needs.

All courses must be taken for a letter grade.

## ***Honors Program in Anthropology***

Majors with an excellent general academic record and a grade point average of 3.5 or better in anthropology courses may enter the honors program. The student should develop a plan of study with a faculty sponsor, to be approved by the chairman and the director of undergraduate studies. During the senior year the student will prepare the honors thesis, based upon independent research. The paper will be judged by two faculty members from Anthropology and one from outside the department who may recommend honors in anthropology. Students wishing to qualify for honors must so declare by the beginning of their final semester. Students recommended for honors must be approved by the full faculty of the department. Course credit for the honors thesis is usually in ANT 447, but in some instances another 400-level course may be appropriate.

### ***Courses\****

#### **ANT 102 Introduction to Social and Cultural Anthropology**

An analysis of the principles of social structure among simpler societies through an examination of various forms of kinship, marriage, family, age group, voluntary associations, and various levels of political, judicial, or religious and economic organization. *Fall and spring, 3 credits*

#### **ANT 104 Introduction to Archaeology**

An overview of archaeology as a field of study and an outline of humanity's earliest prehistory. Students are introduced to the methods, goals, and concepts used by archaeologists and presented with an outline of human physical and cultural development from the beginnings until 8000 BC. *Fall, 3 credits*

#### **ANT 120 Fundamentals of Physical Anthropology**

A consideration of human biological and cultural heritage through the study of: (1) physical characteristics and behavior of selected fossil and living primates, (2) physical and cultural characteristics of the Pleistocene hominids, with the relevant prehistoric archaeology, (3) a brief survey of a group of living hunters. Current research on human origins, genetics, evolution, race, and primate and human ethology will be discussed. *Fall and spring, 3 credits*

#### **ANT 121 Laboratory in Introductory Physical Anthropology**

A supervised laboratory in physical anthropology. Activities include comparative anatomy of the higher primates; measurements in physical anthropology; and opportunity to study casts of fossil materials. Prerequisite or co-requisite: ANT 120. *Fall and spring, 1 credit*

#### **ANT 200 Foundations of Social Anthropology**

An examination of the development of theory in social anthropology. Various theoretical approaches will be applied to analyses of ethnographic data and topics of concern to social anthropology. The aim will be to provide anthro-

---

See also p. 124, Course Credit and Prerequisites and p. 125, Numbering System.

pology majors with a broad and sophisticated preparation for advanced courses in the department. Prerequisite: ANT 102. *Fall and spring, 3 credits*

#### **ANT 201 Peoples of South America**

The course begins with a detailed coverage of problems of cultural and social evolution in South America during pre-Spanish times and continues this descriptive analysis into the colonial and contemporary periods wherever possible. Major or representative types of socio-cultural systems are discussed from a structural-functional point of view. Consideration is given to problems of cultural and social stability and change in the areas of kinship and marriage, politics, economics, religion, law, etc. Prerequisite: ANT 102. *Fall, 3 credits*

#### **ANT 203 North American Indians**

The various peoples and cultures of North America will be studied with respect to their political, educational, linguistic, social, and cultural patterns. Selected societies will be studied in depth. Prerequisite: ANT 102. *Spring, 3 credits*

#### **ANT 204 Peoples of Africa**

The range and distribution of African populations, languages, and socio-cultural systems are surveyed in both full historic perspective and environmental context. Special attention is paid to the implications of anthropological theory. The general survey is supplemented by intensive analysis of select socio-cultural systems. The course concludes with an assessment of the problems of the emerging African nation-states and of current research problems, programs, and goals in Africa. Prerequisite: ANT 102. *Fall, 3 credits*

#### **ANT 206 Peoples of Asia**

A survey of cultures and societies of Asia, with emphasis on the contemporary simpler societies and their integration into the complex civilizations. Prerequisite: ANT 102. *Spring, 3 credits*

#### **ANT 207 Indians of Modern Mexico and Guatemala**

The transformation of Indian societies after the Spanish Conquest. Culture and social institutions of the modern Indian: economic organization, village government, religion, etc. The place of the Indian in the social structure of Mexico and Guatemala. Prerequisite: ANT 102. *Fall, 3 credits*

#### **ANT 209 Ancient Civilizations of Mexico and Peru**

Ecological adaptation, economic systems, social and political institutions, religion, and intellectual achievements of the Aztecs, Incas, and other peoples of ancient Mexico and Peru. Prerequisite: ANT 102. *Fall, 3 credits*

#### **ANT 212 Peoples of Oceania**

The study of the environment and cultures of Pacific island communities of Melanesia, Micronesia, and Polynesia. Economic, kinship, political, and religious institutions will be considered as they have been and are now changing. Prerequisite: ANT 102. *Fall, 3 credits*

#### **ANT 216 Old World Prehistory**

Survey of the major events in the prehistory of the Old World after the end of the Pleistocene (8000 BC). Although emphasis will be on the introduction of food-producing societies and the development of civilization, attention will also be given to the non-civilized "Bronze Age" manifestations in Europe, Asia, and Africa. Prerequisite: ANT 104. *Spring, 3 credits*

#### **ANT 217 Studies in New World Archaeology**

A survey of the archaeological and historical Indian cultures of the New World with an emphasis on the pre-contact period. This will involve an over-



view of both North and South America. Prerequisite: ANT 104. *Fall, 3 credits*

### **ANT 218 Peoples and Cultures of the Middle East**

An introduction to the diverse ethnic groups, languages, religions, and socio-cultural systems of the Middle East. Special attention is given to the ecological and socio-cultural adaptations of nomads, villagers, and urbanites. Turkey, Iran, Afghanistan, the Arab states, and Israel will be considered in terms of their culture history and contemporary development. Prerequisite: ANT 102. *Spring, 3 credits*

### **ANT 219 Caribbean Cultures**

The study of the environment, history, and cultural and social institutions characteristic of the Caribbean area. Topics covered will include: pre-contact cultures, colonialism and the institution of slavery, contemporary economic and political organization, community structure, cults, mating patterns and household composition, and pluralism and ethnic diversity. Prerequisite: ANT 102. *Spring, 3 credits*

### **ANT 230 World Ethnography**

Adaptations and cultural development of peoples in different parts of the world, focusing on subsistence activities and their relationship to the development of distinctive social and political forms. Recent changes brought about by intercultural contact will also be discussed. Readings will be on selected peoples throughout the world. Prerequisite: ANT 102. *Fall, 3 credits*

### **ANT 251 Comparative Religious Systems**

A survey of the religious beliefs and practices of primitive peoples with special reference to symbols and value systems. The effects of culture contact on religious behavior and the basic religious beliefs of more complex societies will be discussed. Prerequisite: ANT 102. *Fall, 3 credits*

### **ANT 255 Material Culture, Technology, and Primitive Art**

An introduction to various approaches to the study of material culture in its technological and artistic aspects, using ethnographic and archaeological studies from many different cultures. Emphasis will be on viewing artifacts and their associated technologies within the context of a total culture, and in particular on seeing the relationship between material and non-material forms of culture. Prerequisite: ANT 102. *Spring, 3 credits*

### **ANT 280 Culture and Ecology**

Examination of human adaptations to the wide range of world environments, such as food-gathering, fishing, hunting, farming, and pastoralism. Intensive case studies concerning the selection, use, and allocation of resources by human communities will be presented. Consideration will be given to a variety of theoretical approaches which have focused upon the interaction between environment and cultural behavior. Prerequisite: ANT 102. *Spring, 3 credits*

### **ANT 313 China: The Social and Cultural Background (Formerly ANT 213)**

The development of Chinese culture from prehistoric times through the present is analyzed from the standpoint of anthropological theories of cultural evolution, diffusion, functionalism, and human ecology. Special attention is directed to critical formative and transitional periods. Distribution of physical types, languages, and ethnicities both within and without the Chinese frontiers is surveyed. Interpretations of Chinese development generated by sister disciplines are discussed from a sympathetic but critical point of view. Prerequisite: ANT 102 and either ANT 200 or two other courses in the social sciences. *Fall, 3 credits*

### **ANT 320 Primate Behavior and Human Ethology**

The comparative study of behavior of ground-dwelling higher primates and

other animals unrelated to humans but ecologically similar. A comparative anthropological approach to the genesis and functioning of human social systems. Prerequisites: ANT 120 and two courses in social or biological sciences. *Spring, 3 credits*

#### **ANT 350 Economic Anthropology**

Economic life of primitive peoples and pre-capitalistic civilizations with emphasis on the integration of the economy with technology and with social and political institutions. Prerequisites: ANT 102 and 200. *Spring, 3 credits*

#### **ANT 352 Culture and Personality (Formerly ANT 252)**

Culture as a factor in personality and character formation: anthropological theory and constructs will be considered in relation to such concepts as "self," "personality," and "character." The interrelationships of anthropology with its sister disciplines in the behavioral sciences will also be considered, as well as its importance for cross-cultural studies of socialization, change, and ethno-psychiatry. Prerequisites: ANT 102 and either ANT 200 or two other courses in the social sciences. *Spring, 3 credits*

#### **ANT 353 Political Anthropology (Formerly ANT 253)**

The description and analysis of political institutions in a historical and comparative perspective. Selected examples from different culture areas will be considered in terms of internal structure, political processes, and organizational changes in small bands, tribes, and states. Special attention will be given to the relationship between the political and other institutional features of the societies. Prerequisite: ANT 102 and either ANT 200 or two other courses in the social sciences. *Fall, 3 credits*

#### **ANT 354 Family and Kinship**

Family and marriage. Common descent groups. Kindreds. Kinship terminology and kinship behavior. Fictive kinship. The place of kinship in the total social structure. Change and evolution. Prerequisites: ANT 102 and 200. *Spring, 3 credits*

#### **ANT 355 Anthropology of Law**

The study of law processes among pre-industrial, industrial, and post-industrial societies. Topics are: local-level law, state and local relations, and comparative perspectives on U.S., European, Islamic, and Hindu law systems. Prerequisites: ANT 102 and either ANT 200 or two other courses in the social sciences. *Fall or Spring, 3 credits*

#### **ANT 356 Anthropology of Complex and Urban Societies (Formerly ANT 256)**

A review of current anthropological research on family and kinship behavior, status and role, personality, social stratification, mobility, assimilation, and political relations in complex and urban societies. Prerequisites: ANT 102 and either ANT 200 or two other courses in the social sciences. *Spring, 3 credits*

#### **ANT 358 Ways to Civilization**

A comparative study of processes of cultural evolution from the beginnings of farming to the achievement of civilization in different parts of the world. Prerequisite: ANT 102, 104, and either 200 or two other courses in the social sciences. *Fall, 3 credits*

#### **ANT 359 Archaeology of Mexico and Central America**

An introduction to concepts and methods of archaeological research applied to the study of the origins and development of pre-Columbian civilization of Middle America, with emphasis on the reciprocal relations between culture and environment. General trends in the areas of culture history and illustrative regional sequences from the establishment of sedentary farming

communities to the eve of the Spanish conquest. Prerequisites: ANT 104 and 217. *Fall, 3 credits*

### **ANT 361 Peasant Societies and Cultures**

The concept of peasantry will be examined from political, religious, and social class angles, as well as from the more traditional economic view. These agricultural peoples, who are essentially preliterate and preindustrial, are described and analyzed especially in relation to the national societies of which they form a part. Special attention is given peasant societies in Latin America, Africa, and Asia. Prerequisites: ANT 102 and 200. *Fall, 3 credits*

### **ANT 363 Language and Culture (Formerly ANT 263)**

The study of linguistic behavior and its interrelationship with other aspects of culture. Topics include sociolinguistics, language acquisition, non-verbal behavior, and linguistic acculturation. This course is identical with LIN 363. Prerequisites: LIN 101 or ANT 102 and either ANT 200 or two other courses in the social sciences. *Spring, 3 credits*

### **ANT 366 Anthropology Museum Workshop**

Advanced workshop and projects in material culture, technology, and primitive art. Students will participate in design and construction of museum exhibits that will entail background study and individual research in this field. Prerequisites: ANT 102 and 255. *Spring, 3 credits*

### **ANT 367 Male and Female in Cross Cultural Perspective (Formerly ANT 267)**

A study of the development and manifestation of sex roles in several different cultures, with an emphasis on the different adaptations of males and females in economics, politics, religion, and education. Prerequisites: ANT 102 and either ANT 200 or two other courses in the social sciences. *Spring, 3 credits*

### **ANT 368 Symbolism**

An analysis of ritual, oral literature, and other art forms as they operate as modes of symbolic expression in preliterate societies, and an investigation of the structural and functional relationships between these and the social institutions and structures of a selected range of societies. Prerequisites: ANT 200 and 251. *Fall, 3 credits*

### **ANT 371 Social and Cultural Change (Formerly ANT 271)**

An examination of the forms and processes of change which have been and now are taking place throughout the world, transforming isolated people of simple economy and social organization into participating members of modern states. Prerequisites: ANT 102 and either ANT 200 or two other courses in the social sciences. *Fall, 3 credits*

### **ANT 401 Development of Anthropological Theory and Method**

An evaluation of the central ideas of several schools of anthropology since the latter 19th century, with an appraisal of their effect on contemporary anthropological theory and methodology. Prerequisite: ANT 200. *Fall, 3 credits*

### **ANT 402 Problems in Prehistory**

Research and discussion about selected topics in the prehistory of the Old and New Worlds. Specific problem areas will vary each year and will be announced at the beginning of the term. Prerequisites: ANT 104 and 216 or 217. *Spring, 3 credits*

### **ANT 410 Problems in Ethnology**

Research and intensive examination of a selected problem in regional anthropology. The focus will vary each year and can include a broad study of an ethnographic area or a theoretical problem in a given area. Independent

research and a paper are required. Prerequisite: ANT 200. *Fall, 3 credits*

**ANT 421 Anthropological Field Methods**

Methods, problems and experience in anthropological field techniques. It will focus on field methods in linguistics, archaeology, or cultural anthropology. The specific focus of each year will vary and will be announced at the beginning of the term. Prerequisites: ANT 200 and permission of instructor. *Spring, 3 credits*

**ANT 447 Readings in Anthropology**

Individual advanced readings and research on selected topics in anthropology. Work may be submitted for honors in anthropology. May be repeated twice. Prerequisites: ANT 200 and permission of department. *Fall and spring, 3 credits*

**ANT 491, 492 Special Seminar in Anthropology**

Discussion of a specific area of current interest in anthropology. Topics will change and will be announced for each semester. Students will write papers on individual research topics. Prerequisite: ANT 200. *Fall and spring, 3 credits each semester*

## Department of Art

**Professors:** Lawrence Alloway, Gallery Director (Art criticism; 20th century art); Leopoldo Castedo, M.A. University of Barcelona (Art and architectural history; Latin American art and culture); Jacques Guilmain, Ph.D. Columbia University (Art and architectural history; medieval art); Irma Jaffe, Part-time, Ph.D. Columbia University (Art history and criticism; 19th and 20th century art; art of the U.S.); George Koras, Diploma, Athens Academy of Fine Arts (Drawing; plastic and cast-metal sculpture); Donald B. Kuspit, Chairman, Ph.D. University of Michigan; D.Phil. University of Frankfurt (Art criticism; 20th century art; Northern Renaissance art)

**Associate Professors:** Edward Countey (Painting; design; printmaking); James H. Kleege, M.F.A. Syracuse University (Design; welded metal sculpture); Nina A. Mallory, Ph.D. Columbia University (Art and architectural history; Renaissance, Baroque, and 18th century art); Melvin H. Pekarsky, M.A. Northwestern University (Drawing; painting; public art);

**Robert W. White**, Part-time, Rhode Island School of Design (Drawing; terra cotta, stone, and wood sculpture)

**Assistant Professors:** **Toby Buonagurio**, Part-time, M.A. The City College of New York (Ceramics; ceramic sculpture); **Michael Edelson** (Photography; history of photography; photo-journalism); **Aldona Jonaitis**, Director of Undergraduate Studies, Ph.D. Columbia University (Art and architectural history; primitive, pre-Columbian, and ancient near Eastern art); **Cynthia Lawrence**, Part-time, Ph.D. University of Chicago (Art and architectural history; Baroque and Renaissance art; social history of art); **Claire Lindgren**, Ph.D. Columbia University (Art and architectural history; Greek and Roman art); **Daniel Welden**, M.A. Adelphi University (Printmaking; drawing and painting)

**Lecturers:** **Gabor B. Inke**, Affiliate, M.D. Pazmany Peter University, D.D.S. Halle/Saale (Anatomy); **Toni Ross**, Adjunct, M.A. New York University (Art therapy); **Louisa Shen Ting**, Part-time, M.Phil. Columbia University (Art and architectural history of Asia; Chinese painting)

The undergraduate programs in art are designed to provide the student with a thorough background in the history and criticism of art, as well as sound training in studio techniques and theory. The courses of study, while allowing students a considerable degree of choice, are carefully integrated toward fulfilling requirements for graduate study or preparation for professional work in the field.

### ***Requirements for the Major in Art History and Criticism***

The major in art history and criticism leads to the Bachelor of Arts degree.

	<i>Credits</i>
1. ARH 101 and 102	6
2. Seven additional courses in art history and criticism, of which at least four must be in upper-division courses, and one must be in Ancient art, one in Medieval art, one in Renaissance art, one in Baroque art, one in Modern art (19th or 20th century), and one in non-Western art (Far Eastern, Primitive, Latin American — including Pre-Columbian)	21
3. ARS 151 and ARS 152, or — especially for stu-	

dents planning graduate work in art history — a year of French or German, in addition to the College language requirement 6

4. In consultation with the departmental advisor, six credits in humanities or social sciences, in addition to the College requirements in those areas, and the recommended language year under 3, above 6

---

Total 39

### *Notes on the ARH Major*

1. Of the 39 credits in arts or related fields required for the major, 36 must be taken for letter grade (and 3 may be taken Pass/No Credit).

2. All upper-division ARH courses must be passed with a grade of C or better.

### *Requirements for the Major in Studio Art*

The major in studio art leads to the Bachelor of Arts degree.

	<i>Credits</i>
1. ARH 101	3
2. ARH 102	3
3. ARS 151	3
4. ARS 152	3
5. ARH 221	3
6. ARH 224	3
7. At least three additional credits in art history/ criticism	3
8. Thirty-six additional credits in studio art, of which 12 must be in upper-division courses, and 12 must be in studio theory courses (see Notes 4 and 5, below)	36

---

Total 57

### *Notes on the ARS Major*

1. Studio art majors must complete a minimum of 122 credits of passing work for the Bachelor of Arts degree.

2. All ARS courses and four of the ARH courses used to fulfill the requirements for the major must be taken for letter grade. (One ARH course may be taken Pass/No Credit.)

3. All upper-division ARS courses must be passed with a grade of C or better.

4. The studio art major should note that requirements 1

through 6, above, are prerequisites for virtually all upper-division courses and that 12 credits in advanced studio/theory can satisfy both studio/theory and upper-division requirements. Exceptions to requirements for the major and to course prerequisites are by permission of the department only, and will be made only under special circumstances.

5. The following are studio/theory courses: ARS 291, 292, 351, 352, 365, 366, 375, 376, 383, 420, 422, 488.

### ***Minor in Photography***

The photography minor is designed to give the student a high degree of competence in the studio and the darkroom, and may be pursued as part of the art major, or as a separate program. Students interested in pursuing a minor in photography are strongly urged to plan their program with the photography program coordinator.

	<i>Credits</i>
1. ARS 281	3
2. ARS 282	3
3. ARS 381	3
4. ARS 382	3
5. ARS 383	3
6. ARS 420, ARS 488, or other elective in consultation with the faculty coordinator	3-4
	<i>Total</i> 19-20

### ***Qualifications***

1. The Art Department reserves the right to select students for admission to all its photography courses on the basis of an interview (and review of samples of the student's work for the advanced courses).

2. The Art Department reserves the right to reject previous training in photography as equivalent to any part of the S.U.S.B. program.

### ***Honors Program in Art***

The honors program is open to seniors majoring in art history/criticism or studio art who have maintained a grade point average of at least 3.0 overall and a 3.0 in the major. Students should apply for the honors program before the beginning of their senior year. The student must find a faculty member of the department to act as sponsor. The student, with the ap-

proval of the sponsor, must submit a proposal of a project, in writing, to the department. Acceptance into the honors program depends upon the approval of the proposal by the department.

In the art history area, the student's research project will be supervised by the honors advisor. In the studio art area, the student will be expected to prepare a small one-person show or similar project (i.e., one large, more ambitious work) in lieu of a thesis, under the supervision of the honors advisor.

The student's project will be judged by a jury composed of at least two members of the Art Department and a faculty member from another department, recommended to the Dean for Undergraduate Studies by the chairman of the Department of Art. This pertains to students in both the art history/criticism and studio art majors.

When the honors program has been carried out with distinction, conferral of honors will be contingent upon the student's achieving a 3.5 grade point average in all art courses taken in the senior year.

## **Courses\***

### *Art History/Criticism*

#### **ARH 101 History of Art and Architecture from Earliest Times to c. 1400**

A survey of the history of art and architecture in the Western world from its earliest beginnings to the end of the Middle Ages. *Fall and spring, 3 credits*

#### **ARH 102 History of Art and Architecture from c. 1400 to the Present**

A survey of the history of art and architecture in the Western world from the end of the Middle Ages to the present. *Fall and spring, 3 credits*

#### **ARH 200 Ibero-American Plateresque and Baroque Art and Architecture (Formerly ARH 314)**

A study of the painting, sculpture, and architecture of Ibero-America from the 16th to the 18th centuries. Prerequisite: ARH 101 or 102. *Spring, alternate years, 3 credits*

#### **ARH 201 Latin American Art**

A survey of the art and architecture of Ibero-America from the pre-Columbian civilizations to the present time, emphasizing Creole or *mestizo* expressions. Prerequisite: ARH 101 or 102. *Fall, alternate years, 3 credits*

#### **ARH 203 Survey of Far Eastern Art**

A general course on Far Eastern art covering India, China and Japan from its beginnings to the present. Emphasis will be on the major arts of painting and sculpture, with some reference to architecture. Prerequisite: ARH 101 or 102. *Spring, alternate years, 3 credits*

#### **ARH 204 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

---

\*See p. 124, Course Credit and Prerequisites, and p. 125, Numbering System.



the evolution of modern art. Prerequisite: ARH 102. *Fall, 3 credits*

**ARH 206 The Art and Architecture of the High Middle Ages, c. 1050-1400 (Formerly ARH 304)**

The study of Romanesque and Gothic sculpture, architecture, painting, (including stained glass and manuscript illumination), metalwork, and ivory carving from c. 1050 to the crystallization of the "International Style," c. 1400. Prerequisite: ARH 101. *Fall, 3 credits*

**ARH 207 Art of the Ancient Near East**

The study of the art and architecture of Mesopotamia and Egypt from Neolithic times to the Age of Alexander. Theoretical issues to be discussed will be: the development of civilization and the expression of that development in art; the interrelationships of both art and politics and art and religion. Prerequisite: ARH 101. *Fall, 3 credits*

**ARH 211 The Early Renaissance in Italy (Formerly ARH 305)**

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. Prerequisite: ARH 101. *Fall, alternate years, 3 credits*

**ARH 212 Early Netherlandish Painting (Formerly ARH 306)**

The development of painting in the Netherlands during the 15th century will be studied from its origins in the late Gothic manuscript illumination to its last manifestations in the early 16th century. Major emphasis will be placed on the founders of the Netherlandish school: the Master of Flemalle, Jan van Eyck, and Roger van der Weyden, and on the great figures of the end of the century: Hugo van der Goes, Geertgen, and Bosch. Prerequisite: ARH 101 or 102. *Spring, alternate years, 3 credits*

**ARH 214 Northern Baroque Art (Formerly ARH 310)**

Painting and sculpture in Holland, Belgium, and France in the 17th century. Special emphasis will be placed on the works of such major figures as Rubens, Hals, Rembrandt, and Poussin. Prerequisite: ARH 102. *Spring, alternate years, 3 credits*

**ARH 221 Art of the 19th Century (Formerly ARH 319)**

The history of painting, sculpture, and architecture in the Western world from the late 18th century to 1900. Emphasis will be placed on major artists and movements. Prerequisite: ARH 102. *Fall and spring, 3 credits*

**ARH 224 Art of the 20th Century (Formerly ARH 321)**

The major movements and individual artists in 20th-century painting and sculpture, including reference to the broader socio-cultural context of art. Prerequisite: ARH 102. *Fall and spring, 3 credits*

**ARH 240 Introduction to Library Research in Art History and Criticism (Formerly ARH 482)**

The student, in consultation with the instructor, selects an art history or art criticism research project requiring fairly extensive library research of moderate difficulty. The course includes individual advising sessions as well as class lectures and discussions designed to familiarize the student with specialized art resources. Prerequisite: ARH 101 or 102. *Spring, 3 credits*

**ARH 300 Greek Art and Architecture**

The study of ancient Greek art and architecture from the earliest beginnings in the geometric period through the archaic, classical, and Hellenistic periods. Prerequisite: ARH 101 or 102. *Spring, alternate years, 3 credits*

**ARH 301 Roman Art and Architecture**

The study of ancient Roman art and architecture from the Republic through

the Constantinian period in Italy and the greater Roman world including the Iberian peninsula, Gaul, Britain, Germany, Greece, Asia Minor, Judea, Syria, Egypt, Cyrenaica, and Tunisia. Prerequisite: ARH 101 or 102. *Spring, alternate years, 3 credits*

**ARH 303 The Art and Architecture of the Early Middle Ages, c. 400-1050**

After a short background introduction to Early Christian art and architecture, the course concentrates on migration and Hiberno-Saxon art, Carolingian art and architecture, and the 9th- and 10th-century art traditions of Northern Spain, Anglo-Saxon England, Ottonian Germany, and Viking Scandinavia. Prerequisite: ARH 101. *Spring, 3 credits*

**ARH 307 High Renaissance and Mannerism in Central Italy**

Art and architecture in Florence and Rome in the 16th century. The High Renaissance will be studied in the works of Leonardo, Michelangelo, Raphael, and Bramante; Mannerism in the works of Pontormo, Bronzino, Gianbologna, Giulio Romano, and Vignola, among others. Prerequisite: ARH 101 or 102. *Fall, alternate years, 3 credits*

**ARH 309 Northern Renaissance Art**

Painting and the graphic arts in Germany and the Netherlands in the 16th century. The rise of genres and Italian influences in Northern art. Emphasis will be placed on such major figures of the period as Dürer, Grünewald, Holbein, and Bruegel. Prerequisite: ARH 102. *Spring, alternate years, 3 credits*

**ARH 311 Venetian Art and Architecture from the 15th through the 18th Centuries**

Venetian painting will be studied from the early Renaissance works of the Bellini family, Antonello da Messina, and Mantegna, through the 16th century in such major figures as Giorgione, Titian, Tintoretto, and Veronese, to its final phase in the 18th century, with Piazzetta, Tiepolo, and Guardi. The work of such architects as Sansovino, Palladio, and Longhena will also be studied. Prerequisites: ARH 101 and 102. *Fall, 3 credits*

**ARH 312 Baroque Art and Architecture in Italy and Spain**

Italian painting, sculpture, and architecture, and Spanish painting in the 17th century. Special emphasis will be placed on the contributions of such major figures as Caravaggio, Bernini, Borromini, and Velazquez. Prerequisite: ARH 102. *Fall, alternate years, 3 credits*

**ARH 313 Art of the United States**

Painting, sculpture, and architecture from the American Revolution to modern times. Special emphasis will be placed on John Singleton Copley, the Hudson River School, and important individual artists of the 19th and 20th centuries up to World War II. Prerequisite: ARH 102. *Fall, alternate years, 3 credits*

**ARH 317 Pre-Columbian Art**

A survey of the artistic forms of pre-Columbian civilizations from archaeological Olmecs to the architecture of *Machu Pichu*. Prerequisite: ARH 101 or 102 or 201. *Spring, alternate years, 3 credits*

**ARH 318 History of Chinese Painting**

A study of Chinese painting from its beginnings to the present, in relation to art theories. Prerequisite: ARH 101 or 102 or 203. Chinese history or philosophy courses are recommended. *Spring, alternate years, 3 credits*

**ARH 322 American Art Since 1947**

A survey of painting and sculpture in New York, including abstract expressionism, "hard edge" painting, pop art, minimal art, and earthworks. Prerequisite: ARH 102. *Spring, alternate years, 3 credits*

### **ARH 323 Major Artists**

A single major artist or architect will be selected. His or her development, works, and influence on others will be carefully analyzed through lectures and class discussions. May be repeated once with departmental permission. Prerequisite: ARH 102. *Fall, alternate years, 3 credits*

### **ARH 324 Modern Architecture and Design**

The history of architecture and design from c. 1760 to the present. Such subjects and concepts as the crystallization and evolution of Romantic Naturalism, "historicism," the Arts and Crafts movement, "machine aesthetics," Art Nouveau, the Beaux-Arts tradition, "functionalism," the International style, and Art Deco will be covered. Prerequisites: ARH 101 and 102. *Fall, 3 credits*

### **ARH 326 History of Criticism**

A study of the theory and development of art criticism from the Renaissance to the present. Prerequisite: ARH 102. *Fall or spring, 3 credits*

### **ARH 328 Theoretical Foundations of Modern Art**

An examination of artists' writings and other theoretical materials that express the intention of 20th century art. Beginning with the letters of Cézanne and Van Gogh, and ending with some of the tracts meant to justify Minimal art, and introducing philosophical, sociological, and psychological materials, the meaning of 20th century art will be interpreted. Prerequisite: ARH 224. *Fall or spring, 3 credits*

### **ARH 329 Primitive Art (Formerly ARH 205)**

A study of the arts of the native peoples of Africa, Oceania, Siberia, and North America. Emphasis will be on application of theories on art and religion, art and social control, art and structuralism. Prerequisite: ARH 101 or 102. *Spring, 3 credits*

### **ARH 340 The Social History of Art**

Art and architecture from the Stone Age to the present are analyzed in terms of the place and time of their origin. In each period works are considered in relation to contemporary political, economic, social, and cultural developments. The education and training of the artist, the changing demands and status of the profession, and his or her relationship to patrons and public are also emphasized. Prerequisites: Two social science and two humanities courses. *Spring, 3 credits*

### **ARH 400 Topics in Art History, Ancient to Modern**

A special course offered from time to time by the department, utilizing the unique talents and facilities of the art history/criticism faculty. Topics to be announced. May be repeated once with permission of the departmental advisor. Prerequisites: At least five courses in art history and permission of instructor. *Fall or spring, 3 credits*

### **ARH 401 Topics in 20th Century Art**

An advanced course for students who have a basic familiarity with modern art. It is intended as a detailed study of a single style and, in addition, as an example of the research methods by which art movements are approached. Topic to be announced. May be repeated once with departmental permission. Prerequisite: ARH 224. *Spring, 3 credits*

### **ARH 402 Topics in Art Criticism**

A study of the practice and theory of criticism. Typical areas of concentration would be Renaissance art criticism, 19th century French art criticism, the criticism of a particular artist or movement, and post-1945 American art criticism. May be repeated once with departmental permission. Prerequisite: ARH 224. *Fall or spring, 3 credits*

### **ARH 475 Undergraduate Teaching Practicum**

Each student will periodically conduct a recitation session that will supplement a regular art course. The student will receive regularly scheduled supervision from the instructor. Responsibilities may include supplementary teaching and review sessions and assisting students with research methods. Grading in this course shall be Satisfactory/Unsatisfactory only. Prerequisites: Art history/criticism major, preferably senior standing, sponsorship of an instructor, and permission of department chairman. *Fall and spring, 3 credits*

### **ARH 487 Independent Reading and Research in Art**

A project designed by the student involving reading, research, or field work in art history or criticism, conducted under the supervision of a faculty member. The course may be repeated for a maximum of 12 credits. Prerequisites: At least four courses in art, sponsorship of a faculty member, and permission of department chairman. *Fall and spring, 1 to 6 credits*

### *Studio/Theory\**

#### **ARS 151 Introductory Still-Life, Composition, Painting, and Drawing**

Introducing the student to drawing and painting media and techniques, and to the study of color, perspective, and composition. Prerequisite: Permission of department. *Fall and spring, 3 credits*

#### **ARS 152 Figure Drawing and Painting**

Studio course stressing drawing and painting from the nude and draped model, and investigating anatomy, foreshortening, and the expressive potential of the figure in the visual arts. ARS 151 and 152 may be taken independently of each other. Prerequisite: Permission of department. *Fall and spring, 3 credits*

#### **ARS 251, 252 Intermediate Painting**

Painting and drawing for the second-year student stressing individual development and exploration of the media and craft of painting. Studio and discussion. ARS 251 and 252 may be taken independently of each other. Prerequisites: ARH 101, 102, ARS 151, 152, and permission of department. *Fall and spring, 3 credits each semester*

#### **ARS 258 Drawing Studio**

Work in all drawing media. May be repeated once with permission of instructor and department. Prerequisites: ARS 151, 152 and permission of department. *Fall and spring, 3 credits*

#### **ARS 261, 262 Fundamentals of Sculpture**

An introduction to the techniques and formal principles of sculpture. ARS 261: modeling, casting, and carving. ARS 262: welding and related techniques. ARS 261 and 262 may be taken independently of each other. Prerequisites: ARH 101, 102, ARS 151, 152, and permission of department. *Fall and spring, 3 credits each semester*

#### **ARS 264 Ceramics**

Investigation of ceramic ware and ceramic sculpture media, techniques, and styles through wheel, hand-built, slab, and modeled projects; firing processes with gas and electrical kilns. May be repeated once with permission of instructor. Prerequisites: ARS 151, 152, and permission of department. *Fall and spring, 3 credits*

---

\*Waiver of prerequisites in studio/theory courses requires permission of department.

### **ARS 271, 272 Fundamentals of Graphic Arts**

Exploration of intaglio, relief, and planographic printmaking processes. ARS 271: woodcut and wood engraving, engraving and etching. ARS 272: silk-screen and lithography. ARS 271 and 272 may be taken independently of each other. Prerequisites: ARH 101, 102, ARS 151, 152, and permission of department. *Fall and spring, 3 credits each semester*

### **ARS 281 Photography I**

An intensive course with extensive practice and experimentation in the aesthetics, techniques, and materials of photography. It will be expected that the student's academic program or vocational objectives require a real need for training in photography. Students must provide their own camera and materials. Prerequisites: Sophomore standing and permission of instructor. *Fall, 3 credits*

### **ARS 282 Photography II**

An intermediate level course for those who have mastered basic camera and darkroom techniques and have acquired an understanding of photographic aesthetics. Further exploration of photography as a means of personal visual expression, along with a continued intensive examination and application of materials and techniques. Students must provide their own camera and materials. Prerequisites: ARS 281 and permission of instructor after interview and review of portfolio. *Spring, 3 credits*

### **ARS 291 Two-Dimensional Design Theory and Techniques and Graphic Representation**

A course in the theories and techniques of perspective drawing, isometric projection, multiphase drawings, motion studies, graphics, and analytical drawing, and their application to selected projects. Air-brush instruction is available. Prerequisites: ARS 151, 152, and permission of department. *Fall, 3 credits*

### **ARS 292 Theory and Practice of Three-Dimensional Design**

Theoretical and practical use of graphic (photos, drawings, paintings) and non-graphic (modulators, scale models, test models, full-scale mockups, and prototypes) media to study the elements of design in space. Students may stress 2D or 3D presentation, and concentrate their design research or project in a field of their choice (mural, 3D painting, architecture, engineering electronics, commercial art media, etc.), but course emphasis will be on the 3D area. Prerequisites: ARS 151, 152, and permission of department. *Spring, 3 credits*

### **ARS 351, 352 Advanced Theory and Practice of Painting**

Theory and practice of painting for the advanced student. Examination of ideas and techniques of painting through studio, lecture, critique, exhibition, and painting assignments. ARS 351 and 352 may be taken independently of each other. Prerequisites: ARH 221, 224, ARS 251, 252, and permission of instructor and department. *Fall and spring, 3 credits each semester*

### **ARS 361, 362 Intermediate Sculpture**

ARS 361: sculpting involving modeling in clay and other substances; casting in plaster and plastics; carving in wood, stone, and other substances. ARS 362: sculpting involving welding and related techniques. ARS 361 and 362 may be taken independently of each other. Prerequisites: ARS 261, 262, and permission of department. *Fall and spring, 3 credits each semester*

### **ARS 365, 366 Advanced Theory and Practice of Sculpture**

ARS 365 combines metalwork studio II, involving investment and sand casting, with intensified lecture and critique and assignments concerning the

theories and techniques of sculpture. In ARS 366 individual development of craft and artistic identity are stressed. Advanced study in sculpture may be continued under ARS 488. ARS 365 and 366 may be taken independently of each other. Prerequisites: ARH 221, 224, ARS 361, 362, and permission of department. *Fall and spring, 3 credits each semester*

### **ARS 371, 372 Intermediate Graphics**

Increasing development of craft in the graphic arts, with growing emphasis on technical specialization and individual growth as an artist. ARS 371: relief and intaglio processes. ARS 372: planographic processes. ARS 371 and 372 may be taken independently of each other. Prerequisites: ARS 271, 272, and permission of department. *Fall and spring, 3 credits each semester*

### **ARS 375, 376 Advanced Theory and Practice of Graphics**

A graphic arts workshop and critique, stressing individual development and refinement of craft for the advanced student or professional artist. Theories and methods of various printmakers and their times will be examined. ARS 375 and 376 may be taken independently of each other. Prerequisites: ARH 221, 224, ARS 371, 372, and permission of department. *Fall and spring, 3 credits each semester*

### **ARS 381, 382 Photography III**

A two-part course dealing first with the photographic studio environment and its unique potential as an additional form of visual expression. The second half is an introduction to color materials and imagery. Concurrent lecture, studio, and darkroom. Students must provide their own camera and materials, but large format cameras will be available for studio work. Prerequisites: ARS 281, 282, and permission of instructor after interview and review of portfolio. *Fall and spring, 3 credits each semester*

### **ARS 383 The Language of Photographic Images**

An in-depth study of the varied methods that enable still photography to communicate aesthetically and informatively. Areas to be investigated through individual project assignments include the photo essay, picture story, film strip, and various slide/tape presentations. In addition to three hours of lecture per week, there will be a one-hour production workshop. Students must provide their own cameras and materials. Prerequisites: ARS 281, 282, and permission of instructor after interview and review of portfolio. *Fall and spring, 4 credits*

### **ARS 390 Special Directed Studio Projects**

Explorations in studio areas not covered by the core curriculum—for example, crafts or anatomical drawing. The student works under the guidance of a sponsor and is expected to complete a report, portfolio, or project. May be repeated up to a limit of 6 credits. Prerequisites: At least three courses in studio art, sponsorship of a faculty member, and permission of department. *Fall and spring, 3 credits*

### **ARS 420 Advanced Photography Seminar**

Personal projects designed to explore and interpret special interests and viewpoints of the student. Emphasis on long-term, in-depth studies, culminating in a final formal exhibition. Lecture, seminar, and critique. Students must provide their own cameras and materials. Prerequisites: ARS 381, 382, and permission of instructor after interview and review of portfolio. *Fall and spring, 4 credits*

### **ARS 422 Special Topics in Studio Theory and Practice**

Special courses may be offered from time to time by the department, utilizing the unique talents and facilities of the department faculty and the University

environment, and presenting particular areas for consideration on an advanced level in seminar, critique, and studio sessions. May be repeated once. Prerequisite: Permission of department. *Schedule to be announced, 3 credits*

#### **ARS 430 Art Therapy**

A course for highly qualified and motivated students conducted in a clinical setting in the University area. This course is extremely selective and limited to two students per semester. Admission by departmental interview only. Prerequisites: Five studio courses in art or evidence of basic studio skills through portfolio submission; interview with art department and associated clinical staff. Courses in psychology and biological sciences recommended. *Fall and spring, 4 credits*

#### **ARS 475 Undergraduate Teaching Practicum**

Each student will conduct periodically a studio section that will supplement a regular art course. The student will receive regularly scheduled supervision from the instructor. Responsibilities may include assisting students to familiarize themselves with various studio and darkroom techniques and helping students with studio projects. Grading in this course shall be Satisfactory/Unsatisfactory only. Prerequisites: Studio art major, preferably senior standing, sponsorship of an instructor, and permission of department. *Fall and spring, 3 credits*

#### **ARS 488 Directed Projects in Studio Theory and Practice**

Advanced projects for outstanding students in areas of their specific interest. Students will work independently under the guidance of a sponsor in their area of concentration, with whom they will meet periodically for critique and discussion of work. Specific assignments, reports, readings, and field trips may be required. Students will submit a report, portfolio, or project to the department upon completion of the course. May be repeated up to a limit of 6 credits. Prerequisites: At least five studio courses, sponsorship of a faculty member, and permission of department. *Fall and spring, 3 credits*

## **BIOLOGICAL SCIENCES**

### **Department of Biochemistry**

**Professors:** Vincent P. Cirillo, Ph.D. University of California at Los Angeles (Membrane transport processes in yeast and bacteria); Masayori Inouye, Ph.D. Osaka University (Control of cell division; biochemistry of biological membranes); Monica Riley, Ph.D. University of California at Berkeley (Bacterial genetics); Joseph F. Sambrook, Adjunct, Ph.D. Australian National University (Molecular genetics of DNA tumor viruses); Richard B. Setlow, Adjunct, Ph.D. Yale

University (DNA repair; biological effects of ultraviolet and ionizing radiation); **Elliott N. Shaw**, Adjunct, Ph.D. Massachusetts Institute of Technology (Structure-function relationships of enzymes); **Melvin V. Simpson**, Ph.D. University of California at Berkeley (DNA replication; protein synthesis; biochemistry of memory); **F. William Studier**, Adjunct, Ph.D. California Institute of Technology (Genetics and physiology of bacterial viruses)

**Associate Professors:** **Norman Arnheim, Jr.**, Ph.D. University of California at Berkeley (Protein and nucleic acid evolution); <sup>a</sup>**Bernard S. Dudock**, Chairman, Ph.D. Pennsylvania State University (Structure and function of cellular and viral RNA); **Martin Freundlich**, Ph.D. University of Minnesota (Regulation of protein synthesis); **Carl Moos**, Ph.D. Columbia University (Molecular mechanisms of muscle contraction); **Raghupathy Sarma**, Ph.D. Madras University (X-ray crystal structure analysis of molecules of biological interest); **Sanford R. Simon**, Ph.D. Rockefeller University (Structure-function relationships in hemoglobin; membrane biochemistry); **Rolf Sternglanz**, Ph.D. Harvard University (DNA replication)

**Assistant Professors:** **Carl J. Scandella**, Ph.D. Stanford University (Membrane biochemistry); **Jakob Schmidt**, Ph.D. University of California at Riverside, M.D. University of Munich (Membrane biochemistry; neurochemistry); **Dennis Uyemura**, Ph.D. Stanford University (Cell motility; DNA replication)

**Estimated Number of Teaching Assistants: 40**

### **Physical Facilities**

The Department of Biochemistry offers a laboratory course in biochemistry. Teaching facilities for this course are provided in the Biological Sciences Building and include preparation areas and all necessary equipment.

Faculty in the department also share in the offering of BIO 151, 152 Principles of Biology, which utilizes four laboratories designed for the teaching of introductory biology. Some materials for this course are provided by the Biological

---

<sup>a</sup>Recipient of the State University Chancellor's Award for Excellence in Teaching, 1973-74.



Sciences greenhouse, and interested students may visit this facility for additional information.

Students who are pursuing individual research projects work in faculty research laboratories.

## Department of Biology

***Distinguished Professor Emeritus:*** Bentley Glass, Ph.D. University of Texas (Human genetics; science and ethics)

***Distinguished Teaching Professor:*** Elof Axel Carlson, Ph.D. Indiana University (Mutation and gene structure; history of genetics; human genetics)

***Professors:*** Albert D. Carlson, Ph.D. University of Iowa (Physiology of invertebrate nervous systems; insect neuropharmacology); Leland N. Edmunds, Jr., Ph.D. Princeton University (Biological clocks; cell cycles); Frank C. Erk, Ph.D. Johns Hopkins University (Nutritional factors in insect development; human genetics); William S. Hillman, Adjunct, Ph.D. Yale University (Plant photoperiodism; biological rhythms); Raymond F. Jones, Ph.D. University of Durham (Growth and differentiation in algae); F.C. Steward, Adjunct, Ph.D. University of Leeds (Plant growth and development); Charles Walcott, Ph.D. Cornell University (Animal behavior and communication; animal orientation)

***Associate Professors:*** Edwin H. Battley, Ph.D. Stanford University (Physiology of growth in microorganisms); <sup>a</sup>Eugene R. Katz, Ph.D. University of Cambridge (Biochemical genetics and development in cellular slime molds); Abraham D. Krikorian, Ph.D. Cornell University (Plant growth and development); Harvard Lyman, Ph.D. Brandeis University (Origin and development of chloroplasts); Robert W. Merriam, Chairman, Ph.D. University of Wisconsin (Control of macromolecular synthesis in amphibian oogenesis); Bernard D. Tunik, Ph.D. Columbia University (Physiology of muscle cells)

---

<sup>a</sup>Recipient of the State University Chancellor's Award for Excellence in Teaching, 1974-75

**Assistant Professors:** James A. Fowler, Ph.D. Columbia University (Developmental biology); Kenneth D. Laser, Ph.D. Iowa State University (Developmental anatomy of vascular plants); Jeremiah I. Nelson, Ph.D. State University of New York at Stony Brook (Neurophysiology of mammalian brain); Siegwald Strub, Ph.D. University of Zurich (Pattern regulation in insect development); Stanley M. Wiatr, Ph.D. University of California at Davis (Ultrastructure and physiology of plants; electron microscopy); Stephen Yazulla, Ph.D. University of Delaware (Anatomy and physiology of the vertebrate retina)

**Lecturer:** Elizabeth J. Mallon, Ph.D. University of Michigan (Biological education; curriculum development and teacher training)

**Estimated Number of Teaching Assistants: 35**

### ***Physical Facilities***

The Department of Biology utilizes three laboratories in the Biological Sciences Building for courses in embryology, physiology and secondary education. Other plant and development laboratory courses offered by the department are given in Biological Sciences interdisciplinary laboratories. When required, additional space is provided for students to return during the week to make needed observations of experiments in progress.

BIO 151, 152 Principles of Biology, an interdisciplinary course, is offered in four laboratories, with an additional laboratory available to students for making up exercises missed because of holidays. Plant materials for this course are provided by a 15-bay greenhouse, and students may use this facility to further examine materials used in the laboratory exercises.

All laboratories have adjacent preparation areas as well as the facilities and equipment needed for carrying out the required experiments.

Faculty research laboratories are used by students carrying out individual research projects.

## Department of Ecology and Evolution

**Professors:** **Edward R. Baylor**, Joint with Marine Sciences, Ph.D. Princeton University (Behavioral physiology of marine organisms); **F. James Rohlf**, Chairman, Ph.D. University of Kansas (Application of multivariate statistics to taxonomy; mathematical population biology); **Lawrence B. Slobodkin**, Ph.D. Yale University (Evolutionary theory and applications of ecological principles); **Robert R. Sokal**, Ph.D. University of Chicago (Ecological genetics; numerical taxonomy; theory of systematics); **George C. Williams**, Ph.D. University of California at Los Angeles (Evolution theory and the ecology of marine fish)

**Associate Professors:** **James S. Farris**, Ph.D. University of Michigan (Theory of phylogenetic inference); <sup>a</sup>**Douglas J. Futuyma**, Ph.D. University of Michigan (Population genetics; coevolution; community ecology); **Lev R. Ginzburg**, Ph.D. Agrophysical Institute, Leningrad (Mathematical ecology and genetics); **George J. Hechtel**, Ph.D. Yale University (Invertebrate zoology, especially zoogeography of marine demospongiae); **Richard K. Koehn**, Ph.D. Arizona State University (Population genetics, enzyme function and adaptation in natural populations); **Jeffrey S. Levinton**, Ph.D. Yale University (Marine benthic ecology; population genetics of bivalve mollusks; paleoecology); **Robert E. Smolker**, Ph.D. University of Chicago (Ornithology; conservation); **John J. Walsh**, Adjunct, Ph.D. University of Miami (Phytoplankton ecology; modeling of coastal zone and upwelling ecosystems)

**Assistant Professors:** **Robert A. Armstrong**, Ph.D. University of Minnesota (Mathematical ecology; aquatic community ecology); **Michael A. Bell**, Ph.D. California State University (Evolutionary systematics of sticklebacks); **Barbara L. Bentley**, Ph.D. University of Kansas (Plant ecology; plant-animal interactions; tropical ecology); **C. Ronald Carroll**, Ph.D. University of Chicago (Insect ecology; agricultural ecology; plant-animal interactions; tropical biology)

**Estimated Number of Teaching Assistants: 50**

---

<sup>a</sup>Recipient of the State University Chancellor's Award for Excellence in Teaching, 1973-74.

### ***Physical Facilities***

The department has three laboratories in the Biological Sciences Building which were designed for ecological studies. These are used for offerings in invertebrate zoology, plant ecology, life in water, ecology, marine biology, and entomology. Other departmental courses, such as BIO 206 Anatomy and Physiology, are given in Biological Sciences interdisciplinary laboratories.

An introductory biology laboratory is offered jointly by this department and the other departments in the Division of Biological Sciences. There are four laboratories used for this course, with an additional laboratory available for making up exercises missed because of holidays.

Some courses utilize greenhouse and aquarium facilities located in the building, and some involve field work. All necessary equipment is provided for use by students.

Students pursuing individual research projects conduct their studies in faculty research laboratories.

### ***Programs in the Biological Sciences***

The Division of Biological Sciences sponsors programs in two undergraduate majors: biochemistry (BCH) and biological sciences (BIO).

The undergraduate program in biochemistry is designed to provide an introduction to the chemical basis of biological phenomena. The student is prepared primarily for graduate study in biochemistry or other biological sciences and for professional study in the health sciences. The program is based on a core of introductory courses in biology, chemistry, and biochemistry, with pertinent courses in mathematics and physics.

The undergraduate program in biological sciences is designed to provide an introduction to the principles and methodology of the biological sciences. The student can prepare for graduate study, for professional study in the health sciences, for secondary school teaching, and for certain positions in industry and research.

### ***Requirements for the Biochemistry Major***

The biochemistry major leads to the Bachelor of Science degree. All courses offered for the major must be taken for a letter grade and all numbered 300 or over must be passed with a grade of C or better.

A. Study within the areas of biology/biochemistry and chemistry

1. Biology and biochemistry:

- BIO 151, 152 Principles of Biology
- BIO 220 General Genetics
- BIO 361 Biochemistry
- BIO 364 Molecular Genetics
- BIO 365 Biochemistry Laboratory

One additional course must be chosen by the student in consultation with the advisor from among the following courses:

- BIO 331 Principles of Neurophysiology
- BIO 333 Physiology of Cells and Tissues
- BIO 362 Crystal Structure of Macromolecules
- BIO 410 Seminar in Molecular and Cellular Biology
- BMO 502 Physical Biochemistry
- BMO 505 Microbial Regulatory Mechanisms
- BMO 506 Membranes and Transport
- BMO 507 Neurochemistry
- BMO 513 Enzymology
- BMO 517 Biomembranes
- HBH 372 Pharmacology: Selectivity of Drugs—Its Physical Basis
- HBP 390 Selected Topics in Experimental Pathology

In addition to the above requirements, the student may do research in Biochemistry or Molecular Biology (BIO 488) in the laboratory of a member of the Molecular Biology Graduate Program with his or her written permission on a form available in the Biochemistry Office. Students who want to major with honors must do at least two semesters of research (See section on Honors Program, below). Research conducted in the laboratory of someone outside this graduate program may be used to satisfy the honors requirements only after obtaining prior approval from the chairman of the department.

In addition to the courses listed above, several other courses with BMO, HBH, HBM, or HBP listing may be selected from the *Graduate Bulletin* with the permission of the advisor.

2. Chemistry:

- CHE 131, 132 or 141, 142 General or Honors Chemistry
- CHE 133, 134 or 143, 144 General or Honors Chemistry Laboratory
- CHE 321, 322 or 331, 332 Organic or Honors Organic Chemistry
- CHE 327 or 333, 334 Organic Chemistry Laboratory

## CHE 301 or CHE 312 Physical Chemistry

(*Note:* Students planning to continue in biochemistry beyond the undergraduate level should choose CHE 333, 334 and should, wherever other alternatives appear above, take the courses designed for chemistry majors. CHE 327 may be substituted by premedical students.)

### B. *Courses in related fields*

MSM 131, 132 Calculus I, II

MSM 231 or MSM 221 Calculus III

MSA 104 Introduction to Probability

PHY 101, 102 and PHY 251 General Physics, I, II and III

### C. *Additional electives*

1. All biochemistry majors, especially those interested in continuing work in a graduate program, should consider taking more than one additional biochemistry course listed under A (1) above or do research for at least two semesters.
2. A course in Computer Science such as MSC III Introduction to Computer Science is highly recommended.
3. Students planning graduate or professional studies should obtain information on specific requirements of particular schools and programs. Requirements for doctoral programs may include a reading knowledge of one or two approved languages. Preparation in languages should be completed as part of the undergraduate program.

### D. *Changes in program*

With the consent of the advisor, a student may petition the chairman of the Biochemistry Department for permission to change the requirements of the major.

### ***Honors Program in Biochemistry***

Departmental majors with a grade point average of 3.5 or better in courses listed under A and B above are eligible to apply for the honors program, and should do so before the beginning of their senior year. The student must find a member of the faculty of the Molecular Biology Graduate Program to act as a research advisor and must obtain formal permission from the department to enter the honors program.

Honors students must be enrolled in BIO 488 Research in Biochemistry (or other approved research described under A, 1 above). The basic requirement for honors is completion of a

senior thesis based upon research performed in the senior year. Three copies of the completed thesis or report must be submitted to the student's research advisor no later than 21 days before the date of graduation. One copy will be returned to the student, one copy will remain with the sponsor, and the third copy will be placed in the department. The research advisor forms a reading committee of at least three members for every student applying for honors from his or her laboratory. The reading committee will consist of the research advisor, another member of the department, and a member from another department in a related field. Conferral of honors is contingent upon the recommendation of the reading committee.

### ***Requirements for the Biological Sciences Major***

All courses (group A and B) offered for the major must be taken for a letter grade and all upper-division courses in group A must be passed with a grade of C or better.

#### ***A. Study within Biology***

1. At least 30 credits in biology, which must include BIO 151, 152 Principles of Biology or approved equivalents at previous schools, and fulfillment of the following distribution requirements.

2. At least one lecture or seminar course in four of the five emphasized areas (I-V) of biological inquiry, as listed below, and a second lecture or seminar course in one of them. The laboratory-only courses marked with an asterisk do not meet this requirement. Tutorial readings (BIO 447, 448, 449) do not meet this requirement unless explicitly authorized by the Divisional Undergraduate Studies Committee.

3. A laboratory course, or course with included laboratory, in two of the four chosen areas.

4. A third laboratory to be taken from any of the divisional offerings at the 200 level or above, including biology research (BIO 487, 488, 489). Research in the Health Sciences may meet the requirement if approved by the Divisional Undergraduate Studies Committee.

#### ***Course Lists, Areas of Inquiry***

Area I Cell Biology and Biochemistry—BIO 310, 312\*, 361, 362, 364, 365\*, 410

Area II Genetics and Development—BIO 220, 320\*, 321, 322, 323, 420, 421

Area III Physiology and Behavior—BIO 230, 239\*, 330, 331, 332, 333, 339\*, 375, 376, 377, 430

Area IV Organisms—BIO 240, 241, 242, 340, 342\*, 343, 344, 345, 380, 381, 382\*, 440

Area V Ecology and Evolution—BIO 350, 351, 352\*, 353, 354, 355, 385, 386\*

### *Notes on Section A*

1. Biological science majors in the secondary education program must complete at least one lecture-seminar in *each* of the five areas of inquiry.

2. Non-major courses (BIO 101, 102, 111, 113, 205) and teacher preparation courses (BIO 200, 300, 450, 454, 475) do not satisfy Section A requirements.

3. Research courses, such as BIO 487, 488, 489 may be used for a maximum of 8 credits; and tutorial readings, such as BIO 447, 448, 449 for a maximum of 2 credits toward the 30-credit requirement of Section A.

4. ISP research projects and health science research/readings projects do not meet Section A requirements unless explicitly approved by the Divisional Undergraduate Studies Committee.

5. Transfer students must take at least 15 of the 30 Section A credits at Stony Brook; of these at least 12 must be taken in the Division of Biological Sciences. At least one of the required 200-400-level laboratory experiences must be at Stony Brook. Courses taken elsewhere meet area requirements only when explicitly authorized by the divisional transfer evaluator.

6. Aside from area requirements, electives may be chosen from among any of the biology courses for majors or from a diverse list of approved courses given by other departments (see advisors for list).

### *B. Courses required in related fields*

#### 1. Chemistry and Physics

One year of introductory chemistry with laboratory: CHE 131, 132 or 141, 142 and CHE 133, 134 or 143, 144. (Students completing CHE 111, 112 are exempted from CHE 131.)

One year of organic chemistry, with one semester of laboratory: CHE 321, 322 or 331, 332 and CHE 327 or 333.



One year of physics with laboratory: PHY 103, 104 or 101, 102.

2. Mathematics

MSM 121 (or MSM 131 or 141) and any of the following alternatives: MSM 122; or MSA 110; or MSM 132 or 142 plus MSA 104.

Additional mathematics is recommended for many areas of research.

C. *Curriculum Planning*

1. Students are strongly urged to consult with faculty advisors in planning programs and specific course schedules. The Undergraduate Information Office in the Graduate Biology Building maintains a list of advisors.
2. The Divisional Undergraduate Studies Committee reviews transfer evaluation problems and considers petitions for alterations of major requirements. The USC can be contacted through the Undergraduate Information Office.
3. Students planning graduate or professional studies should obtain information on specific requirements of particular schools and programs. Students interested in health professions, including medicine, should contact the Undergraduate Studies Office.
4. Doctoral programs in the biological sciences usually require a reading knowledge of one or two approved foreign languages. A knowledge of computer techniques is increasingly valuable.

***Biology Teacher Preparation Program***

This program is designed for the biology major who is preparing to teach in the junior or senior high school. It includes observational experiences in biology classrooms, practice using various biology curricula, study of adolescent psychology, a laboratory-oriented methods course, a student teaching experience, and a seminar to help solve student teaching problems.

The normal course sequence leading to certification is: BIO 200, a course in foundations of education (PSY/SOC 232, HIS 160, or PHI 360), SSI 265 Drug and Alcohol Education, BIO 300, BIO 450, BIO 454. These courses are in addition to those required of biology majors.

Guidelines to the Teacher Selection Committee include min-

ima of a 2.7 overall G.P.A. and a 3.0 G.P.A. in biology courses (at SUSB and previous institutions).

See requirements for "Study within Biology," p. 157.

### ***Honors Program and Independent Study in Biological Sciences***

Divisional majors with a grade point average of 3.5 or better in courses in the biological sciences and related fields (see A and B, above) are eligible to apply for candidacy in the Honors Program. A potential honors student must obtain a sponsor (and a co-sponsor in biological sciences, if the sponsor is not a member of the division). The student should be enrolled in BIO 487-9 (Research) or its equivalent (e.g., research courses in health sciences, Independent Study Program), normally for two semesters.

Application is made to the Divisional Undergraduate Studies Committee in the form of a proposal or interim report, approved by the sponsor. Applications normally are submitted at the beginning of the last semester of the project, and must be submitted no later than one month before graduation. The USC will appoint an examination committee for approved candidates.

The honors thesis has the format of a Master's Thesis and must be written solely by the student. Three copies of the thesis must be submitted to the examination committee no later than Monday of the penultimate week of classes (excluding final examination week). The student will meet with the examination committee for a formal thesis defense, no later than Monday of the last week of classes. If satisfied, the examination committee should schedule a public seminar by the candidate, to be given no later than the last day of classes. A copy of the thesis, with approvals page, must be sent to the Divisional USC for final review of the grade point average (which must be no less than 3.5 in the biological sciences and related fields). Conferral of honors also requires maintenance of the highest standards of academic integrity by the student.

### ***Courses\****

#### **BIO 101, 102 Biology: a Humanities Approach**

The major concepts of biology are presented from historical, contemporary, and critical viewpoints. These concepts include the cell, the gene, molecular biology, development, and evolution. The human implications or values associated with each concept are emphasized. For students not majoring in the

---

\*See p. 124, Course Credit and Prerequisites, and p. 125, Numbering System.

biological sciences. Prerequisite to BIO 102: BIO 101. *Fall (101) and spring (102), 3 credits each semester*

### **BIO 111 Genetics and Man**

A general introduction to genetics, with special attention to its importance in medicine, agriculture, and other aspects of human life and culture. For students not majoring in the biological sciences. *Spring, 3 credits*

### **BIO 113 General Ecology**

Designed to provide a sense of the problems of modern ecology. Population growth and regulation, interspecific interactions in natural communities, and the concept of the balance of nature will be analyzed. The mutual relation between human activities and ecology will be discussed. Mathematics is not a prerequisite but might prove helpful. For students not majoring in biological sciences. *Fall, 3 credits*

### **BIO 151, 152 Principles of Biology**

A study of the chemical and cellular bases of life; the physiology, genetics, reproduction, and development of animals and plants; the diversity of organisms; ecology and evolution. Intended for prospective majors. Three hours of lecture and one three-hour laboratory per week. Prerequisites: High School biology and chemistry are assumed. Prerequisite for BIO 152: BIO 151. *Fall (151) and spring (152), 4 credits each semester*

### **BIO 200 Introduction to Biology Teaching**

Materials used in teaching secondary school biology. Approaches to teaching strategies, lesson planning, student testing and evaluation. Observation of classroom activities in selected junior and senior high school biology classrooms. Two hours of lecture and one three-hour laboratory per week. Not for major credit. Prerequisite: BIO 152. *Fall, 3 credits*

### **BIO 205 Ecology of Famine**

The emphasis of this course is on the ecology of agricultural systems and the natural limits of food production. In addition to dealing with natural limits, such as agricultural productivity and sustained-yield ecology, their integration with artificial limits like regional markets, global economics, cultural patterns, and global power-politics is also examined. The critical problems of malnutrition in general and regional starvation, especially in Third World countries, is thus subjected to an interdisciplinary analysis, with causes and possible solutions examined. Not for Biological Sciences major credit. Prerequisite: Sophomore standing. *Spring, 3 credits*

### **BIO 206 Anatomy and Physiology (Formerly BIO 231)**

The study of circulatory, respiratory, digestive, urogenital, and endocrine systems. Study of structure and function of skeleton, muscular system, and nervous system. Includes dissection and laboratory exercises. Three hours of lectures and one three-hour laboratory per week. May not be taken for credit in addition to HBA 300 or HBY 350. Not acceptable for major credit if taken after BIO 230. BIO 206 does not fulfill Area III requirements. Prerequisites: BIO 152. *Fall, 4 credits*

### **BIO 220 General Genetics**

An introductory course in genetics for biology majors. General areas to be discussed include transmission genetics, cytogenetics, immunogenetics, molecular genetics, population genetics, and quantitative genetics. Prerequisite: BIO 152. Prerequisite or corequisite: CHE 131 or 141 or 111, 112. *Fall, 3 credits*

### **BIO 230 Animal Physiology**

The basic principles of vertebrate physiology. The subject matter includes cir-

ulation, 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 HBA 300 or HBY 350. Prerequisites: BIO 152 and CHE 131 or 141 or 111, 112. *Spring, 3 credits*

### **BIO 239 Introductory Physiology Laboratory**

Laboratory exercises designed to complement BIO 230. Topics include muscles and hormones, physiological activities of nerves, circulation, respiration, excretion, digestion, sensory function, and central processes of coordination. One hour of lecture and one three-hour laboratory per week. May not be taken for credit after BIO 339. Prerequisite or corequisite: BIO 230. *Spring, 2 credits*

### **BIO 240 Plants and Man**

An introduction to the origin, structure, and growth of the higher plant body as a basis for understanding the broader principles of plant biology, as well as the relations of plants to human life. Economically important plants and their products, especially as sources of food, shelter, clothing, drugs, and industrial raw materials are stressed. Current problems in agriculture, plant industry, medicine, use, conservation, and appreciation of plants are included. Prerequisites: BIO 152, CHE 132. *Fall, 3 credits*

### **BIO 241 Life in Water**

Evolution, diversity and adaptations of water-dwelling invertebrates, vertebrates, and plants, with study of water-land transitions. Three hours of lectures and one three-hour laboratory per week. May not be taken for credit after BIO 242 or any 300-level course in Area IV. Prerequisite: BIO 152. *Spring, 4 credits*

### **BIO 242 Biology of Non-Vascular Plants**

An introduction to the morphology, ecology, and biological significance of the bacteria, slime molds, fungi, algae, hornworts, liverworts, and mosses. Prerequisite: BIO 152. *Fall, 3 credits*

### **BIO 282 History of Biology**

A thorough examination of selected topics in the history of biology: for example, Darwinism, development of taxonomy, origins of cell theory, preformation-epigenesis controversy, development of biochemical biology. This course is identical with HIS 282. Prerequisite: BIO 152. *Fall, 3 credits*

### **BIO 300 Instructional Strategies and Techniques**

This course is second in a series for prospective secondary school teachers of biology. It emphasizes instructional strategies and techniques necessary to create and implement inquiry and discovery activities of an investigative nature. Laboratory skills, preparations, life support systems for organisms, question-asking strategies, and a humanistic approach to teaching are stressed. Three hours of discussion or lecture and one three-hour laboratory per week. Not for major credit. Prerequisite: BIO 200. *Spring, 4 credits*

### **BIO 301 Biological Literature and Its Use**

Use of a research library in biology. Preparation and use of bibliographies; various philosophies of classification of literature, information storage, and retrieval. A review paper, meeting professional standards of style, will be required. Prerequisite: At least 15 credits of biology majors' courses. *Fall, 1 credit*

### **BIO 305 Statistics for Biologists**

An introductory statistics course for students in all areas of biology. Normal statistics to analysis of variance, regression analyses and transformations. Non-parametric tests and chi-square testing. Properties of distributions and

tests of fit to distributions. Fundamentals of probability theory, statistical decision theory, and the concept of statistical inference. Prerequisite: Completion of one of the required mathematics options. *Fall, 3 credits*

### **BIO 306 Oceanography for Biologists**

Introduction to physical and chemical aspects of the marine environment. Corequisite: BIO 381. *Spring, 1 credit*

### **BIO 310 Cell Biology**

The cell is studied as the unit of structure, biochemical activity, genetic control, and differentiation. The principles of biochemistry and genetics are applied to an understanding of nutrition, growth, and development. Prerequisites: BIO 152 and CHE 321 or 331. *Spring, 3 credits*

### **BIO 312 Cell Biology Laboratory**

Experimental approaches to the analysis of cellular functions, designed to complement BIO 310 Cell Biology. Four hours of laboratory and discussion per week. Prerequisite: CHE 321 or 331; prerequisite or corequisite: BIO 310. *Spring, 2 credits*

### **BIO 320 Genetics Laboratory**

Representative exercises and experiments that explore genetic phenomena such as mutation, recombination, and gene action in several organisms. Some work in cytogenetics and population genetics is included. One three-hour laboratory and one hour of discussion per week. Prerequisites: BIO 220 and 310. *Fall, 2 credits*

### **BIO 321 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 152. *Fall, 4 credits*

### **BIO 322 Animal Development**

An introductory analysis of the development of form and function in animals emphasizing the experimental evidence underlying general principles. Topics covered include differentiation, determination, polarity, induction, nucleocytoplasmic interactions, cytostructure. Laboratory work will consist of experiments on live invertebrate organisms. Three hours of lecture and one three-hour laboratory per week. Prerequisite: BIO 310; BIO 220 recommended. *Spring, 4 credits*

### **BIO 323 Plant Form and Function**

An examination of plant structure and development as it relates to function and environment. The subject will be traced from the subcellular level to the complete organism with an analysis of organelles, cell types, and tissues, plant hormones, and growth responses. Prerequisites: BIO 240 and CHE 321 or 331. *Spring, 3 credits*

### **BIO 330 Comparative Physiology**

An introduction to the physiological adaptations of various animal species to environmental variables. Emphasis is placed upon homeostatic mechanisms at the organismic level. Prerequisite: BIO 230. *Fall, 3 credits*

### **BIO 331 Principles of Neurophysiology**

The ionic basis of nerve potentials, the physiology of synapses, and the comparative physiology of sense organs and effectors will be discussed. Consideration also will be given to the integrative action of the nervous system. Prerequisite: BIO 230. *Fall, 3 credits*

### **BIO 332 Principles of Behavior**

An introduction to the study of animal behavior including a consideration of current research in the field. Prerequisite: BIO 230. *Spring, 3 credits*

### **BIO 333 Physiology of Cells and Tissues**

Fundamental physiological functions of the cells and tissues of higher organisms, such as excitability and bioelectric phenomena, membrane selectivity, active transport, and contractility, are discussed from the point of view of their cellular and molecular mechanisms. May not be taken for credit in addition to HBY 310. Prerequisites: BIO 230 and 310. Prerequisite or corequisite: PHY 101 or 103. *Fall, 3 credits*

### **BIO 339 Experimental Physiology**

An analytical approach to selected topics, including active transport, bioelectric potentials, receptor and effector organs, and neural and hormonal regulatory mechanisms. Students will contribute to the selection of topics and will design the experiments. Three hours of laboratory and two hours of discussion per week. Prerequisite: BIO 330 or 331 or 333. *Fall, 3 credits*

### **BIO 340 Biology of Vascular Plants**

A study of vascular plants, including laboratory and field investigations, in which the structure and pattern of development of vegetative and reproductive organs and the life histories will be examined. Emphasis is placed on the comparative anatomy, morphology, and evolutionary relationships of aquatic and terrestrial cryptogams, gymnosperms, and angiosperms. Three hours of lecture and one three-hour laboratory per week. Prerequisites: BIO 152 or course in general botany. *Spring, 4 credits*

### **BIO 342 Non-Vascular Plant Laboratory**

A study of the isolation from nature, culture, identification, physiology, and ecology of the bacteria, slime molds, fungi, algae, hornworts, liverworts, and mosses. Two hours of lecture and one three-hour laboratory per week. Prerequisite: BIO 242 and CHE 132 or 142. *Spring, 3 credits*

### **BIO 343 Invertebrate Zoology**

An introduction to the diversity, comparative and functional morphology, natural history, and evolution of invertebrates, with interest centered on the modern fauna. Three hours of lecture or discussion and one three-and-one-half-hour laboratory per week. Prerequisite: BIO 152 or corequisite ESS 211. *Fall, 4 credits*

### **BIO 344 Chordate Zoology**

An introduction to the diversity, comparative and functional morphology, natural history, and evolution of chordates, with interest centered on the modern fauna. Three hours of lecture or discussion and one three-and-one-half-hour laboratory each week. Prerequisite: BIO 152. *Spring, 4 credits*

### **BIO 345 Ornithology**

Systematics, ecology, and evolution of birds with emphasis on comparative biology and unique features. Topics selected from behavior, reproductive biology, migration, zoogeography, population regulation, vocalization, color patterns, nest parasitism, flight. Prerequisite: BIO 152. *Spring, 3 credits*

### **BIO 350 Adaptation and Evolution**

Studies of adaptation in organisms, community dynamics, ecology, and the theory of evolution. Prerequisites: BIO 152; MSM 121 and BIO 220 recommended. *Fall, 3 credits*

### **BIO 351 Ecology**

An examination of the interactions of living organisms with their physical and

biological environments. Special attention is given to population dynamics and the interactions among organisms that determine the structure, function, and evolutionary development of biological communities. Prerequisites: BIO 350 and completion of divisional mathematics requirement. *Fall, 3 credits*

### **BIO 352 Ecology Laboratory**

Investigation of the application of general ecological principles to specific populations and communities. Prerequisite or corequisite: BIO 351. *Fall, 2 credits*

### **BIO 353 Marine Ecology**

A survey of biotic responses to ecological challenges in different marine realms. Controls of diversity and trophic structure in the marine ecosystem, historical aspects of marine realms, productivity in the oceans, plankton, soft-bottom communities, intertidal habitats, coral reefs, deep sea environments, and effects of pollution in the ocean will be discussed. This course is identical with ESS 353. Prerequisite: BIO 343. *Spring, 3 credits*

### **BIO 354 Evolution**

A detailed discussion of the mechanisms of evolution, focusing on the ways in which genetic changes in populations lead to adaptation, speciation, and historical patterns of evolutionary change. Prerequisites: BIO 350 and completion of divisional mathematics requirement. *Spring, 3 credits*

### **BIO 355 Modelling in Ecology and Genetics**

An advanced undergraduate course for biology, mathematics, and physics majors reviewing existing mathematical theories designed to describe different phenomena in ecology and population genetics. Prerequisites: A year of calculus and either BIO 152 or PHY 102 or 104. *Spring, 4 credits*

### **BIO 361 Biochemistry**

A survey of the structure of the major chemical constituents of the cell, including carbohydrates, lipids, nucleic acids, and proteins. Emphasis will be placed on enzyme structure, enzyme kinetics, reaction mechanisms, including the role of coenzymes, metabolic pathways of biosynthesis, and degradation involved in cellular activity. Prerequisite: BIO 152; prerequisite or corequisite: CHE 322 or 332. *Fall, 3 credits*

### **BIO 362 Crystal Structure of Macromolecules**

The determination of the three-dimensional structures of biological macromolecules using the X-ray diffraction analysis of their single crystals. Prerequisites: CHE 322 or 332 and MSM 132 or 142; BIO 361 is recommended. *Fall, 3 credits*

### **BIO 364 Molecular Genetics (Formerly BIO 360)**

The molecular bases of recombinations, mutation, replication, and gene expression are studied. The genetics of microorganisms is presented, and the experimental support for molecular models of basic genetic phenomena is examined. Prerequisites: BIO 220 and 361. *Fall, 3 credits*

### **BIO 365 Biochemistry Laboratory**

A series of laboratory experiments and discussions designed particularly to complement BIO 361. Topics include isolation of cellular organelles, extraction and characterization of nucleic acids and enzymes, osmosis and permeability, bioenergetics. Four hours of laboratory and discussion per week. Prerequisite or corequisite: BIO 310 or 361. *Fall, 2 credits*

### **BIO 375 Sensory Processes**

Comprehensive coverage of major and minor sensory systems with emphasis on the integration of anatomical, physiological, and behavioral data. Sensory systems to be covered include vision, audition, somesthesia, the chemical

senses, kinesthesia, vestibular and visceral sensation. Prerequisite: BIO 331. *Spring, 3 credits*

### **BIO 376 General Plant Physiology**

This course will emphasize the physiological patterns and integration of cellular processes that culminate in plant growth. Prerequisites: BIO 310, BIO 323, and CHE 321 or 331. *Fall, 3 credits*

### **BIO 377 Biological Clocks**

A consideration of the temporal dimension of biological organization and of periodic phenomena which are a basic property of living systems. Topics include a survey of circadian rhythms; influence of light, temperature, and chemicals; use of the clock for adjustment to diurnal, tidal, and lunar cycles, for direction finding (homing and orientation), and for day-length measurement (photo-periodism); breakdown of circadian organization; possible molecular mechanisms of the clock. Prerequisites: BIO 310 and CHE 321 or 331, at least one course in physiology, and permission of instructor. *Spring, 3 credits*

### **BIO 380 Entomology**

The higher systematics, behavior, physiology, and ecology of insects. The emphasis in the course is on interpreting the material in an ecological context. Three hours of lecture and one laboratory period per week. Three weekend trips and a student project are required. Prerequisite: BIO 350. *Fall, 4 credits*

### **BIO 381 Marine Vertebrate Zoology**

Ecology, systematics, and evolution of marine fishes, and brief treatment of marine representatives of other vertebrate classes. Prerequisite: BIO 344. Corequisite: BIO 306. *Spring, 2 credits*

### **BIO 382 Laboratory in Marine Vertebrate Zoology**

Field and laboratory work on marine vertebrates, with emphasis on local forms. Prerequisite: BIO 344. Corequisite: BIO 381. *Spring, 2 credits*

### **BIO 385 Ecology of Land Plants**

Lectures and discussions on ecological phenomena and problems important to plants and plant communities, including such areas as physiological processes, competitive interactions, plant-animal interactions, and community dynamics. Prerequisite: BIO 350. *Fall, 3 credits*

### **BIO 386 Plant Ecology Laboratory**

Study of local flora, soils, ecological anatomy, herbivory, pollination, dispersal, and competition. One three-hour laboratory per week plus three intensive weekend field trips. Prerequisite: Permission of instructor. Corequisite: BIO 385. *Fall, 2 credits*

### **BIO 401, 402 Special 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. Prerequisite: Permission of instructor. *Fall (401), and spring (402), 2 credits each semester*

### **BIO 410 Seminar in Molecular and Cellular Biology**

A series of reports on current research, with particular reference to research work in progress within the department. Prerequisite: BIO 361. *Spring, 2 credits*

### **BIO 420 Developmental Genetics**

The genetic analysis of developmental events in higher organisms. Prerequisites: BIO 220 and 310. *Fall, 2 credits*

### **BIO 421 Seminar in Developmental Biology**

Lecture-discussion groups of no more than 20 students. Each student gives



one lecture as a basis for group discussion. Analyses of mechanisms underlying early animal development include gametogenesis, nuclear-cytoplasmic interactions, cell-cell interactions, the characteristics of specific cellular differentiations, etc. The emphasis is on the cellular and molecular level. Prerequisite: BIO 310 and 321 or 322. *Fall, 2 credits*

#### **BIO 430 Behavior and Evolution**

Natural selection as the major force in shaping behavior will be the primary focus of this course. Invertebrate and vertebrate behavior will be discussed, but the main emphasis will be on vertebrate social systems. Prerequisites: BIO 332 and permission of instructor. *Fall, 3 credits*

#### **BIO 440 Advanced Invertebrate Zoology**

Lectures and student seminars on selected aspects of invertebrate adaptations and evolution. Alternative semester topics are radiate invertebrates, mollusks, and protostomes. May be repeated as topics change. Prerequisite: BIO 343 or ESS 211. *Spring, 2 credits*

**NOTE:** A maximum of 2 credits of BIO 447, 448, and 449 may count toward the Biological Sciences Major.

#### **BIO 447 Readings in Genetics, Development, and Behavior**

Tutorial reading in the biological sciences. This course may be repeated, but not more than 2 credits may be used toward the divisional major requirements. Limit of one topic per semester. Prerequisites: Permission of instructor and of Undergraduate Studies Committee. *Fall and spring, 1 credit*

#### **BIO 448 Readings in Biochemistry**

Tutorial reading in the biological sciences. This course may be repeated, but not more than 2 credits may be used toward the divisional major requirements. Limit of one topic per semester. Prerequisites: Permission of instructor and Biochemistry Department. *Fall and spring, 1 credit*

#### **BIO 449 Readings in Ecology and Evolution**

Tutorial reading in the biological sciences. This course may be repeated, but not more than 2 credits may be used toward the divisional major requirements. Limit of one topic per semester. Prerequisites: Permission of instructor and of Undergraduate Studies Committee. *Fall and spring, 1 credit*

#### **BIO 450 Supervised Teaching—Biology**

Prospective biology teachers at the secondary school level receive extensive practice under selected cooperating teachers. Student teachers work with one or two certified biology teachers in one school each regular school day for the entire semester. Frequent consultations with University faculty members are designed to assist the student. Applications must be filed with the Biology Teacher Preparation Program one semester prior to student teaching. Not for major credit. Grading in this course shall be Satisfactory/Unsatisfactory only. Prerequisite: Senior standing. Corequisite: BIO 454. *Fall and spring, 12 credits*

#### **BIO 454 Student Teaching Seminar**

Seminar on problems encountered by student teachers and public school teachers at the secondary level. Study and analysis of the many aspects of the teaching profession, such as legal responsibilities, morality, and professional ethics. Corequisite: BIO 450. *Fall and spring, 3 credits*

#### **BIO 475 Teaching Practicum in College Biology**

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. Cannot be repeated for credit. Grading in this course shall be Satisfactory/Unsatisfactory only. Prerequisites: Permission of instructor and of the

Undergraduate Studies Committee. *Fall and spring, 2 or 3 credits each semester*

**NOTE:** A maximum of 8 credits of BIO 487, 488, and 489 may count towards the Biological Sciences Major.

**BIO 487 Research in Genetics, Development, and Behavior**

In this course the student will work under the supervision of a faculty member in developing an individual project which makes use of the knowledge and techniques acquired in previous courses. The student will prepare an appropriate report on the project. The course may be taken more than two semesters, but no more than eight credits may be used for divisional major requirements. Limit of one topic per semester. 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 calendar. Prerequisites: Written permission of instructor and of Undergraduate Studies Committee. *Fall and spring, 1 to 4 credits each semester*

**BIO 488 Research in Biochemistry**

In this course the student will work under the supervision of a faculty member in developing an individual project which makes use of the knowledge and techniques acquired in previous courses. The student will prepare an appropriate report on the project. The course may be taken more than two semesters, but no more than eight credits may be used for divisional major requirements. Limit of one topic per semester. Prerequisites: Written permission of instructor and Biochemistry Department. *Fall and spring, 1 to 4 credits each semester*

**BIO 489 Research in Ecology and Evolution**

In this course the student will work under the supervision of a faculty member in developing an individual project which makes use of the knowledge and techniques acquired in previous courses. The student will prepare an appropriate report on the project. The course may be taken more than two semesters, but no more than eight credits may be used for divisional major requirements. Limit of one topic per semester. 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 calendar. Prerequisites: Written permission of instructor and of Undergraduate Studies Committee. *Fall and spring, 1 to 4 credits each semester*

## Department of Chemistry

**Professors:** John M. Alexander, Ph.D. Massachusetts Institute of Technology (Nuclear chemistry); Jacob Bigeleisen, Ph.D. University of California at Berkeley (Chemistry of isotopes); Francis T. Bonner, Ph.D. Yale University (Nitrogen

and isotope chemistry); **Benjamin Chu**, Chairman, Ph.D. Cornell University (Light-scattering spectroscopy; X-ray scattering); **Harold L. Friedman**, Ph.D. University of Chicago (Theory of equilibrium; dynamic properties of solutions); **Albert Haim**, Ph.D. University of Southern California (Kinetics and mechanisms of inorganic reactions); **David M. Hanson**, Ph.D. California Institute of Technology (Theoretical and experimental investigations of molecular crystals); **Francis Johnson**, Joint with Pharmacology, Ph.D. Glasgow University (Structure and total synthesis of naturally-occurring biologically active molecules); **Philip M. Johnson**, Ph.D. Cornell University (Optical molecular spectroscopy); **Edward M. Kosower**, Adjunct, Ph.D. University of California at Los Angeles (Physical organic chemistry applied to biochemistry and medicine); **Paul C. Lauterbur**, Ph.D. University of Pittsburgh (Nuclear magnetic resonance spectroscopy; image formation in biology and medicine); **William J. le Noble**, Ph.D. University of Chicago (Chemistry of highly compressed solutions); **Yoshi Okaya**, Ph.D. Osaka University (Crystallography; computer-controlled data acquisition); **Richard N. Porter**, Ph.D. University of Illinois (Theoretical chemistry); **Fausto Ramirez**, Ph.D. University of Michigan (Organic synthesis; organic phosphorous compounds); **Sei Sujishi**, Ph.D. Purdue University (Organosilicon chemistry); **Jerry L. Whitten**, Ph.D. Georgia Institute of Technology (Theoretical chemistry)

**Associate Professors:** **Lawrence J. Altman**, Coordinator of Graduate Studies, Ph.D. Columbia University (Synthetic organic chemistry); **Larry R. Dalton**, Ph.D. Harvard University (Magnetic resonance; biological applications); **Jimmie D. Doll**, Ph.D. Harvard University (Theoretical chemistry); **Frank W. Fowler**, Ph.D. University of Colorado (Synthesis and study of heterocyclic molecules); **Theodore D. Goldfarb**, Ph.D. University of California at Berkeley (Vibrational spectroscopy); **Robert C. Kerber**, Coordinator of Undergraduate Studies, Ph.D. Purdue University (Organo-transition metal complexes); **Allen Krantz**, Ph.D. Yale University (Physical biochemistry); **Robert F. Schneider**, Ph.D. Columbia University (Nuclear quadrupole resonance); **Charles S. Springer**, Ph.D. Ohio State University (Metal coordination chemistry; nuclear magnetic resonance in membranes); **David Weiser**, Ph.D. University of Chicago (History of science); **Arnold Wishnia**, Ph.D. New York University (Physical chemistry of proteins)

**Assistant Professors:** Paul M. Helquist, Ph.D. Cornell University (Organometallic chemistry in organic synthesis); Stephen A. Koch, Ph.D. Massachusetts Institute of Technology (Bioinorganic chemistry); Joseph W. Lauher, Ph.D. Northwestern University (Inorganic and organometallic synthesis of new compounds); Alan B. Levy, Ph.D. University of Colorado (Organometallic chemistry); Shu-I Tu, Ph.D. Yale University (Energy conversion mechanisms in biochemistry)

**Lecturers:** Carolyn B. Allen, Coordinator of General Chemistry Laboratories, Ph.D. Rensselaer Polytechnic Institute; Marjorie Kandel, Coordinator of Organic Chemistry Laboratories, M.S. Indiana University

***Estimated Number of Teaching Assistants: 70***

The Bachelor of Science program in chemistry is designed to prepare the student for graduate study in chemistry or for industrial or other employment. The program of the Department of Chemistry is approved by the Committee on Professional Training of the American Chemical Society.

The Bachelor of Arts program allows more flexibility in the choice of electives. It is designed to accommodate 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.

***Physical Facilities***

Chemistry laboratory facilities consist of about 7,000 square feet of General Chemistry laboratories in the Old Chemistry Building and over 11,000 square feet of advanced undergraduate laboratories in the Chemical Laboratories Building. Students taking lab courses are issued lockers that contain the appropriate basic glassware and other apparatus; more specialized equipment and apparatus are issued for a lab period. All laboratories have conveniently located balance rooms or weighing areas; instructional stockrooms are located adjacent to the work areas. Equipment associated with (1) general chemistry laboratory (CHE 133, 134 and CHE

143, 144) includes analytical balances, pH meters, and visible spectrophotometers; (2) organic chemistry laboratory (CHE 327, CHE 333, 334) includes gas chromatographs, infra-red and ultra-violet spectrometers, and melting point apparatus; and (3) physical chemistry laboratory (CHE 303, 304 and CHE 357) includes Cary 14, digital spectrophotometers, bomb calorimeter, oscilloscopes, digital electronic equipment, EPR, pulsed NMR, X-ray generator and cameras, spectrofluorimeter, atomic absorption spectrometer, and mass spectrometer.

### ***Requirements for the Bachelor of Science Degree in Chemistry***

All required courses must be taken for a letter grade.

#### ***A. Study within the area of chemistry***

CHE 131, 132 or 141, 142 General or Honors Chemistry

CHE 133, 134 or 143, 144 General or Honors Chemistry  
Laboratory

CHE 301, 302 Physical Chemistry (or 312, 302 with permission of department)

CHE 303 Solution Chemistry Laboratory

CHE 304 Chemical Instrumentation Laboratory

CHE 321, 322 or 331, 332 Organic Chemistry

CHE 333, 334 Organic Chemistry Laboratory

CHE 355 Physical Chemistry III

CHE 357 Molecular Structure and Spectroscopy  
Laboratory

CHE 375 Inorganic Chemistry I

#### ***B. Courses in related fields***

1. Four semesters of calculus: MSM 131, 132 or 141, 142 and 231, 306.

2. Three semesters of physics: PHY 101, 102, 251 or 103, 104, 251.

For those students who plan to pursue postcollege studies in chemistry it is recommended that a reading knowledge be attained in German and in French or Russian.

Students who wish to meet the American Chemical Society certification requirements must take, in addition to the above requirements, two additional advanced chemistry courses. Experience in statistics and computer science is highly recommended by the ACS.

## **Requirements for the Bachelor of Arts Degree in Chemistry**

All required courses must be taken for a letter grade.

### **A. Study within the area of chemistry**

- CHE 131, 132 or 141, 142 General or Honors Chemistry
- CHE 133, 134 or 143, 144 General or Honors Chemistry Laboratory
- CHE 301 or 312 Physical Chemistry I or Short Course
- CHE 302 Physical Chemistry II
- CHE 303 Solution Chemistry Laboratory, and one additional laboratory course (304, 334, or 357)
- CHE 321, 322 or 331, 332 Organic Chemistry
- CHE 327 or 333 Organic Chemistry Laboratory
- CHE 355 Introduction to Quantum Chemistry
- CHE 375 Inorganic Chemistry I

### **B. Courses in related fields**

1. Three semesters of calculus: MSM 131, 132, or 141, 142 and 231.
2. Three semesters of physics: PHY 101, 102, 251 or 103, 104, 251.

## **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 upon 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. The award is contingent upon maintenance of a 3.4 cumulative grade point average in senior CHE courses.

## **Courses\***

### **CHE 111, 112 Elementary Chemistry**

An introduction to the concepts of chemical bonding and reactivity that underlie modern inorganic, organic, and biochemistry. These concepts will be illustrated with examples from the life sciences. The full year sequence may serve as the equivalent of CHE 131, and may be applied as prerequisite to

---

\*See p. 124, Course Credit and Prerequisites, and p. 125, Numbering System.

CHE 132. CHE 111 is suitable for liberal arts students and students preparing for nursing and some allied health professions. Previous background in chemistry is helpful, but not required. CHE 111 may not be taken for credit by students who have completed CHE 131 or its equivalent. Students planning to take CHE 132 following 112 are urged to take note of the CHE 131, 132 mathematics recommendation and prepare accordingly (i.e., take MSM 102 or 105 if necessary). Prerequisite to CHE 112: CHE 111. *Fall (111) and spring (112), 3 credits each semester*

### **CHE 131, 132 General Chemistry**

A broad introduction to the fundamental principles of chemistry, including substantial illustrative material drawn from the chemistry of inorganic, organic, and biochemical systems. The principal topics covered are: stoichiometry, the states of matter, chemical equilibrium and introductory thermodynamics, electrochemistry, chemical kinetics, electronic structure and chemical bonding, chemical periodicity. The course emphasizes basic concepts, problem solving, and factual material. This course provides the necessary foundation for students who wish to pursue further course work in chemistry. It is assumed that the student enrolled in CHE 131 has taken a chemistry course in high school. It is strongly recommended that General Chemistry Laboratory and calculus be taken concurrently with CHE 131, 132. (Note that CHE 134 is prerequisite to CHE 321.) Three lecture hours and one discussion hour per week. Prerequisite to CHE 132: CHE 131 or 112. *Fall (CHE 131); spring and summer (132), 4 credits each semester*

### **CHE 133, 134 General Chemistry Laboratory**

Designed to familiarize students with (1) some chemical and physical properties of substances, (2) techniques of quantitative chemistry, and (3) scientific methodology. Four hours of laboratory and discussion per week. Pre- or corequisite to CHE 133: CHE 131 or 112. Prerequisite to CHE 134: CHE 133. Pre- or corequisite to CHE 134: CHE 132. *Fall and spring (133), spring and summer (134), 1 credit each semester*

### **CHE 141, 142 Honors Chemistry**

Designed for students with strong interest in science who may major in chemistry or a related field. The topics covered in this course are similar to those covered in CHE 131, 132, but the course draws more upon background in mathematics and physics. It is assumed that the student enrolled in CHE 141 has taken courses in chemistry and physics in high school, and it is recommended that PHY 101, 102 be taken concurrently with CHE 141, 142. Three lecture hours and one discussion hour per week. Corequisite to CHE 141: MSM 131 or 141. Prerequisite to CHE 142: CHE 141. Corequisite to CHE 142: MSM 132 or 142. *Fall (141) and spring (142), 4 credits each semester*

### **CHE 143, 144 Honors Chemistry Laboratory**

Laboratory program similar in content to CHE 133, 134, but conducted at a more intensive and demanding level. Four hours of laboratory and discussion per week. Corequisite to CHE 143: CHE 141. Prerequisite to CHE 144: CHE 143. Corequisite to CHE 144: CHE 142. *Fall (143) and spring (144), 1 credit each semester*

### **CHE 301 Physical Chemistry I**

Introduction to rate laws, mechanisms, and transition-state theory of chemical kinetics. Equations of state. The principles of thermodynamics and their application to chemical reactions, phase equilibria, ideal and nonideal solutions and electrochemical systems. Prerequisite: CHE 132 or 142; MSM 132. Corequisites: PHY 101 or 103. *Fall, 3 credits*

### **CHE 302 Physical Chemistry II**

Introductory quantum mechanics, with applications to atomic and molecular systems. The Schrodinger equation will be solved for simple systems and the general theory applied in the discussion of chemical bonding, molecular structure, and spectroscopy. Prerequisite: CHE 301 or 312; MSM 231. *Spring, 3 credits*

### **CHE 303 Solution Chemistry Laboratory**

Quantitative techniques of solution chemistry. Measurement: accuracy and precision, analysis, computation, and reporting. Spectrophotometry. Solution equilibria and kinetics. Use of computers will be introduced. Six hours of laboratory and discussion. Prerequisite: CHE 134 or 144. Corequisite: CHE 301. *Fall, 2 credits*

### **CHE 304 Chemical Instrumentation Laboratory**

Electrochemical and thermochemical measurements. Electronics in chemical instrumentation. Vacuum techniques. Electrical and magnetic properties of materials. Data handling methods. Six hours of laboratory and discussions. Prerequisite: CHE 303, knowledge of computer programming. Corequisite: CHE 302. *Spring, 2 credits*

### **CHE 310 Chemistry in Technology and the Environment (Formerly CHE 230)**

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. *Spring, 3 credits*

### **CHE 312 Physical Chemistry (Short Course)**

A one-semester treatment of fundamental concepts of physical chemistry, intended primarily for students of the biological sciences desiring an introduction to physical chemistry. Topics include equations of state; classical thermodynamics and its application to chemical equilibrium in reaction systems, multiphase systems, and electrochemical cells; kinetic theory of gases; transport properties, chemical kinetics. Cannot be taken for credit by students who have completed CHE 301. Prerequisite: CHE 132 or 142. Co- or prerequisites: MSM 132 or 142, PHY 101 or 103. *Spring, 3 credits*

### **CHE 321, 322 Organic Chemistry (Formerly CHE 201, 202)**

A systematic discussion of the structures, physical properties, and syntheses of carbon compounds, based on modern views of chemical bonding and mechanism. The chemistry of substances important in biology and technology, including macromolecules, will be emphasized. Prerequisites to CHE 321: CHE 132 or 142, 134 or 144. Prerequisite to CHE 322: CHE 321. *Fall (321) and spring (322), 3 credits each semester*

### **CHE 327 Organic Chemistry Laboratory A (Formerly CHE 207)**

Techniques of isolating and handling organic substances, including biological materials. A one-semester course which provides a basic organic laboratory experience. It is recommended that students take 327 at the same time as or immediately following CHE 322 or 332. Four laboratory hours and one lecture hour per week. Prerequisite: CHE 134 or 144. Co- or prerequisite: CHE 321 or 331. *Fall and spring, 2 credits*

### **CHE 331, 332 Honors Organic Chemistry (Formerly CHE 211, 212)**

An organic chemistry course similar to CHE 321, 322 but providing a more fundamental view of organic compounds, reaction mechanisms, and synthesis, based somewhat more explicitly on thermodynamics and kinetics.



Especially for those who may major in chemistry, biochemistry, or another physical science. Prerequisites to CHE 331: CHE 132 or 142, 134 or 144. Prerequisite to CHE 332: CHE 331. *Fall (331) and spring (332), 2 credits each semester*

**CHE 333, 334 Organic Chemistry Laboratory B (Formerly CHE 213, 214)**

Fundamental laboratory techniques of organic chemistry, including methods of isolation, purification, and structure identification, with applications to synthetic, structural, and mechanistic problems. For students who will require substantial laboratory skills, such as those planning careers in research. Prerequisite: CHE 134 or 144. Corequisites: CHE 321, 322 or 331, 332. Prerequisite to CHE 334: CHE 333. *Fall (333) and spring (334), 2 credits each semester*

**CHE 345 Intermediate Organic Chemistry (Formerly CHE 315)**

An extension of the material introduced in CHE 321, 322 or 331, 332. Electronic and stereochemical theories are utilized to discuss selected organic reactions, syntheses, and natural products. Prerequisite: CHE 322 or 332. *Spring or fall, 3 credits*

**CHE 346 Physical Chemistry of Solid Interfaces**

The behavior and chemical properties underlying solid-gas, solid-liquid, and solid-solid interfaces: the principal concepts determining the energetics and kinetics of nucleation at solid surfaces; the colloidal state, including the classification, preparation, and properties of colloids; adsorption and the specific factors influencing heterogeneous catalysis on gas-solid interfaces, with examples drawn from industrial processes. This course is identical with ESM 346. Prerequisite: CHE 302. *Spring, 3 credits*

**CHE 348 Electrochemistry at Metal-Liquid Interfaces**

Introduction to basic electrochemical processes occurring at metal-solution interfaces under free and controlled conditions. Emphasis on electrochemistry of corrosion, deposition processes, and batteries. This course is identical with ESM 348. Prerequisites: PHY 102 and CHE 301 or ESG 301. *Spring, 3 credits*

**CHE 355 Physical Chemistry III**

Kinetic theory of gases, transport phenomena, and molecular theories of chemical kinetics. Introductory statistical mechanics. Partition functions and spectroscopic determination of thermodynamic quantities. Electrochemistry. Prerequisites: CHE 301 or 312; MSM 231; PHY 102 or 104. *Fall, 3 credits*

**CHE 357 Molecular Structure and Spectroscopy Laboratory**

Spectroscopic study of molecular properties. Magnetic resonance and optical spectra. X-ray crystallography, mass spectrometry. Six hours of laboratory and discussion. Prerequisite: CHE 304. *Fall, 2 credits*

**CHE 375 Inorganic Chemistry I**

A survey of inorganic chemistry covering various classes of inorganic compounds and reactions with emphasis on the structural aspects. Wherever possible, the subject is treated on the basis of modern concepts of chemical bonding. Thermodynamic and kinetic aspects of inorganic reactions are included. Prerequisites: CHE 322 or 332 and 301. *Fall, 3 credits*

**CHE 376 Inorganic Chemistry II**

The chemistry of the elements with an emphasis on the transition metals. Reaction mechanisms, synthesis, and structure will be covered. Specific areas of concern will include coordination chemistry, organometallic chemistry, bioinorganic chemistry, and selected topics from solid state and nontransition metal chemistry. Prerequisite: CHE 375. *Spring, 3 credits*

### **CHE 475 Undergraduate Teaching Practicum**

An opportunity for selected upper-division students to collaborate with the faculty in teaching. In addition to working as tutors or laboratory assistants, students will meet at least weekly with their faculty supervisors to discuss teaching strategies and problems encountered. Students may participate only in completed courses in which they have excelled. Students may offer only one Teaching Practicum for credit. Grading in this course shall be Satisfactory/Unsatisfactory only. Prerequisite: Permission of department. *Fall and spring, 3 credits*

### **CHE 487, 488 Tutorial in Special Topics in Chemistry**

Supervised readings, laboratory work, or both on specialized topics in chemistry. For students who wish to gain familiarity with a subject or area not included in sufficient depth in other undergraduate courses. Departmental permission to register will be based on a brief outline jointly submitted by the student and faculty supervisor. A final report will be submitted by the student. May be repeated for credit. Prerequisites: Consent of an instructor and permission of department. *Fall and spring, 1 to 3 credits each semester*

### **CHE 491-492 Senior Research**

A two-semester research program to be carried out under the supervision of a staff member. The results of this work are to be submitted to the department in the form of a senior research report. The student will be given an oral examination in May by a faculty committee consisting of the student's supervisor and three other faculty members. A composite grade for the two semesters will be assigned. Students who are interested in registering for this course should apply to the office of the chairman prior to registration. Prerequisites: CHE 304, 334, senior standing, acceptance as a research student by a member of the departmental staff, and permission of department. Corequisite: CHE 375. *Fall and spring, 3 credits each semester*

## **Graduate Courses**

Advanced chemistry students may elect 500-600 level graduate courses in aspects of chemistry of particular interest to them. The requirement for registration is a 3.0 average in CHE courses or permission of the instructor. See the *Graduate Bulletin* for course descriptions.

CHE 501 Structural Organic Chemistry

CHE 502 Mechanistic Organic Chemistry

CHE 503 Synthetic Organic Chemistry

CHE 511 Structural Inorganic Chemistry

CHE 512 Physical Methods in Inorganic Chemistry

CHE 513 Reaction Mechanisms In Inorganic Chemistry

CHE 521 Quantum Chemistry I

CHE 522 Quantum Chemistry II

CHE 523 Chemical Thermodynamics

CHE 526 Chemical Kinetics

CHE 528 Statistical Mechanics

CHE 529 Nuclear Chemistry

CHE 530 Physical Chemistry of Macromolecules

CHE 604 Molecular Biochemistry

CHE 623 Molecular Spectroscopy

CHE 624 Magnetic Resonance

CHE 625 Molecular Structure and Crystallography

CHE 626 Computer-Controlled Experimentation in Chemistry

## Chinese

**Assistant Professor:** Shi Ming Hu, Ed.D. Columbia University (Chinese language; Asian studies)

### **Courses \***

#### **CHI 111, 112 Elementary Chinese**

An introduction to spoken and written Chinese Mandarin, with equal attention to speaking, reading, and writing. Laboratory practice supplements class work. *Fall and spring, 3 credits each semester*

#### **CHI 191, 192 Intermediate Chinese**

An intermediate course in Chinese Mandarin to develop audiolingual skills and reading and writing ability. Selected texts will serve as the basis for practice in reading comprehension and composition. Intensive exercises in "character writing" will be required to develop writing technique. Prerequisite: CHI 112. *Fall and spring, 3 credits each semester*

#### **CHI 221, 222 Advanced Chinese**

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: CHI 192. *Fall and spring, 3 credits each semester*

#### **CHI 487 Independent Research**

An individual research project in Chinese, such as translation, analysis of documents or literature, etc., in consultation with the instructor. Students are expected to meet at regular intervals and to present the completed project at the end of the semester. May be repeated. Prerequisites: CHI 222 and permission of instructor. *Fall and spring, 3 credits*

## Classics and Classical Languages

**Professors:** Harvey Gross, Ph.D. University of Michigan (Comparative literature); Richmond Y. Hathorn, Ph.D. Columbia University (Myth; classical drama; classical languages)

**Associate Professor:** Walter Scheps, Acting Director, Ph.D. University of Oregon (Medieval studies)

---

\*See p. 124, Course Credit and Prerequisites, and p. 125, Numbering System.

**Lecturers:** Joan B. Fry, M.A. University of California at Berkeley (Classical Literature; archaeology); Aaron W. Godfrey, M.A. Hunter College (Latin; medieval studies)

### ***Minor in Classical Civilization***

The minor in classical civilization provides students with a broad knowledge of the cultures of ancient Greece and Rome. After elementary literary surveys, the student selects his own mixture of courses with classical content from offerings in classics, classical languages, and related courses from other departments. In addition to completing at least two semesters of either Latin or Greek, the student must fulfill the following minimum requirements by selecting at least two courses from group IA, or IB, and one course each from groups II through VI. Substitutions may be permitted for other courses with classical content with permission of the minor coordinator, Ms. Joan Fry.

	<b>Credits</b>
Group IA: GRK 111, 112, 251, 252, 447	6
Group IB: LAT 111, 112, 251, 252, 353, 354, 355, 356, 447	
Group II: CLS/CLT 113	3
Group III: CLS 215, EGL 260	3
Group IV: CLS 120, ARH 300, ARH 301	3
Group V: HIS 100, 230, 231, 232, 300	3
Group VI: PHI 101, 200, 301	3
	<hr/>
	<i>Total</i> 21

### ***Courses\****

All classics courses except CLS 447 may be used to satisfy the arts and humanities distribution requirement. All Greek and Latin courses except GRK and LAT 111, 112 and 447 are appropriate for satisfying the arts and humanities requirement.

### ***Classics***

#### **CLS 113 Greek and Latin Literature in Translation (Formerly CLS 113 and 114)**

Historical and analytical study of the development of classical Greek and Latin literature. Extensive readings in translation will include works il-

\*See p. 124, Course Credit and Prerequisites, and p. 125, Numbering System.

lustrating epic, lyric, drama, history, oration, and literary criticism. This course is identical with CLT 113. *Fall, 3 credits*

### **CLS 120 Classical Archaeology**

Introduction to archaeology describing the range and variety of artifacts which can be used as evidence for recovering and reconstructing the civilizations of Greece and Rome, including the history of methods used to infer information from the artifacts. Emphasis will be on particular facts of daily life rather than an overview of high culture. *Spring, 3 credits*

### **CLS 215 Classical Mythology**

A study of the Greek myths, classified according to the basic mythic patterns of Death and Rebirth and the Sacred Marriage; the influence of these myths on literature, art, and the history of ideas. Prerequisite: One course in literature. *Fall and spring, 3 credits*

### **CLS 311 Classical Drama and Its Influences**

A study of the Greco-Roman theatre, dramatic festivals, and play production. Readings in English translation of most of the extant tragedies, comedies, and satyr-plays, with consideration of their meaning and influence in European culture. *Fall, 3 credits*

### **CLS 313 The Classical Tradition**

A study, through analysis of Greek and Roman literature, of the basic ideas that distinguish the classical world-view from the romantic-modern world-view: reverence for tradition; the idea of high-style; the tragic vision; the ethical approach to history and to the arts and sciences. *Fall, 3 credits*

### **CLS 314 Classical Rhetoric and Literary Criticism**

A study of the works of Aristotle, Horace, Longinus, and the minor rhetoricians in rhetoric and literary criticism; and of their influence in the rhetorical and literary theory and practice of the Middle Ages, Renaissance, and Neo-Classical period. *Spring, 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 director. *Fall and spring, 1 to 4 credits*

## *Greek*

### **GRK 111, 112 Elementary Greek**

An introduction to the Greek language, including the study of grammar, with reading and writing. *Fall and spring, 3 credits each semester*

### **GRK 251, 252 Readings in Greek Literature**

The reading and interpretation of works such as the *Apology* of Plato, the *Prometheus Bound* of Aeschylus, or selections from the *New Testament*. Prerequisite: GRK 112. *Fall and spring, 3 credits each semester*

### **GRK 447 Directed Readings in 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 director. *Fall and spring, 1 to 4 credits*

## *Latin*

### **LAT 111, 112 Elementary Latin**

This intensive course is designed to prepare the beginning student to translate Latin that may be needed for use in undergraduate or graduate

study. Focus of the course is on the fundamentals of grammar and techniques of translation. *Fall and spring, 3 credits each semester*

**LAT 251, 252 Readings in Latin Literature**

Readings in classical Latin literature of the Republic. The course will include a brief intensive review of grammar and the sampling of a number of authors, including Catullus, Cicero, Virgil, and Livy. Prerequisite: LAT 112. *Fall and spring, 3 credits each semester*

**LAT 353 Literature of the Roman Republic**

Selected works of Plautus, Terence, Cicero, Lucretius, and Catullus will be translated and examined in their social and historical context. The reading of critical works in English will also be required. Prerequisite: LAT 251. *Fall, 3 credits*

**LAT 354 Literature of the Roman Empire**

Selected works of Virgil, Horace, Livy, Petronius, Martial, Tacitus, and Juvenal will be translated and examined in their social and historical context. The reading of critical works in English will also be required. Prerequisite: LAT 251. *Spring, 3 credits*

**LAT 355 Medieval Latin**

Readings in Christian Latin literature, medieval Latin literature, and Neo-Latin literature of the Renaissance. Prerequisite: LAT 251. *Fall, 3 credits*

**LAT 356 Renaissance Latin**

Translation and discussion of selected Latin works from the Age of Dante to the present, with a survey of Renaissance and Neo-Latin writings. Prerequisite: LAT 251. *Spring, 3 credits*

**LAT 447 Directed Readings in Latin**

Intensive study of a particular author, period, or genre of Latin literature in the original under close faculty supervision. Prerequisite: Permission of director. *Fall and spring, 1 to 4 credits*

## Interdisciplinary Program in Comparative Literature

**Professors:** Harvey Gross, Ph.D. University of Michigan (Prosody and poetic theory; modern intellectual history); Jan Kott, Critic-in-Residence, Ph.D. Lodz University (Shakespeare; the drama; literary criticism)

**Lecturers:** Joan B. Fry, M.A. University of California at Berkeley (Classical literature; archaeology); Aaron W. Godfrey (Latin, medieval studies); Robert Scavone, M. Phil. Yale University (Renaissance, critical theory)

**Affiliated faculty—Professors:** Konrad Bieber (French); Donald K. Fry (English); Richmond Y. Hathorn (Classics); Roman Karst (German); Ruth Miller (English); Elias Rivers (Spanish); Klaus Schröter (German); Louis Simpson (English); Leif Sjöberg (Scandinavian); Gerhard Vasco, Adjunct (Library); Herbert Weisinger (English); Iris Zavala (Spanish); Eléonore Zimmermann (French)

**Associate Professors:** Betty T. Bennett, Adjunct (English); Antonio di Nicolas (Philosophy); Christopher S. George, Visiting Part-time (Religious Studies); Dick Howard (Philosophy); D. Sandy Petrey (French); Walter Scheps, Acting Director (English)

**Assistant Professor:** <sup>a</sup>Hugh J. Silverman (Philosophy)

***Estimated Number of Teaching Assistants: 5***

The Interdisciplinary Program in Comparative Literature offers undergraduate majors two options: the first, Option A, is a broadly based program for the student interested in comparative studies and general literature; the second, Option B, is intended for the student planning to undertake graduate studies in comparative literature or foreign languages. Both options stress the comparative study of national literatures; both stress the relationships between literature and other disciplines. Individual programs can be adjusted to the special interests of the student through consultation with the program's advisor.

***Requirements for the Major in Comparative Literature***

The interdisciplinary major in comparative literature leads to the Bachelor of Arts degree. The following courses are required and must be taken for a letter grade.

---

<sup>a</sup>Recipient of the State University Chancellor's Award for Excellence in Teaching, 1976-77.

*Credits*

**OPTION A**

A. Introductory courses: CLT 109 and CLT 110	6
B. Literature in the original language: Two semester courses in the literature of a language other than English	6
C. Period courses: Three courses selected from CLT 113, 210, 211, 212	9
D. Theory: CLT 301	3
E. Genre courses: Two courses selected from CLT 331, 332, 333, 334	6
F. Theme courses: One course selected from CLT 351, 352, 353	3
G. Interdisciplinary courses: The following courses: CLT 361, 362, 363	9

---

*Total* 42

**OPTION B**

A. Introductory courses: Either CLT 109 or CLT 110	3
B. Literature in the original language: 1. Two semester courses in the literature of a language other than English 2. Two semester courses at any level in an additional language other than English	6 6
C. Period courses: Three courses selected from CLT 113, 210, 211, 212	9
D. Theory: CLT 301	3
E. Genre courses: One course selected from CLT 331, 332, 333, 334	3
F. Theme courses: One course selected from CLT 351, 352, 353	3
G. Interdisciplinary courses: Two courses selected from CLT 361, 362, 363	6
H. Senior seminar: CLT 401	3

---

*Total* 42



### **Recommended Courses**

The major in comparative literature is advised to take the following courses:

A. CLT 120 Masterpieces of Non-Western Literature

B. EGL 204 Literary Analysis and Argumentation

C. Courses in linguistics and in the history and development of language, such as LIN 363 Language and Culture; EGL 207 The English Language; GER 202 History of the German Language, etc.

D. Courses in classics, plus the history, arts, and philosophy of the period or languages of the student's major interests.

E. Students may earn credit toward the major through SUNY-sponsored foreign study programs at universities in France, Germany, Italy, Spain, Israel, Mexico, and Puerto Rico.

### **Requirements for the Minor in Comparative Literature**

The minor in comparative literature, designed especially to interest students majoring in foreign languages, English, and the humanities, provides a comprehensive overview of the theory and techniques of comparative literature, culminating in a practical course in which the student applies comparative techniques to his or her major field of study.

	<i>Credits</i>
A. Introductory course: Either CLT 109 or 110	3
B. Period courses: Two courses selected from CLT 113, 210, 211, 212	6
C. Language: One course in the literature of a language other than English	3
D. Theory: CLT 301	3
E. One Genre or Themes course selected from the following: CLT 331, 332, 333, 334 or CLT 351, 352, 353	3
F. Interdisciplinary course: One course selected from CLT 361, 362, 363	3
G. Independent Reading and Research: CLT 487 (To be taken in the final semester)	3
	<hr/>
	<i>Total</i> 24

## **Courses\***

### **CLT 109 Literature and Human Life**

A survey in translation of major authors and works of Western culture, focused around such problems as the self and moral values. This course is identical with PHI 109. *Fall, 3 credits*

### **CLT 110 Literature and Artistic Creation**

A survey in translation of major authors and works of Western culture, focused around the artist's perception of the world and his creative activity. This course is identical with PHI 110. *Spring, 3 credits*

### **CLT 113 Greek and Latin Literature in Translation (Formerly CLT 209)**

Historical and analytical study of the development of Classical Greek and Latin literature. Extensive readings in translation will include works illustrating epic, lyric, drama, history, oration, and literary criticism. This course is identical with CLS 113. *Fall, 3 credits*

### **CLT 120 Masterpieces of Non-Western Literature**

A survey of the major themes and forms of non-Western literature, such as Oriental, Indian, African. Topics will vary. May be repeated. *Fall and spring, 3 credits*

### **CLT 210 Literary Period: Medieval through Renaissance**

Historical and analytical study of representative works illustrating medieval epic, romance, and lyric. The beginnings of Humanism through the High Renaissance. Prerequisite: One course in literature. *Spring, 3 credits*

### **CLT 211 Literary Period: Baroque through Enlightenment**

Historical and analytical study of the trends in European literature from the High Renaissance through the 17th century and to the Neo-Classical era. Prerequisite: One course in literature. *Fall, 3 credits*

### **CLT 212 Literary Period: Romantic through Modern**

Historical and analytical study of literature from the Romantic revolution through the development of key movements in the 19th century (Realism, Naturalism, Symbolism) leading to the culmination of Modernism. Prerequisite: One course in literature. *Spring, 3 credits*

### **CLT 301 Theory of Literature**

An introduction to the different modes of analyzing literature by periods, ideas, traditions, genres, and aesthetic theories. Stress will be placed on twentieth-century developments in critical theory. Prerequisites: Two courses in comparative literature or the equivalent. *Fall, 3 credits*

### **CLT 331 Literary Genres: Poetry**

Analysis of poetic form as illustrated by various kinds of poetry, e.g., epic, lyric. Works selected from different national literatures and literary movements. Prerequisites: Two courses in literature. *Fall and spring, 3 credits*

### **CLT 332 Literary Genres: Drama**

Analysis of dramatic form through readings of major works in tragedy and comedy. Works selected from different national literatures and literary movements. Prerequisites: Two courses in literature. *Fall and spring, 3 credits*

### **CLT 333 Literary Genres: Novel**

Historical and analytical study of the novel form. Works selected from different national literatures and literary movements. Prerequisites: Two courses in literature. *Fall and spring, 3 credits*

---

\*See p.124, Course Credit and Prerequisites, and p.125, Numbering System.

**CLT 334 Other Literary Genres**

Historical and analytical study of such literary kinds as satire, fable, romance, epistle, saga, allegory, etc. Course may be repeated once as the subject matter differs. Prerequisites: Two courses in literature. *Spring, 3 credits*

**CLT 351 Attitudes in Western Literature**

Comparative analysis of attitudes in literature toward such subjects as love, marriage, women, death, etc. Works selected from different national literatures and literary movements. Prerequisites: Two courses in literature. *Fall, 3 credits*

**CLT 352 Mythical Themes and Archetypal Characters**

Comparative analysis of the literary treatment of mythical themes and archetypal characters, e.g., Prometheus, Ulysses, Faust, Don Juan, etc. Prerequisites: Two courses in literature. *Spring, 3 credits*

**CLT 353 Historical Themes and Characters**

Comparative analysis of the literary treatment of historical themes and characters, e.g., Julius Caesar, Joan of Arc, Napoleon, etc. Prerequisites: Two courses in literature. *Spring, 3 credits*

**CLT 361 Literature and Society**

An inquiry, interdisciplinary in nature, into the relationship between the events and materials of political and social history and their effect on the form and content of the literature of a period. Also subsumed under the rubric Literature and Society is the topic Literature and Psychology. Prerequisites: Two courses in literature. *Fall, 3 credits*

**CLT 362 Literature and Ideas**

An inquiry into the primary writings and significant documents in the history of ideas and their effect on the form and content of the literature of a period. Prerequisites: Two courses in literature. *Spring, 3 credits*

**CLT 363 Literature and the Arts**

An inquiry into the aesthetic milieu (including the plastic arts, theatre, and music) and its relationship to the form and content of the literature of a period. Prerequisites: Two courses in literature. *Fall, 3 credits*

**CLT 401 Senior Seminar**

Advanced comparative study of a special literary topic, e.g., Nietzsche and Yeats; Wagner and Symbolism. Open only to Comparative Literature majors in Option B. May be repeated once. Prerequisites: Senior standing and permission of director. *Fall and spring, 3 credits*

**CLT 475 Undergraduate Teaching Practicum**

Each student will receive regularly scheduled supervision from the instructor of the course specified as the forum for the practicum. Responsibilities will include regular attendance in the specified course and may include conducting practice or discussion sessions that will supplement the regular class meeting, preparing material for practice or discussion, initial correction of homework and tests, and helping students with course problems. Grading in this course shall be Satisfactory/Unsatisfactory only. Prerequisites: Senior standing and permission of instructor and Program Director. *Fall and spring, 3 credits*

**CLT 487 Independent Reading and Research**

Intensive reading and research on a special topic undertaken with close faculty supervision. May be repeated. Prerequisites: Permission of instructor and program. *Fall and spring, 3 credits*

## Department of Earth and Space Sciences

**Professors:** A. Edward Bence, Ph.D. Massachusetts Institute of Technology (Geochemistry); Peter W. Bretsky, Ph.D. Yale University (Paleontology); Robert T. Dodd, Jr., Ph.D. Princeton University (Geochemistry); Gilbert N. Hanson, Ph.D. University of Minnesota (Geochemistry); Donald H. Lindsley, Ph.D. Johns Hopkins University (Geochemistry); Tobias C. Owen, Ph.D. University of Arizona (Planetary science); Allison R. Palmer, Ph.D. University of Minnesota (Paleontology); James J. Papike, Ph.D. University of Minnesota (Geochemistry); Charles T. Prewitt, Chairman, Ph.D. Massachusetts Institute of Technology (Geochemistry); Oliver A. Schaeffer, Ph.D. Harvard University (Geochemistry); Michal Simon, Ph.D. Cornell University (Astronomy); Philip M. Solomon, Ph.D. University of Wisconsin (Astronomy)

**Associate Professors:** Sara S. Bretsky, Adjunct, Ph.D. Yale University (Paleontology); Iver W. Duedall, Joint with Marine Sciences, Ph.D. Dalhousie University (Chemical oceanography); Johannes Hardorp, Ph.D. University of Hamburg (Astronomy); Jack B. Hartung, Adjunct, Ph.D. Rice University (Geochemistry); Roger F. Knacke, Ph.D. University of California at Berkeley (Astronomy); Robert C. Liebermann, Ph.D. Columbia University (Geophysics); Barry L. Lutz, Adjunct, Ph.D. Princeton University (Astronomy); Jorge Mendiguren, Ph.D. Massachusetts Institute of Technology (Geophysics); William J. Meyers, Ph.D. Rice University (Sedimentology); Deane M. Peterson, Ph.D. Harvard University (Astronomy); Donald J. Weidner, Ph.D. Massachusetts Institute of Technology (Geophysics)

**Assistant Professors:** Henry J. Bokuniewicz, Joint with Marine Sciences, Ph.D. Yale University (Marine geophysics); John J. Caldwell, Adjunct, Ph.D. University of Wisconsin (Astronomy); Miriam A. Forman, Adjunct, Ph.D. State University of New York at Stony Brook (Astronomy); James W. Granath, Ph.D. Monash University (Structural geology); Joseph P. Smoot, Ph.D. Johns Hopkins University (Sedimentology); John C. Theys, Ph.D. Columbia University (Astronomy); Amos Yahil, Ph.D. California Institute of Technology (Astronomy)

**Curator:** Steven C. Englebright, M.S. State University of New York at Stony Brook (Geology)

***Estimated Number of Teaching Assistants: 65***

The Earth and Space Sciences Department offers undergraduate programs leading either to a Bachelor of Arts or to a Bachelor of Science degree. The B.A. program is flexible and is designed to meet the needs of students who desire a broad and diverse liberal arts and sciences background. Although it is not intended to be a pre-professional program, it may be useful for careers in teaching, journalism, management, or law. The B.S. program in Earth and Space Sciences is a rigorous pre-professional course of study. This program prepares the student for graduate work in the fields of astronomy/astrophysics, the earth sciences, or geological oceanography for careers in industry, government, teaching, and research. Minimum course requirements for both the B.A. and B.S. programs are listed in the following pages; all courses taken to meet departmental requirements must be taken for a letter grade. Upon declaring the ESS major, the student is assigned a faculty advisor who will assist in the selection of the correct course sequence leading to the desired ESS degree. Students should consult frequently with their advisors regarding their progress and regarding appropriate ESS and other science courses. The position of the scientist in society is responsible and complex, and the student is cautioned to pay careful attention to general education in the arts, humanities, and social sciences.

***Physical Facilities***

The following facilities may be used by undergraduates either directly with course work or in senior research projects:

***Laboratories***

Physical Geology—Rock collections, maps  
Historical Geology—Fossil and rock collections  
Mineralogy, crystal models and suites of mineral samples  
Paleontology—Fossil collections  
Optical Mineralogy—Polarizing microscopes  
Petrology, igneous and metamorphic rock suites; thin sections

Structural geology—Rock collections  
Sedimentology—Rock collections  
X-ray diffraction—X-ray generators, diffractometers

### *General Use*

Computer terminals  
Microcomputers  
Twelve-inch reflecting telescope  
Museum of Long Island Natural Sciences

## ***Requirements for the B.S. Degree***

### ***I. Geology Concentration***

A. The following departmental courses are required for the B.S.:

ESS 102 The Earth  
ESS 106 The Ages Before Man  
ESS 112 Physical Geology Laboratory  
ESS 116 Historical Geology Laboratory  
ESS 201 Mineralogy  
ESS 211 Paleontology  
ESS 304 Field Methods in Geology, or  
ESS 305 Field Geology or equivalent  
ESS 306 Petrology  
ESS 309 Structural Geology  
ESS 363 Sedimentation and Sedimentary Rocks

B. In addition to the courses listed above, at least six credits are required from the following:

ESS 203 Astronomy  
ESS 247 The Solar System  
ESS 301 Optical Mineralogy  
ESS 307 Petrology Laboratory  
ESS 325 Marine Geochemistry  
ESS 326 Chemical Sedimentology  
ESS 331 X-Ray Diffraction Techniques  
ESS 351 Geophysics I  
ESS 352 Geophysics II  
ESS 353 Marine Ecology  
ESS 364 Marine Geology  
ESS 387 Senior Research  
Any 500-level ESS course

or: from any 300-level or higher BIO, CHE, MSM, or PHY course from a current list of approved related sciences courses available in the departmental office. These must be in addition to the related sciences courses required under C and D.

C. In the related sciences, the following courses are required for the B.S.:

MSM 131 or 141 Calculus I or Calculus IA

MSM 132 or 142 Calculus II or Calculus II (Honors)  
CHE 112 or 131 or 141 Elementary Chemistry or General Chemistry or Honors Chemistry  
CHE 132 or 142 General Chemistry or Honors Chemistry  
PHY 101, 102 or 103, 104 General Physics I, II or Physics for the Life Sciences

D. In addition to the courses listed under C above, one of the following sets of courses must be successfully completed:

- (1) MSM 231 and 306 Calculus III: Linear Algebra, and Calculus IV: Multivariate Calculus
- (2) CHE 301 and 302 Physical Chemistry I, II
- (3) BIO 151, 152 Principles of Biology, and two of the following BIO courses: 220 General Genetics, 343 Invertebrate Zoology, 344 Chordate Zoology, 350 Adaptation and Evolution, or 354 Evolution

## *II. Astronomy/Planetary Sciences Concentration*

A. The following departmental courses are required for the B.S.:

ESS 102 The Earth  
ESS 203 Astronomy  
ESS 341, 342 Astrophysics I, II  
*plus:* at least 3 credits from among ESS courses numbered 200 or higher

B. Required physics courses:

PHY 101, 102 General Physics, I, II  
PHY 251 General Physics III  
PHY 252 Optics and Waves  
*plus:* at least 12 credits from approved PHY courses numbered 300 or higher

C. Required MSM courses:

MSM 131 or 141 Calculus I or Calculus IA  
MSM 132 or 142 Calculus II or Calculus II (Honors)  
MSM 231 Calculus III: Linear Algebra  
MSM 306 Calculus IV: Multivariate Calculus

## *III. Geological Oceanography Concentration*

The department offers an undergraduate track leading to a Bachelor of Science degree with a concentration in geological oceanography. In the senior year qualified students may enroll in approved graduate courses at the Marine Sciences Research Center and subsequently may be considered for admittance to the accelerated master's program at the MSRC. If the suggested sequence of courses is followed, it is possible for the student to complete the requirements for both the B.S. and Master's degrees in five years. Note that students completing the geological oceanography option in ESS are not automatically admitted to the graduate program in the Marine Sciences Research Center.

The requirements for the degree with the concentration in geological oceanography are the same as those for the B.S. degree (geology concentration) with the following changes:

1. Additional departmental requirement: ESS 104 Oceanography
2. Additional related science requirement: BIO 151, 152 Principles of Biology
3. The biological sciences option D(3): two courses chosen from BIO 220 Genetics, BIO 343 Invertebrate Zoology, BIO 344 Chordate Zoology, BIO 350 Adaptation and Evolution, BIO 354 Evolution.

### ***Requirements for the B.A. Degree***

#### **A. Required courses**

ESS 102 The Earth  
ESS 106 The Ages Before Man  
ESS 112 Physical Geology Laboratory  
ESS 116 Historical Geology Laboratory

#### **B. The following courses may also be taken for departmental credit:**

ESS 101 Introduction to Astronomy  
ESS 104 Oceanography

#### **C. At least five courses are required from the following (7 courses if category B above is not elected):**

ESS 201 Mineralogy  
ESS 202 Environmental Geology  
ESS 203 Astronomy  
ESS 211 Paleontology  
ESS 247 The Solar System  
ESS 248 Intelligent Life in the Universe  
ESS 301 Optical Mineralogy  
ESS 306 Petrology  
ESS 309 Structural Geology  
ESS 325 Marine Geochemistry  
ESS 326 Chemical Sedimentology  
ESS 331 X-Ray Diffraction Techniques  
ESS 351 Geophysics I  
ESS 352 Geophysics II  
ESS 353 Marine Ecology  
ESS 364 Marine Geology  
Any other upper-division ESS course.

#### **D. Minimum of one year's study in each of mathematics, chemistry, and physics and either one additional year of study in any of those fields or in biology or engineering.**



## ***Preparation for Teachers of Earth Science in Secondary Schools***

Curricula leading to provisional certification in earth sciences for secondary school teachers are available from the Department of Earth and Space Sciences.

### ***Geology Minor***

For students majoring in other areas who are interested in obtaining a fundamental understanding of the earth sciences, a minor concentration in geology is available. The minor is aimed at acquainting students with earth materials, the origin and evolution of life on the earth, and physical processes that have shaped the surface of the earth through time. This program, comprised of courses offered yearly by the entire earth sciences faculty, will be administered by the Director of Undergraduate Studies, who will also serve as student advisor. Minimum requirements for the minor in geology shall be satisfactory completion of the following courses (24 credits):

- ESS 102 The Earth
- ESS 112 Physical Geology Laboratory
- ESS 106 The Ages Before Man
- ESS 201 Mineralogy
- ESS 211 Paleontology
- ESS 306 Petrology

6 additional credits from among ESS courses numbered 300 or higher.

### ***Honors Program in Earth and Space Sciences***

Students 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 earth sciences or astronomy upon application to the department. Candidates for honors in *geology* must include in their programs the following academic courses: ESS 102/112, 106/116, 201, 211, 301, 306, 307, 309, 363. Candidates for honors in *astronomy* must include a sequence of mathematics, physics, and earth and space sciences courses approved by the student's advisor following petition by the student.

In addition to the academic program, the student must complete an honors thesis, which will be evaluated by a committee including the student's advisor and two other science faculty members including one from outside of the department, and must maintain a minimum 3.5 grade point average in all course work in natural sciences and mathematics.

## **Courses\***

### *Introductory Courses*

The following courses, while of interest and value to science majors, are primarily designed for the general University student who is not majoring in a physical science, but who elects the course either because of personal interest or to fulfill the College distribution requirement in the natural sciences.

#### **ESS 101 Introduction to Astronomy**

Description of planets, stars, galaxies, black holes, pulsars, quasars, supernovae, white dwarfs. Man's place in the cosmos. Cosmological and comogonical theories. Intended for students with little or no science background. ESS 101 and ESS 203 may not both be taken for credit. *Fall and spring, 4 credits*

#### **ESS 102 The Earth**

A summary of the processes that have shaped the earth and the other terrestrial planets as inferred from study of their surface materials, structural features, and interiors. Topics considered include: 1) the earth in the Solar System; 2) earth materials and rock-forming processes; 3) surface processes and their bearing on human activities; 4) crustal deformation and global tectonics; 5) the earth's interior; and 6) the geological features, compositions, and evolution of the terrestrial planets. *Fall, 3 credits*

#### **ESS 104 Oceanography**

This course examines the role the oceans play in making the surface of the earth suitable for the evolution and preservation of life. The evolution of the ocean basins and sea water are discussed. Topics cut across the usual fields of specialization because the economy of nature involves such diverse matters as the biochemistry of microscopic marine plants, inorganic weathering of rocks, and physical processes in the oceans and the atmosphere. The complex life support system that has made the earth a manned satellite of the sun is studied. *Fall, 3 credits*

#### **ESS 106 The Ages Before Man**

The earth is viewed as a dynamic system undergoing constant but subtle change. The history of the earth from its formation to the present is explored through study of techniques for determining geologic age and for extracting historical information from rocks; the origin of life; evolution of major animal and plant groups; the changing relationships between land and seas through time; and past changes in distribution of the continents. The impact of man on this dynamic system and speculations about the future are included. *Spring, 3 credits*

#### **ESS 107 Natural Hazards**

The phenomena of earthquakes, tidal waves, and volcanoes will be studied to determine their cause, destructive potential, and the degree to which they can be controlled or predicted. The public response to earthquake hazards in terms of building construction and site location as well as short-term response to predictions of imminent earthquakes will be evaluated. *Fall, 3 credits*

#### **ESS 112 Physical Geology Laboratory**

Rock and mineral identification, introduction to topographic and geologic maps. Corequisite: ESS 102. *Fall, 1 credit*

---

\*See p. 124, Course Credit and Prerequisites, and p. 125, Numbering System.

### **ESS 114 Oceanography Seminar**

Discussion and evaluation of assigned readings from the field of oceanography. For the student considering a career in oceanography to obtain penetrating insights into the diversity of professional preparation and areas of scientific inquiry encompassed within oceanography. Corequisite: ESS 104. *Fall, 1 credit*

### **ESS 116 Historical Geology Laboratory**

An introduction to fossils and to the interpretation of geological history through use of geological maps and cross-sections. Corequisite: ESS 106. *Spring, 1 credit*

## *Intermediate Courses*

The following courses are designed for majors in earth and space sciences or for other majors who choose to elect a course in this area. In general the courses require preparation in biology, chemistry, physics, or mathematics at the university level.

### **ESS 201 Mineralogy**

An introduction to the crystal chemistry, chemistry, phase equilibria, and paragenesis of the rock-forming minerals. Laboratories are devoted to elementary crystallography and mineral identification. Two one-hour lectures, one one-hour recitation, and two three-hour laboratories per week. Prerequisites: ESS 112, CHE 132 or 142. *Fall, 4 credits*

### **ESS 202 Environmental Geology**

How geologic processes, past and present, influence man and his environment as shown through studies of the abundance of natural resources, of their development and rate of depletion, and of the environmental and political impact of the mineral and petroleum industry; applications of engineering geology and land-use planning, earthquake prediction and control, and consideration of the geologic influence on the design of buildings, dams, and highways; the consideration of waste disposal as a geologic process; the health hazards of natural radioactivity and trace elements. Prerequisite: ESS 102. *Spring, 3 credits*

### **ESS 203 Astronomy**

A survey of the physical nature of the universe for the student with some background in physics and mathematics. May be taken instead of ESS 101 by students with better science preparation, but ESS 101 and ESS 203 may not both be taken for credit. An optional observing session will be held one evening per week. Prerequisite: PHY 101 or 103 or 131. *Spring, 4 credits*

### **ESS 211 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, paleobiogeography and dating are considered. Three hours of lecture and one three-hour laboratory session per week. Prerequisite: ESS 106. *Fall, 4 credits*

### **ESS 247 The Solar System**

The chemistry and physics of the origin, evolution, and present state of the sun, planets, moons, asteroids, meteorites, and comets. Among topics to be discussed are: the condensation and accretion of planets and satellites, planetary surfaces and atmospheres, meteorites and their precursors, and the chemical structure of the Solar System. Prerequisite: PHY 101 or 103 or 131. *Spring, 3 credits*

### **ESS 248 Intelligent Life in the Universe**

A survey of the observable universe; cosmological system; the evolution of the elements. Observation of simple and complex molecules in astronomical sources; the evolution of life on earth; the observable consequences of advanced technology; can life be detected elsewhere? Prerequisite: Two courses in natural science. *Fall, 3 credits*

### *Advanced Courses*

The following courses are designed primarily for science majors in their junior and senior years.

### **ESS 301 Optical Mineralogy**

Development of methods for the identification of rock-forming minerals using the petrographic microscope. Two one-hour lectures and two three-hour laboratory sessions per week. Prerequisite: ESS 201. *Spring, 4 credits*

### **ESS 304 Field Methods in Geology**

Elementary mapping techniques, including pace-and-compass, alidade-and-plane table, and aerial photo methods. In addition, theoretical aspects of sampling and surveying will be discussed. During the second half of the semester, weekend field trips will develop observational skills and specialized techniques in areas of primarily sedimentary, igneous, and metamorphic terranes. The proficiency of the student will be demonstrated by an individual mapping project and report, usually on a single outcrop scale. Prerequisite: ESS 309. *Spring, 3 credits*

### **ESS 305 Field Geology**

A field course which may be taken at any one of several approved university field stations. *1 to 6 credits*

### **ESS 306 Petrology**

Principles of the description, classification, and interpretation of igneous, metamorphic, and sedimentary rocks. The student will be introduced to the use of field and laboratory data for interpreting the origin and evolution of various rock types. Two one-hour lectures and one three-hour petrography laboratory session per week. Prerequisite: ESS 201. *Spring, 3 credits*

### **ESS 307 Petrology Laboratory**

Study of igneous and metamorphic rocks in thin-section, with emphasis on the application of mineral and textural relations to their genesis. Prerequisite: ESS 301. Corequisite: ESS 306. *Spring, 1 credit*

### **ESS 309 Structural Geology**

Principles of structural geology including classification, criteria for recognition, and mechanics of formation of crustal structural features. Elementary concepts of rock mechanics. 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. Several two-day weekend field trips will be made to visit classical structural localities in the east. Prerequisite: ESS 201. *Fall, 4 credits*

### **ESS 325 Marine Geochemistry**

The chemistry of the oceans will be considered. The various mechanisms for regular ocean chemistry and the influence of ocean circulation on ocean chemistry will be discussed. The chemistry of the sea floor, including the ocean sediments, will be considered. Prerequisites: MSM 131 and CHE 132 or 142. *Fall, 3 credits*

**ESS 326 Chemical Sedimentology**

Study of chemical processes in sediments, including changes in stable isotope ratios; the formation and alteration of clay minerals; the microbiological diagenesis of carbon, nitrogen, and sulfur compounds; and the diagenesis of iron, including the origin of the Precambrian iron formations. Prerequisites: MSM 131, CHE 132 or 142. *Fall, 3 credits*

**ESS 331 X-Ray Diffraction Techniques**

Introduction to the use of x-ray diffraction methods for the identification and characterization of minerals and mineral-like materials. Topics include Debye-Scherrer photography, powder diffractometry, indexing of powder patterns, quantitative phase determination, single-crystal diffraction, and elements of symmetry theory. Laboratory exercises and individual projects will expose students to a variety of mineralogical and environmental applications. Two hours of lecture and one three-hour laboratory per week. Prerequisite: ESS 201. *Spring, 3 credits*

**ESS 339 Materials and Methods in the Teaching of Earth Sciences**

The course emphasizes techniques for the preparation of rocks, fossils, and minerals, especially those from field trips made in the New York, Connecticut, and New Jersey area. Field collection, identification, laboratory preparation, and classroom display and usage are emphasized. Instruction in the use of classroom equipment and general laboratory equipment is also covered. One three-hour laboratory-lecture per week and four field trips per semester. Prerequisites: ESS 201, 211, and permission of instructor. Corequisite: ESS 340. *Spring, 3 credits*

**ESS 340 Observational Methods and Curriculum Developments in Earth Science Education**

Emphasis placed on recent secondary school curricula and development of technical aids (i.e., displays, audio-visual materials for the classroom) as they relate to instruction in earth sciences. Two one-hour seminars a week and three to six all-day observation sessions in elementary, junior and senior high school classrooms. Prerequisites: ESS 201, 211, and permission of instructor. Corequisite: ESS 339. *Spring, 3 credits*

**ESS 341, 342 Astrophysics I, II**

An introduction to, and development of, a firm physical understanding of the observed properties of the stars, Galaxy, and galaxies. Topics will include the structure of the interior and atmosphere of stars; evolution of stars; dynamics of multiple star systems; physics of the interstellar medium; the kinematics, dynamics, and evolution of galaxies; and cosmology and the synthesis of the chemical elements. Prerequisites: ESS 203, PHY 306. *Fall and spring, 3 credits each semester*

**ESS 345 Undergraduate Research in Astronomy**

Student participation in faculty-directed research projects in the areas of theoretical and observational astronomy. Topics may include abundance analysis in stars, instrument design and construction, ionization balance in the interstellar medium. Corequisite: ESS 342. *Spring, 1 credit*

**ESS 351 Geophysics I**

A survey of the physical nature of the earth's interior; heat flow, earth gravity and magnetism, and regional geophysics. This course is not a prerequisite for ESS 352 but may be taken in conjunction with it as a two-term general geophysics sequence. Prerequisite: MSM 231. *Fall, 3 credits*

**ESS 352 Geophysics II**

A survey of the earth's structure and properties as revealed by physical

measurements on the surface and on laboratory samples. Reviews the evidence from seismology and high-pressure geophysics. ESS 351 is not a prerequisite for this course but may be taken in conjunction with it as a two-term general geophysics sequence. Prerequisite: MSM 231. *Spring, 3 credits*

### **ESS 353 Marine Ecology**

A survey of biotic responses to ecological challenges in different marine realms. Controls of diversity and trophic structure in the marine ecosystem, historical aspects of marine realms, productivity in the oceans, plankton, soft-bottom communities, inter-tidal habitats, coral reefs, deep sea environments, and effects of pollution in the ocean will be discussed. This course is identical with BIO 353. Prerequisite: BIO 343. *Spring, 3 credits*

### **ESS 363 Sedimentation and Sedimentary Rocks**

A study of sedimentary processes and products. Marine environments (platform, continental shelf, deep ocean), terrestrial environments (fluvial), and transitional environments (deltaic) will be examined in terms of sediment production and provenance, transport, deposition, and structures produced. Identification and understanding of sediment grain properties and of sedimentary structures will be emphasized. Field trips will examine recent and ancient depositional settings. Three hours of lecture and one three-hour laboratory per week. Prerequisite: ESS 301. *Fall, 4 credits*

### **ESS 364 Marine Geology**

Intensive study of the morphology, origin, and evolution of deep ocean basins, ocean islands, ocean ridges, and island arc systems and the relation of these features to modern concepts of plate tectonics. The course includes the origin of basalts and a survey of sediments and sediment transport in marine environments. Three hours of lecture per week. Prerequisites: ESS 102 and 104. *Fall, 3 credits*

### **ESS 447 Senior Tutorial in Earth and Space Sciences**

Seminar courses in advanced topics may be arranged prior to the beginning of the semester. Topics to be discussed will be announced by the department, or students may petition for a particular topic. Weekly conferences will be held with a faculty member. May be repeated once. Prerequisite: Permission of instructor and chairman. *Fall and spring, 1 to 3 credits*

### **ESS 450 Supervised Secondary School Earth Science Student Teaching**

Prospective earth science teachers receive supervised practice in teaching secondary school classes by arrangement with selected Long Island junior and senior high schools. Frequent consultation with the supervising teacher and seminar meetings with a department faculty member help the student to evaluate and interpret the student teaching experience. Applications must be filed in the semester preceding that in which the student plans to teach. Grading in this course shall be Satisfactory/Unsatisfactory only. Prerequisites: ESS 339, 340, and permission of instructor. Corequisite: ESS 454. *Fall, 12 credits*

### **ESS 454 Earth Science Student Teaching Seminar**

Seminar on problems and issues of teaching at the secondary school level. Analysis of actual problems and issues encountered by the student in his or her teaching experience. Grading in this course shall be Satisfactory/Unsatisfactory only. Prerequisites: ESS 339, 340, and permission of instructor. Corequisite: ESS 450. *Fall and spring, 3 credits each semester*

### **ESS 475 Teaching Practicum in Earth and Space Sciences**

Supervision of laboratory or recitation sections of lower-division courses under the close guidance of the course instructor. Includes regular meetings

with instructor for purposes of planning and evaluation; supplementary reading in preparation for laboratory or recitation sessions; and opportunities to make oral presentations, prepare examinations, provide individual or innovative instruction, and reinforce previously acquired knowledge. Grading in this course shall be Satisfactory/Unsatisfactory only. Prerequisites: Senior standing and previous preparation in subject field; interview and permission of instructor. *Fall and spring, 3 credits*

### **ESS 487 Senior Research**

With the approval and 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 chairman 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 chairman. *Fall and spring, 1 to 3 credits*

### *Graduate Courses*

Qualified seniors may take 500-level courses with the permission of the department chairman. See *Graduate Bulletin*.

## Department of Economics

**Professors:** Edward Ames, Ph.D. Harvard University (Economic theory; comparative systems; economic history); Richard Dusansky, Ph.D. Brown University (Public sector economics; economics of health; monetary theory); John Hause, Ph.D. University of Chicago (Theory of measurement and econometric estimation in human capital, industrial organization and applied microeconomics); Charles Hoffmann, Ph.D. Columbia University (Comparative systems; economy of China); Estelle James, Ph.D. Massachusetts Institute of Technology (Welfare economics; economics of education); Thomas Muench, Chairman, Ph.D. Purdue University (Mathematical economics; econometrics; urban economics); Egon Neuberger, Director of Ph.D. Program, Ph.D. Harvard University (Comparative systems; Soviet and East European economics); Herman Stekler, Ph.D. Massachusetts Institute of Technology (Economic forecasting; stabilization policy); Robert Willis, Ph.D. University of Washington (Labor economics; economic demography; micro-economic theory)

**Associate Professors:** Alan D. Entine, Adjunct, Ph.D. Columbia University (Economics of human resources); Michael Hurd, Ph.D. University of California at Berkeley (Econometrics; labor; macroeconomics); Marvin Kristein, Ph.D. New School for Social Research (Managerial economics; economics of health); Tapan Mitra, Ph.D. University of Rochester (Growth theory; economics of exhaustible resources); Charles Staley, Ph.D. Massachusetts Institute of Technology (History of economic thought; international trade); Mark Walker, Ph.D. Purdue University (Mathematical economics; economics of social choice); Dieter Zschock, Director of M.A. Program, Ph.D. Tufts University (Development economics; labor economics); Michael Zweig, Director of Undergraduate Studies, Ph.D. University of Michigan (Political economy; labor economics)

**Assistant Professors:** Michael S. Denci, Adjunct, M.S. Columbia University (Management accounting); Mingche Li, Ph.D. Harvard University (Urban economics; econometrics, housing policy); Laurence Miners, Ph.D. University of North Carolina at Chapel Hill (Health economics; labor economics); John Winn, Ph.D. University of Texas at Austin (Econometrics); Myrna Wooders, Ph.D. University of Minnesota (Mathematical economics; social choice theory; urban economics)

**Lecturers:** <sup>a</sup>William Dawes, Ph.D. Purdue University (Econometrics; economic history)

**Estimated Number of Teaching Assistants: 40**

The undergraduate major in economics provides opportunities for exploring many elements of the processes of production, exchange, and distribution of goods and services. The program offers a variety of courses in economic theory and a number of applied and public policy courses which use basic economic theory to explore specific issues. The B.A. degree in economics leads many students to law school or graduate business school, as well as to graduate studies in economics, or directly to possible employment in government

---

<sup>a</sup>Recipient of the State University Chancellor's Award for Excellence in Teaching, 1973-74



or industry. A number of broad areas are dealt with, including economic theory, mathematical and quantitative techniques appropriate to economics, Marxist economics and the institutional and cultural setting of economic activity, economic development and comparative economic systems, and other courses which apply economic theory to specific problems.

Because the economy is such a central institution in society, economics has many relations with other fields of study. Students are encouraged to round out their studies of economics with courses in other areas, such as history, political science, anthropology, sociology, etc.

### ***Economics and Business***

Students interested in graduate work in business, leading to an M.B.A. degree, should acquire a thorough background in economic theory and are advised to take ECO 114, 320, 321, and 348 in addition to other courses of particular interest to the student.

### ***Requirements for the Major***

The major in economics leads to the Bachelor of Arts degree. The following courses are required.

- A. A minimum of 36 credits in economics, consisting of not more than 8 credit hours of 100-level courses and including:
  1. an introductory course in economics (ECO 101, 103, or 105)
  2. ECO 251 Intermediate Microeconomic Theory
  3. ECO 252 Intermediate Macroeconomic Theory
  4. A minimum of 18 credit hours of ECO courses numbered 310 and above
- B. One semester of calculus (MSM 121, 131, or 141)

*Note:* All courses used to satisfy the major requirements (including the calculus) must be taken for a letter grade.

### ***Courses\****

#### **ECO 101 Introduction to Economic Analysis**

An introduction to economic analysis. Microeconomics (the study of individual, firm, industry, and market behavior) and macroeconomics (the study of the determination of national income, employment, and inflation). *Fall and spring, 4 credits*

---

\*See p. 124, Course Credit and Prerequisites, and p. 125, Numbering System.

**ECO 103 Economic Problems of the Environment**

An analysis of the environmental problems associated with economic growth and development such as pollution and conservation and the economic means of affecting these problems. *Spring, 4 credits*

**ECO 105 Introduction to Political Economy**

The basic elements of the capitalist system of production and distribution; a historical overview of the development of capitalism from feudalism; Marxism as well as orthodox approaches to microeconomic analysis (markets and price determination) and macroeconomics (inflation, unemployment, economic crisis). Topics also include class structure, exploitation, and the role of the state in capitalist society. *Fall, 4 credits*

**ECO 114 Financial Accounting**

Introduction to some formal accounting statements commonly involved in economic analysis. Topics include business balance sheet and profit and loss statements and flow of funds accounting. *Fall and spring, 3 credits*

**ECO 202 Urban and Environmental Issues**

Current problems in urban and environmental economics. The issues to be discussed will include social control of industry, problems of the cities, mass transit, environmental and urban decay, and pollution. May not be taken for credit after ECO 251. Prerequisites: ECO 101 or 103 or 105. *Fall, 3 credits*

**ECO 203 History of Economic Thought**

A study of the evolution of economic thought with reference to the basic problems of the discipline; factor allocation, distribution, growth, etc. The major schools are emphasized in the survey. Prerequisite: ECO 101 or 103 or 105. *Fall, 3 credits*

**ECO 214 Managerial Accounting (Formerly ECO 263)**

Concepts, theories, and use of the accounting system as a source of information in the planning, control, and evaluation of the enterprise by the manager. Cash and funds flow analysis, budget development, and cost control mechanisms. Prerequisite: ECO 114. *Fall and spring, 3 credits*

**ECO 222 Economics of Socialism (Formerly ECO 122)**

Analysis of the various approaches to the problems of translating Marxian socialist principles into functional economic institutions. Theoretical issues of socialism will be stressed, but will be illustrated with examples taken from the experience of various communist countries. Prerequisite: ECO 101 or 103 or 105. *Spring, 3 credits*

**ECO 225 Economic Development**

An examination of problems and prospects facing developing countries in the transition from traditional, predominantly rural economic systems to modern, largely urban-oriented economies. Theories of economic growth and development will be presented in the light of the actual experience of developing countries. Prerequisite: ECO 101 or 103 or 105. *Fall, 3 credits*

**ECO 237 Economics of Industrial and Labor Relations**

Evolution of labor unions and collective bargaining, with an emphasis on current labor problems, union and non-union; changing composition of the labor force; wage differentials; the theory of wage determination; labor legislation; and unemployment. Prerequisite: ECO 101 or 103 or 105. *Fall, 3 credits*

**ECO 243 Comparative Economic Systems**

A study of different types of economic systems, comparing structures, the ways basic economic problems of factor allocation and distribution are dealt with, and the result achieved in output and growth. Prerequisite: ECO 101 or 103 or 105. *Fall, 3 credits*

**ECO 251 Intermediate Microeconomic Theory (Formerly ECO 211)**

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: One semester of calculus and either (a) ECO 101 or (b) ECO 103 or 105 and one other ECO course except ECO 114. *Fall and spring, 4 credits*

**ECO 252 Intermediate Macroeconomic Theory (Formerly ECO 212)**

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: One semester of calculus and either ECO 101 or ECO 103 or 105 and one other ECO course except ECO 114. *Fall and spring, 4 credits*

**ECO 301 Principles of Economics**

Basic introductory microeconomic and macroeconomic analysis for upper-division students not majoring in economics who want to find out how the economist looks at the world. May be used as a prerequisite for higher level economics courses in place of ECO 101. May not be taken after any other economics course except ECO 114. Prerequisite: A major other than Economics. *Spring, 3 credits*

**ECO 317 Marxist Political Economy (Formerly ECO 241)**

A Marxian analysis of capitalism, including some of the writings of Marx, Lenin, and Mao Tse-tung. The method of dialectical, historical materialism is applied to the historical development of capitalism, the operation of modern advanced monopoly capitalism, and such phenomena as economic crisis, war, and the capitalist conditions that give rise to socialism. Prerequisites: ECO 101 or 103 or 105. *Spring, 3 credits*

**ECO 318 Economics of Manpower Planning (Formerly ECO 238)**

Analysis of changing manpower requirements and labor force composition in the United States. Evaluation of manpower legislation and programs at national, regional, and local levels, and of educational and other institutional responses to employment problems. Prerequisite: ECO 237. *Spring, 3 credits*

**ECO 320 Mathematical Statistics (Formerly ECO 220)**

An introduction to statistical methods and their properties which are useful in analysis of economic data. Topics include: elements of probability theory and its empirical application, univariate and multivariate distributions, sampling distributions, limiting distributions, point and interval estimation. Regular problem sets and occasional projects are required. Prerequisites: ECO 101 or 103 or 105 and one semester of calculus. *Fall, 4 credits*

**ECO 321 Econometrics (Formerly ECO 221)**

The application of mathematical and statistical methods to economic theory. Topics include: concept of an explanatory economic model; multiple regression hypothesis testing; simultaneous equation models; and estimating techniques. Emphasis is placed on the application of econometric methods to economic issues and the interpretation of various econometric studies. Prerequisite: ECO 320 or MSA 310. *Spring, 4 credits*

**ECO 325 International Economics (Formerly ECO 210)**

Economic theory of international trade, protection, commercial policy, customs unions, capital movements, and international finance. Prerequisite: ECO 251. *Fall, 3 credits*

**ECO 326 Economics of American Industry (Formerly ECO 233)**

Application and extension of the theory of the firm to actual firms and industries, emphasizing problems which might call for various sorts of regulation of firms. Topics include market concentration, applications of the theories of monopoly and oligopoly, mergers, price discrimination, product variation, advertising, and public utility pricing, with illustrations from specific industries. Prerequisite: ECO 251. *Fall, 3 credits*

**ECO 336 Theory of Welfare Economics (Formerly ECO 306)**

Analysis of the method, meaning, and implications of modern welfare economics. Major topics to be covered include: the concept of Pareto-optimality, efficiency and equity under competitive equilibrium, causes of market failure, welfare under government planning, the measurement of social welfare, and applications to intertemporal resource allocation. Prerequisite: ECO 251. *Spring, 3 credits*

**ECO 337 Advanced Labor Theory**

Microeconomic theory is used to investigate specific topics in the field of labor economics. Areas to be covered include: the household's decision-making process and the supply of labor, investments in human capital and discrimination in the market-place, the effect of market structure on the demand for labor, and the distribution of income. Prerequisites: ECO 237 and 251. *Spring, 3 credits*

**ECO 341 Human Resources I, Education (Formerly ECO 361)**

Education as investment in human capital, with concurrent problems of individual decision making about the optimal level of education; the public and private benefits and costs of education, and the divergence between public and private optimizing of investment levels; education and growth, educational planning. Prerequisite: ECO 251. *Fall, 3 credits*

**ECO 342 Human Resources II, Health (Formerly ECO 362)**

An application of microeconomic theory to the health sector of the economy. Areas to be covered include: the demand for health care and the role of health insurance; the alleged shortage of physicians' services; the effects of physician specialty choice and location; the hospital sector of the health care market; and the utilization of non-physician support personnel. Prerequisite: ECO 251. *Spring, 3 credits*

**ECO 344 Urban Economics (Formerly ECO 244)**

Theories of residential and industrial location; examination of intrametropolitan changes in industry location, suburbanization of employment and population, and ethnic problems in metropolitan areas; costs and benefits of urban services and policy formation for urban development and renewal. Prerequisite: ECO 251. *Fall, 3 credits*

**ECO 345 Law and Economic Issues**

How the American legal system reflects the developing economy. The American court system as a social decision-making mechanism that allocates social costs and benefits among economic effects; the allocation of liability for increasingly complex goods; the development of the contract; property under the 14th amendment; changes in the value of money; and government role in creating wealth. Prerequisite: ECO 251. *Spring, 3 credits*

**ECO 346 Law and Poverty**

The income and wealth distribution in the United States, and the role of government in shaping it via taxation and subsidies; taxation of the poor and non-poor will be examined in detail. Prerequisite: ECO 345. *Fall, 3 credits*

**ECO 347 Environmental Economics**

The meaning and implications of modern welfare economics; conditions that result in market failures, including the study of externalities, public goods, property rights, and public policy analysis and the environment. Prerequisite: ECO 251. *Spring, 3 credits*

**ECO 348 Analysis for Managerial Decision Making (Formerly ECO 304)**

Development of analytical techniques (such as linear programming and statistical decision theory) for making economic decisions, both in public and private enterprises. The student will be making decisions on large-scale and detailed cases in realistic managerial situations and will be introduced to the use of the computer. Prerequisite: ECO 251. *Spring, 3 credits*

**ECO 349 Advanced Mathematical Microeconomics**

Alternative concepts of equilibrium state of an economic system: Do such states exist? Can they actually be attained? What properties do they have? This analysis leads to the study of market failures and the possibilities for remedying such failures. Prerequisites: ECO 251 and MSM 132 or 142. *Fall, 3 credits*

**ECO 350 Advanced Mathematical Macroeconomics (Formerly ECO 316)**

A continuation of ECO 252 on the study of macroeconomic models and their application at a more advanced level. Special emphasis is placed on the study of the microeconomic foundations of macroeconomic models. An introduction to macrodynamics is also provided through mathematical studies of business cycles and other growth theories. Prerequisites: ECO 252 and MSM 132 or 142. *Spring, 3 credits*

**ECO 360 Money and Banking (Formerly ECO 201)**

An introduction to modern monetary institutions and mechanisms, their relationship to the economy, and governmental policies in this area. Prerequisite: ECO 252. *Fall and spring, 3 credits*

**ECO 381 Monetary Theory and Policy (Formerly ECO 300)**

The theory of asset choice is used to explore the connection between financial markets and the growth in productive capacity. The connection between the money stock and the level of economic activity and the connection between domestic and international monetary policies are also discussed. Prerequisites: ECO 251, 252, and 360. *Fall, 3 credits*

**ECO 383 Public Finance (Formerly ECO 303)**

Theories of taxation and the satisfaction of public wants; the nature of public goods; theory of public expenditure; effects of taxes on resource allocation and welfare; theories of tax incidence; fiscal and equity implications of alternative tax schemes; fiscal dynamics and growth; intergovernmental fiscal relations. Prerequisites: ECO 251 and 252. *Spring, 3 credits*

**ECO 385 Economic History of the United States (Formerly ECO 235)**

A survey of the United States economy from colonial times to the present. The changing structure of the economy is analyzed using the standard tools of the economist to throw light on the factors determining changes in factor inputs, institutional arrangements, prices and money, balance of payments, and government policy. Prerequisites: ECO 251 and 252. *Spring, 3 credits*

**ECO 387 Stabilization Policy, Business Cycles, and Forecasting (Formerly ECO 302)**

The use of econometric models and techniques to forecast economic conditions and evaluate alternative economic policies. Properties of the Federal Reserve Board model, the Brookings model, and other major models in use in the U.S. economy will be investigated. Topics will also include specification of

demand and supply equations in the analysis of single product markets. Students will be expected to estimate and manipulate actual models. Prerequisites: ECO 251, 252, and 321. *Fall, 3 credits*

### **ECO 389 Corporate Finance (Formerly ECO 264)**

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 251, 252, and 360. *Spring, 3 credits*

### **ECO 400 Topics in Economic Theory (Formerly ECO 380)**

Topics in economic theory will be offered as student demand and faculty time and interest coincide. Some of the possible semester sections include: optimization theory, growth theory, investment determination, advanced micro theory. Students should check with department faculty for information about sections to be offered in any particular semester. May be repeated for different topics. Prerequisites: Vary with individual sections. *3 credits*

### **ECO 402 Topics in Quantitative Economics (Formerly ECO 382)**

Topics in quantitative economics will be offered as student demand and faculty time and interest coincide. Some of the possible semester sections include: forecasting with econometric models, time series and spectral analysis, decision theory, game theory. Students should check with department faculty for information about sections to be offered in any particular semester. May be repeated for different topics. Prerequisites: Vary with individual sections. *3 credits*

### **ECO 404 Topics in Development and Comparative Systems (Formerly ECO 384)**

Topics in development and comparative systems will be offered as student demand and faculty time and interest coincide. Some of the possible semester sections include: economic development in modern Europe, China, Southeast Asia, Soviet or Eastern European economies; economic development in the Middle East or Latin America. Students should check with department faculty for information about selections to be offered in any particular semester. May be repeated for different topics. Prerequisites: Vary with individual sections. *3 credits*

### **ECO 406 Topics in Political Economy (Formerly ECO 386)**

Topics in political economy will be offered as student demand and faculty time and interest coincide. Some of the possible semester sections include: imperialism, political economy of Latin America, property relations. Students should check with department faculty for information about sections to be offered in any particular semester. May be repeated for different topics. Prerequisites: Vary with individual sections. *3 credits*

### **ECO 408 Topics in Applied Economics (Formerly ECO 388)**

Topics in applied economics will be offered as student demand and faculty time and interest coincide. Some of the possible semester sections include advanced topics in economics of education, capital and financial markets, medical economics. Students should check with department faculty for information about sections to be offered in any particular semester. May be repeated for different topics. Prerequisites: Vary with individual sections. *3 credits*

### **ECO 475 Undergraduate Teaching Practicum in Economics**

Each student will conduct a regular recitation or problem section that will supplement a regular economics course. The student will receive regularly

scheduled supervision from the instructor. Responsibilities may include: preparing material for discussion, initial correction of homework and tests, and helping students with problems. Grading in this course shall be Satisfactory/Unsatisfactory only. Prerequisite: Permission of instructor and department. *Fall and spring, 3 credits*

#### **ECO 487, 488 Independent Research**

A course of study providing opportunities for a student to undertake independently a special project entailing advanced readings, reports and discussion, or research on topics of his or her choosing with the guidance of an assigned faculty member. When two or more students' work in this course is related, a seminar may be organized covering the area of common interest. May be repeated. Prerequisite: Permission of department. *Fall and spring, 1 to 6 credits each semester*

## **Interdisciplinary Program in Engineering Chemistry**

***Program Committee:*** Patrick Herley (Materials Science); Robert Kerber (Chemistry)

The interdisciplinary program in engineering chemistry (ECM), which leads to the Bachelor of Science degree, is designed to provide students with a basic understanding of the chemistry and materials technology underlying modern materials engineering.

This program emphasizes a strong background in physical chemistry infused with an orientation toward the solid state sciences and materials technology. Its 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 will enable the student to emphasize such different aspects of solid state sciences as polymeric materials, modern industrial processes, mineral resources, biomaterials, etc.

The program is a basic preparation for training chemical-materials engineers who can enter a wide range of industries or proceed to graduate work in either solid state chemistry or materials science.

## 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.

	<i>Credits</i>
<i>Mathematics and Science Requirements</i>	
MSM 131 Calculus I and MSM 132 Calculus II	8
MSM 231 Calculus III and MSM 306 Calculus IV Multivariate Calculus or MSM 221 Calculus III: Differential Equations and MSA 362 Engineering Mathematics, B	6-7
MSC 111 Computer Science for Engineers	3
CHE 131, 132 General Chemistry or CHE 141, 142 Honors Chemistry	8
CHE 133, 134 General Chemistry Laboratory or CHE 143, 144 Honors Chemistry Laboratory	2
PHY 101, 102 General Physics I, II; PHY 251 General Physics III	12
	<hr/>
	39-40
 <i>Core</i>	
CHE 301, 302 Physical Chemistry I, II	6
CHE 303 Solution Chemistry Laboratory	2
CHE 304 Chemical Instrumentation Laboratory	2
CHE 321 or 331 Organic Chemistry	3
CHE 357 Molecular Structure and Spectroscopy Laboratory	2
	<hr/>
	15
 ESG 332 Materials Science I: Structure and Properties of Materials	 4
ESG 333 Materials Science II: Electronic Properties	4
ESM 302 Materials Design and Techniques	4
	<hr/>
	12
	<hr/>
	<i>Total</i> 66-67

## *Electives*

Selection of technical and open electives to give a total number of credits of 120. Students are advised to divide their electives among courses within the College of Engineering and Applied Sciences and the Chemistry Department that strengthen their interests, and courses in the social sciences and humanities that help them place the problems of society and industry in perspective. Prior approval of electives by the



Engineering Chemistry Program Committee is required in order to achieve an appropriate balance between natural science and engineering courses and courses in social sciences and humanities.

## Department of English

**Professors:** Thomas J. J. Altizer, Ph.D. University of Chicago (Religion and literature; myth and imagination); David V. Erdman, Ph.D. Princeton University (Romantic literature; Blake; textual and critical editing); Thomas B. Flanagan, Ph.D. Columbia University (Irish literature; modern British literature; Joyce; Yeats); Donald K. Fry, Ph.D. University of California at Berkeley (Old English; Middle English; Chaucer); <sup>a</sup>Homer B. Goldberg, Ph.D. University of Chicago (Restoration and 18th century literature; the novel; literary criticism); Harvey S. Gross, Affiliate, Ph.D. University of Michigan (Comparative literature; prosody and poetic theory; modern intellectual history); Jan Kott, Affiliate, Ph.D. Lodz University (Comparative literature; Shakespeare; the drama; literary criticism); Thomas Kranidas, Ph.D. University of Washington (17th-century literature; Milton); Richard L. Levin, Ph.D. University of Chicago (Renaissance drama; literary criticism); Richard A. Levine, Chairman, Ph.D. Indiana University (Victorian literature; the novel; literature and society); Jack Ludwig, Ph.D. University of California at Los Angeles (20th-century literature; Joyce; Yeats); Thomas E. Maresca, Ph.D. Johns Hopkins University (Restoration and 18th-century literature; the epic; satire); Ruth Miller, Ph.D. New York University (Early American literature; poetry; Dickinson; Black American literature); Louis Simpson, Ph.D. Columbia University (19th- and 20th-century British and American literature; poetry; literary criticism); Judah L. Stampfer, Ph.D. Harvard University (Renaissance and 17th-

---

<sup>a</sup>Recipient of the State University Chancellor's Award for Excellence in Teaching, 1972-73

century literature; Shakespeare; literature and psychology); **John A. Thompson**, Ph.D. Columbia University (20th-century literature; prosody; literary criticism); **Herbert Weisinger**, Ph.D. University of Michigan (Renaissance literature; Shakespeare; mythology and ritual)

**Associate Professors:** **Betty T. Bennett**, Adjunct, Ph.D. New York University (Romantic literature; the Gothic); **Joseph T. Bennett**, Director of Graduate Studies in English, Ph.D. New York University (Victorian literature; 20th-century British literature; literary criticism); **Paul J. Dolan**, Ph.D. New York University (Modern British and American literature; Yeats; literature and politics); **Edward Fiess**, Director of M.A. Programs in English, Ph.D. Yale University (American literature; 20th-century literature; biography and autobiography); **Clifford C. Huffman**, Ph.D. Columbia University (Renaissance literature; Shakespeare); **June Jordan** (Poetry; children's literature; women's studies; Black American literature); **Aaron Lipton**, Ed.D. New York University (The teaching of reading, composition, and literature; the psychology of literature); **Gerald B. Nelson**, Ph.D. Columbia University (20th-century British and American literature, poetry); **Joseph Pequigney**, Ph.D. Harvard University (17th-century literature; Shakespeare); **Thomas Rogers**, Director of Writing Programs in English, Ph.D. University of Pennsylvania (Restoration and 18th-century literature; rhetoric; the teaching of composition and literature); **Walter Scheps**, Ph.D. University of Oregon (Old English; Middle English; the history of the English language); **Sallie Sears**, Ph.D. Brandeis University (The novel; Henry James; literary criticism; women's studies); **Peter Shaw**, Ph.D. Columbia University (American literature; 20th-century literature); **Alice S. Wilson**, Ph.D. Cornell University (Renaissance literature; classical backgrounds of English literature; mythology); **Rose Zimbaro**, Ph.D. Yale University (Restoration, Renaissance and 18th-century literature; modern drama)

**Assistant Professors:** **Norman Arkans**, Ph.D. University of Washington (19th-century British literature; 20th-century British and American literature); **Bruce W. Bashford**, Ph.D. Northwestern University (Literary criticism; rhetoric and the teaching of composition); **Diane Fortuna**, Ph.D. Johns Hopkins University (20th-century British and American literature; 19th-century American literature); **William J.**

**Harris**, Ph.D. Stanford University (American literature; Black American literature; creative writing); **James Harvey**, A.M. University of Michigan (The novel; drama; film); **Peter J. Houle**, Ph.D. University of Massachusetts (Renaissance literature; medieval studies); **David E. Laurence**, Ph.D. Yale University (Colonial and 19th-century American literature); **Paul A. Newlin**, Ph.D. University of California at Los Angeles (19th-century American literature, Black American literature); **Richard A. Rand**, Ph.D. City University of New York (Romantic literature; literary criticism; non-fiction prose); **David R. Sheehan**, Director of Undergraduate Studies in English, Ph.D. University of Wisconsin (Restoration and 18th-century literature); **Stephen J. Spector**, Ph.D. Yale University (Old English; Middle English; the history of the English language); **Susan Squier**, Ph.D. Princeton University (19th- and 20th-century British literature; women's studies); **Norman R. Wallis**, Assistant Director of Writing Programs in English, Ph.D. University of Chicago (Restoration and 18th-century literature; satire; rhetoric and the teaching of composition)

**Lecturers:** **Leonard Gardner**, Ph.D. University of Chicago (Secondary education); **Jane Harada**, M.A. Columbia University (Journalism); **Irvin D. Molotsky**, Part-time, B.S. Temple University (Journalism)

**Estimated Number of Teaching Assistants: 90**

### **Requirements for the Major in English**

The major in English leads to the Bachelor of Arts degree. The following courses are required.

	<i>Credits</i>
1. EGL 204 Literary Analysis and Argumentation, which should be taken as an introduction to the major	3
2. EGL 205 and 206 Survey of British Literature, which should be taken in the sophomore year	6
3. EGL 207 History and Structure of the English Language	3
4. <i>Either</i> EGL 217 American Literature I <i>or</i> EGL 218 American Literature II	3
5. One of the following Shakespeare courses: EGL 241, EGL 242, EGL 243	3
6. Three Period Courses from the sequence numbered EGL 300-318	9

7. One Major Author course from the sequence numbered EGL 340-353	3
8. One Interdisciplinary or Genre course from the sequences numbered EGL 260-276 or EGL 362-374	3
9. Elective: one additional course elected from those offerings numbered EGL 202-496, <i>exclusive of those listed in Note A, below</i>	3
	<b>Total 36</b>

*Note:* A) No English courses below the 200 level may be used to fulfill English major requirements. In addition, the following courses may not be used for the English major: EGL 285, 286, 287, 288, 385, 387, 388, 393, 394, 398. B) Courses to fulfill requirements 1 through 9 must be taken for a letter grade. C) Appropriate EGL 490 seminars may be used to satisfy the above requirements by permission of the Director of Undergraduate Studies.

10. One year (or its six-credit equivalent) of college study of a foreign language at the intermediate level or beyond is required. These six credits of foreign language on the intermediate level may also be used to fulfill the college distribution requirement in the humanities and may be taken under the P/NC option.

11. One year (six credits) of study of British, American, medieval, or Renaissance history is also required; the six credits need not all be in the same area (history courses in other areas may be elected with the approval of the Director of Undergraduate Studies in English). Students are advised to elect history courses that complement their major literary interests. These six credits of history may also be used to fulfill the College distribution requirement in social and behavioral sciences and may be taken under the P/NC option.

*Note:* English majors *may not* fulfill their College distribution requirement of twelve credits in humanities with English courses; they must take 12 hours of study in an area of the humanities outside of the English Department. These may be taken under the P/NC option.

### ***Teacher Certification***

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 Director of Undergraduate Studies as soon as they have decided to seek certification.

### *Requirements for Certification*

A. All Requirements for the Major

B. Professional Educational Requirements

1. A foundations of education course (PSY/SOC 232, HIS 160, or PHI 360) 3
2. EGL 202 Advanced Composition 3
3. EGL 398 Methods of Instruction in Literature and Composition 3
4. Supervised secondary school student teaching 12
5. A student teaching seminar 3
6. SSI 265 Drug and Alcohol Education 1

### *The Honors Program in English*

To be awarded Honors a departmental major must: (1) maintain an overall GPA of at least 3.0 and a GPA of at least 3.5 in English courses taken for the major; (2) receive a grade of A in an English course designated as an Honors Section (these sections are announced in the department's brochure issued before registration each semester); (3) write a Senior Thesis judged worthy of Honors. Requirements (1) and (2) are prerequisites for undertaking the Senior Thesis. Students eligible to write a Senior Thesis must find a member of the department faculty to act as a thesis advisor and enroll in EGL 495 or 496. The thesis topic must be approved by the Undergraduate Program Committee. The thesis will be evaluated by the thesis advisor, a member of the Undergraduate Program Committee, and a third reader from outside the department. For further information consult the Director of Undergraduate Studies.

### *The Minor in English*

The minor, which requires 18 credits, is organized around the student's interest in a particular period of British or American literature. The specific distribution of the credits should be determined in consultation with the Director of Undergraduate Studies. A general model for this distribution is the following:

- A. EGL 204 Literary Analysis and Argumentation, required of all minors 3

B. One of the following Shakespeare courses: EGL 241, 242, 243. Required of all minors	3
C. One Survey course in the period of the student's interest	3
D. One Period course in the period of the student's interest	3
E. One Major Author or Genre course appropriate to the student's interest	3
F. One elective: any 300- or 400-level English course	3

---

*Total* 18

*Note:* All courses for the minor must be taken for a letter grade.

### ***The Minor in Journalism***

Students interested in minoring in journalism should consult the Director of Undergraduate Studies. The minor consists of successfully completing six of the following courses:

		<i>Credits</i>
A. EGL 287	Newswriting I	3
B. EGL 288	Feature Writing I	3
C. EGL 289	Readings in Journalism	3
D. EGL 387	Newswriting II	3
E. EGL 388	Feature Writing II	3
F. EGL 393, 394	Practicum in Journalism	6

*Note:* All courses for the minor must be taken for a letter grade.

### ***Courses \****

Details of staffing and specific course descriptions should be obtained from schedules published by the English Department before registration each semester. Reading lists are also available in advance.

A student may repeat certain courses when the content varies. For example, EGL 348 Major Writers of the Romantic Period in England will have a changing course content which can be appropriately recorded on the student's transcript. In doubtful cases, the student should consult a departmental advisor before registering.

---

\*See p. 124, Course Credit and Prerequisites, and p. 125, Numbering System.

## Composition

*Note:* These courses may not be used for English major credit.

### **EGL 100 Developmental English**

For students who require intensive training in the rudiments of written English. May be repeated once. Grading in this course shall be Satisfactory/Unsatisfactory only. *Fall and spring, 3 credits*

### **EGL 101 Composition I**

A course in writing. Through the writing and revision of frequent short papers, the student is expected to develop proficiency in the composition of expository and argumentative essays. *Fall and spring, 3 credits*

### **EGL 102 Composition II**

A continuation of the development of expository and argumentative writing skills begun in EGL 101. The course will include the frequent writing and revision of short papers. Prerequisite: EGL 101 or passing the English proficiency examination. *Fall and spring, 3 credits*

*Note:* For additional courses in writing, see EGL 202, 204, 285, 286, 385.

## Introduction to Literature

### **EGL 191 Introduction to Poetry**

Intensive analysis of poems in English of various periods and types and varying complexity. (Not for English major credit.) *Fall and spring, 3 credits*

### **EGL 192 Introduction to Fiction**

Analysis of stylistic and structural modes employed by various writers of short stories and novels. (Not for English major credit.) *Fall and spring, 3 credits*

### **EGL 193 Introduction to Drama**

Introduction to the analysis of the 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.) *Fall and spring, 3 credits*

## Introduction to the English Major

These courses develop the skills and provide the background necessary for advanced courses in literature. They may also be of interest to the non-major. The prerequisite for 200 level courses is EGL 101 or passing the English proficiency examination.

### **EGL 202 Advanced Composition**

Students will work on advanced problems in exposition, argument, rhetoric, and style through writing and discussion of their own papers as well as analysis of prose texts. *Fall and spring, 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 will include frequent demanding writing assignments and is designed for students beginning their major study in English. *Fall and spring, 3 credits*

### **EGL 205 Survey of British Literature**

The study of British literature from the Old English period to Milton. *Fall and*

spring, 3 credits

**EGL 206 Survey of British Literature**

The study of British literature from Dryden to the present. *Fall and spring, 3 credits*

**EGL 207 The English Language**

The development of the English language from its Indo-European origins with emphasis upon English phonology, morphology, syntax, and lexicography, as well as a study of traditional, structural, and transformational approaches to the language. *Fall, 3 credits*

**EGL 217 American Literature I**

The study of American literature from about 1800 to the Civil War. *Fall or spring, 3 credits*

**EGL 218 American Literature II**

The study of American literature from the Civil War to the First World War. *Fall or spring, 3 credits*

**EGL 224 Modern English and American Literature**

The study of English and American literature from the end of the Victorian era to World War II. *Fall or spring, 3 credits*

**EGL 226 Contemporary English and American Literature**

The study of English and American literature from World War II to the present. *Fall or spring, 3 credits*

**EGL 241 Shakespeare I**

A study of the comedies and the history plays. Designed to complement EGL 242. *Fall, 3 credits*

**EGL 242 Shakespeare II**

A study of the tragedies and the romances. Designed to complement EGL 241. *Spring, 3 credits*

**EGL 243 Shakespeare: the Major Works**

A study of major works in several genres. Designed for students who want a one-semester survey of Shakespeare. May not be taken for credit in addition to EGL 241 or EGL 242. *Fall and spring, 3 credits*

**EGL 260 Mythology in Literature**

The study of the dissemination and use of mythological motifs and themes in English and American literature. *Fall and spring, 3 credits*

**EGL 261, 262 The Bible as Literature**

The study of literary forms and themes in the Bible. The Old and New Testaments will be treated in alternate semesters. *Fall and spring, 3 credits each semester*

**EGL 266 The Novel**

A study of major works and developments in the novel. *Fall or spring, 3 credits*

**EGL 274 Black American Literature**

A survey of 19th- and 20th-century Black American literature. *Fall or spring, 3 credits*

**EGL 276 Women and Literature**

An examination of works written by or about women, which studies the development and conception of women in drama, poetry, and fiction. May be repeated with permission of the Director of Undergraduate Studies as the subject matter differs. *Fall and spring, 3 credits*



### **EGL 284 Poetry Center**

The study of poetry as a creative process, using the resources of the Poetry Center: books, periodicals, tapes, and films. Students will attend poetry readings and do research in a particular area. This course is to be taken in conjunction with an English course at the 200 level or higher. Grading in this course shall be Satisfactory/Unsatisfactory only. May be repeated once. Prerequisite: Permission of instructor. Corequisite: An English course at the 200 level or higher. *Fall and spring, 1 credit*

### *Creative Writing and Journalism*

*Note:* EGL 285 through 288 do not meet requirements for the English major.

### **EGL 285 Writing Workshop: Fiction**

A workshop in the development of writing fiction through practice supplemented by readings. Prerequisite: Permission of instructor. *Fall and spring, 3 credits* (For additional offering in creative writing, see EGL 369.)

### **EGL 286 Writing Workshop: Poetry**

A workshop in the development of skills in writing poetry. Poetry writing is supplemented by readings. Prerequisite: Permission of instructor. *Fall and spring, 3 credits* (For additional offering in creative writing, see EGL 369)

### **EGL 287 Newswriting I**

Basic elements and issues of news stories. A short history of journalism and study of foreign, national, and local newspapers are included. News stories are written on standard subjects, such as crime, news conferences, and court proceedings. Prerequisites: EGL 101 or passing the writing proficiency examination, permission of instructor, and typing speed of at least 25 words per minute. *Fall or spring, 3 credits*

### **EGL 288 Feature Writing I**

Reviews, interviews, humorous writing, and other forms of feature writing for newspapers and magazines are studied and written. A short history of magazines and readings in several periodicals are included. Prerequisites: EGL 101 or passing the writing proficiency examination, permission of instructor, and typing speed of at least 25 words per minute. *Fall or spring, 3 credits*

### **EGL 289 Readings in Journalism**

The journalism of such writers as Joseph Addison, Richard Steele, Benjamin Franklin, Mark Twain, Lincoln Steffens, H.L. Mencken, William Allen White, Heywood Broun, George Orwell, James Agee, Ernest Pyle, Walter Lippmann, Norman Mailer, Tom Wolfe, and Hunter Thompson. *Fall or spring, 3 credits*

*Note:* For additional offerings in journalism, see EGL 387, 388, 393, 394. For description of minor in Journalism, see page 212.

### *Period Courses*

These courses are directed toward an understanding of the various periods of English and American literature. They include study of both major and minor authors, with attention to developments in theme and style and consideration of intellectual and social history. Detailed course descriptions and reading lists are provided for each course before registration.

**EGL 300 Old English Literature**

The study of English literature from its beginnings to the 11th century. Prerequisites: EGL 204 and 205. *Fall or spring, 3 credits*

**EGL 302 Medieval Literature in English**

Major authors, themes, and forms of British literature from the 13th to the early 16th century, generally excluding Chaucer. Prerequisites: EGL 204 and 205. *Fall or spring, 3 credits*

**EGL 304 Renaissance Literature in English**

The study of English literature of the 16th century. Prerequisites: EGL 204 and 205. *Fall or spring, 3 credits*

**EGL 306 English Literature of the 17th Century**

The study of English literature from late Renaissance to the age of Dryden. Prerequisites: EGL 204 and 205. *Fall or spring, 3 credits*

**EGL 308 The Age of Dryden**

The study of English literature of the Restoration period. Prerequisites: EGL 204 and 205 or 206. *Fall or spring, 3 credits*

**EGL 310 Neo-Classical Literature in English**

The study of English literature from about 1700 to 1790. Prerequisites: EGL 204 and 205 or 206. *Fall or spring, 3 credits*

**EGL 312 Romantic Literature in English**

The study of English literature from the end of the Neo-Classical period to the Victorian Age, 1798-1832. Prerequisites: EGL 204 and 206. *Fall or spring, 3 credits*

**EGL 314 Victorian Literature**

The study of English literature of the Victorian Age, from the end of the Romantic period to World War I. Prerequisites: EGL 204 and 206. *Fall or spring, 3 credits*

**EGL 316 American Colonial and Federal Writers**

The study of American literature from its beginnings to about 1800. Prerequisites: EGL 204 and 217. *Fall or spring, 3 credits*

**EGL 318 19th-Century American Literature**

Prerequisites: EGL 204 and 217 or 218. *Fall or spring, 3 credits*

**EGL 320 Literature of the Modern Period**

An intensive study of modern British and American literature from the end of the nineteenth century to World War II. Prerequisites: EGL 204 and 224. *Fall or spring, 3 credits*

*Note:* EGL 320 may not be used to fulfill requirement 6 for the major in English.

### *Major Authors*

These courses deal intensively with the work of one or two writers at a time. An author representative of a period is not likely to be treated more often than every other year. EGL 344 through 353 may be repeated for credit with permission of the Director of Undergraduate Studies as the subject matter differs.

**EGL 340 Chaucer**

Prerequisites: EGL 204 and 205. *Fall or spring, 3 credits*

**EGL 341 Special Studies in Shakespeare**

Prerequisites: EGL 204 and either 241 or 242 or 243. *Fall or spring, 3 credits*

**EGL 342 Milton**

Prerequisites: EGL 204 and 205. *Fall or spring, 3 credits*

**EGL 344 Major Writers of the Renaissance Period in England**

Prerequisites: EGL 204 and 205. *3 credits*

**EGL 345 Major Writers of the 17th Century in England**

Prerequisites: EGL 204 and 205. *3 credits*

**EGL 346 Major Writers of the Restoration Period in England**

Prerequisites: EGL 204 and 205 or 206. *3 credits*

**EGL 347 Major Writers of the Neo-Classical Period in England**

Prerequisites: EGL 204 and 205 or 206. *3 credits*

**EGL 348 Major Writers of the Romantic Period in England**

Prerequisites: EGL 204 and 205. *3 credits*

**EGL 349 Major Writers of the Victorian Period in England**

Prerequisites: EGL 204 and 206. *3 credits*

**EGL 350 Major Writers of American Literature**

Prerequisites: EGL 204 and 217 or 218 as appropriate. *3 credits*

**EGL 352 Major Writers of Modern British and American Literature**

Prerequisites: EGL 204 and 224. *3 credits*

**EGL 353 Major Writers of Contemporary British and American Literature**

Prerequisites: EGL 204 and 226. *3 credits*

### *Genre and Interdisciplinary Courses*

These courses cover the various literary kinds and the relations between literature in English and other disciplines or literatures. Detailed information on course content is published by the English Department before registration each semester. Reading lists are also available in advance. Except for EGL 370, these courses may be repeated for credit with permission of the Director of Undergraduate Studies as the subject matter differs. The prerequisite for each of these courses is one literature course at the 200 level or higher.

**EGL 362 Poetry in English**

The study of the development of form, theme, and language of poetry in English. *Fall and spring, 3 credits*

**EGL 364 Drama in English**

The study of the development of plot, structure, character, setting, theme, and language of drama in English. *Fall or spring, 3 credits*

**EGL 366 Fiction in English**

The study of the development of plot, structure, character, theme, and language of fiction in English. *Fall and spring, 3 credits*

**EGL 368 Prose in English**

The study of the various forms of prose such as the essay, utopias, memoirs, autobiography, biography, and non-fictional narrative. *Fall or spring, 3 credits*

**EGL 370 Literary Criticism**

Analytic survey of major texts in European and American literary theory and criticism. *Spring, 3 credits*

**EGL 372 Literature in English in Its Relations to Other Literatures**

The study of literature in English as it affects and is affected by other literatures. *Fall and spring, 3 credits*

### **EGL 374 Literature in English in Its Relations to Other Disciplines**

The study of literature in English as it affects and is affected by other disciplines, such as anthropology, science, sociology, the history of ideas, theology, and psychology. *Fall or spring, 3 credits*

### *Advanced Creative Writing and Journalism*

#### **EGL 385 Advanced Creative Writing**

A creative writing workshop. Students will receive detailed criticism of their work. This course may be repeated with permission of the Director of Undergraduate Studies in English. Prerequisites: EGL 285 or 286 and permission of instructor. *Fall and spring, 3 credits*

#### **EGL 387 Newswriting II**

Development of the techniques of writing news stories studied in Newswriting I. The emphasis will be on preparing stories requiring extensive research and investigation for actual submission to regional and national newspapers. Prerequisites: EGL 287 and permission of instructor. *Fall or spring, 3 credits*

#### **EGL 388 Feature Writing II**

Development of the techniques of writing feature stories studied in Feature Writing I. The emphasis will be on feature stories written for actual publication in national magazines. Students will be required to do extensive research, rewriting, and editing of longer features than can be written in Feature Writing I. Prerequisites: EGL 288 and permission of instructor. *Fall or spring, 3 credits*

#### **EGL 393, 394 Practicum in Journalism (Formerly INT 393, 394)**

Provides actual working situations for journalists. Regular writing assignments—including some supervised off-campus work—are given, and student publications are discussed. Editing, editorial policy, beat coverage and organization, production, layout, and management will be studied and individual instruction given. Prerequisites: EGL 287 and permission of instructor. *Fall and spring, 3 credits each semester*

### *Secondary Education*

#### **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, 205 or 206, and permission of department. *Fall and spring, 3 credits*

#### **EGL 450 Supervised Secondary School Student Teaching**

Supervised practice teaching by arrangement with selected Long Island secondary schools. Applications must be filed in the semester preceding that in which the student plans to student teach. Prerequisites: Enrollment in English Teacher Certification Program and approval of instructor. Corequisite: EGL 454. *Fall and spring, 12 credits*

#### **EGL 454 Student Teaching Seminar**

Seminar on problems and issues of teaching English at the secondary school level. Analysis of actual problems and issues encountered by the student in the student teaching experience. Corequisite: EGL 450. *Fall and spring, 3 credits*

## *Special Studies in English*

### **EGL 487 Independent Project**

Intensive study of a special topic undertaken with close faculty supervision. May be repeated. Prerequisite: Permission of instructor and Director of Undergraduate Studies. *Fall and spring, 1 to 3 credits*

### **EGL 490 English Seminar (Formerly EGL 400)**

Advanced work in periods, genres, and authors of English and American literature will be offered in small classes. One or more seminars will be given each semester. The subject matter and its treatment as well as specific prerequisites for each section will be published in the department's brochure of course descriptions before advance registration in the previous semester. Prerequisite: Permission of instructor. *Fall and spring, 3 credits*

### **EGL 495, 496 Senior Honors**

See description of the Honors Program in English above. Prerequisite: Permission of department. *Fall and spring, 3 credits each semester*

## **Foreign Languages Secondary Teacher Preparation Program**

*Program Advisor: Joseph Tursi (French and Italian)*

### **Requirements**

In addition to fulfillment of the requirements for the major in French, German, Italian, Russian, or Spanish, prospective student teachers of foreign languages are required to take the following courses in order to satisfy all requirements for State certification:

	<i>Credits</i>
A. One course in pre-professional education (SOC/PSY 232, PHI 360, or HIS 160)	3
B. SSI 265 Drug and Alcohol Education	1
C. FLA 339 Methods and Materials in Foreign Language Teaching	3
D. FLA 340 Curriculum Development and Micro-Teaching	3
E. FLA 450 Supervised Student Teaching	12
F. FLA 454 Student Teaching Seminar	3
	<hr/>
	<i>Total 25</i>

Prospective student teachers are also urged to take as many advanced language courses as possible through the semester prior to student teaching. For further information, students are asked to consult with departmental advisors. All questions concerning application for student teaching and requirements for certification are to be directed to Professor Tursi.

### **Courses \***

#### **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 will be given to the problems and purposes of the teaching of foreign languages at the high school level. Prerequisite: Foreign language major and at least one 300-level language course and one 300-level literature course. *Fall and spring, 3 credits*

#### **FLA 340 Curriculum Development and Micro-Teaching**

This course is designed to train future language teachers in the development of well-articulated programs in secondary schools. Through mini- and micro-teaching, students will have the opportunity to enjoy clinical experiences in the actual classroom each week for at least two hours. Clinical experiences will be discussed in a weekly seminar. Prerequisite: FLA 339. *Spring, 3 credits*

#### **FLA 450 Supervised Teaching—Languages**

Prospective foreign-language teachers at the secondary level receive extensive practice under selected cooperating teachers. Student teachers work with one or two certified foreign-language teachers in one school each regular school day for the entire semester. Frequent consultations with University faculty members are designed to assist the student. Applications must be filed with the Teacher Training Office of the Department of French and Italian two months prior to student teaching. Grading in this course shall be Satisfactory/Unsatisfactory only. Not for major credit. Prerequisites: FLA 339 and 340. Corequisite: FLA 454. *Fall and spring, 12 credits*

#### **FLA 454 Student Teaching Seminar**

Seminar on problems encountered by student teachers and public school teachers at the secondary level in foreign language teaching. Study and analysis of the many aspects of the foreign-language teaching profession, such as individualized teaching, audiolingual training, use of audio-visuals, testing, professional organizations. Prerequisite: FLA 339 and 340. Corequisite: FLA 450. *Fall and spring, 3 credits*

---

\*See p. 124, Course Credit and Prerequisites, and p. 125, Numbering System.

## Department of French and Italian

**Professors:** Konrad Bieber, Ph.D. Yale University (18th-century and contemporary French literature; comparative literature); Frederick Brown, Ph.D. Yale University (19th- and 20th-century French literature); Linette Brugmans, Emeritus, Ph.D. New York University (19th- and 20th-century French literature); Oscar A. Haac, Ph.D. Yale University (18th- and 19th-century French literature; comparative literature); G. Norman Laidlaw, Ph.D. Columbia University (18th- and 20th-century French literature); <sup>a</sup>Joseph A. Tursi, Chairman, Ph.D. New York University (18th-century Italian literature); Mark S. Whitney, Ph.D. University of Pennsylvania (16th-century French literature); Eléonore M. Zimmermann, Director of Graduate Studies, Ph.D. Yale University (17th-, 19th-, and 20th-century French literature; comparative literature)

**Associate Professors:** Harriet Allentuch, Ph.D. Columbia University (17th-century French literature); Carol Blum, Ph.D. Columbia University (18th-century French literature); Leonard R. Mills, Ph.D. Columbia University (Medieval French literature; paleography); Mario Mignone, Ph.D. Rutgers University (Contemporary Italian literature); D. Sandy Petrey, Ph.D. Yale University (19th-century French literature); Anthony Rizzuto, Ph.D. Columbia University (19th- and 20th-century French literature)

**Assistant Professors:** Maria Cocco, Ph.D. University of California at Riverside (Italian Renaissance literature); Charles Franco, Ph.D. Rutgers University (Italian Medieval literature); <sup>a</sup>Elizabeth P. Riggs, Ph.D. Columbia University (Medieval French language and literature; 20th-century literature)

**Lecturers:** Jane V. Bertolino, M.A. Middlebury College (Contemporary Italian literature and language); Jeanine M. Goldman, Ph.D. Fordham University (French language and 19th-century French literature); Vittoria Vetrugno, M.A. Rutgers University (Italian Medieval literature)

**Estimated Number of Teaching Assistants: 5**

---

<sup>a</sup>Recipient of the State University Chancellor's Award for Excellence in Teaching, 1974-75

The Department of French and Italian offers a diversified program that meets the needs of all students interested in the study of French or Italian. Those wishing to major in either or both languages are offered several possible concentrations, each structured to assist students preparing for future careers or advanced study. The department also offers a minor in each language and a variety of courses of interest to non-majors, some in translation, some in the original language with reduced prerequisites.

### ***Placement***

Entering students who wish to continue the study of French or Italian started in high school should consult a departmental advisor to help them in the choice of the appropriate course.

### ***Study Abroad***

Language majors and other interested students who would like to spend a semester or a year studying abroad should consult the departmental advisor in charge of such programs.

### ***Requirements for the Majors***

A student wishing to major in French can choose among three concentrations. Italian majors may choose among four concentrations. These concentrations are designed to allow a maximum of flexibility in the students' programs and to fulfill their varying needs and interests. All of them require as a basis a solid preparation in the language of the major. Students will choose one of the concentrations offered according to whether they wish to acquire a general humanistic background (Concentration A in Language and Literature or C in Language and Humanities); whether they wish to prepare for graduate study in literature (Concentrations A and C); whether they wish to prepare for teaching on the secondary school level (Concentration A in Language and Literature or D in Italian Language and Linguistics); whether they wish to prepare for work in law, government, international relations, business, banking, hotel management, etc. or translation and interpretation (Concentration B in Language and the Social Sciences or A in Language and Literature).

*Note:* All students should consult with the appropriate departmental advisors. Students opting for Concentrations B and C must obtain departmental approval for their program by submitting it in advance, after consultation with the advisor, to



the Director of Undergraduate Studies or the Chairman. In order to complement the major in French or Italian, students will be encouraged to take upper-division courses in related fields: English, history, art, music, etc. All courses in the major must be taken for a letter grade.

### **French**

The major in French leads to the Bachelor of Arts degree. The following courses are required.

#### **A. Concentration in Language and Literature (36 credits):**

1. Required courses for a total of 15 credits:	<i>Credits</i>
a. <i>Language courses</i>	
FRN 222 Introduction to Stylistics	3
FRN 321 Phonetics and Diction	3
FRN 322 Stylistics	3
b. <i>Literature courses</i>	
FRN 295, 296 Readings in French Literature: Analysis and Interpretation	6
2. Elective courses: 21 additional credits of work in courses beyond FRN 295, 296, chosen in consultation with the departmental advisor.	21
	<i>Total</i> 36

#### **B. Concentration in French and the Social Sciences (42 credits):**

This program, with the same core requirements in French, can also, in exceptional cases, with the permission of the special advisor in charge of the program and the Director of Undergraduate Studies or the Chairman, be adapted according to the same principles outlined below to include a secondary field from the natural or mathematical sciences.

1. Required courses for a total of 30 credits:	<i>Credits</i>
FRN 221 Conversation and Composition	3
FRN 222 Introduction to Stylistics	3
FRN 320 Practical French	3
FRN 321 Phonetics and Diction	3
FRN 322 Stylistics	3

FRN 445 Readings in the Sciences	3
FRN 295,296 Readings in French Literature: Analysis and Interpretation	6
1 course in French Literature numbered 301 or above	3
FRN 390 French Civilization	3
2. Elective courses: 12 additional credits to be chosen with the help of the designated advisor and approved by the department. Students will normally choose a sequence of three courses in one department of the division of social and behavioral sciences, which may include the introductory course. The fourth course may be chosen in the same department or in a related depart- ment of the same division.	12
<hr/> <i>Total</i> 42	

C. *Concentration in French and Humanities (42 credits):*

1. Required courses for a total of 27 credits:	<i>Credits</i>
FRN 221 Conversation and Composition	3
FRN 222 Introduction to Stylistics	3
FRN 321 Phonetics and Diction	3
FRN 322 Stylistics	3
FRN 295, 296 Readings in French Literature: Analysis and Interpretation	6
2 courses in French literature related to the student's chosen field	6
FRN 390 French Civilization	3
2. Elective courses: 15 additional credits to be chosen with the help of an advisor and approved by the department:	
1 course in history (above 100 Level)	3
4 courses in any of the other humanities or history (except other foreign languages) above the 100 level. The student will concen- trate on one period and should be familiar with more than one discipline.	12
<hr/> <i>Total</i> 42	

## *Italian*

The major in Italian leads to the Bachelor of Arts degree. The following courses are required.

### *A. Concentration in Language and Literature (33 credits):*

#### 1. Required courses for a total of 12 credits:

	<i>Credits</i>
<i>a. Language courses</i>	
ITL 222 Conversation and Composition II	3
ITL 321 Advanced Conversation and Composition I	3
<i>b. Literature courses</i>	
ITL 295, 296 Introduction to Italian Literature I, II	6
2. Elective courses	
21 additional credits of work in courses beyond ITL 295, 296, chosen in consultation with the departmental advisor.	21
<i>Total</i>	<u>33</u>

### *B. Concentration in Italian and the Social Sciences (42 credits):*

This program, with the same core requirements in Italian, can also, in exceptional cases, with the permission of the special advisor in charge of the program and the director of undergraduate studies or the chairman, be adapted according to the same principles outlined below to include a secondary field from the natural or mathematical sciences.

#### 1. Required courses for a total of 30 credits:

	<i>Credits</i>
ITL 221, 222 Conversation and Composition I, II	6
ITL 321, 322 Advanced Conversation and Composition I, II	6
ITL 320 Practical Italian	3
ITL 445 Readings in the Sciences	3
ITL 295, 296 Introduction to Italian Literature I, II	6
1 course in Italian literature on the 300 level given in Italian	3
ITL 390 The Italian Scene	3
	225

2. Elective courses:

12 additional credits to be chosen with the help of the designated advisor and approved by the department. Students will normally choose a sequence of three courses in one department of the Division of Social and Behavioral Sciences, which may include the introductory course. The fourth course may be chosen in the same department or a related department of the same division.

12

---

Total 42

C. *Concentration in Italian and the Humanities (42 credits):*

1. Required courses for a total of 27 credits:

Credits

ITL 221, 222 Conversation and Composition I, II	6
ITL 321, 322 Advanced Conversation and Composition I, II	6
ITL 295, 296 Introduction to Italian Literature I, II	6
2 courses in Italian literature related to the student's chosen field	6
ITL 390 The Italian Scene	3

2. Elective Courses:

15 additional credits to be chosen with the help of an advisor and approved by the department:  
One course in history (above 100 level)  
Four courses in any of the other humanities or history (except other foreign languages) above the 100 level. The student will concentrate on one period and should be familiar with more than one discipline.

12

---

Total 42

D. *Concentration in Language and Linguistics (42 credits):*

1. Required courses for a total of 33 credits:

Credits

ITL 221, 222 Conversation and Composition I, II	6
ITL 321, 322 Advanced Conversation and Composition I, II	6

ITL 320 Practical Italian	3
ITL 295, 296 Introduction to Italian Literature I, II	6
3 courses in Italian literature above the 300 level	9
ITL 390 The Italian Scene	3
2. Elective courses: 9 additional credits in linguistics (general linguistics, applied linguistics or philology of Romance languages)	9
	<i>Total</i> 42

*Note:* Students whose language proficiency is such that they can be given credit for the equivalent of ITL 221, 222 may apply, and are strongly urged to do so, to have a course in art, music, history, or other languages count for major credit.

Students who wish to offer their native language as the main area of concentration will be asked to replace 222, 321, and 320 by English courses appropriate to their level of proficiency in that language.

### ***Teacher Training Program***

Students who wish to prepare for certification as secondary school teachers of French or Italian or both should consult appropriate departmental advisors concerning requirements and procedures for the teacher preparation program. All students will be required to take FLA 339 and FLA 340 among the four courses in education required by the State Education Department. See also alphabetical listing, Foreign Languages Secondary Teacher Preparation Program.

### ***Requirements for the Minors***

The Department of French and Italian also offers a minor in each language. There are two emphases in both languages: one in language and one in literature.

#### ***Minor in French***

	<i>Credits</i>
a) <i>Emphasis on language:</i> Required courses: French 192, 222, 295 or 296, 320, 321, 322, 323, 390	24

Note: Literature courses may be substituted for French 320 or 323 or both.

b. Emphasis on literature:

Required courses: French 192, 222, 295, 296 12

Electives: Four courses from 301 to 394 12

---

Total 24

*Minor in Italian*

Credits

a) Emphasis on language:

Required courses: Italian 192, 221, 222, 295 or 296, 320, 321, 322, 390 24

Note: Literature courses may be substituted for Italian 222 or 320 or both.

b) Emphasis on literature:

Required courses: Italian 192, 222, 295, 296 12

Electives: Four courses on the 300 level 12

---

Total 24

All courses are to be taken for a letter grade.

For further information contact Professor Allentuch in French and Professor Franco in Italian.

**Courses\***

*French Literature in Translation*

**FRN 108, 109 French Literature: The Contemporary Scene**

Readings in French literature in translation from the modern period, chosen from such authors as Proust, Gide, Mauriac, Malraux, St. Exupery, Anouilh, Cocteau, Sartre, Camus, Beckett, Genet, Robbe-Grillet, Ionesco, Butor. Each course may be taken independently of the other. Small discussion groups meet informally. *Fall and spring, 3 credits each semester*

**FRN 110 French Literature: The Great Works**

Readings in French literature in translation from the Renaissance to the beginning of the 20th century from such authors as Rabelais, Montaigne, Molière, Racine, Voltaire, Diderot, Rousseau, Laclos, Balzac, Flaubert, Zola. *Fall, 3 credits*

**FRN 381 Genre Study in Translation (Formerly FRN 291)**

A course in a major French author in translation taught by specialists in the field and designed primarily to give students in other disciplines an opportunity to become acquainted with the French tradition. Majors will be admitted with special permission of their advisors, and will do the reading and term papers in the original language. Prerequisite: Two literature courses. *Spring, 3 credits*

---

\*See p. 124, Course Credit and Prerequisites, and p. 125, Numbering System.

**FRN 382 Special Author in Translation (Formerly FRN 292)**

A course given in translation in the development of a French major literary current, taught by specialists in the field and designed primarily to give students in other disciplines an opportunity to become acquainted with the French tradition. Majors will be admitted with special permission of their advisors, and will do the reading and term papers in the original language. Prerequisite: Two literature courses. *Fall, 3 credits*

*Courses in French***FRN 111, 112 Elementary French I, II**

An introduction to spoken and written French, stressing pronunciation, speaking, comprehension, reading, and writing. Language laboratory will supplement class work. *Fall and spring, 3 credits each semester*

**FRN 113 Elementary French (An Intensive Course)**

An introduction to spoken and written French, stressing pronunciation, speaking, comprehension, reading, and writing. Language laboratory will supplement class work. *Fall and spring, 6 credits*

**FRN 116 Reading French**

An intensive introductory course designed to teach the student to read and understand prose texts of moderate difficulty in French. Texts will be chosen to prepare students to handle French writings in their own fields. There will be instruction in basic grammar and practice in translation from French to English. The course does not carry credit towards the major and may not be taken for credit after FRN 191, 192, or 195. *Fall and spring, 3 credits each semester*

**FRN 191, 192 Intermediate French**

An intermediate course in conversation, composition, and the interpretation of French texts. Prerequisite: FRN 112 or 113. *Fall and spring, 3 credits each semester*

**FRN 193, 194 Intermediate French: Emphasis on Reading**

A course designed to prepare students for reading texts of moderate difficulty. The course will emphasize reading comprehension rather than speaking fluency, and will include a review of grammar and vocabulary building as necessary to achieve the ability to read at a reasonable speed. Prerequisite: FRN 112 or 113. *Fall and spring, 3 credits each semester*

**FRN 195 Intermediate French (An Intensive Course)**

Review of grammar and discussion of simple French texts through reading, writing, and discussion. Language laboratory will supplement class work. Prerequisite: FRN 112 or 113. *Fall and spring, 6 credits*

**FRN 197 Intermediate French Conversation**

This course may be taken separately or to supplement FRN 192 or FRN 195. Prerequisite: FRN 112 or 113. *Fall and spring, 2 credits*

**FRN 221 Conversation and Composition**

A course in the active use of spoken and written French. Language laboratory will supplement class work. Prerequisite: FRN 192 or 195. *Fall and spring, 3 credits*

**FRN 222 Introduction to Stylistics**

Reading of selected short passages of prose and poetry in class with emphasis on improved writing skills, oral expression, and increased mastery of French syntax and techniques of literary analysis. Prerequisite: FRN 192 or 195. *Spring, 3 credits*

**FRN 295, 296 Readings in French Literature: Analysis and Interpretation**

These courses will teach literary analysis and its applications to representative texts chosen from various periods of French literature. All readings will be done in French. Discussions will be in French. Prerequisite: FRN 222. *Fall and spring, 3 credits each semester*

**FRN 301 The French Novel (Formerly FRN 297)**

A study of the nature and development of the novel from its beginnings to the present with special attention to the stylistic and thematic aspects of the works considered. Prerequisite: FRN 222 or 295. *Fall, 3 credits*

**FRN 302 The French Comedy from Moliere to Ionesco (Formerly FRN 298)**

The study of the comic tradition from Moliere to the contemporary theatre. Prerequisite: FRN 222 or 295. *Fall, 3 credits*

**FRN 310 French Poetry (Formerly FRN 300)**

A study of the development of French poetry from the Pleiade to the 20th century. Poems will be analyzed and discussed from an historical and aesthetic point of view. Prerequisite: FRN 222 or 295. *Fall, 3 credits*

**FRN 320 Practical French (Formerly FRN 234)**

A course designed for students who wish to become more proficient in reading, writing, and translating French. Students will also be trained in the use of French in business, in administration, and in everyday professional life. Emphasis will be placed on the idiomatic peculiarities of the French language and the relation of French to the structure of English. Prerequisite: FRN 222. *Fall and spring, 3 credits*

**FRN 321 Phonetics and Diction**

A course designed to develop mastery of the spoken language. Students will learn to express themselves in the current idiom with fluency and accuracy. At least one hour of laboratory weekly will be required. Prerequisite: FRN 221 or 295 or 296. *Fall, 3 credits*

**FRN 322 Stylistics**

A course designed to acquaint students with the subtleties of French grammar and style. Extensive practice in composition and in translation from English to French. Prerequisite: FRN 222 or 295 or 296. *Spring, 3 credits*

**FRN 323 Advanced French Conversation**

A course designed to develop and maintain complete fluency in the language. Prerequisite: FRN 221 or 295 or 296. *Fall, 3 credits*

*Further Studies in French Literature*

The specific content of courses FRN 333; 343; 344; 351; 352; 361; 362; 373; 374; 393; 394 will be announced annually and printed in the schedule of classes each semester. These courses may be repeated for credit with permission of the department as the subject matter differs. FRN 222 and FRN 295 or 296 are prerequisites for these courses.

**FRN 333 Studies in 16th-Century Literature**

*Fall, 3 credits*

**FRN 343, 344 Studies in 17th-Century Literature**

Reading of texts from such authors as Pascal, La Rochefoucauld, La Bruyère, Madame de Sévigné, Madame de Lafayette, Saint-Simon, La Fontaine. *Fall and spring, 3 credits each semester*



**FRN 351, 352 Studies in 18th-Century Literature**

*Fall and spring, 3 credits each semester*

**FRN 361, 362 Studies in 19th-Century Literature**

*Fall and spring, 3 credits each semester*

**FRN 373, 374 Studies in 20th-Century Literature**

*Fall and spring, 3 credits each semester*

**FRN 381 Genre Study in Translation (Formerly FRN 291)**

(See French Literature in Translation section for description.)

**FRN 382 Special Author in Translation (Formerly FRN 292)**

(See French Literature in Translation section for description.)

**FRN 390 French Civilization**

A discussion of French civilization from the creation of the modern state to the present. The course is intended for those interested in studying the background and traditions of modern France. An anthology of historical texts and documents will serve as a point of departure; the institutions and life in France will be considered, along with the development of art, architecture, music, and literature. The emphasis will be on discussion (in French) and individual projects. Visiting lecturers will contribute to the variety of topics and points of view. Prerequisites: FRN 222 and 295 or 296. *Fall, 3 credits*

**FRN 393, 394 Free Seminar**

Free seminars are frequently built around themes like "Women in French Literature," "Self-Deception in the 17th-Century *Moralistes* and the 20th-Century Novel," "The City in the French Novel." A detailed description of the seminar may be obtained from the department. May be repeated. Prerequisite: Permission of department. *Fall and spring, 3 credits each semester*

**FRN 445 Readings in the Sciences**

A course designed to help students electing the concentration in French and the Social Sciences integrate the two components of their major by acquiring the French vocabulary of their secondary field. There will be non-literary reading in French and training in translation into English. Prerequisites: FRN 320, 322, 390, and 9 credits in the allied field. *Fall, 3 credits*

**FRN 447 Directed Readings in French**

Individually supervised readings in selected topics of French language and literature. May be repeated. Prerequisite: Permission of department. *Fall and spring, 1 to 6 credits*

**FRN 475 Undergraduate Teaching Practicum in French**

Each student will conduct a regular recitation problem or tutorial section that will supplement a regular language course under the guidance of a master teacher. Responsibilities may include preparing material for discussion, initial correction of homework and tests, and helping students with problems. Grading in this course shall be Satisfactory/Unsatisfactory only. Prerequisite: Fluency in French and permission of instructor. *Fall or spring, 3 credits*

***Italian Literature in Translation*****ITL 108 Dante and His Times**

An introduction to Dante's thought. Reading and discussion of the *Divine Comedy* in translation in the light of the social, political, and cultural realities of 13th-century Italy. A knowledge of Italian is not required. *Fall and spring, 3 credits*

**ITL 381 Genre Study in Translation (Formerly ITL 291)**

A course given in translation in the development of an Italian major literary current, taught by specialists in the field and designed primarily to give students in other disciplines an opportunity to become acquainted with the Italian tradition. Majors will be admitted with special permission of their advisors and will do the reading and term papers in the original language. Prerequisite: Two literature courses. *Fall, 3 credits*

**ITL 382 Special Author in Translation (Formerly ITL 292)**

A course in a major Italian author in translation taught by specialists in the field and designed primarily to give students in other disciplines an opportunity to become acquainted with the Italian tradition. Majors will be admitted with special permission of their advisors, and will do the reading and term papers in the original language. Prerequisite: Two literature courses. *Spring, 3 credits*

**Courses in Italian****ITL 111, 112 Elementary Italian**

An introduction to spoken and written Italian, stressing pronunciation, speaking, comprehension, reading, and writing. Selected texts will be read. Practice in language laboratory supplements class work. *Fall and spring, 3 credits each semester*

**ITL 113 Intensive Elementary Italian**

An intensive course covering the elementary Italian program (ITL 111, 112) in one semester. *Fall and spring, 6 credits*

**ITL 116 Reading Italian**

An intensive introductory course designed to teach the student to read and understand prose texts of moderate difficulty in Italian. Texts will be chosen to prepare students to handle Italian writings in their own fields. There will be instruction in basic grammar and practice in translation from Italian to English. The course does not carry credit towards the major and may not be taken for credit after Italian 191, 192, or 195. *Fall and spring, 3 credits*

**ITL 191, 192 Intermediate Italian**

An intermediate course in the reading and discussion of selected Italian texts. An intensive grammar review will offer an opportunity to develop conversational ability. Prerequisite: ITL 112 or 113. *Fall and spring, 3 credits each semester*

**ITL 193, 194 Intermediate Italian: Emphasis on Reading**

A course designed to prepare students for reading texts of moderate difficulty. The course will emphasize reading comprehension rather than speaking fluency, and will include a review of grammar and vocabulary building as necessary to achieve the ability to read at a reasonable speed. Prerequisite: ITL 112 or 113. *Fall and spring, 3 credits each semester*

**ITL 195 Intensive Intermediate Italian**

An intensive course covering the intermediate Italian program (ITL 191, 192) in one semester. Prerequisite: ITL 112 or 113. *Fall and spring, 6 credits*

**ITL 221 Italian Conversation and Composition I**

A course in spoken and written Italian, with emphasis on precision and fluency in the spoken form. Prerequisite: ITL 192 or 195. *Fall and spring, 3 credits*

**ITL 222 Italian Conversation and Composition II**

A course in spoken and written Italian, with emphasis on precision in written form. Prerequisite: ITL 192 or 195. *Fall and spring, 3 credits*

**ITL 295 Introduction to Italian Literature I**

Readings and discussions of representative writers in Italian literature of the 19th and 20th centuries. This course is designed to introduce students to the main currents of Italian literature through analysis of literary texts. Prerequisite: ITL 222. *Fall, 3 credits*

**ITL 296 Introduction to Italian Literature II**

Readings and discussions of representative texts chosen from various periods of Italian literature from the 13th through the 18th centuries. Prerequisite: ITL 222. *Spring, 3 credits*

**ITL 320 Practical Italian (Formerly ITL 234)**

A course designed for students who wish to become more proficient in reading, writing, and translating Italian. Students will also be trained in the use of Italian in business, in administration, and in everyday professional life. Emphasis will be placed on the idiomatic peculiarities of the Italian language and the relation of Italian to the structure of English. Prerequisite: ITL 222. *Fall or spring, 3 credits*

**ITL 321 Advanced Conversation and Composition I**

This course intends to develop fluency and accuracy in the use of the spoken language through intensive practice, exposition, class discussion, and the use of the language laboratory. Prerequisite: ITL 222. *Fall, 3 credits*

**ITL 322 Advanced Conversation and Composition II**

A course designed to acquaint students with the subtleties of Italian grammar and style. Extensive practice in composition and in translation from English to Italian. Prerequisite: ITL 221 or 222. *Spring, 3 credits*

**ITL 324 History of the Italian Language**

A survey of the development of the Italian language from its origin to the present day. Prerequisite: ITL 221 or 222. *Spring, 3 credits*

***Further Studies in Italian Literature***

The specific content of courses ITL 329, 330; 331, 332; 351; 361; 373, 374 will be announced annually and printed in the schedule of classes as a sub-title each semester. These courses may be repeated for credit with permission of the department as the subject matter differs. ITL 222, and 295 or 296 are prerequisites for these courses.

**ITL 329, 330 Studies in 13th- and 14th- Century Literature**

*Fall and spring, 3 credits*

**ITL 331, 332 Studies in 15th- and 16th-Century Literature**

*Fall and spring, 3 credits*

**ITL 351 Studies in 18th-Century Literature**

*Fall, 3 credits*

**ITL 361 Studies in 19th-Century Literature**

*Spring, 3 credits*

**ITL 373, 374 Studies in Contemporary Literature**

*Fall and spring, 3 credits*

**ITL 381 Genre Study in Translation (Formerly ITL 291)**

(See Italian Literature in Translation section for description.)

**ITL 382 Special Author in Translation (Formerly ITL 292)**

(See Italian Literature in Translation section for description.)

### **ITL 390 The Italian Scene**

The reality of Italy and the Italian people through a study of the evolution of the historical, cultural, political, and social character of the nation. This course will be taught in Italian. Prerequisite: ITL 222 or 295 or 296. *Fall, 3 credits*

### **ITL 393, 394 Free Seminar**

Seminars built around a theme such as "Cities in Italian Literature," "Women in Italian Literature," "Death and Resurrection in Contemporary Italian Literature," "Sin and Sensuality in the Italian Short Story." A detailed description of the seminar may be obtained from the department each semester. Prerequisite: ITL 222. *Fall and spring, 3 credits each semester*

### **ITL 445 Readings in the Sciences**

A course designed to help students electing the concentration in Italian and the Social Sciences integrate the two components of their major by acquiring the Italian vocabulary of their secondary field. There will be non-literary reading in Italian and training in translation into English. Prerequisites: ITL 320, 322, 390, and 9 credits in the allied field. *Fall, 3 credits*

### **ITL 447 Directed Readings in Italian**

Individually supervised readings in selected topics of Italian language and literature. May be repeated. Prerequisite: Permission of department. *Fall and spring, 1 to 6 credits*

### **ITL 475 Undergraduate Teaching Practicum in Italian**

Each student will conduct a regular recitation problem or tutorial section that will supplement a regular language course under the guidance of a master teacher. Responsibilities may include preparing material for discussion, initial correction of homework and tests, and helping students with problems. Grading in this course shall be Satisfactory/Unsatisfactory only. Prerequisite: Fluency in Italian and permission of instructor. *Fall or spring, 3 credits*

## **Department of Germanic and Slavic Languages and Literatures**

**Professors:** <sup>a</sup>Edward J. Czerwinski, Ph.D. University of Wisconsin (Comparative Slavic literature; Slavic drama and theatre; Polish literature; Russian literature); Roman Karst, LL.M Jagiellonian University, Cracow (Goethe; modern novel; Kafka; Mann); Klaus Schroter, Ph.D. University of Hamburg (Literary theory; prose of the Weimar Republic; dialectical-materialistic aesthetics); Leif Sjoberg, Ph.D. Uppsala University (Scandinavian literature: Ibsen, Strindberg, Lagerkvist, Ekelof; Old Norse)

---

<sup>a</sup>Recipient of the State University Chancellor's Award for Excellence in Teaching, 1973-74

**Associate Professors:** <sup>a</sup>Samuel Berr, Ph.D. New York University (Historical linguistics; Old Saxon; Yiddish language and literature); Russell E. Brown, Ph.D. Harvard University (Modern German literature; Expressionist poetry; Trakl, Brecht, Jahn); <sup>b</sup>Barbara Elling, Ph.D. New York University (Romanticism; literature and sociology; methods of language teaching); Ferdinand A. Ruplin, Ph.D. University of Minnesota (Applied linguistics; Middle High German; computer-assisted instruction); John R. Russell, Chairman, Ph.D. Princeton University (Rococo; novella; computer-assisted instruction); Lucy E. Vogel, Ph.D. New York University (Contemporary Russian culture; Russian literature of 19th and 20th centuries)

**Assistant Professors:** Daniel C. O'Neil, Ph.D. Cornell University (Literature and the visual arts; Barlach; problems of translation); Philippe D. Radley, Ph.D. Harvard University (Modern Russian literature; problems of translation; elementary language teaching)

**Lecturers:** Ursula Meyer, Adjunct, Staatsexamen, University of Hamburg (Foreign language pedagogy); Beruria Stroke, Adjunct, Diploma, Zagreb Gymnasium (Serbo-Croatian)

**Estimated Number of Teaching Assistants: 15**

### **Requirements for the Major in German**

The major in German leads to the Bachelor of Arts degree. The following courses are required.

	<i>Credits</i>
GER 199 German Civilization and Culture	3
GER 202 History of the German Language	3
GER 203 Introduction to Germanic Studies	3
GER 204 Survey of German Literature	3
GER 221, 222 German Conversation and Composition	6
GER 301 German Drama	3
GER 302 German Prose	3
GER 303 German Poetry	3
GER 304 Goethezeit	3
	<hr style="width: 100px; margin-left: auto; margin-right: 0;"/> Total 30

<sup>b</sup>Recipient of the State University Chancellor's Award for Excellence in Teaching, 1972-73

Note: 1. All courses must be taken for letter grade.

2. The ascending numbers of the required options for the major are simply intended to suggest the sequence in which they might be studied most favorably; German 199-204 are to be regarded as pre- or corequisites to the courses beyond 204.

3. Students majoring in German may consider spending their junior or senior year at the University of Tübingen, Germany, with the permission of the department.

### ***Requirements for the Major in Russian***

The major in Russian leads to the Bachelor of Arts degree. The following courses are required.

	<i>Credits</i>
RUS 141, 142 Masterpieces of Russian Literature	6
RUS 221, 222 Russian Conversation and Composition	6
RUS 291 or 292 Topics Courses in Translation	3
RUS 293 Aspects of Contemporary Slavic Culture	3
RUS 321, 322 Advanced Conversation and Composition	6
RUS 339 Linguistics for the Teacher of Russian or RUS 302 History of the Russian Language	3
RUS 391, 392, 393 Advanced Topics Courses	9
HIS 209 Imperial Russia	3
	<hr/> Total 39

Note: 1. All courses must be taken for letter grade.

2. The department strongly recommends that majors take related courses in other departments. A list of recommended courses is available from departmental advisors.

3. Students may also wish to complete some of their work abroad. SUNY maintains exchange programs with Russia and Poland for which qualified students may apply.

### ***Teacher Certification***

Students who wish to prepare for certification as secondary school teachers of German or Russian should consult appropriate departmental advisors. Those seeking certification in German are urged to take, in addition to the courses required for certification, GER 337 and 321, 322. Students of Russian are urged to take RUS 339 and RUS 302.

See also alphabetical listing: Foreign Languages Secondary Teacher Preparation Program.

## ***Placement in Language Courses for Incoming Freshmen***

Students continuing the study of a foreign language started in high school should register for the appropriate college course after consulting a departmental advisor.

### ***Courses\****

#### ***Germanic Languages and Literatures***

##### **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 three hours in a small section conducted in German, one hour in a group (plenary) section taught by a contrastive linguist, and one laboratory hour. *Fall and spring, 3 credits each semester*

##### **GER 113 Intensive Elementary German**

An intensive course covering the elementary German program (GER 111, 112) in one semester. *Fall and spring, 6 credits*

##### **GER 115, 116 Reading German**

An introductory course designed to teach the student to read and translate German prose of moderate difficulty. Practice in translating from German into English and in transferring ideas into the appropriate terminology. This course is not intended to prepare the student for the major. May not be taken for credit after GER 191, 192. *Fall and spring, 3 credits each semester*

##### **GER 191, 192 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 will further develop audiolingual skills. Prerequisite: GER 112 or 113. *Fall and spring, 3 credits each semester*

##### **GER 195 Intensive Intermediate German**

An intensive course covering the intermediate German program (GER 191, 192) in one semester. Prerequisite: GER 112 or 113. *Fall and spring, 6 credits*

##### **GER 199 German Civilization and Culture**

An introduction to the history, culture, and literature of the German speaking areas. The course, offered in English, is team taught by members of the department and guest speakers and is suitable for both German majors and non-majors. *Fall, 3 credits*

##### **GER 202 History of the German Language**

The development of the German language from Indo-European to modern High German. While special emphasis will be placed on western Germanic languages, specifically German, some attention will be given to the Scandinavian languages and Gothic. The framework within which work will be done will be that of modern linguistic theory (generative-transformational phonology). A historically representative selection of texts will be examined. Conducted as a seminar. Prerequisite: GER 192 or 195. *Spring, 3 credits*

##### **GER 203 Introduction to Germanic Studies**

Using selected short texts easily read and understood by students whose background in German may be limited, this course is intended to introduce

---

\*See p. 124, Course Credit and Prerequisites, and p. 125, Numbering System.

students to terminology and techniques of literary analysis and interpretation. Prerequisite: GER 192 or 195. *Fall, 3 credits*

### **GER 204 Survey of German Literature**

A chronological survey of German literature from its beginnings to the present with stress on defining the periods therein. All readings will be in German. Prerequisite: GER 192 or 195. *Spring, 3 credits*

### **GER 221, 222 German Conversation and Composition**

This course consists of the active use of spoken and written German. Prerequisite: GER 192 or 195. *Fall and spring, 3 credits each semester*

### **GER 301 German Drama**

A survey of German drama and its sub-genres. All work will be done in German. Prerequisites: GER 203, 204. *Fall, 3 credits*

### **GER 302 German Prose**

A survey of German prose and its sub-genres. All work will be done in German. Prerequisites: GER 203, 204. *Spring, 3 credits*

### **GER 303 German Poetry**

A survey of German poetry and its sub-genres. All work will be done in German. Prerequisites: GER 203, 204. *Fall, 3 credits*

### **GER 304 Goethezeit**

An intensive study of German literature in the period 1750-1832. All work will be done in German. Prerequisites: GER 203, 204. *Spring, 3 credits*

### **GER 321, 322 Advanced German Conversation and Composition**

A course designed to develop mastery of spoken German. Students will learn to express themselves idiomatically and fluently and become acquainted with the subtleties of German grammar and style. Prerequisite: GER 222. *Fall and spring, 3 credits each semester*

### **GER 337 Contrastive Structures of German and English**

A detailed descriptive analysis of modern German phonology, morphology, and syntax from the standpoint of transfer interference. Prerequisite: GER 222 or fluency in German. *Fall, 3 credits*

### **GER 447 Special Author**

A tutorial demanding intensive study of the works of a specific German-language author. All work will be done in German. Prerequisites: GER 301-304. *Fall and spring, 3 credits*

### **GER 448 Special Period**

A tutorial demanding intensive study of German-language literature of a specific period. All work will be done in German. Prerequisites: GER 301-304. *Fall and spring, 3 credits*

### **GER 449 Special Sub-Genre**

A tutorial demanding intensive study of a specific literary sub-genre within German-language literature. All work will be done in German. Prerequisites: GER 301-304. *Fall and spring, 3 credits*

## *Selected Germanic Languages*

### **SGL 111, 112 Selected Germanic Languages (Elementary) I, II**

An introduction to a selected Germanic language (Danish, Icelandic, Norwegian, etc.), speaking, comprehension, reading, and writing. Selected texts will be read. Practice in the language laboratory supplements class work. May be repeated for more than one language. *Fall and spring, 3 credits each semester*



## Scandinavian

### **SWE 111, 112 Elementary Swedish I, II**

An introduction to spoken and written Swedish, stressing pronunciation, speaking, comprehension, reading, and writing. Selected texts will be read. Practice in the language laboratory supplements class work. *Fall and spring, 3 credits each semester*

### **SWE 191, 192 Intermediate Swedish I, II**

The reading and interpretation of Swedish texts, with a review of Swedish grammar, composition, and conversation. Prerequisite: SWE 112. *Fall and spring, 3 credits each semester*

### **SWE 447 Directed Readings in Scandinavian**

Individually supervised readings of selected Scandinavian authors such as Ibsen, Strindberg, Lagerkvist, Moberg, and Holberg. May be repeated. Prerequisites: Reading fluency in the language of the author studied and permission of department. *Fall and spring, 3 credits*

## Yiddish

### **YDH 111, 112 Elementary Yiddish**

An introduction to spoken and written Yiddish, stressing pronunciation, speaking, comprehension, reading, writing, and culture. *Fall and spring, 3 credits each semester*

### **YDH 191, 192 Intermediate Yiddish**

The reading and interpretation of Yiddish texts, with a review of Yiddish grammar, composition, and conversation. Prerequisite: YDH 112. *Fall and spring, 3 credits each semester*

### **YDH 205 Yiddish Drama**

Intensive study of Yiddish drama. All work will be done in Yiddish. Prerequisite: YDH 192. *Fall, 3 credits*

### **YDH 206 Yiddish Novel**

Intensive study of the Yiddish novel. All work will be done in Yiddish. Prerequisite: YDH 192. *Spring, 3 credits*

## Slavic Languages and Literatures—Polish

### **PSH 111, 112 Elementary Polish I, II**

An introduction to spoken and written Polish, stressing pronunciation, speaking, comprehension, reading, writing, and culture. *Fall and spring, 3 credits each semester*

### **PSH 191, 192 Intermediate Polish I, II**

The reading and interpretation of Polish texts, with a review of Polish grammar, composition, and conversation. The student gains an acquaintance with the various literary genres through examples drawn from representative Polish authors. Prerequisite: PSH 112. *Fall and spring, 3 credits each semester*

## Minor East European Languages

### **EEL 111, 112 Elementary Minor East European Language I, II**

An introduction to a spoken and written minor East European language (Serbo-Croatian, Czech, Ukrainian, Slovak, Macedonian, Slovenian, Bulga-

rian, or Hungarian), stressing pronunciation, speaking, comprehension, reading, writing, and culture. (This course may be repeated for more than one language.) *Fall and spring, 3 credits each semester*

### **EEL 191, 192 Intermediate Minor East European Language I, II**

The reading and interpretation of a minor East European language's texts, with a review of grammar, composition, and conversation. The student gains an acquaintance with the various literary genres through examples drawn from representative authors. (This course may be repeated for more than one language.) Prerequisite: EEL 112. *Fall and spring, 3 credits each semester*

## *Russian*

### **RUS 111, 112 Elementary Russian I, II**

An introduction to Russian. Class work will be supplemented by practice in the language laboratory. *Fall and spring, 3 credits each semester*

### **RUS 141, 142 Masterpieces of Russian Literature (in Translation)**

A survey in English of the major works of Russian Literature of the 19th and 20th centuries, such as Tolstoy's *War and Peace*, Dostoevsky's *Brothers Karamazov*, Sologub's *Petty Demon*, Solzhenitsyn's *Gulag Archipelago*. This course is designed to give the student a short history of Russian literature as well as a certain competence in the analysis of texts. *Fall and spring, 3 credits each semester*

### **RUS 191, 192 Intermediate Russian I, II**

An intermediate course in Russian stressing an active command of the language. Prerequisite: RUS 112. *Fall and spring, 3 credits each semester*

### **RUS 221, 222 Russian Conversation and Composition**

This course consists of the active use of spoken and written Russian. Prerequisite: RUS 192. *Fall and spring, 3 credits each semester*

### **RUS 291 Special Author in Translation**

Each semester will be devoted to one particular author such as Tolstoy, Dostoevsky, Chekhov, etc. Essential works and significant criticism will be analyzed. May be repeated, but will count toward fulfillment of major requirements only once. Prerequisites: RUS 141, 142 or two other literature courses. *Fall and spring, 3 credits*

### **RUS 292 Special Genre or Period in Translation**

Each semester will be devoted to one particular genre or period such as the Russian Novel of the 19th Century, Russian Drama, the Golden Age, Symbolism, etc. Essential works and significant criticism will be analyzed. May be repeated, but will count toward fulfillment of major requirements only once. Prerequisites: RUS 141, 142 or two other literature courses. *Fall and spring, 3 credits*

### **RUS 293 Aspects of Contemporary Slavic Culture**

Analysis and discussion of literary and social topics dealing with Russia or East Europe related to contemporary culture and life, such as: Dissidents in the Slavic World, The Jew in Russia, The Role of Women in the Slavic World. May be repeated, but will count toward fulfillment of major requirements only once. Prerequisite: RUS 142 or HIS 210. *Fall and spring, 3 credits*

### **RUS 302 History of the Russian Language**

The development of the Russian literary language from its beginnings to the present day. The influence of Church Slavonic on the development of the language will be discussed. Prerequisite: RUS 192. *Spring, 3 credits*

### **RUS 321, 322 Advanced Russian Conversation and Composition**

A course designed to develop mastery of spoken Russian. Students will learn to express themselves idiomatically and fluently and become acquainted with the subtleties of Russian grammar and style. Prerequisite: RUS 222. *Fall and spring, 3 credits each semester*

### **RUS 339 Linguistics for the Teacher of Russian**

Applied linguistics for future teachers of the Russian language; the phonetics and morphology needed to explain Russian grammar to students. Prerequisite: RUS 192. *Spring, 3 credits*

### **RUS 391 Special Author**

A detailed study of the works of a major author of the 19th or 20th century, such as Pushkin, Gogol, Turgenev, Blok, etc. Readings will be in Russian, and classes will be conducted largely in Russian. May be repeated as the subject matter changes. Prerequisites: RUS 141, 142 and RUS 222. *Fall and spring, 3 credits*

### **RUS 392 Special Genre or Period**

A detailed study of a special genre—such as the Russian Novel, Russian Drama—or period—such as the Baroque, the Golden Age. Readings will be in Russian, and classes will be conducted largely in Russian. May be repeated as the subject matter changes. Prerequisites: RUS 141, 142 and RUS 222. *Fall and spring, 3 credits*

### **RUS 490 Senior Seminar**

Group discussion in Russian and individual research on various aspects of Russian culture and life. Prerequisites: RUS 141, 142 and RUS 222 *Fall and spring, 3 credits*

## **Department of Hispanic Languages and Literature**

**Professors:** Pedro Lastra, University Professor, University of Chile (Spanish-American literature); Elias L. Rivers, Chairman, Ph.D. Yale University (Spanish literature; literary theory); Iris M. Zavala, Ph.D. University of Salamanca (17th- to 20th-century Peninsular literature; Caribbean literature)

**Associate Professors:** <sup>a</sup>Louise Vasvari Fainberg, Ph.D. University of California at Berkeley (Medieval Spanish literature; Romance philology; linguistics); Jaime Giordano, University Professor, University of Concepcion (Spanish-

---

<sup>a</sup>Recipient of the State University Chancellor's Award for Excellence in Teaching, 1975-76

American literature); **Clara Lida**, Joint, with History, Ph.D. Princeton University (Peninsular and Latin-American intellectual history and culture); **James B. McKenna**, Ph.D. Harvard University (20th-century Hispanic culture and literature); **Georgina Sàbat Rivers**, Ph.D. Johns Hopkins University (Spanish Golden Age and Colonial literature)

**Assistant Professors:** **Roman De La Campa**, Ph.D. University of Minnesota (Bilingual-bicultural studies; applied linguistics; Spanish-American theatre); **Lou C. Deutsch**, Ph.D. University of Chicago (19th-century Spanish literature)

**Lecturer:** **Diane Chaffee**, M.A. Duke University (Spanish Golden Age literature)

**Estimated Number of Teaching Assistants: 15**

The Department offers a major program leading to the Bachelor of Arts degree in Spanish, two different minors in Spanish (one with two different emphases), and courses in Portuguese. Students wishing to major in Spanish should consult with a departmental advisor to choose individual programs.

**Requirements for the Major in Spanish**

The major in Spanish leads to the Bachelor of Arts degree. The following courses are required.

	<i>Credits</i>
I. Required basic courses:	
A. Either SPN 221, 222 Spanish Conversation and Composition I, II, or SPN 198 Spanish Conversation and Composition for Students of Spanish-Speaking Background	3-6
B. SPN 391 The Culture and Civilization of Spain and SPN 392 The Culture and Civilization of Spanish America	6
C. SPN 396 Introduction to Spanish-American Literature, and SPN 397, 398 Introduction to Spanish Literature I, II	9
II. Advanced courses in Hispanic linguistics, literature, and culture:	
Fifteen additional credits of work must be	

done in upper-division courses to be chosen in consultation with the departmental advisor (a maximum of three credits of SPN 447 is applicable towards this requirement). Either SPN 421 or 442 is required, but both are strongly recommended.

15

---

*Total* 33-36

All upper-division courses in Spanish offered to fulfill major requirements must be passed with a grade of C or better.

The department requires that transfer students take at least eighteen credits of Spanish courses in residence at Stony Brook to complete a Spanish major.

### ***Teacher Training Program***

Students who wish to prepare for certification as secondary school teachers of Spanish should take at least two of the following courses: SPN 301, SPN 462, SPN 463. They should consult appropriate departmental advisors concerning additional requirements and procedures of the teacher preparation program. To be eligible to enter student teaching, students must have maintained a 3.0 grade point average in the major and a 2.5 grade point average overall. See also alphabetical listing: Foreign Languages Secondary Teacher Preparation Program.

### ***Minor in Hispanic Bilingual-Bicultural Studies***

Majors in Spanish and students who are majoring in other disciplines (i.e., a major in history who wishes to obtain a license as a bilingual teacher in order to be able to teach history in Spanish) can take this minor. Its requirements are the following:

- a) Proficiency in both English and Spanish
- b) Required courses: SOC 310, SPN 461, SPN 462, SPN 463—*Total*, 12 Credits.
- c) Twelve credits of related courses chosen in consultation with the program coordinator or a designated advisor. The following list is representative, although students may be permitted to select others. Courses below marked with an asterisk are particularly recommended:

AFS 200\*, 238, 240

ANT 201, 219, 363\*

HIS 213, 214, 330, 371, 421 and 422 (when applicable)  
 LIN 105, 211, 305\*, 320, 363, 375\*, 475 or 476  
 POL 251, 329, 332  
 SOC 301, 302

### ***Minor in Spanish***

*Credits*

A. Emphasis on language and culture	
Advanced conversation (SPN 223)	
Culture (SPN 391, 392, or 461)	3
Literature (SPN 396, 397, 398, or 460; other 400-level literature topic courses may be selected only with departmental permission)	3
Advanced language: Any two from 301, 302, 462, 463	6
One additional 400-level course in language, literature, or culture	3
	<hr/>
	<i>Total</i> 18
B. Emphasis on literature	
SPN 396, 397, 398	9
Three 400-level literature courses	9
	<hr/>
	<i>Total</i> 18

### ***Placement***

Entering students who wish to continue the study of Spanish started in high school should consult a departmental advisor to help them in the choice of the appropriate course.

### ***The Honors Program in Spanish***

To be awarded Honors a departmental major must: (1) maintain an overall grade point average of at least 3.0 and a grade point average of at least 3.5 in Spanish courses taken for the major; (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 chairman, and the thesis advisor. The thesis will be evaluated by the thesis advisor, another member of the Spanish faculty, and a third reader from outside the department. Prerequisites to register in SPN

495 are: (1) same as requirement 1, above (2) senior standing (3) permission of department.

## **Courses \***

### *Portuguese Language*

#### **POR 111, 112 Elementary Portuguese I, II**

An introduction to spoken and written Portuguese, stressing pronunciation, speaking, comprehension, reading, and writing. Language laboratory will supplement class work. *Fall and spring, 3 credits each semester*

#### **POR 191, 192 Intermediate Portuguese I, II**

A comprehensive review of the Portuguese language. It is intended to develop competence in reading, writing, and speaking Portuguese through the study of grammar and the interpretation of selected literary texts. Prerequisite: POR 112. *Fall and spring, 3 credits each semester*

### *Spanish Language*

#### **SPN 111, 112 Elementary Spanish I, II**

An introduction to spoken and written Spanish, stressing pronunciation, speaking, comprehension, reading, and writing. Language laboratory will supplement class work. *Fall and spring, 3 credits each semester*

#### **SPN 113 Intensive Elementary Spanish**

An intensive version of SPN 111, 112. *Fall and spring, 6 credits*

#### **SPN 191, 192 Intermediate Spanish I, II**

A comprehensive review of the Spanish language. It is intended to develop competence in reading, writing, and speaking Spanish through the study of grammar and the interpretation of selected literary texts. Prerequisite: SPN 112 or 113. *Fall and spring, 3 credits each semester*

#### **SPN 195 Intensive Intermediate Spanish**

An intensive version of SPN 191, 192. Prerequisite: SPN 112 or 113. *Fall and spring, 6 credits*

#### **SPN 198 Spanish Conversation and Composition for Students of Spanish-Speaking Background**

A course intended for students of Spanish-speaking background, designed to improve their competence in oral and written Spanish. *Fall and spring, 3 credits*

#### **SPN 221 Spanish Conversation and Composition I**

A course in the active use of Spanish, with emphasis on precision and fluency in the *spoken* form. Prerequisite: SPN 192 or 195. *Fall and spring, 3 credits*

#### **SPN 222 Spanish Conversation and Composition II**

A course in the active use of Spanish, with emphasis on excellence in the *written* form. Prerequisite: SPN 192 or 195. *Fall and spring, 3 credits*

#### **SPN 223 Advanced Spanish Conversation**

A course designed to develop and maintain complete fluency in the language. Prerequisite: SPN 222. *Spring, 3 credits*

---

\*See p. 124, Course Credit and Prerequisites, and p. 125, Numbering System.

## *Hispanic Linguistics, Literature, and Culture (Conducted in Spanish)*

### **SPN 301 Advanced Composition and Stylistics**

A review of advanced Spanish grammar with emphasis on improving writing skills and increasing mastery of Spanish syntax. Extensive practice in composition and in translation. Prerequisite: SPN 198 or 222. *Fall and spring, 3 credits*

### **SPN 302 Topics in Spanish Linguistics**

The specific content of this course will be announced each semester. Possible topics may be: Spanish phonetics, History of the Spanish Language, Applied Linguistics for Secondary School Teachers. Prerequisite: SPN 198 or 222. *Fall and spring, 3 credits*

### **SPN 391 The Culture and Civilization of Spain (Formerly SPN 291)**

The evolution of the culture and civilization of Spain as seen through its history, art, and literature. Prerequisite: SPN 198 or 221 and 222. *Fall, 3 credits*

### **SPN 392 The Culture and Civilization of Spanish America (Formerly SPN 292)**

The evolution of the culture and civilization of Spanish America as seen through its history, art, and literature. Prerequisite: SPN 198 or 221 and 222. *Spring, 3 credits*

### **SPN 396 Introduction to Spanish-American Literature (Formerly SPN 296)**

Readings in Spanish-American literature from the Colonial period to the present. Prerequisite: SPN 198 or 221 and 222. *Fall, 3 credits*

### **SPN 397 Introduction to Spanish Literature I (Formerly SPN 297)**

Readings in Peninsular literature from its origins through the 17th century. Prerequisite: SPN 198 or 221 and 222. *Fall, 3 credits*

### **SPN 398 Introduction to Spanish Literature II (Formerly SPN 298)**

Readings in Peninsular literature from the 18th century to the present. Prerequisite: SPN 397. *Spring, 3 credits*

## *Advanced Courses (Conducted in Spanish)*

The topic to be studied in SPN 411, 421, 431, 432, 441, 442, and 444 will appear in the Class Schedule, and a description of the specific contents will be available one semester in advance in the department. Each course may be repeated for credit as the subject matter changes.

### **SPN 411 Topics in Medieval and Renaissance Literature and Culture (Formerly SPN 311)**

Readings and discussion of major literary works in Spanish within the Medieval and Renaissance periods and their interrelation with the cultural context. Topics will vary. May be repeated. Prerequisite: SPN 397. *Fall or spring, 3 credits*

### **SPN 421 Topics in Golden Age Literature and Culture (Formerly SPN 321)**

Readings and discussion of major literary works within the Golden Age period (16th and 17th centuries) and their interrelation with the cultural context.



Topics will vary. May be repeated. Prerequisite: SPN 397. *Fall or spring, 3 credits*

**SPN 431 Topics in 18th- and 19th-Century Peninsular Literature and Culture (Formerly SPN 331)**

Readings and discussion of major literary works of the 18th and 19th centuries in Spain and their interrelation with the cultural context. Topics will vary. May be repeated. Prerequisite: SPN 398. *Fall or spring, 3 credits*

**SPN 432 Topics in Spanish-American Literature and Culture from the Colonial Period to 1880 (Formerly SPN 332)**

Readings and discussion of major literary works in Spanish America within the Colonial, the Independence, and the Romantic periods and their interrelation with the cultural context. Topics will vary. May be repeated. Prerequisite: SPN 396. *Fall or spring, 3 credits*

**SPN 441 Topics in Peninsular Literature and Culture from 1898 to the Present (Formerly SPN 341)**

Readings and discussion of major literary works in Spain from the Generation of 1898 to the present and their interrelation with the cultural context. Topics will vary. May be repeated. Prerequisite: SPN 398. *Fall or spring, 3 credits*

**SPN 442 Topics in Spanish-American Literature and Culture from 1880 to the Present (Formerly SPN 342)**

Readings and discussion of major literary works in Spanish-America from the outset of modernism and naturalism to the contemporary period and their interrelation with the cultural context. Topics will vary. May be repeated. Prerequisite: SPN 396. *Fall or spring, 3 credits*

**SPN 444 Topics in Caribbean Literature and Culture (Formerly SPN 350)**

Readings and discussion of relevant literary works in Puerto Rico, Cuba, and other Caribbean countries. Special emphasis will be given to the interrelation between literature and culture. Topics will vary. May be repeated. Prerequisite: SPN 392 or 396. *Fall or spring, 3 credits*

**SPN 447 Directed Individual Studies**

Individually supervised studies in selected topics of Hispanic language, literature, and culture. May be repeated. Normally no more than three credits are allowed toward the major requirements; other credits are considered as electives. Prerequisite: Permission of instructor and department. *Fall and spring, 1 to 6 credits*

**SPN 461 Fundamentals of Hispanic Bilingualism and Biculturalism (Formerly SPN 381)**

Studies in the forms of survival of the Hispanic culture in the United States and the identity crisis experienced by the Hispanic communities in this country. This course will include a survey of written material (from journalism to poetry) reflecting this conflict, and a critical analysis of the current theories of bilingualism and biculturalism as applied to those communities. Prerequisite: SPN 222. *Fall, 3 credits*

**SPN 462 Contrastive Spanish—English Phonology (Formerly SPN 383)**

A study of Spanish and English phonology and phonetics from a contrastive linguistics perspective, its relation to the analysis of bilingualism. Prerequisites: SPN 222 and permission of instructor. *Spring, 3 credits*

**SPN 463 Contrastive Spanish—English Morphology (Formerly SPN 382)**

A study of Spanish and English morphology and syntax from a contrastive linguistics perspective, its relation to the analysis of bilingualism. Prerequisites: SPN 301 and permission of instructor. *Fall, 3 credits*

**SPN 475 Undergraduate Teaching Practicum in Spanish**

Each student will conduct a regular practice section that will supplement a regular Spanish language instruction course. The student will receive regularly scheduled supervision from the instructor. Responsibilities may include preparing material for practice sessions, initial correction of homework and tests, and helping students with problems. Grading in this course shall be Satisfactory/Unsatisfactory only. Prerequisites: Upper division Spanish major, preferably senior standing, and permission of instructor and department chairman. *Fall and Spring, 3 credits*

**SPN 495 Spanish Honors Seminar**

See description and prerequisites of the Honors Program in Spanish, page 00. *Spring, 3 credits*

## Department of History

**Professors:** **Werner T. Angress**, Ph.D. University of California at Berkeley (Modern Europe; Germany); **David B. Burner**, Ph.D. Columbia University (20th-century U.S. political and social); **Ernesto Chinchilla-Aguilar**, Ph.D. Escuela Nacional de Antropología de México (Colonial Latin America); **Charles Hoffmann**, Affiliate, Ph.D. Columbia University (Economics; People's Republic of China); **Eric E. Lampard**, Ph.D. University of Wisconsin (Economic and urban); **Robert M. Levine**, Ph.D. Princeton University (Latin America; Brazil); **Jackson T. Main**, Ph.D. University of Wisconsin (U.S. Colonial); **Joel T. Rosenthal**, Ph.D. University of Chicago (Medieval Europe; England); **Eli Seifman**, Affiliate, Ph.D. New York University (History of education); **Bernard Semmel**, Ph.D. Columbia University (Modern British social and intellectual); **William R. Taylor**, Ph.D. Harvard University (19th- and 20th-century U.S. cultural and intellectual); **Fred Weinstein**, Ph.D. University of California at Berkeley (Psychohistory; Russia)

**Associate Professors:** **Per A. Alin**, Ph.D. University of Vienna (Ancient; pre-classical archaeology); **Karl S. Bottigheimer**, Ph.D. University of California at Berkeley (England and Ireland); **Hugh G. Cleland**, Ph.D. Case-Western Reserve University (U.S. labor); **Ruth Schwartz Cowan**, Ph.D. Johns Hopkins University (History of biology and technology; women in modern society); **Daniel Fox**, Adjunct, Ph.D. Harvard Uni-

versity (Social welfare and government); **Elizabeth Garber**, Ph.D. Case-Western Reserve University (History of physics and thermodynamics; European intellectual and social); **Richard F. Kuisel**, Ph.D. University of California at Berkeley (Modern Europe; France); **Herman E. Lebovics**, Ph.D. Yale University (Modern European intellectual and social); **Robert H. G. Lee**, Ph.D. Columbia University (China and the Far East); **Helen Rodnite Lemay**, Ph.D. Columbia University (Medieval and Renaissance intellectual; paleography); **Clara E. Lida**, Joint with Hispanic Languages and Literature, Ph.D. Princeton University (Spain and Latin America; labor); **Robert D. Marcus**, Ph.D. Northwestern University (19th- and 20th-century U.S. political and cultural); **Wilbur R. Miller**, Ph.D. Columbia University (19th-century U.S.); **Leslie Owens**, Affiliate, Ph.D. University of California at Riverside (Afro-American history); **John W. Pratt**, Ph.D. Harvard University (U.S. Constitutional and political; New York State); **Ruben E. Weltsch**, Ph.D. University of Colorado (Eastern Europe; Hapsburg Empire); **John W. Williams**, Ph.D. University of Wisconsin (British Empire; Africa; the Commonwealth; expansion of Europe)

**Assistant Professors:** **Michael S. Reisch**, Affiliate, Ph.D. State University of New York at Binghamton (Modern Europe, France); **Stephen Stein**, Ph.D. Stanford University (Latin America; social history and popular culture); **Nancy Tomes**, Ph.D. University of Pennsylvania (U.S. social and women's history); **W. Burghardt Turner**, Emeritus, M.A. Columbia University (Afro-American and Native American history)

**Lecturer:** **Karl W. Demuth**, Adjunct, M.A. Harvard University (Modern Europe; France)

***Estimated Number of Teaching Assistants: 35***

The offerings in history concentrate on the fields of United States, Europe, and Latin America, though courses are offered regularly in other areas such as the Far East and the History of Science. Courses numbered in the 100's include general surveys, especially suitable for freshmen, and others designed to introduce students to the methods and problems of history. Two-hundred level courses are basic surveys of areas and periods. The 300-level series deal with special topics and problems on a more advanced level, usually involv-

ing more intellectual content and written work (although the student must expect written work in every course). Four-hundred-level "colloquia" are intended to offer the student an opportunity to do more intensive reading, research, and writing, usually in small classes, and with closer contact with the instructor.

Though the department does not set prerequisites for many of its courses, it does recommend that students interested in a certain area move from lower to higher number courses as they gain experience. History majors, history minors, and other students taking history courses as electives are advised to try a number of fields of history, at various levels of course offerings.

Each semester the department issues a booklet with a detailed description of its offerings. Students interested in history, whether as a major, a minor, a related social science course, or for general liberal arts purposes, are invited to read this booklet and to seek advice from the department's faculty.

### ***Requirements for the Major in History***

*Credits*

- A. *Study within the area of the major.* Ten one-semester courses of which at least twelve credits must be selected from the 300- and 400-level, excluding HIS 397 and 398. At least three of these credits must be from the 400-level. 30

#### *Notes on Group A*

1. Included in the total 30 hours as prescribed above must be nine credits in non-U.S. history. No more than twelve credits from the 100-level may be applied toward the major. At least six credits must be taken from those offerings numbered HIS 100-104.

2. At least twelve credits must be taken within the Department of History at Stony Brook.

3. No transfer grade lower than C may be applied toward the major requirements.

- B. *Study in a related area.* Two one-semester courses at the 300 level in a related discipline or disciplines to be chosen with the approval of the departmental advisor. 6

---

*Total* 36

### *Notes on Groups A and B*

1. All courses taken to meet requirements A and B must be taken for a letter grade.

2. No grade lower than a C in an upper-division course may be applied toward the major requirements.

### *The Minor in History*

The minor, which requires 18 credits, is organized around the student's interest in a particular area of history, defined either by geography (e.g., United States, Latin American) or topic (e.g., Imperialism, social change). Courses must be taken for a letter grade. 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:

	<i>Credits</i>
A. One two-semester survey course in the period of the student's interest (100- or 200-level)	6
B. One (additional) course at the 200-level	3
C. Three courses at the 300- or 400-levels, at least one of which must be at the 400-level	9
	<hr/>
	<i>Total</i> 18

### *The Honors Program in History*

Departmental majors with a 3.0 average in history courses and related disciplines as specified in the major requirements are eligible to enroll in the History Honors Program at the beginning of their senior year.

The student, after asking a faculty member to be a sponsor, must submit a proposal to the department indicating the merit of the planned research. The supervising faculty member must also submit a statement supporting the student's proposal. This must be done in the semester prior to the beginning of the project.

The honors paper resulting from a student's research will be read by two historians and a member of another department, as arranged by the Director of Undergraduate Studies. If the paper is judged to be of unusual merit and the student's record warrants such a determination, the department will recommend honors.

## **Courses\***

### **HIS 100 The Ancient World**

A broad survey of the development of the Near Eastern and Mediterranean civilizations of Mesopotamia, Egypt, and neighboring areas as well as Greece and Rome from their earliest beginnings to the decline of the Roman Empire. *Fall or spring, 3 credits*

### **HIS 101 Introduction to European History: Pre-Industrial**

A study of continuity and change in European ideas and institutions between the Middle Ages and the French Revolution. Feudal society, the rise of cities, the Reformations, and the Old Regime will be discussed. *Fall, 3 credits*

### **HIS 102 Introduction to European History: Modern Europe**

A study of European ideas and institutions during the 19th and 20th centuries: the growth of industrialism and of democracy; the Marxist challenge and the Russian Revolution; the great world wars and the waning of European hegemony. *Spring, 3 credits*

### **HIS 103 American History to 1877**

A survey of American history from the Age of Discovery to the end of Reconstruction. Some readings are drawn from American literature. Lectures are illustrated with paintings, maps, and photographs of the period. There are recitation sections. Emphasis is on reasoning from evidence rather than memorization. *Fall, 3 credits*

### **HIS 104 United States Since 1877**

A survey of modern American history from the end of Reconstruction to the present. Some readings are drawn from American literature. Lectures are illustrated with photographs, newsreels, and paintings of the times. There are recitation sections. Emphasis is on reasoning from evidence rather than memorization. *Spring, 3 credits*

### **HIS 107 America in the 1960's**

An introduction to the study of history through an analysis of contemporary American politics and culture from the Eisenhower years to the present. *Fall, 3 credits*

### **HIS 135 Science in History**

An examination of scientific ideas in their influence on concepts of man and society, from the Cartesian-Newtonian mechanical model to Freudian psychology. Topics covered will be: mechanism and Lockean psychology applied to law, government and citizenship; evolution and the struggle for existence applied to economic and political theory; Freudian psychology applied to social theory. *Fall, 3 credits*

### **HISa 136 Technology in History**

An examination of technological developments in their influence on social structure and social values. Topics covered will be: the industrial revolution; the role of technology in the formation of feudal society; the technological utopians of the 19th century; technology in the development of the American West, etc. *Spring, 3 credits*

### **HIS 160 History of American Education**

An analysis of various approaches to the study of the history of American education through an examination of selected histories of education in America. Emphasis will be placed on developing an understanding of the material of the historical writing (i.e., the events and the characteristics of the events), the principle or principles according to which the subject has been

\*See p. 124, Course Credit and Prerequisites, and p. 125, Numbering System.

subdivided, and the aims of the particular history. *Fall, 3 credits*

### **HIS 201 England from 1066 to 1688**

The development of English society will be traced from the Norman Conquest to the "Glorious Revolution" with special attention to the feudal constitution, the evolution of Parliament, the Civil War, and the Commercial Revolution. *Fall, 3 credits*

### **HIS 202 England Since 1688**

The transformation of English society by the Industrial Revolution, the development of parliamentary politics and democracy, the growth of imperial power, and the readjustment to 20th-century realities. *Spring, 3 credits*

### **HIS 203 The Rise of Imperial Germany, 1806-1890**

Germany from the Napoleonic period through unification and the founding of the Empire, to Bismarck's dismissal. *Fall, 3 credits*

### **HIS 204 From Empire to Third Reich: Germany, 1890-1945**

Germany from Bismarck's dismissal through the Wilhelminian period, the First World War, the Weimar Republic, and the Third Reich, to and beyond the Second World War. Political and social aspects and economic and cultural trends will be included in the investigation. *Spring, 3 credits*

### **HIS 208 Ireland from St. Patrick to the Present**

A survey of the history of Ireland with emphasis upon its colonization and the subsequent emergence of an independent, though troubled and fragmentary, national state. *Alternate years, 3 credits*

### **HIS 209 Imperial Russia**

The political, social, and cultural developments from Peter the Great to the Russian Revolution with emphasis on the unique institutional structure of Tsarist Russia and the problem of its relations with the West. *Fall, 3 credits*

### **HIS 210 Soviet Russia**

The ideological and social background of the Russian Revolution and the evolution of Soviet rule: the problem of industrialization, the relations with the capitalist West, and totalitarian control over society. *Spring, 3 credits*

### **HIS 212 History of Spain, 1492-1939**

An analysis of the key aspects of Peninsular history from the rise of the Spanish Empire to the Civil War. Political developments will be set in their social, economic, cultural, and international context. This course would be of interest to students of Latin American history. *Alternate years, 3 credits*

### **HIS 213 Latin America to 1825**

The Spanish and Portuguese colonies in the New World, with emphasis on exploration, settlement, institutions, and the struggle for independence. *Alternate years, 3 credits*

### **HIS 214 Latin America Since 1825**

The evaluation of Latin America since independence, with emphasis on political, economic, and social problems. *Spring, 3 credits*

### **HIS 219 Far Eastern Civilization: Origins and Development**

A survey of the history of the Far Eastern countries of China, Japan, and Korea from prehistory to the mid-nineteenth century. Emphasis will be on social and political changes in these countries and the enduring elements of their cultures. *Fall, 3 credits*

### **HIS 220 Far Eastern Civilization: The Modern Transformation**

A survey of the modern history of the Far Eastern countries of China, Japan, and Korea from the mid-nineteenth century to present day. Emphasis will be on the impact of the West, reform movements, wars, and revolutions that

transformed their traditional societies into modern states. Prerequisite: HIS 219 recommended. *Spring, 3 credits*

### **HIS 225 Civilization of Israel**

History of Israel from its origins until the Bar-Kochba revolt. Emphasis will be placed upon Israel in its ancient Near Eastern background. Topics covered include origins of Israeli religious, political, and social institutions. This course is identical with JDS 225. *Fall, 3 credits*

### **HIS 226 Civilization of Israel II**

A cultural history of Israel from the rise of Islam until the formation of the state of Israel. Particular emphasis will be placed on Jewish-Gentile relations and on those currents in Jewish thought which culminated in the Zionist movement. This course is identical with JDS 226. *Spring, 3 credits*

### **HIS 227 Modern Mexico**

The emergence of the Mexican nation in the nineteenth century and its Revolution. The course provides an overview of Mexican history since Independence, stressing the Reform, the 1910-20 conflict, the role of the Church, land reform, and the modern one-party state. *Spring, 3 credits*

### **HIS 228 Modern Brazil**

The historical evolution of Brazilian society since Independence, stressing the period since 1922. Themes will include race and slavery; economic development and nationalism; authoritarianism and social control; popular culture and high culture. *Fall, 3 credits*

### **HIS 230 The Ancient Near East**

The development of early civilizations in Mesopotamia, Egypt, and neighboring areas from the Stone Age to the rise of the Persian Empire. *Fall or spring, 3 credits*

### **HIS 231 History of Greece**

A survey of Greek history from the Stone Age beginnings with special emphasis on the achievements of the Greeks in the Archaic and Classical periods. *Fall or spring, 3 credits*

### **HIS 232 History of Rome**

The development of the Roman Republic and Empire with an emphasis upon the institutions which bound the Roman Mediterranean together and upon the Greco-Roman civilization of the Empire. *Spring, 3 credits*

### **HIS 233 Medieval History, 300-1100**

European history from the decline of Rome to the 11th century, including the rise of Christianity, Byzantium, Islam, the Gregorian reform, and feudalism. *Fall, 3 credits*

### **HIS 234 The High Middle Ages, 1100-1400**

The High Middle Ages, including the crusades, courtly love, the 12th-century Renaissance, scholasticism, Franciscanism, and the Inquisition. *Spring, 3 credits*

### **HIS 235 Humanism and Renaissance**

The study of the Italian Renaissance with particular emphasis on the intellectual history of the period. Non-Italian thinkers who played a role in the intellectual movements of the time will also be considered. *Fall, 3 credits*

### **HIS 236 The Age of the Reformation**

A study of pre-Reformation currents such as mysticism and humanism, followed by an examination of the 16th-century reformations. The course also includes economic and political changes in the 16th century. *Spring, 3 credits*



**HIS 237 Europe in the 17th Century**

A comparative examination of the societies of western Europe in a period of marked stress and change. *Alternate years, 3 credits*

**HIS 238 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. *Alternate years, 3 credits*

**HIS 239 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. *Fall, 3 credits*

**HIS 240 Europe Since 1945**

A study of contemporary Europe emphasizing political developments beginning with the Cold War, decolonization, the problems of post-industrial society, managed capitalism, and intellectual and cultural movements like existentialism and Marxist humanism. *Spring, 3 credits*

**HIS 241 The Holocaust: The Destruction of European Jewry, Causes and Consequences**

The rise of modern anti-Semitism and its political application in Nazi Germany. Topics covered include the destruction process, ghetto life, resistance, foreign response, and the war crimes trials. This course is identical with JDS 241. Prerequisite: JDS/HIS 226. *Fall, 3 credits*

**HIS 242 Women in European History (Formerly HIS 134)**

The role and position of women in European history. The course will consider, among other topics, Roman prostitution, barbarian women, courtly love, and witchcraft. *Fall or spring, 3 credits*

**HIS 251 Rise and Fall of Imperial Britain**

The politics, economics, ideology, and strategy of British expansion from early modern times to present. Mercantilism, the colonial system, and commercial wars; free-trade empire and Pax Britannica; age of imperialism and challenges to predominance; decline and fall. *Fall or spring, 3 credits*

**HIS 252 The British Commonwealth**

Examines British control over dependencies in Africa, Asia, and the Pacific since the 18th century, through comparative study of imperial advance, colonial policy, plural societies, resistance, transfer of power. *Alternate years, 3 credits*

**HIS 260 History of the Native Americans (Formerly HIS 106)**

History of the Native American from the pre-Columbian period to the present. The development of indigenous civilizations. Analysis of the literature from the early contacts by explorers and settlers. Effects of the resultant culture clash, the political and economic progress, treaty relations, the breaking of treaties, wars, the attitudes toward land ownership and transfer. As much as possible the material will be drawn from Native American literary sources. *Spring, 3 credits*

**HIS 262 American Colonial Society**

Political, economic, social, and cultural characteristics of the colonies during the 18th century. *Spring, 3 credits*

**HIS 263 Age of the American Revolution**

The social, economic, and political history of the period 1763-1800. 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. *Fall, 3 credits*

### **HIS 264 The Young Republic**

Political, economic, social, and cultural developments from 1800 to 1840. Stresses economic expansion, the westward movement, the fall of the first party system and the beginning of the second, and significant changes in religion and society. *Fall, 3 credits*

### **HIS 265 Civil War and Reconstruction**

The course deals with the crisis of sectionalism, the rise of Southern nationalism and of the Republican Party, secession, the Civil War, abolition, and the Reconstruction period. *Spring, 3 credits*

### **HIS 267 Recent U.S. History, 1877-1918**

The growth of industrialism in the United States and its impact on political, economic, and intellectual life, and on American relations with the outside world through World War I. *Fall or spring, 3 credits*

### **HIS 268 Recent U.S. History, 1919 to the Present**

The 1920's, the Great Depression and the impact of Keynesian thought, the New Deal, the rise of industrial unionism, World War II, the Cold War, and technological and social change are among the topics. *Spring, 3 credits*

### **HIS 269 History of American Industrial Society to 1860**

The economic and social development of North America and the United States from colonial settlement through early industrialization. The emphasis is on changing population patterns, use of natural resources, technological advances in production and transport, the development of markets, and the role of public policy. *Alternate years, 3 credits*

### **HIS 270 Development of American Industrial Society Since 1860**

The industrial transformation of economy and society since 1860. Emphasis is on factors contributing to economic growth and instability, the development of corporate organization, and the changing character of public policy. *Alternate years, 3 credits*

### **HIS 271 History of New York State (Formerly HIS 320)**

A general introduction to the history of New York State from its colonial origins to the present. The course surveys major political, economic, and social developments within their geographical setting. *Fall, 3 credits*

### **HIS 275 History of U.S. Foreign Relations, 1774-1917**

American foreign policy and diplomacy from 1774 to 1917 in terms of acquisition and confirmation of independence, geographical expansion and economic growth and achievement of great power capabilities. *Fall, 3 credits*

### **HIS 276 History of U.S. Foreign Relations, 1917 to the Present**

American foreign policy and diplomacy from 1917 to the present in terms of the cycle of violence associated with two world wars and developments since World War II. *Spring, 3 credits*

### **HIS 277 History of American Labor to 1900**

A history of working people from colonial times through the industrial revolution to 1900. The influence of immigration and of utopians, anarchists, and socialists is considered. Lectures are illustrated with paintings, photographs, blueprints, and other visual data from the period. There are recitation sections. Emphasis is on reasoning from evidence rather than on the presentation of facts. *Fall, 3 credits*

### **HIS 278 History of American Labor Since 1900**

A history of working people during the 20th century. The course considers such topics as the AFL, IWW, mass production, scientific management, the

rise and decline of the Communist Party, the CIO, and labor in politics. Lectures are illustrated with photographs, newsreels, paintings, and other visual data from the period. There are recitation sections. Emphasis on reasoning from evidence rather than on the presentation of facts. *Spring, 3 credits*

### **HIS 279 Afro-American History to Reconstruction**

Designed to supplement a basic knowledge of U.S. history, this course will consider the particular relationship of the Afro-American to the social, political, and economic development of the United States to Reconstruction. Prerequisite: HIS 103 or 104. *Fall, 3 credits*

### **HIS 280 Afro-American History from Reconstruction to the Present**

The Afro-American after the failure of Reconstruction: resistance of the black community to oppression and second-class status, the civil rights struggle of the 1950's and 1960's, and the current conflict. Prerequisite: HIS 103 or 104. *Spring, 3 credits*

### **HIS 282 History of Biology**

The course will examine ancient Greek ideas about the nature of life, the development of taxonomy, embryology, cytology, Darwinism, biochemical biology, and the debate between vitalism and mechanism. This course is identical with BIO 282. Prerequisite: BIO 152. *Fall, 3 credits*

### **HIS 283 Sex in History**

A study of the role of sex in various historical periods and civilizations. This course aims to introduce the student to comparative history—the study of different historical periods and civilizations through a theme that is common to them all. *Fall or spring, 3 credits*

### **HIS 295 History of Africa South of the Sahara**

Africa, 800-1800; the quickening pace of internal change and external contact, 1800-1880; European conquest and administration, 1880-1945; the end of empire and the recovery of independence. *Alternate years, 3 credits*

### **HIS 296 Modern Latin America Through Film**

The course will use feature films to study major topics in the development of modern Latin America. The films will provide both substantive information and an often polemical ground for class discussion. The films will vary in perspective from conservative to revolutionary. *Fall or spring, 3 credits*

### **HIS 300 The Prehistoric Aegean**

A study of the prehistoric cultures of Greece, Crete, and Troy, with a particular emphasis on the Minoan and Mycenaean palace centers of the late Bronze Age, primarily using the rich archaeological material but also contemporary and later written sources. *Fall or spring, 3 credits*

### **HIS 302 Kievan and Muscovite Russia**

Russian history from 10th century origins through the 17th century. Particular attention will be centered in Kievan civilization, the Tatar yoke, the rise of the Muscovite service state, and the Time of Troubles. *Fall, 3 credits*

### **HIS 303 Medieval Culture and Society**

An in-depth study of medieval culture and society, focusing alternatively on intellectual and cultural factors during the twelfth-century Renaissance, and upon the relation of the individual and the Christian social framework. *Fall or spring, 3 credits*

### **HIS 304 Early Modern England: Change and Reformation, 1509-1603 (Formerly HIS 249)**

The development of English society from the reign of Henry VIII to the death of Elizabeth; the decline of medieval institutions, the course of the Reforma-

tion and its impact upon political, economic, and cultural life. Prerequisite: HIS 201. *Alternate years, 3 credits*

**HIS 305 Early Modern England: Revolution and War, 1603-1714 (Formerly HIS 250)**

An inquiry into the source, nature, and outcome of the English Revolution of the mid-seventeenth century. Various interpretations will be examined along with representative contemporary documents. Prerequisite: HIS 201. *Alternate years, 3 credits*

**HIS 306 The Old Regime and the French Revolution**

An examination of the evils of the Old Regime, of the excitement of the Revolution, and of the rise and fall of the Empire under Napoleon. *Alternate years, 3 credits*

**HIS 307 History of the Physical Sciences I: Theories of the Universe**

The development of theories of the universe from ancient Greece to the present day, emphasizing changes in ideas which occurred during the late Renaissance. Einstein's ideas and modern cosmologies will also be discussed. This course is intended for students with a scientific background. *Fall, 3 credits*

**HIS 308 History of the Physical Sciences II: The Structure of Matter**

The growth of alchemy in the Arabic Empire and the European Renaissance, chemistry in the 19th century, and quantum mechanics in the 20th century. The general patterns of change which emerged in physics and chemistry will be emphasized. This course is intended for students with a scientific background. *Spring, 3 credits*

**HIS 309 Modern France, 1815-1900 (Formerly HIS 205)**

The French nation's search for political democracy, economic and social stability, grandeur, and cultural preeminence in the nineteenth century. Prerequisite: HIS 102. *Alternate years, 3 credits*

**HIS 310 Modern France, 1900 to the Present (Formerly HIS 206)**

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. *Alternate years, 3 credits*

**HIS 313 Eighteenth-Century England, 1714-1830**

The emergence of Modern England: aristocracy and parliamentary rule; wars for empire; hierarchical society and industrialism; the Augustan and Romantic ages; evangelical revival; French Revolution and reaction. The age of Chatham, Wesley, Burke, Johnson, Adam Smith, Bentham, Wordsworth, Coleridge, and Shelley. *Alternate years, 3 credits*

**HIS 314 Victorian England, 1830-1901**

The era of British economic and political preeminence. The establishment of a modern industrial society, flowering of liberalism, imperial expansion, rise of democracy and socialism. The age of Gladstone and Disraeli; Dickens and Kipling; Mill, Darwin, and Marx. *Alternate years, 3 credits*

**HIS 315 Twentieth-Century Britain**

The decline and fall of British preeminence and imperial power. The crisis of liberalism, two world wars, trade unionism, socialism, and the welfare state. The age of Lloyd George and Churchill; Shaw; Russell, Orwell, and Keynes. *Alternate years, 3 credits*

**HIS 317 Expansion of Europe (Formerly HIS 245)**

The European influence on the wider world during the industrial age. Forms of European overseas settlement, conditions of conquest, local responses to European domination, and decolonization will be studied. The course em-

phasizes comparisons and original documents. Prerequisite: 200-level course on Modern Europe. *Alternate years, 3 credits*

**HIS 318 Social and Intellectual History of Europe (Formerly HIS 244)**

An examination of the great movements of ideas in their social and historical contexts in modern European history. Sample themes include liberalism, conservatism, romanticism, 19th-century realism, and the discovery of the unconscious. *Alternate years, 3 credits*

**HIS 319 U.S. Urban History**

Historical studies of urbanization in the United States, with special reference to demographic, economic, and organizational features of urban and rural populations. Prerequisites: HIS 103, 104. *Alternate years, 3 credits*

**HIS 325 The Civil Rights Movement**

A detailed study of the movement for civil rights from its origins, examining the establishment of 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 1950's and after. This course is identical with AFS 325. *Alternate years, 3 credits*

**HIS 327 The Culture of American Cities**

The character of American culture from the Civil War to the present and its changes will be illustrated and discussed. Special attention will be given to the city as a cultural habitat and to the social and visual arts: theatre, film, and architecture. The examples chosen for study will necessarily be selective and are designed to suggest how popular culture was expressed at a particular time. *Fall, 3 credits*

**HIS 328 American Constitutional Origins (Formerly HIS 271)**

An examination of the English and colonial foundations of American constitutionalism, the political thought of the Revolution and creation of republican governments, the formation of the federal Constitution, and the rise of nineteenth-century political democracy in the United States. Prerequisite: HIS 103 recommended. *Fall, 3 credits*

**HIS 329 American Constitutional Development (Formerly HIS 272)**

A study of constitutional change, ranging from the dispute over the nature of the Union in the nineteenth century through the Civil War and Reconstruction and the problems associated with industrial growth, to the rise of big government in the present century. *Spring, 3 credits*

**HIS 330 Latin American Society (Formerly HIS 290)**

An examination of the basic elements in the evolution of Latin American society since independence. Topics will include authoritarianism, social control, social deviance, the role of the middle class, the Church, and education. *Fall, 3 credits*

**HIS 340 Intellectual History of China**

A survey of major intellectual trends from ancient to contemporary China. *Spring, 3 credits*

**HIS 341 Twentieth-Century China (Formerly HIS 294)**

The history of China from the collapse of the monarchy to the triumph of communism, emphasizing the revolutionary, political, social, and economic changes in China today. Special attention will be given to the theory and practice of Chinese communism. *Fall, 3 credits*

**HIS 361 Population and the Family (Formerly HIS 246)**

The course will examine demographic and family history and the effect of political, economic, and technological change upon the basic and traditional

entities. Focus will be either upon Europe or the United States. *Alternate years, 3 credits*

### **HIS 362 History of Marxist Thought**

The main traditions of Marxist theory and praxis. The roots of Marxism in the first half of the nineteenth century, the young Marx, and aspects of the work of the mature thinker. The various and divergent traditions of Marxism up to present controversies will be emphasized. Readings will also include Karl Kautsky, Eduard Bernstein, George Lukacs, Louis Althusser, as well as Lenin and Rosa Luxemburg. *Alternate years, 3 credits*

### **HIS 370 U.S. Social History, 1860-1929**

The development of American society from the Civil War to the Great Depression, with special emphasis on the evolution of social institutions—primarily the family, church, school, welfare organizations, business, and professions—in response to industrial and urban growth. *Spring, 3 credits*

### **HIS 371 American Roots**

The roots of Americans through the immigration or migration experiences of WASPS, Blacks, Irish, Germans, Slavs, Jews, Italians, Asians, and Latins will be examined, emphasizing common elements of the immigration process as well as the unique history of the racial and ethnic groups. Homeland conditions, migration experiences, rejection and assimilation in the new land, and generational conflict will form the main themes. Prerequisites: HIS 103 and 104 recommended. *Spring, 3 credits*

### **HIS 395 History of South Africa**

An analysis of the development of South African society; expansion of white settlement since the seventeenth century; British imperialism, frontier conflicts, Afrikaner nationalism in the nineteenth century; patterns of race relations in the twentieth century; apartheid and African resistance. Prerequisite: HIS 295 recommended. *Spring, 3 credits*

### **HIS 397 The Teaching of History**

A study of history as a subject in secondary schools: the nature of discipline, curricula models, scope and sequence of topics offered, new programs of history instruction, etc. Designed for prospective teachers of history in secondary schools. Prerequisite: Five courses in history. *Fall, 3 credits*

### **HIS 398 History Teaching Strategies**

An examination of the instructional methods and materials for teaching history at the secondary school level. Designed for prospective teachers of history in secondary schools. Prerequisite: HIS 397. *Spring, 3 credits*

### **HIS 401, 402, 403 Colloquia in European History**

Subjects and periods, which will vary with student demand and faculty interest, will include such topics as the Renaissance, the Reformation, Conservatism, the Revolution, Fascism, population, and topics in particular national histories. May be repeated. Prerequisite: Varying with subject. Consult departmental list of courses. *Schedule to be announced, 3 credits each*

### **HIS 411-414 Colloquia in American History**

Subjects and periods, which will vary with student demand and faculty interest, will include such subjects as colonial society, the revolutionary era, progressivism, urbanization, Afro-American history, constitutional history, social and intellectual movements, labor history, and the history of Native Americans. May be repeated. Prerequisite: Varying with subject. Consult departmental list of courses. *Schedule to be announced, 3 credits each*

### **HIS 421, 422 Colloquia in Latin American History**

Subjects and periods, which will vary with student demand and faculty in-

terest, will include such topics as cultural history, the independence movements, slavery and race relations, land tenure, the Catholic Church, and contemporary society and revolutions. May be repeated. Prerequisite: Varying with subject. Consult departmental list of courses. *Schedule to be announced, 3 credits each*

#### **HIS 431 Colloquia in Asian History**

Subject and periods, which will vary with student demand and faculty interest, will include such topics as Japanese nationalism and expansion, Far Eastern diplomatic history, nationalism in Southeast Asia. Prerequisite: Varying with subject. Consult departmental list of courses. *Schedule to be announced, 3 credits each*

#### **HIS 441 Colloquia in World History**

Subjects and periods, which will vary with student demand and faculty interest, will include such subjects as the expansion of Europe, theories of imperialism, revolutionary and religious movements, the psychoanalytical interpretation of history, and slavery. Prerequisite: Varying with subject. Consult departmental list of courses. *Schedule to be announced, 3 credits each*

#### **HIS 447 Independent Readings in History**

Qualified juniors and seniors may read independently in an approved program under the supervision of a faculty member. No student will be allowed to enroll in this course more than once in each semester of the junior and senior years. Prerequisite: Permission of department. *Fall and spring, 1 to 3 credits*

#### **HIS 451 Colloquia in Medieval History**

Selected topics in medieval history will be studied with attention to primary sources and current historiographic controversies and developments. May be repeated. Prerequisite: Varying with subject. Consult departmental list of courses. *Schedule to be announced. 3 credits each*

#### **HIS 461 Colloquia in the History of Science**

Topics, which will vary with student demand and faculty interest, will include such subjects as the history of American science, the social history of science, the impact of Darwinism, modern physics and technology and social change. May be repeated. Prerequisite: Varying with subject. Consult departmental list of courses. *Schedule to be announced, 3 credits each*

#### **HIS 495-496 Senior Honors Project in History**

A two-semester project for seniors. Arranged in consultation with the department, the project involves independent study and the writing of a paper under the close supervision of an appropriate instructor, on a suitable topic selected by the student. Students who are candidates for honors will ordinarily take this course. Prerequisite: Permission of department. *Fall and spring, 3 credits each semester*

# Interdisciplinary Program in the Humanities

**Program Director:** <sup>a</sup>Louise Vasvari Fainberg (Hispanic Languages and Literature)

**Faculty Advisory Committee:** Art—Claire Lindgren; Comparative Literature—<sup>b</sup>Hugh Silverman; English—Bruce Bashford; French and Italian—Maria Cocco; Germanic and Slavic Languages and Literatures—Ferdinand Ruplin; History—Herman Lebovics; Music—<sup>b</sup>Peter Winkler; Philosophy—Dick Howard, Clyde Lee Miller; Religious Studies—Robert Neville; Theatre Arts—Alfred G. Brooks

The Interdisciplinary Program in the Humanities is designed for undergraduates attracted to humanistic study—art, history, languages, literature, music, philosophy, 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 Program Director to help them prepare individual programs.

## ***Requirements for the Major in the Humanities***

The interdisciplinary major in the humanities leads to the Bachelor of Arts degree. The following courses are required. In choosing courses to satisfy requirements I, II, and IV, the student majoring in humanities should be careful to satisfy the relevant prerequisites for the clusters chosen for requirement III.

I. Two elementary courses (6 credits) in a foreign language not offered for college admission *or* one course above the elementary level (3 credits).

*3 or 6 credits*

II. *One* course from *each* group lettered A-C below. (The student's choice of courses to satisfy this requirement will influence his or her choice of clusters for requirement III below.

---

<sup>a</sup>Recipient of the State University Chancellor's Award for Excellence in Teaching, 1975-76

<sup>b</sup>Recipient of the State University Chancellor's Award for Excellence in Teaching, 1976-77



Those clusters most directly related to the following introductory courses are listed in parentheses following the course number.

*9 credits*

**Group A: Literature**

HUM 107, 121-124

CLT 109 or CLT 110 (All CLT courses in Requirement III)

CLS/CLT 113 (Cluster A, Requirement III)

EGL 204 (All EGL courses, Requirement III)

Any survey course on foreign literature in the original language (Foreign literature courses in Requirement III)

**Group B: The Arts**

ARH 101 (ARH courses in Clusters A and B, Requirement III)

ARH 102 (ARH courses in Clusters C-F, Requirement III)

MUS 101 (All MUS courses, Requirement III)

THR 123 (All THR courses in Clusters A-D, Requirement III)

THR 124 (All THR courses in Clusters E and F, Requirement III)

**Group C: History and Philosophy**

HUM 176

HIS 101 (HIS courses in Clusters B-D, Requirement III)

HIS 102 (HIS courses in Clusters E and F, Requirement III)

PHI 101 (PHI courses in Clusters A-C, Requirement III)

PHI 102 (PHI courses in Clusters D-F, Requirement III)

III. From any *two* of clusters A—F below, a minimum of three courses from each cluster chosen. No more than one course from a single department may count toward the three courses required within a given cluster.

Note that the following list of courses is meant to be representative and does not exclude the possibility of substituting others in consultation with the student's advisor. In particular, there are available a number of other additional courses that cover the chronological period of two adjacent clusters (especially of Clusters E and F).

*18 credits*

**Cluster A. The Ancient World**

ARH 207 Art of the Ancient Near East

ARH 300 Greek Art and Architecture

ARH 301 Roman Art and Architecture

ARH 317 Pre-Columbian Art

CLS 215 Classical Mythology

CLS 311 Classical Drama and Its Influences

CLS 313 The Classical Tradition

CLS 314 Classical Rhetoric and Literary Criticism

CLT/CLS 113 Greek and Latin Literature in Translation

EGL 261, 262 The Bible as Literature

GRK 251, 252 Readings in Greek Literature

HIS/JDS 225 Civilization of Israel I

HIS 230 The Ancient Near East

- HIS 231 History of Greece
- HIS 232 History of Rome
- HIS 300 The Prehistoric Aegean
- LAT 251, 252 Readings in Latin Literature
- LAT 353 Literature of the Roman Republic
- LAT 354 Literature of the Roman Empire
- PHI 200 Ancient Philosophy
- PHI 231 Introduction to Indian Philosophy: Classical Texts
- PHI 232 Introduction to Indian Philosophy: Philosophic Interpretations
- PHI 301 Hellenistic and Roman Philosophy
- RLS 261, 262 Buddhist Classics I, II

### Cluster B. *The Middle Ages*

- ARH 206 The Art and Architecture of the High Middle Ages (1050-1400)
  - ARH 303 The Art and Architecture of the Early Middle Ages (400-1050)
  - EGL 300 Old English Literature
  - EGL 302 Medieval Literature in English
  - EGL 340 Chaucer
  - HIS 233 Medieval History, 300-1100
  - HIS 234 The High Middle Ages, 1100-1400
  - HIS 103 Medieval Culture and Society
  - PHI 304 Medieval Philosophy
- Any course on Medieval Literature in a foreign language

### Cluster C. *The Renaissance*

- ARH 211 The Early Renaissance in Italy
  - ARH 212 Early Netherlandish Painting
  - ARH 307 High Renaissance and Mannerism in Central Italy
  - ARH 309 Northern Renaissance Art
  - EGL 241 Shakespeare I
  - EGL 242 Shakespeare II
  - EGL 243 Shakespeare: the Major Works
  - EGL 304 Renaissance Literature in English
  - EGL 341 Special Studies in Shakespeare
  - EGL 344 Major Writers of the Renaissance Period in England
  - HIS 235 Humanism and Renaissance
  - HIS 236 The Age of Reformation
- Any course on Renaissance literature in a foreign language

### Cluster D. *Classicism and Enlightenment*

- ARH 214 Northern Baroque Art
- ARH 312 Baroque Art and Architecture in Italy and Spain
- CLT 211 Literary Period: Baroque and Enlightenment
- EGL 306 English Literature of the 17th Century
- EGL 308 The Age of Dryden
- EGL 310 Neo-Classical Literature in English
- EGL 316 American Colonial and Federal Writers
- EGL 342 Milton
- EGL 345 Major Writers of the 17th Century in England
- EGL 346 Major Writers of the Restoration Period in England
- EGL 347 Major Writers of the Neo-Classical Period in England
- HIS 237 Europe in the 17th Century
- HIS 262 American Colonial Society
- HIS 263 Age of the American Revolution
- HIS 305 Early Modern England: Revolution and War, 1603-1714
- HIS 306 The Old Regime and the French Revolution

- MUS 301 Music of the Baroque
- MUS 302 The Music of J.S. Bach
- Any course on 17th- or 18th-century literature in a foreign language

### Cluster E. *Romanticism and Realism*

- ARH 221 Art of the 19th Century
- EGL 217 American Literature I
- EGL 312 Romantic Literature in English
- EGL 314 Victorian Literature
- EGL 318 19th-Century American Literature
- EGL 348 Major Writers of the Romantic Period in England
- EGL 349 Major Writers of the Victorian Period in England
- HIS 203 The Rise of Imperial Germany, 1806-1890
- HIS 238 Europe, 1815-1914
- HIS 251 Rise and Fall of Imperial Britain
- HIS 264 The Young Republic
- HIS 309 Modern France, 1815-1900
- MUS 303 The Music of Beethoven
- MUS 305 Music in the Romantic Era
- MUS 307 Music and Drama
- PHI 308 19th-Century Philosophy
- Any course in 19th-century literature in a foreign language

### Cluster F. *Modern Society*

- ARH 224 Art of the 20th Century
- ARH 322 American Art Since 1947
- ARH 324 Modern Architecture and Design
- EGL 226 Contemporary English and American Literature
- EGL 350 Major Writers of American Literature
- EGL 352 Major Writers of Modern British and American Literature
- EGL 353 Major Writers of Contemporary British and American Literature
- HIS 210 Soviet Russia
- HIS 227 Modern Mexico
- HIS 228 Modern Brazil
- HIS 239 Europe, 1914-1945
- HIS 240 Europe Since 1945
- HIS/JDS 241 The Holocaust: The Destruction of European Jewry, Causes and Consequences
- HIS 268 Recent U.S. History, 1919 to the Present
- HIS 310 Modern France, 1900 to the Present
- HIS 315 Twentieth-Century Britain
- HIS 341 Twentieth-Century China
- MUS 107 History of Jazz
- MUS 109 Rock Music
- MUS 309 Music of the 20th Century
- PHI 247 Existentialism
- PHI 405 Contemporary Philosophy
- PHI 408 Phenomenology
- RLS 101 Great Religions of the Contemporary World
- RLS 302 Contemporary Theology
- RLS 350 Philosophical Theology: The Problem of God
- RLS 360 Theological Implications of the Holocaust
- THR 357 Topics in Film History and Aesthetics
- Any course in 20th-century literature in a foreign language

IV. Any four additional courses from any department in the humanities division, of which at least two must be numbered 300 or above.

12 credits

---

Total 42 or 45 credits

## **Courses**

### **HUM 107 The Literature of Commitment**

A study of works in several national literatures tending to illustrate the concern for social and political commitment of the artist. The writer is viewed as the "living conscience" addressing important issues of his time and of all times. *Fall, 3 credits*

### **HUM 121 Death in Literature**

Through discussion of representative contemporary and classical texts, this course addresses the topic of how human beings have chosen to live with one certainty of their existence, its eventual conclusion in death. *Fall, 3 credits*

### **HUM 122 Images of Women in Fiction**

This course examines a series of representations of women in world fiction from the fantasy literature of the fairy tales to modern studies of women's changing social role and the rise of feminine self-consciousness. *Spring, 3 credits*

### **HUM 123 Sin and Sexuality in Literature**

This course investigates the interpretation of the ideas of sexuality and of evil by exploring literary treatments of such notions as sexual gratification, adultery, and deviance. *Fall, 3 credits*

### **HUM 124 Childhood and Family in Literature**

This course examines the literary presentation of the emergence of the bourgeois family and the notion of childhood. *Spring, 3 credits*

### **HUM 176 Freedom, Consent, and Human Values**

This course seeks to establish the minimal features essential to a contemporary philosophy of freedom. Topics include: the centrality of freedom, personal and social freedom, freedom and necessity, civil disobedience, freedom as a basic value. *Fall, 3 credits*

## Interdisciplinary Courses\*

**Note:** INT courses may not be used to fulfill College distribution requirements.

### **INT 210 Intercultural Perspectives**

An introduction to foreign area studies designed to: (1) identify and examine major problems associated with foreign area studies—studying “other” nations, societies, and cultures; (2) introduce selected conceptual models for studying culture areas; (3) develop the ability to apply these conceptual models to the analysis of nations, societies, and cultures, both others and our own; and (4) clarify one’s own values, feelings, and attitudes toward other nations, societies, and cultures. Prerequisite: At least sophomore standing. *Spring, 3 credits*

### **INT 250 Academic Research (Formerly INT 100)**

Provides a basic understanding of the information process through the study of classification schemes, research strategies, abstracting, use of indexes and abstracts, reference materials, government documents, monographs, serial literature, and various automated retrieval systems. Should be taken in conjunction with a course requiring a research paper. Fifty-item bibliography required. *Fall and spring, 2 credits*

### **INT 320 World Hunger: Problems and Prospects**

A systematic examination of the sociological, economic, nutritional, and technological aspects of food production and its relationships to population growth, worldwide malnutrition, and societal development—demographic transitions. From food gathering to scientific agriculture—an historical survey. Human nutritional requirements and food resources. The nature and dimensions of world food problems, the green revolution, the problems of poverty and inequality. Case studies of agricultural development in selected countries—economic and sociological aspects of agricultural development and the modernization of societies. Ethical considerations. Not open to students who have taken WHU courses. *Fall, 3 credits*

### **INT 360 Death**

Lectures and discussions will include the following topics: the evolutionary significance of death, death as a social process, death and a philosophy of life, the fear of death, death in other cultures, the rhetoric of death. *Spring, 3 credits*

---

\* See p. 124, Course Credit and Prerequisites, and p. 125, Numbering System.

# Judaic Studies

**Professor:** Harvey Gross, Director, Ph.D. University of Michigan (Comparative literature)

**Associate Professors:** <sup>a</sup>Samuel Berr, Ph.D. New York University (Older Germanic languages and Yiddish); Walter Scheps, Acting Director, Ph.D. University of Oregon (Medieval studies)

**Assistant Professor:** Ruth Beizer, Ph.D. Columbia University (Modern Hebrew literature)

**Lecturer:** Carol Diamant, M.A. Yeshiva University (Jewish history)

Detailed information and advice about the program may be obtained from the director.

## Courses\*

Appropriate courses to satisfy the college distribution requirement in arts and humanities are HBW courses numbered 191 and higher, JDS 230, 297, and 360; JDS 225, 226, and 241 are appropriate for the social and behavioral sciences requirement.

### **HBW 111, 112 Elementary Hebrew**

An introduction to modern Hebrew as currently spoken and written in Israel, stressing pronunciation, speaking, listening comprehension, reading, and writing. *Fall and spring, 3 credits each semester*

### **HBW 191, 192 Intermediate Hebrew**

An intermediate course in conversation, composition, and the reading of texts in modern Hebrew. Prerequisites: HBW 111, 112. *Fall and spring, 3 credits*

### **HBW 221 Advanced Hebrew I**

A course in the active use of spoken and written Hebrew. Reading of classics in the Hebrew language. Discussion is conducted mainly in Hebrew. Prerequisite: HBW 192. *Fall, 3 credits*

### **HBW 222 Advanced Hebrew II**

Readings in modern Hebrew authors. Oral and written reports. Discussion is conducted mainly in Hebrew. Prerequisite: HBW 221. *Spring, 3 credits*

---

<sup>a</sup>Recipient of the State University Chancellor's Award for Excellence in Teaching, 1973-74

\*See p. 124, Course Credit and Prerequisites, and p. 125, Numbering System.

**HBW 295 Readings in Talmud**

An introduction to Talmud. Reading of selected passages in the original. Modern and medieval Hebrew commentaries will be referred to. May be repeated once with permission of instructor. Prerequisite: HBW 221. *Spring, 3 credits*

**HBW 300 Classical Hebrew (Formerly HBW 304)**

A study of texts in the classical dialect of Hebrew as found in biblical and extra-biblical sources. Prerequisite: HBW 221. *Fall, 3 credits*

**HBW 301, 302 Genres of Biblical Literature**

Critical reading in the original of representative specimens of various genres of Biblical prose and poetry. Among the literary types to be studied are the victory hymn, the proverb, the moral instruction, the love song, the fable, the narrative tale, the story cycle. Comparative material drawn from ancient Near Eastern literature will be used extensively. Attention will be given to problems of isolating distinct genres from a traditional Near Eastern perspective, rather than from a contemporary Western perspective. Prerequisite: HBW 300. *Fall (Poetry, HBW 301) and spring (Prose, HBW 302), 3 credits each semester*

**HBW 305 Readings in 20th-Century Israeli Authors**

Readings and discussions of the short stories of two generations of representative Israeli masters including Agnon, Hazzaz, Yishar, and Megged. Different authors will be studied each semester. The course will acquaint students with the ideological, cultural, and literary background of the literature of Israel. May be repeated once. Prerequisite: Fluency in the Hebrew language. *Spring, 3 credits*

**JDS 225 Civilization of Israel I**

History of Israel from its origins until the Bar-Kochba revolt. Emphasis will be placed upon Israel in its ancient Near Eastern background. Topics covered include origins of Israelite religious, political, and social institutions. This course is identical with HIS 225. *Fall, 3 credits*

**JDS 226 Civilization of Israel II**

A cultural history of Israel from the rise of Islam until the formation of the state of Israel. Particular emphasis will be placed on Jewish-Gentile relations and on those currents in Jewish thought which culminated in the Zionist movement. This course is identical with HIS 226. *Spring, 3 credits*

**JDS 230 Judaism**

A critical introduction to the scripture, the oral law, the traditions, the history, and the religious practices and beliefs of Judaism. This course is identical with RLS 230. *Fall, 3 credits*

**JDS 241 The Holocaust—The Destruction of European Jewry: Causes and Consequences**

The rise of modern anti-Semitism and its political application in Nazi Germany. Topics covered include the destruction process, ghetto life, resistance, foreign response, and the war crimes trials. This course is identical with HIS 241. Prerequisite: JDS/HIS 226. *Fall and spring, 3 credits*

**JDS 297 Classical Midrashic Literature**

A study of classical midrashic literature in both the Jewish literary and the general historical contexts. *Spring, 3 credits*

**JDS 360 Theological Implications of the Holocaust**

The theological implications of the Holocaust will be examined from three religious perspectives: 1. the universal human and religious implications that transcend specific religious groups; 2. specifically Christian implication of the

Holocaust; 3. specifically Jewish implications of the Holocaust. This course is identical with RLS 360. Prerequisite: Any 200-level RLS course or JDS/HIS 226 or 241 or HIS 204. *Spring, 3 credits*

### **JDS 447 Readings in Judaic Studies**

Qualified juniors and seniors may read independently in the areas of Jewish history, philosophy, and literature, in an approved program under the supervision of a faculty member. May be repeated. Prerequisites: JDS 225 and 226 and permission of program director. *Fall and spring, 1 to 3 credits*

## **The Liberal Arts Major Program**

This major, which offers no courses of its own, allows the student to design his or her own program of study drawing upon all the offerings of the University. It requires careful planning and should be undertaken only after thorough exploration of academic goals with advisors in the Undergraduate Studies Office.

### ***Requirements for the Liberal Arts Major (LIB)***

To fulfill the requirements for this major, which leads to a Bachelor of Arts degree, the student must complete 60 credits of work in courses numbered 200 and above, of which at least 45 credits must be in courses numbered 300 and above. The student must choose three areas or departments and distribute the 60 credits as follows:

	<i>Credits</i>
Department or area A	12
Department or area B	12
Department or area C	9
Any department(s) or area(s)	27

---

*Total* 60

*Note:* At least 45 of the 60 credits must be in courses in the College of Arts and Sciences, and at least 36 of the 60 credits must be taken for a letter grade.



# Program in Linguistics

**Professor:** Aaron S. Carton, Ph.D. Harvard University (Psycholinguistics)

**Assistant Professors:** Frank Anshen, Director, Ph.D. New York University (Sociolinguistics); Mark Aronoff, Ph.D. Massachusetts Institute of Technology (Phonology; morphology); Beatrice L. Hall, Ph.D. New York University (Historical and comparative linguistics); Elizabeth Ann Welden, Ph.D. University of Texas (Phonology and Arabic linguistics)

**Lecturer:** Susan Chanover, M.A. New York University (Teaching English as a second language)

The program in Linguistics is concerned with the study of language as a central human attribute. Courses are offered in the major areas of modern linguistic theory.

## *Requirements for the Major in Linguistics*

The major in linguistics leads to the Bachelor of Arts degree. The following courses are required.

	<i>Credits</i>
1. LIN 101 Introduction to Linguistics and LIN 211 Introduction to Syntax	6
2. Seven additional linguistics courses to be selected after consultation with the student's advisor. These should include LIN 201, 301, 311, and 321.	21
3. One year of a non-Indo-European language. This requirement may be met by CHI 111, 112; HBW 111, 112; AFS 111, 112.	6
4. Two years of a modern foreign language. (Students should bear in mind that graduate programs in linguistics usually require reading proficiency in both German and French.)	12
	<hr/> Total 45

*Note:* All Linguistics courses must be taken for letter grade.

The attention of students majoring in linguistics is directed

to the following courses of interest to them in other departments:

ANT 102, 203, 204, 354, 371  
EEL 111, 112  
EGL 207, 300, 302  
FLA 339  
GER 202, 337  
MSC 110  
PHI 220, 325  
POL 332  
PSY 370  
RUS 302  
SGL 111, 112  
SPN 382, 383  
SWE 111, 112

### ***Requirements for the Minor in Linguistics***

LIN 101 Introduction to Linguistics

LIN 201 Phonetics

LIN 211 Introduction to Syntax

and three upper-division linguistics courses, to be chosen to complement the student's major subject. In addition, the student must fulfill at least one of the following requirements:

(1) one year (or more) of study of a foreign language at the college level;

(2) a project in the student's major field which deals with some aspect of language. This project must be proposed as an original project by the student and be approved by the Linguistics Program. It will be carried out under the direction of a faculty member in LIN 447 Directed Readings.

*Note:* One of the courses required for the minor may be taken for pass/no credit.

For further information about the linguistics program, consult the program chairman.

### ***Courses \****

#### **LIN 101 Introduction to Linguistics**

An introduction to the fundamental areas and concepts of modern linguistics. Sounds and their structure, word structure, and sentence structure will be discussed. Other topics covered may include historical linguistics (how languages change over time), dialects, writing systems, and psycholinguistics (especially the question of how children acquire a language). *Fall and spring, 3 credits*

#### **LIN 105 Nonstandard Varieties of English**

An investigation of the phonological and grammatical structures used by speakers of some of the significant social minority groups in the New York

---

\*See p. 124, Course Credit and Prerequisites, and p. 125, Numbering System.

area. Special attention will be paid to Black English, Puerto Rican English, and the English of white migrant workers. *Fall and spring, 3 credits*

### **LIN 111 The Nature of Language**

Topics to be considered will include: the defining characteristics of human language, the acquisition of first and second languages by humans, the teaching of human languages to non-humans, the nature of rule-governed behavior, linguistic competence, and the interrelationships between human language and culture and society. *Fall and spring, 3 credits*

### **LIN 115, 116 Selected Languages (Elementary)**

An introduction to a language not offered elsewhere in the University; speaking, comprehension, reading, and writing. Selected texts will be read. Practice in the language laboratory supplements class work. May be repeated for different languages. *Fall and spring, 3 credits each semester*

### **LIN 191 English as a Second Language: Oral/Aural**

In this course students acquire skills necessary for speaking and understanding English. Special emphasis is placed on developing communication capabilities. Class work includes practice in the following: pronunciation, vocabulary development, structure mastery, guided conversation, and listening practice. Language laboratory work required. May not be offered for major credit. May be repeated but counts only once towards graduation. Prerequisites: Diagnostic test and permission of instructor. *Fall and spring, 3 credits*

### **LIN 192 English as a Second Language: Reading and Composition Skills**

This course is for students who have attained a degree of fluency in speaking English but need additional training in reading and writing skills. Beginning with basic English sentence patterns and working towards paragraph development and, eventually, longer themes, each student has the opportunity to practice many different varieties of writing. May not be offered for major credit. May be repeated but counts only once toward graduation. Prerequisite: Permission of instructor, based on outcome of English composition proficiency examination. *Fall and spring, 3 credits*

### **LIN 201 Phonetics**

Introduction to the sounds used in human language and their production. Practice will be included in the production and recognition of the more commonly used sounds of the languages of the world; the structure of the human vocal tract, including the larynx, and the physical properties of sounds are discussed. Prerequisite: LIN 101. *Fall, 3 credits*

### **LIN 211 Introduction to Syntax**

An introduction to transformational-generative grammar: the formal theory of sentence structure. *Fall and spring, 3 credits*

### **LIN 220 Introduction to Communication Disorders**

An overview of language pathologies adding insights into normal language by examining organic and functional disorders. Exposure to the working problems of professional therapists and to the consequences of communication disorders on social and intellectual functioning. Prerequisite: LIN 101 or 111. *Fall, 3 credits*

### **LIN 301 Phonology**

The theory of sound systems of languages and the interaction of sounds in language. Prerequisite: LIN 201. *Spring, 3 credits*

### **LIN 305 Introduction to Sociolinguistics**

An examination of the interaction between language and society. Examples will be drawn largely from English. Prerequisites: LIN 101 and 211. *Fall and spring, 3 credits*

**LIN 311 Advanced Syntax**

A detailed consideration of syntactic problems in English and other languages. Introduction to generative semantics. Prerequisite: LIN 211. *Fall, 3 credits*

**LIN 320 Psycholinguistics**

An examination of the psychology of language and the relations among languages, behavior, and cognitive processes. Prerequisites: LIN 101 and 211. *Fall and spring, 3 credits*

**LIN 321 Linguistic Analysis**

The application of methods of linguistic analysis to major bodies of data from a variety of languages. Prerequisites: LIN 211 and 301. *Fall, 3 credits*

**LIN 333 Mathematical Aspects of Linguistics**

An introduction to the mathematical concepts and procedures which underlie much contemporary linguistic practice. This course does not fulfill the social sciences distribution requirement. Prerequisite: LIN 211. *Fall and spring, 3 credits*

**LIN 340 Introduction to Historical Linguistic Methodology**

The application of linguistic theory to the comparative reconstruction of language systems. Prerequisites: LIN 211 and 301. *Fall, 3 credits*

**LIN 341 History of Linguistics**

Panini, the Greek and Roman grammarians, 17th-century rationalists and empiricists, 19th-century European comparativists will be among the linguistic schools studied. Prerequisites: LIN 211 and 301. *Spring, 3 credits*

**LIN 342 The Development of Linguistics in the 20th Century**

This course will consider the major advances in linguistics from Saussure to Ross. Prerequisites: LIN 101, 211, and 301. *Spring, 3 credits*

**LIN 351 Advanced Phonology**

This course is a direct sequel to LIN 301. It covers advanced phonological theory and recent developments in phonology and related areas. Prerequisite: LIN 301. *Fall, 3 credits*

**LIN 363 Language and Culture (Formerly LIN 263)**

The study of linguistic behavior and its interrelationship with other aspects of culture. Topics include sociolinguistics, language acquisition, non-verbal behavior, and linguistic acculturation. This course is identical with ANT 363. Prerequisite: LIN 101 or ANT 102 and either ANT 200 or two other courses in the social sciences. *Spring, 3 credits*

**LIN 375 Introduction to the Methods of Teaching English as a Second Language**

The application of linguistic methodology to teaching English to non-native speakers. Students will be given an opportunity to observe TESL classes on campus. Prerequisites: LIN 101 and two years of a modern foreign language. *Spring, 3 credits*

**LIN 376 Principles of Language Testing**

The principles, methods, functions, uses, and commonly encountered misuses in: (a) assessing aptitude for acquiring a second language; (b) measuring achievement in foreign language study; (c) assessing the ability to communicate within one's native linguistic community or in a foreign community; and (d) the use of tests in research and evaluation. Prerequisite: LIN 375 or FLA 339. *Spring, 3 credits*

**LIN 390 Advanced Historical Linguistics**

Examination of selected problems in the historical development of languages

of interest to the members of the seminar. Prerequisite: LIN 340. *Fall and spring, 3 credits*

#### **LIN 405 Field Methods in Sociolinguistics**

Problems of sampling, interview techniques, construction and scoring of linguistic variables, and presentation of results will be studied in the context of a study by the class of the sociolinguistic patterns of a nearby community. Prerequisite: LIN 305. *Spring, 3 credits*

#### **LIN 421 Field Methods in Linguistics**

Students will learn techniques of writing a grammar of a language unknown to them by working with a speaker of that language. Prerequisites: LIN 201 and 211. *Spring, 3 credits*

#### **LIN 425 Special Topics in Linguistics**

A seminar for advanced linguistics students, the topic of which will vary with student demand and faculty interest and which will include such topics as: naturalness in phonology, markedness theory; relative clause systems; direction of historical change; variation theory. Topics will be announced each semester. The course may be repeated if the topic differs. Prerequisites: LIN 301 and 311. *Fall and spring, 3 credits*

#### **LIN 431 The Structure of an Uncommonly Taught Language**

An investigation of the phonology and syntax of either some language or some family of languages. May be repeated if a different language is covered. Prerequisites: LIN 301, 311, and 321. *Fall, 3 credits*

#### **LIN 447 Directed Readings in Linguistics**

Qualified juniors and seniors in linguistics will be offered an opportunity to do independent work on topics in linguistics under the guidance of a faculty member. May be repeated. Prerequisite: Permission of department. *Fall and spring, 1 to 4 credits*

#### **LIN 475 Practicum in Teaching English as a Second Language— Oral/Aural Skills**

Students will have the opportunity to apply the methodology learned in LIN 375 in small tutorial sections under the direction of a master teacher. They will work with students in the oral/aural ESL course, emphasizing communicative competency. There will be a seminar component to the course, meeting weekly. Grading in this course shall be Satisfactory/Unsatisfactory only. Prerequisite: LIN 375 and permission of instructor. *Fall and spring, 3 credits*

#### **LIN 476 Practicum in Teaching English as a Second Language— Reading/Composition Skills**

Students will have the opportunity to apply the methodology learned in LIN 375 in small tutorial sections under the direction of a master teacher. They will work with students in the reading/composition skills ESL course, emphasizing preparation for university writing. Grading in this course shall be Satisfactory/Unsatisfactory only. Prerequisite: LIN 375 and permission of the instructor. *Fall and spring, 3 credits*

*Note:* Only one of the Practicum courses (LIN 475 or 476) may be counted toward the 120 credits needed for graduation. Both may be taken by students willing to complete 123 credits.

## Department of Mathematics

**Professors:** Alfred Adler, Ph.D. University of California at Los Angeles (Differential geometry and mathematical economics); James Ax, Ph.D. University of California at Berkeley (Algebraic number theory and logic and foundations of physics); William Barcus, Ph.D. Oxford University (Algebraic topology); Leonard S. Charlap, Ph.D. Columbia University (Homological algebra; differential geometry); Jeff Cheeger, Ph.D. Princeton University (Differential geometry); Raouf Doss, Ph.D. University of Cairo (Harmonic analysis); Ronald Douglas, Ph.D. Louisiana State University (Operator theory; functional analysis); David Ebin, Ph.D. Massachusetts Institute of Technology (Global analysis); Hershel Farkas, Adjunct, Ph.D. Yeshiva University (Complex analysis); Israel Gohberg, Adjunct, Ph.D. Moscow State University (Operator theory and integral equations); Detlef Gromoll, Ph.D. University of Bonn (Differential geometry); Mikhail Gromov, Ph.D. Moscow State University (Differential topology and geometry); C. Denson Hill, Ph.D. New York University (Partial differential equations; several complex variables); Irwin Kra, Chairman, Ph.D. Columbia University (Complex analysis; Kleinian groups); Michio Kuga, Ph.D. University of Tokyo (Complex manifolds; algebraic groups); Henry Laufer, Ph.D. Princeton University (Several complex variables); H. Blaine Lawson, Ph.D. Stanford University (Differential geometry; topology); William Lister, Ph.D. Yale University (Algebra); Bernard Maskit, Ph.D. New York University (Complex analysis; Kleinian groups); Wolfgang Meyer, Adjunct, Ph.D. University of Bonn (Differential geometry); Anthony Phillips, Ph.D. Princeton University (Differential topology); Joel Pincus, Ph.D. New York University (Operator theory and integral equations); Chih-Han Sah, Ph.D. Princeton University (Group theory and its applications); James Simons, Adjunct, Ph.D. University of California at Berkeley (Differential geometry); E. Rapaport Strasser, Ph.D. New York University (Combinatorial group theory); Peter Szűsz, Ph.D. University of Budapest (Analytic number theory); <sup>a</sup>John Thorpe, Ph.D. Columbia University (Differential geometry)

**Associate Professors:** William Fox, Ph.D. University of

---

<sup>a</sup>Recipient of the State University Chancellor's Award for Excellence in Teaching, 1972-73.

Michigan (Complex analysis); **Lowell Jones**, Ph.D. Yale University (Topology); **Paul G. Kumpel**, Director of the Undergraduate Program, Ph.D. Brown University (Algebraic topology); **Joel Spencer**, Ph.D. Harvard University (Combinatorics); **Eugene Zaustinsky**, Ph.D. University of Southern California (Differential geometry)

**Assistant Professors:** **Michael Cowen**, Ph.D. Massachusetts Institute of Technology (Several complex variables); **Jerrold Kleinstein**, Ph.D. Cornell University (Algebra and mathematical education); **M. Dusa McDuff**, Ph.D. University of Cambridge (Operator theory; topology); **Marie-Louise Michelsohn**, Ph.D. University of Chicago (Topology; differential geometry); **Jack Morava**, Ph.D. Rice University (Topology); **Elliot Stein**, Ph.D. Princeton University (Topology)

**Instructors:** **Robert Brooks**, Ph.D. Harvard University (Differential geometry); **J. Peter Matelski**, Ph.D. Princeton University (Complex analysis)

**Lecturers:** **Barry Fox**, Director of Mathematics Learning Center, M.A. State University of New York at Stony Brook (Mathematics education); **Eugene Vinegrad**, part-time, M.A. New York University (Mathematics education)

***Estimated Number of Teaching Assistants: 55***

Undergraduate programs in the Mathematical Sciences are offered by the three departments of Applied Mathematics and Statistics, Computer Science, and Mathematics. Each department encourages its majors to take courses in the other two departments as well as in related fields in the social and physical sciences. For descriptions of courses, major requirements, and the list of faculty members of the former two departments, see the College of Engineering and Applied Sciences section.

Students majoring in either Applied Mathematics and Statistics or Mathematics may participate in the Mathematics Secondary Teacher Preparation Program.

The undergraduate program in mathematics is designed to prepare the student for graduate study, for secondary school teaching or for certain positions in industry. Since the needs and interests of students will be at least as varied as their professional plans, the departmental re-

quirements are designed to allow the student a great deal of flexibility in selecting courses. The department has designed two tracks for its majors: a standard track especially appropriate for students preparing for a Ph.D. program in pure mathematics and a track for students preparing for a career in high school teaching; both lead to the Bachelor of Science degree.

### *Requirements for the Major in Mathematics*

The major in mathematics leads to the Bachelor of Science degree. The following courses are required.

	<i>Credits</i>
1. Four semesters of calculus, ordinarily MSM 131, 132 or MSM 141, 142 followed by MSM 231 and 306	14
2. MSM 313 Algebra I and either MSM 320 Analysis or MSM 321 Analysis I.	6
3. Fifteen additional credits in MSM courses numbered above 300 (MSM 300 excluded). MSE 301 may substitute for three of these credits.	15
4. Six additional credits in mathematically oriented courses selected from the following list: any MSM, MSA, or MSC course (MSM 300 included) numbered 300 or above; CHE 301, 302, 355; ECO 316, 321, 349; ESS 341, 351, 352; PHI 330; PHY 301, 302, 303, 306, 308, 443, 444. Additions may be made to this list by written permission of the Director of the Undergraduate Program in Mathematics.	6
<i>Total</i> 41	

Students may earn an exemption from MSM 231 by passing both MSM 310 and MSM 350. Students may earn an exemption from MSM 306 by passing both MSM 321 and MSM 322. However, only students with unusual ability in mathematics should bypass MSM 231 or MSM 306 in this way, and only on the advice of the department.

*Note:* All courses in the Mathematical Sciences used to fulfill the requirements for the major in mathematics must be taken for letter grade.



### ***Recommendations for Students Majoring in Mathematics***

The department encourages students majoring in mathematics to begin advanced work in the sophomore year, by enrolling for MSM 313 in the second semester of that year, for example. Prospective graduate students are encouraged to take graduate courses in mathematics during the junior and senior years.

For entering students with above average interest and ability in mathematics, the department directs attention to its theoretically oriented calculus sequence MSM 141, 142. In particular, students entering with advanced placement in calculus are encouraged to consider MSM 142. Any student who does exceptionally well in MSM 142 will be permitted, if he or she wishes, to bypass Calculus III and Calculus IV, proceeding directly to upper-division courses MSM 310, 350 and MSM 321, 322.

All students majoring in mathematics are encouraged to include in their program:

1. Introductory computer science courses MSC 112 and 120.
2. Two years of a foreign language, preferably French, German, or Russian.
3. A year or more of physics (for example, the sequence PHY 101, 102, 251, 252).
4. The following advanced mathematics courses:
  - a. For students in the standard track: MSM 314, 321, 322, 323, 335, 362, 365.
  - b. Students in the secondary school teacher preparation track should see the recommendations and requirements of the Secondary Teacher Preparation Program in Mathematics, described on p. 287.

### ***Requirements for the Minor in Mathematics***

The minor in mathematics is available to all students not majoring in either mathematics or applied mathematics. Each student selects a concentration in algebra, analysis, or geometry. The following courses are required for completion of the minor:

1. MSM 231 and 306 or MSM 221 and MSA 362.
2. Either:
  - a. (algebra option) MSM 313 plus two courses selected from MSM 310, 311, 314, 315.
  - b. (analysis option) MSM 321 plus two courses selected from MSM 322, 323, 327, 335, 350, 351, 353.

c. (geometry option) MSM 321 plus two courses selected from MSM 322, 360, 361, 362, 365.

3. Six additional credits in MSM courses numbered 300 or above.

### ***Honors Program in Mathematics***

The honors program in mathematics is open to junior and senior mathematics majors who have maintained a 3.0 GPA overall, and a 3.0 or more in the required courses for the major.

The program consists of the completion of a set of six courses, including MSM 491 Senior Seminar. The six courses in the honors program normally are: MSM 314, 323, 335, 362, 365, and 491. Substitution of first-year graduate courses for the corresponding 300-level courses is permitted. Other variations must be approved by the Director of the Undergraduate Program in Mathematics.

Conferral of honors is contingent on:

1. Completion of the set of six designated courses with an average of 3.5.
2. Active participation in Senior Seminar, including at least two lectures on a topic chosen by the professor in charge of Senior Seminar.
3. Approval for honors by both the student's Senior Seminar professor and the Director of the Undergraduate Program or a designee, both of whom will listen to and evaluate the two required lectures.

*Note:* Requirements 2 and 3 may be satisfied alternatively by participation in a graduate course or graduate seminar, including two lectures to a committee of at least two faculty members. Recommendation for honors is then subject to approval by this committee.

### ***Courses \****

*Note:* No mathematics course may be taken for credit after credit has been obtained in a course for which it is a prerequisite. Exceptions will be made only with written permission of the director of the undergraduate program in mathematics.

#### **MSM 101 Fundamentals of Arithmetic and Algebra**

Arithmetic, fractions, decimals, linear equations in one unknown, word problems, basic geometry, and set theory. This course is intended for students whose preparation in this area of basic mathematics is inadequate for their

---

\*See p. 124, Course Credit and Prerequisites, and p. 125, Numbering System.

chosen programs of study. May not be counted toward the College requirement in natural science. Prerequisite: Permission of instructor. *Fall and spring, 3 credits*

### **MSM 102 College Algebra**

Fractions, decimals and percent, powers and roots, scientific notation, polynomials, linear and polynomial equations in one variable, permutations, combinations, mathematical induction. May not be counted toward the College requirement in natural science. Prerequisite: Permission of instructor. *Fall and spring, 3 credits*

### **MSM 105 Basic Mathematics for Chemistry Students**

Measurements, metric system, review of arithmetic, exponential notation and calculations, solving equations, graphs, graphing data, calculator usage. This course is intended for students whose preparation in the area of basic mathematics is inadequate for studies in basic chemistry. Problems and examples will be oriented towards the chemistry course. May be repeated once. May not be counted towards the College requirement in natural science. (THIS COURSE WILL NOT BEGIN UNTIL THE 4th WED. OF THE SEMESTER.) Prerequisite: Permission of instructor. Corequisite: CHE 111 or CHE 112. *Fall and spring, 2 credits*

### **MSM 106 Proficiency Mathematics**

This course is intended for students who have just missed passing the SUSB mathematics proficiency examination. Beginning after examination results are posted, it offers an eight-week review of the mathematics covered on the test. Students who need an in-depth review should register for either MSM 101 or MSM 102. May not be counted toward the College distribution requirement in the natural sciences. May not be taken in addition to any other MSM course in the same semester. Grading in this course shall be Satisfactory/Unsatisfactory only. Prerequisite: Posted recommendation to take this course. *Fall and spring, 1 credit*

### **MSM 111 Introductory Mathematics I**

A course designed to acquaint the student with the flavor of mathematics, what mathematics is, and what modern mathematicians do, through consideration of specific topics chosen from: logic, set theory, elementary number theory, algebraic systems. MSM 111 and MSM 112 are intended primarily for those who do not plan to take more advanced courses in mathematics and may be taken in any order, but may not be taken for credit after MSM 313 or 320 or 321. *Fall, 3 credits*

### **MSM 112 Introductory Mathematics II**

A course designed to acquaint the student with the flavor of mathematics, what mathematics is, and what modern mathematicians do, through consideration of specific topics chosen from: the limit concept (area, length, rates of change); combinatorial topology; geometric structures. MSM 111 and MSM 112 may be taken in any order, but may not be taken for credit after MSM 313 or 320 or 321. *Spring, 3 credits*

### **MSM 120 Pre-Calculus Analysis**

Trigonometric functions, exponential and logarithmic functions, basic analytic geometry, graphing, composition, and inverse functions. *Fall and spring, 3 credits*

### **MSM 121 Survey of Calculus**

The derivative and the integral: fundamental properties, interpretations, and computations for elementary functions; introduction to techniques of integration. This course is suitable either as a one-semester introduction to calculus

or as the first semester of a one-year calculus and probability sequence, MSM 121, 122. It is recommended for students going into the biological or social sciences or the health professions, and for any other students who plan to take at most one year of calculus. Students who expect to take more than one year of calculus should take MSM 131, 132 rather than this course. *Fall and spring, 4 credits*

### **MSM 122 Calculus II and Probability**

Taylor series, infinite series, multiple integrals, improper integrals, continuous and discrete probability: density; expectation; binomial, Poisson, uniform, exponential, and normal distributions; Poisson and normal approximation to binomial distribution; central limit theorems. This course is designed for students in the biological or social sciences or the health professions. Students who expect to continue calculus into a second year are advised to take MSM 132 rather than this course. Prerequisite: MSM 121. MSM 131 may be substituted with permission of instructor only. *Fall and spring, 4 credits*

### **MSM 131 Calculus I**

Differentiation and integration of polynomial and elementary transcendental functions, with emphasis on computations and applications. This course is recommended for students going into the physical sciences or engineering and for other students who plan to take more than one year of calculus. Students interested in a more theoretical approach to calculus are advised to consider MSM 141 rather than this course. May not be taken for credit in addition to MSM 121 or MSM 141. *Fall and spring, 4 credits*

### **MSM 132 Calculus II**

Continuation of MSM 131. Integration techniques; further applications of the derivative and integral; infinite series; Taylor's formula; introduction to two-variable calculus. May not be taken for credit in addition to MSM 142. Prerequisite: MSM 131 or 141. MSM 121 may be substituted with permission of instructor only. *Fall and spring, 4 credits*

### **MSM 141 Calculus IA**

Same material as in MSM 131, but covered from a somewhat more theoretical point of view. This course is recommended for students interested in understanding why calculus works. It is especially useful for students expecting to pursue the more theoretical track of a major in mathematics or one of the physical sciences. Students completing this course will be advised whether to take MSM 132 or MSM 142 in the following semester. May not be taken for credit in addition to MSM 121 or MSM 131. *Fall, 4 credits*

### **MSM 142 Calculus II (Honors)**

Careful study of continuity and of the theorems of one-variable calculus. Topics include mean value theorem; fundamental theorem of calculus; integration techniques; infinite series and Taylor's formula. May not be taken for credit in addition to MSM 132. Prerequisite: Permission of instructor. *Fall and spring, 4 credits*

### **MSM 221 Calculus III: Differential Equations**

Techniques for the solution of elementary ordinary differential equations; special first order equations, elements of vector spaces and matrix algebra; linear equations with constant coefficients; linear systems; power series solutions; Laplace transform. May not be taken for credit in addition to MSM 231. This course is especially recommended for engineering majors. Prerequisite: Two semesters of calculus. *Fall and spring, 3 credits*

### **MSM 231 Calculus III: Linear Algebra**

Introduction to linear algebra; real vector spaces, subspaces, linear independence, bases, dimension, linear transformations, matrices. Applica-

tions are to systems of linear equations and to linear differential equations. May not be taken for credit in addition to MSM 221. Prerequisite: Two semesters of calculus. *Fall and spring, 3 credits*

### **MSM 300 History of Mathematics**

A study of the development of mathematics from the Greeks through the development of calculus. Special attention will be devoted to the origins of calculus and to the contributions of 19th-century mathematicians who put it on a firm foundation. Prerequisite: Two semesters of calculus. *Spring, 3 credits*

### **MSM 306 Calculus IV: Multivariate Calculus (Formerly MSM 232)**

Differential and integral calculus in 2- and 3-space: directional derivatives, differential, Jacobian matrix, chain rule, multiple integrals, line and surface integrals, applications. Prerequisite: MSM 221 or 231. *Fall and spring, 3 credits*

### **MSM 310 Linear Algebra**

Vector spaces over fields, linear transformations, the orthogonal and unitary groups, canonical forms of matrices, the spectral theorem, multilinear algebra. Prerequisite: Three semesters of calculus. *Fall and spring, 3 credits*

### **MSM 311 Number Theory**

Congruences, quadratic residues, quadratic forms, continued fractions, Diophantine equations, number-theoretical functions, and properties of the prime numbers. Prerequisite: Three semesters of calculus. *Fall, 3 credits*

### **MSM 313 Algebra I**

Basic concepts in abstract algebra: groups and rings together with their homomorphisms and quotient structures. Other topics include integral domains, unique factorization domains and principal ideal domains, fields and polynomial domains over fields. Prerequisite: Three semesters of calculus. *Fall and spring, 3 credits*

### **MSM 314 Algebra II**

Structure theory of finitely generated modules over principal ideal domains. Applications are to group theory and to linear algebra. Further topics include homological algebra, field theory, structure of rings. Prerequisite: MSM 313. *Fall and spring, 3 credits*

### **MSM 315 Theory of Polynomials**

Detailed study of polynomials, including elementary Galois theory with emphasis on quadratic, cubic, and quintic equations. Further topics include real fields, Sturm's theorem. Prerequisite: MSM 313. *Fall, 3 credits*

### **MSM 320 Analysis**

The topology of the real line, limits, continuity, differentiability, mean value theorems, the Riemann integral. This course is intended for students needing only one semester of analysis. Students contemplating graduate study in mathematics should take MSM 321, 322 rather than this course. Prerequisite: Three semesters of calculus. *Fall and spring, 3 credits*

### **MSM 321, 322 Analysis I, II**

The topology of metric spaces, continuity, differentiability of functions of one and several real variables, the Riemann integral on  $\mathbb{R}^n$ , inverse and implicit function theorems, differential forms, Stokes' theorem. MSM 321 may not be taken for credit in addition to MSM 320. Prerequisite: MSM 306. *Fall and spring, 3 credits each semester*

### **MSM 323 Introduction to Real Analysis**

Lebesgue and Lebesgue-Stieltjes measures and integrals and their fun-

damental properties; comparison with Riemann integration; basic properties of  $L_2$ . Prerequisite: MSM 322. *Spring, 3 credits*

### **MSM 327, 328 Functional and Numerical Analysis**

Approximations of functions by polynomials and by orthogonal functions; the Stone Weierstrass and Riesz-Fischer theorems; brief discussion of the general setting for such theorems—Banach and Hilbert spaces; applications to the problems of obtaining numerical solutions to algebraic and ordinary differential equations and of numerical integration. Second semester topics chosen from piecewise polynomial approximations, numerical linear algebra, finite difference approximations for time-dependent problems in partial differential equations. This is a more theoretical course than MSA 326, designed for students with stronger preparation in analysis. Students requiring only an introduction to the techniques of numerical analysis are advised to take MSA 326 rather than this course. Prerequisite: MSM 321. *Fall and spring, 3 credits each semester*

### **MSM 335 Introduction to Complex Analysis**

Holomorphic functions, Cauchy-Riemann equations, Cauchy theory, maximum modulus principle, Taylor series expansions, differential forms, meromorphic functions, Laurent series expansions, evaluation of integrals by the method of residues. Topics are chosen from: harmonic functions, Dirichlet problem for the disc, Hilbert transforms. Prerequisite: MSM 321. *Fall, 3 credits*

### **MSM 341 Advanced Calculus for Scientists I**

Ordinary differential equations; integration by power series; Bessel and Legendre functions; expansion in series of orthogonal functions, including Fourier series; introduction to partial differential equations of mathematical physics; Laplace's equation; calculus of variations. Prerequisite: MSM 306. *Fall and spring, 3 credits*

### **MSM 342 Advanced Calculus for Scientists II**

Functions of a complex variable; calculus of residues, conformal mappings; Dirichlet problem; review of orthogonal curvilinear coordinates; the divergence theorem; solutions of classical partial differential equations of mathematical physics, including applications of conformal mappings and the Laplace transform. Prerequisite: MSM 341. *Fall and spring, 3 credits*

### **MSM 350 Ordinary Differential Equations**

Description of differential equations and systems: linear and non-linear cases, reduction of higher order systems to first order, vector fields and flows, discussion of existence and uniqueness of solutions, initial and boundary value problems. Well-posed problems. Review of linear systems with constant coefficients. Green's function and solution of inhomogeneous systems. Stability of linear systems and asymptotic behavior. Non-linear autonomous systems: analysis of critical points and limit cycles, Liapunov functions, Hamiltonian systems; existence theorems and iteration procedures for construction of solutions. Prerequisite: Three semesters of calculus. *Spring, 3 credits*

### **MSM 351, 352 Non-Linear Ordinary Differential Equations**

Singular points of vector fields; the degree and index of a mapping; limit cycles; the existence and stability of periodic solutions; differential equations of second order; approximation methods, including the Poincaré small parameter method, the Bogoliubov-Krylov-Mitropolsky asymptotic method, the method of averaging, and the method of Andronov and Witt; oscillations of non-linear systems with slowly varying parameters, forced oscillations, subharmonic oscillations and entrainment, bifurcation of solutions; Hamilto-

nian systems, small denominators. Prerequisites: MSM 341 and 342 or 335. *Fall and spring, 3 credits each semester*

### **MSM 353, 354 Partial Differential Equations**

Fourier series, orthogonal functions, eigen functions of Sturm-Liouville operators; Green's functions, Fourier integrals, Laplace transforms; second order partial differential equations—Laplace equation and the wave equation; calculus of variations. Additional topics to be chosen from: asymptotic distribution of eigenvalues, spectral theory for compact operators on Hilbert spaces, special functions, and group representations. Prerequisite: MSM 321 or 341. *Fall and spring, 3 credits each semester*

### **MSM 360 Geometric Structures**

Formal geometries, their relationship and interpretations; projective, affine, Euclidean, and non-Euclidean geometries. Prerequisite: MSM 313. *Spring, 3 credits*

### **MSM 361 Geometry of Space Curves**

Differential geometry of curves in the plane and in  $n$ -space; winding number, Jordan curve theorem, Borsuk-Ulam theorem, 4-vertex theorem, isoperimetric inequality, curvature of a knot. Prerequisite: MSM 306 or MSA 362. *Fall, 3 credits*

### **MSM 362 Introduction to Differential Geometry**

Geometry of surfaces in 3-space; introduction to manifolds and to Riemannian geometry. Prerequisite: MSM 322. *Spring, 3 credits*

### **MSM 365 Introduction to Topology**

Introduction to point set topology: connectedness, compactness, continuity, etc. The fundamental group and covering spaces. Prerequisites: MSM 313 and 321. *Fall, 3 credits*

### **MSM 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. Corequisite: MSM 313. *Fall, 3 credits*

### **MSM 391 Junior Seminar**

This course is designed to give students an opportunity to learn some mathematics in a more seminar-like situation than is encountered in an ordinary class. Each year a topic will be selected usually comprising material not ordinarily presented in undergraduate courses. Students will lecture on the material. Prerequisite: Permission of instructor, which may be contingent upon completion of certain courses, for example, MSM 313 or 321. *Spring, 3 credits*

### **MSM 475 Undergraduate Teaching Practicum in Mathematics**

Each student will work in the Mathematics Learning Center. The student's work will be regularly supervised by a faculty member. In addition, a weekly seminar will be conducted. Responsibilities may include: Preparation of materials for student use and discussions, helping students with problems, and involvement in 'Alternative' teaching projects. This course is intended for upper-division mathematics majors (applied mathematics, physics, engineering also considered). Grading in this course shall be Satisfactory/Unsatisfactory only. Prerequisite: Permission of the director of the undergraduate program. *Fall and spring, 1 credit*

### **MSM 487 Independent Study in Special Topics**

A reading course for juniors and seniors. The topics may be chosen by the student with the approval of a supervising member of the faculty who will also

take responsibility for evaluation. A topic that is covered in a course regularly offered by the department is not appropriate for independent study. May be repeated. Prerequisite: Permission of the director of the undergraduate program. *Fall and spring, 3 credits each semester*

### **MSM 491 Senior Seminar**

This course is designed for seniors who are majoring in mathematics and who have a serious interest in mathematical research. Each term a topic will be selected comprising material not presented in undergraduate courses. By the end of the term students will be acquainted with a limited area of current research interest. The material will be presented in seminar style with students giving the lectures. May be repeated. Prerequisite: Permission of department. *Fall and spring, 3 credits each semester*

## ***Graduate Courses***

Junior and senior mathematics students of above average ability are encouraged to take appropriate graduate courses in mathematics. Permission of the instructor is a prerequisite for registering in a graduate course. See *Graduate Bulletin* for details. The graduate courses open to qualified undergraduates are:

- MSM 530 Topology/Geometry I
- MSM 531 Topology/Geometry II
- MSM 532 Topology/Geometry III
- MSM 534 Algebra I
- MSM 535 Algebra II
- MSM 542 Complex Analysis I
- MSM 543 Complex Analysis II
- MSM 544 Analysis
- MSM 546 Differential Equations I
- MSM 547 Differential Equations II
- MSM 550 Real Analysis I
- MSM 551 Real Analysis II
- MSM 566 Differential Topology
- MSM 568, 569 Differential Geometry
- MSM 602, 603 Topics in Algebra
- MSM 608, 609 Topics in Number Theory
- MSM 614, 615 Topics in Algebraic Geometry
- MSM 620, 621 Topics in Algebraic Topology
- MSM 626, 627 Topics in Complex Analysis
- MSM 632, 633 Topics in Differential Equations
- MSM 638, 639 Topics in Real Analysis
- MSM 644, 645 Topics in Differential Geometry
- MSM 662, 663 Advanced Topics in Algebra
- MSM 666, 667 Advanced Topics in Algebraic Topology
- MSM 670, 671 Advanced Topics in Complex Analysis
- MSM 674, 675 Advanced Topics in Differential Equations
- MSM 678, 679 Advanced Topics in Real Analysis
- MSM 682, 683 Advanced Topics in Differential Geometry



# Mathematics Secondary Teacher Preparation Program

Students may enroll in either a four-year or a five-year program. The four-year program leads to a Bachelor of Science degree in either Mathematics or Applied Mathematics and to New York State provisional certification for teaching mathematics, grade 7-12. The five-year program leads to Bachelor of Science and Master of Arts degrees in Mathematics and to New York State permanent certification for teaching mathematics, grades 7-12.

Students wishing to enroll in the program should register with the Mathematics Department's Director of Teacher Preparation by the end of the freshman year, if possible, and at the latest before registering for the junior year. Students interested in the five-year program should also register with the Mathematics Department's Associate Director of the Graduate Program by the beginning of the junior year and, in addition, apply for admission to the Graduate School. The fifth year of the program may be taken part time in the evening, spread over a period of two years. Full-time students will be eligible to apply for teaching assistantships for the fifth year.

## *Requirements for the Four-Year Program*

1. Completion of either the MSM (mathematics) or the MSA (applied mathematics and statistics) major.
2. Credit for, or exemption from, the following courses:  
MSM 313, 320 (or 321), 360  
MSA 310 (or 311, 312)  
MSE 301, 302, 311, 312, 450, 454  
MSC 112
3. Nine credits in courses chosen from:  
MSM 310, 311, 315, 342 (or 335), 350, 361, 371  
MSA 301, 311, 326, 341, 342  
MSC 201, 205
4. Six credits of foundations of education courses and SSI 265. See the department's director of teacher preparation for details.

The program includes three semesters of practical work in the teaching of mathematics. In the fall of the junior year, students will observe classes in local secondary schools (MSE 311). In the spring, students will engage in a supervised program of limited classroom participation (MSE 312). In one

semester of the senior year, students will carry out supervised student teaching (MSE 450) and participate in an associated student teaching seminar (MSE 454).

Students in the program are strongly encouraged to include MSA 301 and MSM 315 among their electives and to take a one-year sequence which uses mathematics in physics, chemistry, biology, engineering science, or economics. Other courses which are useful are the history of mathematics course, MSM 300, and the logic course, PHI 220.

### *Sample Program (required coursed only)*

*Freshman:* Fall—MSM 131 (or 141), MSC 112; Spring—MSM 132 (or 142)

*Sophomore:* Fall—MSM 231, MSA 310 (or MSA 311, 312); Spring—MSM 306, MSM 313, foundations of education courses

*Junior:* Fall—MSM 320 (or 321), MSE 301, MSE 311, mathematics electives required for MSM or MSA degree; Spring—MSM 360, MSE 302, MSE 312, mathematics electives required for MSM or MSA degree, SSI 265

*Senior:* Fall—MSE 450, MSE 452, MSE 454, mathematics electives required for MSM or MSA degree; Spring—Mathematics electives required for MSM or MSA degree

Fall and spring semester of the senior year will be reversed for some students.

### **Requirements for the Five-Year Program**

1. Completion of the requirements of the four-year program, with a major in mathematics (MSM). MSA 310 may be replaced in these requirements by MSM 516 or by any graduate course in statistics.

2. Admission to the Graduate School.

3. MSA 301 and either MSM 315 or MSM 512.

4. 30 graduate credits in courses approved by the Department of Mathematics, which will ordinarily include MSM 513, 514, 515, 519, a graduate course in computer science, and 6 credits of MSM 690.

5. Passing the comprehensive examination, which will consist of the final examinations in four of the courses in the program, ordinarily MSM 513, 514, 515, and either 512 or 516.

### **Courses\***

The following courses are for students registered in the secondary teacher preparation program in mathematics and are open to others only by permission of the Mathematics Department's director of teacher preparation.

---

\* See p. 124, Course Credit and Prerequisites, and p. 125, Numbering System.

### **MSE 301 Foundations of Secondary School Mathematics**

A reexamination of elements of school mathematics, including topics in algebra, geometry, and elementary functions. Competence in basic secondary level ideas and techniques will be tested. Oral and written presentations will be required. Prerequisite: Three semesters of calculus. Corequisite: MSM 313. *Fall, 3 credits*

### **MSE 302 Methods of Teaching Secondary School Mathematics**

An introduction to the dynamics of the classroom for the student preparing to teach secondary school mathematics. Various aspects of teaching are considered: goals of mathematics education, learning theories, mathematics curricula, lesson planning, evaluation, teaching strategies. Reports are required on observations made in the schools. Lesson plans are drawn up and presented to the group. Prerequisite: MSE 301. Pre- or corequisite: MSM 320 or 321. *Spring, 3 credits*

### **MSE 311 Classroom Observations**

Individual weekly visits to local secondary schools to observe mathematics classes. All types and levels (7-12) of mathematics teaching will be included. Debriefing and analysis will follow each visit. Term paper required. Prerequisite: Three semesters of calculus. Corequisites: MSE 301 and MSM 313. *Fall, 3 credits*

### **MSE 312 Micro-Teaching**

Twice weekly supervised classroom experience, tutoring, or working with small groups of students as a teacher's aide. Prerequisite: MSE 311. Corequisite: MSE 302. *Spring, 2 credits*

### **MSE 450 Student Teaching**

Intensive supervised teaching in a secondary school. Students will work in the school under the supervision of an experienced teacher. Grading in this course shall be Satisfactory/Unsatisfactory only. Prerequisite: MSE 312 and permission of mathematics director of teacher preparation. Corequisite: MSE 454. *Fall and spring, 12 credits*

### **MSE 454 Student Teaching Seminar**

Biweekly discussions of teaching techniques and experiences, learning theory, curriculum content, and classroom problems. Prerequisite: MSE 312 and permission of mathematics director of teacher preparation. Corequisite: MSE 450. *Fall and spring, 3 credits*

## **Department of Music**

**Professors:** **Bülent Arel**, Director of Electronic Music Studio, Diploma, State Conservatory of Ankara (Composition; theory); **Samuel Baron**, B.S. Juilliard School of Music; pupil of George Barrere and Arthur Lora (Flute; chamber music); **Bernard Greenhouse**, Diploma, Juilliard Graduate School (Cello);

chamber music); **Billy Jim Layton**, Ph.D. Harvard University (Composition; theory); **John Lessard**, Diploma, Ecole Normale; Diploma, Longy School of Music (Composition; theory); **David Lewin**, M.F.A. Princeton University (Composition; theory); **Charles Rosen**, Ph.D. Princeton University (History; interdisciplinary studies in music, literature, art, and philosophy); **Leo Treitler**, Chairman, Ph.D. Princeton University (Medieval, Renaissance, and 20th-century history)

**Associate Professors:** **E. Antony Bonvalot**, Ph.D. Harvard University (Renaissance history); **Sarah Fuller**, Ph.D. University of California at Berkeley (Medieval and Renaissance history); **Richard Kramer**, Director of Graduate Studies, Ph.D. Princeton University (18th-century history; Beethoven); **David Lawton**, Director of the University Orchestra, Ph.D. University of California at Berkeley (Orchestral and opera conducting; 19th-century history); <sup>a</sup>**Peter Winkler**, Director of Undergraduate Studies, M.F.A. Princeton University (Composition; theory; popular music)

**Assistant Professors:** **Marguerite Brooks**, Director of Choral Organizations, M. Mus. Temple University (Choral conducting); **James McCalla**, Ph.D. University of California at Berkeley (20th-century history and criticism); **Daria Semegen**, M.Mus. Yale University (Composition; theory; electronic music); **Sheila Silver**, Ph.D. Brandeis University (Composition; theory)

**Instructor:** **Anne Marie de Zeeuw**, M.Mus. University of Texas at Austin (Theory; musicianship)

**Performing Artists in Residence:** **Adele Addison**, B.Mus. Westminster Choir College; New England Conservatory of Music (Voice; vocal repertory); **Ronald Anderson**, M.S. Juilliard School of Music; Ed.D. Columbia University (Trumpet; chamber music); **Martin Canin**, M.S. Juilliard School of Music (Piano; chamber music); **Isidore Cohen**, B.S. Juilliard School of Music; pupil of Ivan Galamian (Violin; chamber music); **Raymond Des Roches**, M.Mus. Manhattan School of Music (Percussion; chamber music); **Timothy Eddy**, M. Mus. Manhattan School of Music (Cello; chamber music); **David Glazer**, B. Ed.

---

<sup>a</sup>Recipient of the State University Chancellor's Award for Excellence in Teaching, 1976-77

University of Wisconsin at Milwaukee (Clarinet; chamber music); **John Graham**, B.A. University of California at Berkeley (Viola; chamber music); **Gilbert Kalish**, B.A. Columbia University (Piano; chamber music); **Simon Karasick**, Director of the University Band, B.Mus. Eastman School of Music (Trombone; wind ensemble); **Jack Kreiselman**, Coordinator of Chamber Music, Manhattan School of Music, pupil of Simeon Bellison and Simon Kovar (Clarinet; chamber music); **Julius Levine**, B.S. Juilliard School of Music (String bass; chamber music); **Ronald Roseman**, B.S. Queens College (Oboe; chamber music); **Arthur Weisberg**, Conductor of the University Chamber Orchestra, Juilliard School of Music; pupil of Simon Kovar (Bassoon; orchestral conducting); **Jerry Willard**, Cleveland Institute of Music, study with John Williams and Misha Mishakoff (Guitar; chamber music); **Hiroko Yajima**, Juilliard School of Music; pupil of Ivan Galamian (Violin; chamber music)

***Estimated Number of Teaching Assistants: 80***

The undergraduate major in music is designed as a balanced educational program which serves as preparation for professional careers and advanced training in performance, composition, scholarship, and teaching.

***Requirements for the Major in Music***

**A. Admittance to the major**

Any student wishing to major in music must pass an audition in voice or instrument and a theory placement examination which tests aural skills and musical literacy (that is, the ability to read music and to hear the sound of a score from the written page alone). Students should consult the department office for dates of the theory placement examination and to make an appointment for an audition.

**B. Study within the area of the major**

	<i>Credits</i>
1. Theory	
MUS 221 Musicianship II	3
MUS 222 Modal Counterpoint I	3
MUS 321, 322 Tonal Harmony I, II	6
MUS 421 Analysis of Tonal Music	3
MUS 422 Analysis of 20th Century Works	3

History and Literature	
MUS 241 Western Music Before 1600	3
MUS 341 Western Music from 1600 to the Early 19th Century	3
MUS 342 Western Music of the 19th and 20th Centuries	3

Three additional courses numbered 444 to 478 to be chosen in consultation with the student's advisor. The courses should be distributed among a range of historical periods. 3

### 3. Performance

At least one course from the groups MUS 161-187 Secondary Instrument or Voice or MUS 361-387 Primary Instrument or Voice for a minimum of 4 semesters. 8-16

MUS 261 University Chorus or MUS 262 University Orchestra or MUS 263 University Band or MUS 393 Chamber Chorus for four semesters. (MUS 390 Collegium Musicum may count for two semesters of this requirement.) Students who play instruments used both in orchestra and band must spend at least one semester in each of these groups. 4

---

*Total* 42-50

*Note:* No more than 30 credits of individual instruction in instrument or voice may be included in the 120 credits required for the B.A. degree.

### C. Piano Proficiency

Each student will be expected to pass a piano proficiency test at the end of the first year as a music major.

### D. 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. (Language courses may be taken under the P/NC option.)

*Note:* All courses used to fulfill the requirements for the major in music must be taken for letter grade.

## ***Honors Program in Music***

Candidates for honors in music must be nominated by a faculty member who will agree to act as sponsor for the honors project. An eligible student may submit a proposal for a pro-

ject to the proposed sponsor, who will forward the proposal together with a letter of nomination to the Music Department's Undergraduate Studies Committee. To be eligible, a student must have maintained at least a 3.0 grade point average overall, and a 3.0 average in music. After entering the honors program, a student must maintain at least a 3.5 average in music.

The project may be in the area of performance, composition, history, or theory, carried out under the supervision of the sponsor. The completed project will be reviewed by an evaluating committee consisting of the sponsor, another member of the music faculty, and an outside evaluator.

Complete guidelines for the honors program are available in the department office.

## **Courses \***

### *Courses for Students Majoring in Other Fields*

#### **MUS 101 Introduction to Music**

The factors which create form and coherence in music will be studied from the listener's point of view. Concepts such as melody, harmony, counterpoint, and rhythm will be illustrated by examples representing diverse historical periods and musical styles. No previous musical training is assumed. *Fall and spring, 3 credits*

#### **MUS 107 History of Jazz**

A survey of jazz from its Afro-American roots in the late 19th century to the present. Emphasis will be on musical characteristics—styles, forms, types of ensemble, important performers—with some attention to the cultural and social position of jazz in this country and its interaction with other musics. *Spring, alternate years, 3 credits.*

#### **MUS 109 Rock Music**

A study of the development of Rock from the end of World War II to the present. Emphasis will be upon the music and its connection with earlier folk and popular styles, with special attention to various syntheses of African and European traditions. *Fall, 3 credits*

#### **MUS 119 The Elements of Music**

The notation of intervals, scales, chords, rhythms, and meters; practical exercises and ear training. *Fall and spring, 3 credits*

#### **MUS 261 University Chorus**

Study and performance of a repertory from the Middle Ages to the present. More than four unexcused absences from rehearsals eliminates credit. May be repeated. Prerequisite: Auditions. *Fall and spring, 1 credit*

#### **MUS 262 University Orchestra**

Study and performance of works from the repertory of the concert orchestra. More than four unexcused absences from rehearsals eliminates credit. May be repeated. Prerequisite: Auditions. *Fall and spring, 1 credit*

---

\*See p. 124, Course Credit and Prerequisites, and p. 125, Numbering System.

### **MUS 263 University Band**

Study and performance of works from the repertory of the concert band. More than four unexcused absences from rehearsals eliminates credit. May be repeated. Prerequisite: Auditions. *Fall and spring, 1 credit*

*Note: One course from the group MUS 301-309 will be offered every semester. Consult the Class Schedule for current offerings.*

### **MUS 301 Music of the Baroque**

The development during the late Renaissance of a new style will be traced, in Italy and elsewhere, through opera and oratorio, cantata and chorale, concerto, suite, and trio sonata, to its ultimate expression in the works of Handel, Bach, and their contemporaries. Prerequisite: MUS 101. *3 credits*

### **MUS 302 The Music of J.S. Bach**

The vocal and instrumental works of Johann Sebastian Bach and the cultural and musical traditions in which they are grounded. Prerequisite: MUS 101. *3 credits*

### **MUS 303 The Music of Beethoven**

An exploration of the meaning and continuing relevance of one of the pivotal composers of the western world by the study of his symphonies, string quartets, piano sonatas, and other works. Prerequisite: MUS 101. *3 credits*

### **MUS 305 Music in the Romantic Era**

The expressive art of the century between the birth of Schubert and the death of Brahms is examined in selected works of these and other figures, such as Berlioz, Mendelssohn, Chopin, Schumann, Liszt, Wagner, and Verdi. Prerequisite: MUS 101. *3 credits*

### **MUS 307 Music and Drama**

The ritual and dramatic uses of music from antiquity to the modern lyric theatre, with emphasis upon the operatic repertory from Mozart to Berg. Prerequisite: MUS 101. *3 credits*

### **MUS 309 Music of the 20th Century**

An introduction to the variegated and rapidly changing trends of the present century, including impressionism, expressionism, neoclassicism, twelve-tone and other serialism, constructivism, chance music, electronic and computer music, as well as styles derived from folk music, jazz, and other forms of popular music. Prerequisite: MUS 101. *3 credits*

### **MUS 315, 316 The Structural Principles of Music I, II**

An introduction to the language and basic structural concepts of the art through the study of such elements as melody, rhythm, harmony, counterpoint, and form; analysis, written exercises, and discussion of theoretical principles. Prerequisite to MUS 315: MUS 119. Prerequisite to MUS 316: MUS 315. *Fall and spring, 3 credits*

## *Courses for Music Majors*

### **MUS 121 Musicianship I**

Beginning music theory including notation of rhythms, scales, intervals, chords, sight singing, and simple rhythmic exercises. Elementary melodic, rhythmic, and harmonic dictation. Intended for students who are not prepared to enter MUS 221. Prerequisite: Placement interview. Consult department as early as possible concerning dates. Prerequisite or corequisite: MUS 160 or passing piano proficiency examination. *Fall and spring, 3 credits*



### **MUS 160 Basic Piano**

Instruction in keyboard skills for beginners, intended for music majors who are unable to pass the department's piano proficiency examination. Two students meet forty-five minutes a week with the instructor, with four hours of individual practice required. May be repeated. Prerequisite: Permission of instructor. *Fall and spring, 1 credit*

### **MUS 161 to 187 Secondary Instrument or Voice**

A forty-five minute individual lesson each week, with five hours practice required. Open to music majors and, enrollment permitting, to other students with a serious interest in music. May be repeated. Prerequisites: Audition and permission of instructor. Prerequisite to MUS 187: Approval of department Undergraduate Studies Committee. *Fall and spring, 2 credits*

*MUS 161 Piano*

*MUS 163 Harpsichord*

*MUS 165 Violin*

*MUS 166 Viola*

*MUS 167 Cello*

*MUS 168 String Bass*

*MUS 169 Guitar*

*MUS 170 Flute*

*MUS 171 Oboe*

*MUS 172 Clarinet*

*MUS 173 Bassoon*

*MUS 175 Horn*

*MUS 176 Trumpet*

*MUS 177 Trombone*

*MUS 178 Tuba*

*MUS 180 Percussion*

*MUS 182 Voice*

*MUS 187 Performance Project I*

### **MUS 221 Musicianship II**

Intended to develop the student's aural perception. Problems in melodic, rhythmic, and harmonic dictation; sight singing exercises including complex rhythms, tonal and modal melodies, modulation; elementary analysis of a few basic musical forms. Prerequisite: MUS 121. Consult department as early as possible concerning dates of placement interviews. Prerequisite or corequisite: MUS 160 or passing piano proficiency examination. *Fall and spring, 3 credits*

### **MUS 222 Modal Counterpoint I**

Counterpoint in 16th-century style for two voices. Prerequisite or corequisite: MUS 221. *Fall and spring, 3 credits*

### **MUS 237 Composition in Popular Styles**

Individual projects in songwriting, jazz composition, and related work. Students will arrange for performance of their work in a concert at the end of the semester. Some previous composing experience and an adequate background in theory is required. Enrollment limited to eight. May be repeated once. Prerequisite: Permission of instructor. *Fall and spring, 3 credits*

### **MUS 239 Beginning Composition**

Individual projects in composition discussed and criticized in class. Enrollment is limited to eight. May be repeated once. Prerequisite: Permission of instructor. *Alternate years, 3 credits*

**MUS 241 Western Music Before 1600**

The history of western music from antiquity to the late 16th century. Prerequisites or corequisites: MUS 221 and 222. *Fall, 3 credits*

**MUS 261 University Chorus**

Study and performance of a repertory from the Middle Ages to the present. More than four unexcused absences from rehearsals eliminates credit. May be repeated. Prerequisite: Auditions. *Fall and spring, 1 credit*

**MUS 262 University Orchestra**

Study and performance of works from the repertory of the concert orchestra. More than four unexcused absences from rehearsals eliminates credit. Primary students are eligible for MUS 565. May be repeated. Prerequisite: Auditions. *Fall and spring, 1 credit*

**MUS 263 University Band**

Study and performance of works from the repertory of the concert band. More than four unexcused absences from rehearsals eliminates credit. May be repeated. Prerequisite: Auditions. *Fall and spring, 1 credit*

**MUS 321, 322 Tonal Harmony I, II**

Practice in homophonic writing, including the harmonization of chorales. Prerequisite: MUS 222. *Fall and spring, 3 credits each semester*

**MUS 331 Musicianship III**

Sight singing and dictation (one to four voices) of tonal, modal, and atonal examples with progressively complex rhythms. Exercises in aural analysis. Prerequisite: MUS 221. *Spring, 3 credits*

**MUS 341 Western Music from 1600 to the Early 19th Centuries**

A survey of style and form from early opera through the late quartets of Beethoven. Prerequisite: MUS 241. Prerequisite or corequisite: MUS 321. *Spring, 3 credits*

**MUS 342 Western Music of the 19th and 20th Centuries**

A survey of music from the early 19th century until the present day, with emphasis on major currents of stylistic development. Prerequisite: MUS 341. Prerequisite or corequisite: MUS 322. *Fall, 3 credits*

**MUS 361 to 387 Primary Instrument or Voice**

One-hour individual lesson each week, with 15 hours practice required. Open only to students with adequate preparation who demonstrate a professional commitment to the performance of music. May be repeated. Prerequisites: Audition and permission of instructor. Prerequisite to MUS 387: Approval of department Undergraduate Studies Committee. *Fall and spring, 4 credits*

*MUS 361 Piano*

*MUS 365 Violin*

*MUS 366 Viola*

*MUS 367 Cello*

*MUS 368 String Bass*

*MUS 369 Guitar*

*MUS 370 Flute*

*MUS 371 Oboe*

*MUS 372 Clarinet*

*MUS 373 Bassoon*

*MUS 375 Horn*

*MUS 376 Trumpet*

*MUS 377 Trombone*

*MUS 378 Tuba*

MUS 380 Percussion  
MUS 382 Voice  
MUS 387 Performance Project II

### **MUS 390 Collegium Musicum**

A workshop in the performance of music scored for small vocal and instrumental ensembles, with emphasis upon the repertory from the Middle Ages to 1750. May be repeated but will count toward fulfillment of major requirements only twice. Prerequisite: MUS 221. *Spring, 1 credit*

### **MUS 391 Chamber Music—Secondary**

Ensembles formed by students enrolled in secondary instrument or voice, receiving approval of a faculty instructor and assignment of a repertory, who will rehearse two hours a week under the supervision of a graduate trainee. May be repeated. Prerequisite: Permission of instructor. *Fall and spring, 1 credit*

### **MUS 392 Workshop in Orchestral Ensemble**

Rehearsal of the orchestral repertoire for brass, woodwinds, or percussion in separate groups or combined. May be repeated. Prerequisite: Permission of instructor. *Fall and spring, 1 credit*

### **MUS 393 Chamber Chorus**

Performance of works for small chorus. Repertory to be chosen from all periods. May be repeated. Prerequisites: Audition and permission of instructor. *Fall and spring, 1 credit*

### **MUS 421 Analysis of Tonal Music**

The course will examine, through the study of selected works, the action and interaction of harmonic progression, rhythm, meter, motive, and line in defining and articulating tonal structures. Prerequisite: MUS 322. *Fall, 3 credits*

### **MUS 422 Analysis of 20th-Century Works**

Music to be studied will be selected from representative works by Debussy, Bartok, Schoenberg, Stravinsky, Webern, and others. Prerequisite: MUS 421. *Spring, 3 credits*

### **MUS 431 Modal Counterpoint II**

Counterpoint in 16th-century style for three or more voices. Prerequisite: MUS 222. *Alternate years, 3 credits*

### **MUS 432 Tonal Counterpoint**

A study of the art of combining voices under the conditions of tonal harmony as observed in works from Bach through the Romantic composers. Prerequisite: MUS 322. *Alternate years, 3 credits*

### **MUS 434 Orchestration**

The possibilities and limitations of the commonly used instruments; conventions of notation; practice in scoring for various ensembles. Prerequisite: MUS 322. *Spring, 3 credits*

### **MUS 439 Composition**

Open only to students demonstrating sufficient aptitude and capacity for original work. May be repeated. Prerequisite: Permission of instructor. *Fall and spring, 3 credits*

*Note: Five courses from the group MUS 444-478 will be offered every year. Consult the Class Schedule for current offerings.*

### **MUS 444 Secular Music of the Renaissance**

A survey of secular vocal music from the songs of Dufay through the airs of Dowland. The 16th-century Italian madrigal and the French chanson will

receive particular attention. A central concern will be shifting relationships between music and poetry. Prerequisite: MUS 241. 3 credits

#### **MUS 446 Johann Sebastian Bach**

A study of selected vocal and instrumental works. Prerequisites: MUS 322 and 341. 3 credits

#### **MUS 451 Dramatic Music of the Baroque**

Opera and oratorio of the 17th and early 18th centuries with emphasis on specific works by Monteverdi and Handel. Topics for discussion will include changing operatic conventions and relationships between opera and oratorio in the period. Prerequisites: MUS 322 and 341. 3 credits

#### **MUS 452 Mozart**

Mozart as catalyst to the development of the important genres (vocal and instrumental) in late 18th-century Vienna: symphony, keyboard concerto, music for smaller ensemble, the various species of opera. Prerequisites: MUS 322 and 341. 3 credits

#### **MUS 453 Beethoven**

Works of differing scope and medium drawn from every period of Beethoven's life. Prerequisites: MUS 322 and 341. 3 credits

#### **MUS 456 Classical Chamber Music**

The string quartets of Haydn, Mozart, and Beethoven provide a central point of reference in the course. Prerequisites: MUS 322 and 341. 3 credits

#### **MUS 458 Orchestral Music of the 19th Century**

The development of orchestral music from Beethoven's Ninth Symphony to the symphonies of Gustav Mahler and the tone poems of Richard Strauss. Solutions of composers who continued to work along classical lines—Schubert, Mendelssohn, and Brahms—will be contrasted with those of composers who explored new relations between music and literature—Berlioz, Liszt, Strauss, and others. Prerequisites: MUS 322 and 342. 3 credits

#### **MUS 460 Opera**

Study of a specific topic in opera such as the work of a single composer (Mozart, Verdi, Wagner), a national opera tradition (19th-century Italian opera, German opera), a genre (comic opera), or a problem (foundations of opera conventions). Prerequisite: MUS 322. Prerequisite or corequisite: MUS 342. 3 credits

#### **MUS 462 The Lied from Schubert to Wolf**

This course explores a peak of German tradition in the matching of text and music. Prerequisites: MUS 322 and 342. 3 credits

#### **MUS 464 The Generation of 1830**

Chopin, Schumann, Liszt, Mendelssohn, and Berlioz, including their stylistic sources in earlier music and influence on later generations. Prerequisites: MUS 322 and 342. 3 credits

#### **MUS 468 Stravinsky**

The changing stylistic manners adopted by a pivotal composer of the 20th century. Prerequisites: MUS 322 and 342. 3 credits

#### **MUS 470 Schoenberg, Berg, Webern**

Major topics for consideration will be Schoenberg's historical position and his influence as a teacher, the similarities and differences among the three composers, and the influence of each on later developments. Prerequisites: MUS 322 and 342. 3 credits

**MUS 472 Major 20th-Century Composers**

An intensive study of one or more of those composers who have shaped the musical language of our epoch. May be repeated. Prerequisites: MUS 322 and 342. 3 credits

**MUS 474 Music Since 1945**

A broad survey of contemporary music, stressing the contributions of a large number of composers. The development of an analytical and critical vocabulary appropriate for this music will be a major concern. Problems posed by new media and new methods of notation and the question of historical roots for the new music will also be considered. Prerequisites: MUS 322 and 342. 3 credits

**MUS 476 American Popular and Folk Styles**

The development of the various vernacular musical styles of 20th-century America. Focus will be on the nature of blues, jazz, rhythm-and-blues, popular song, country music, and rock, and on the cross-influences among them. Prerequisites: MUS 322 and 342. 3 credits

**MUS 478 History of Electronic Music**

A survey of the development of electronic music, and a demonstration of the techniques of sound production and modification in the electronic music studio. Prerequisites: MUS 322 and 342. 3 credits

**MUS 487 Independent Project**

Individual study under the guidance of a staff member leading to a major essay or composition. May be repeated. Prerequisites: Permission of instructor and approval of department's Undergraduate Studies Committee. *Fall and spring, 1 to 6 credits*

**MUS 490 Vocal Repertory**

Performance and analysis of works from the vocal repertory. May be repeated. Prerequisite: Permission of instructor. Corequisite: MUS 182 or MUS 382. *Fall and spring, 2 credits*

**MUS 491 Choral Conducting (Formerly MUS 480)**

Manual technique and the analysis and preparation of vocal scores for performance. Prerequisites: MUS 322 and permission of instructor. *Fall or spring, 3 credits*

**MUS 492 Orchestral Conducting (Formerly MUS 481)**

Baton technique and the analysis and preparation of orchestral scores for performance. Prerequisites: MUS 491, 434, and permission of instructor. *Fall or spring, 3 credits*

## Department of Philosophy

**Distinguished Professor:** **Justus Buchler**, Ph.D. Columbia University (Metaphysics; moral philosophies)

**Professors:** **Sidney Gelber**, Ph.D. Columbia University (Political philosophy); **Patrick Aidan Heelan**, Ph.D. University of Louvain; Ph.D. St. Louis University (Philosophy of science); **Don Ihde**, Chairman, Ph.D. Boston University (Phenomenology; philosophy and technology; perception); <sup>a</sup>**Robert Neville**, Joint with Religious Studies, Ph.D. Yale University (Philosophy of religion; process philosophy); **Marshall Spector**, Ph.D. Johns Hopkins University (Philosophy of science; logic); **Robert Sternfeld**, Ph.D. University of Chicago (Metaphysics; epistemology; 20th-century philosophy); **Victorino Tejera**, Ph.D. Columbia University (Greek philosophy, aesthetics; philosophy of history; philosophy of myth); **Walter Watson**, Ph.D. University of Chicago (Metaphysics; history of philosophy); **Harold Zyskind**, Ph.D. University of Chicago (Philosophy of rhetoric; history of philosophy)

**Associate Professors:** **David B. Allison**, Ph.D. Pennsylvania State University (Phenomenology; existentialism; Nietzsche); **Edward S. Casey**, Ph.D. Northwestern University (Philosophy of psychology; psychoanalysis; phenomenology); **Antonio de Nicolas**, Ph.D. Fordham University (Critical philosophy; Indian philosophy; psychology; comparative literature); **David A. Dilworth**, Ph.D. Fordham University (Chinese and Japanese philosophy; philosophy of religion); **Patrick J. Hill**, Ph.D. Boston University (Philosophy of communication; philosophy of community; philosophy of education); **Dick Howard**, Ph.D. University of Texas (Political and social philosophy; Marxian and continental thought; 19th-century philosophy); **Michael Simon**, Ph.D. Harvard University (Philosophy of mind; philosophy of biology and of the social sciences)

**Assistant Professors:** **R. Carleton Dallery**, Part-time, Ph.D. Yale University (Philosophy and the healing arts; philosophy of death); **Patrick Grim**, Ph.D. Boston University (Philosophy

---

<sup>a</sup>Recipient of the State University Chancellor's Award for Excellence in Teaching, 1974-75

and anthropology; philosophy and social science); **Clyde Lee Miller**, Ph.D. Yale University (Ancient and medieval philosophy; contemporary moral issues; history of philosophy); <sup>a</sup>**Hugh J. Silverman**, Ph.D. Stanford University (Contemporary European philosophy; philosophy and literature; philosophical psychology); **Donn C. Welton**, Director of Undergraduate Studies, Ph.D. Southern Illinois University (Phenomenology; philosophical anthropology; perception); <sup>b</sup>**Peter Williams**, Affiliate, J.D. Harvard University; Ph.D. Harvard University (Philosophy of law; ethics; philosophy and medicine); **Susan Wood**, Ph.D. State University of New York at Buffalo (Logic; philosophy of language)

**Lecturer:** Sheldon Ackley, Adjunct, Ph.D. Boston University (Philosophy of law)

**Estimated Number of Teaching Assistants: 35**

### **Requirements for the Major in Philosophy**

The major in philosophy leads to the Bachelor of Arts degree. The following courses are required.

	<i>Credits</i>
<i>A. Study within the area of the major</i>	
Philosophy courses distributed among five categories (eligible courses are identified by a category number I through V which appears in parentheses after the title of the course).	
Category I. Two courses in the history of philosophy, each devoted to a different historical period (PHI 200 and 206 are recommended)	6
Category II. Two courses defined in terms of topics or skills basic to all disciplines and common to various philosophic styles	6
Category III. One course defined in terms of a particular style, approach, movement, or tradition	3
Category IV. Two courses relating philosophy to particular disciplines	6
Category V. One course devoted to a single philosopher or text	3

<sup>a</sup>Recipient of the State University Chancellor's Award for Excellence in Teaching, 1976-77

<sup>b</sup>Recipient of the State University Chancellor's Award for Excellence in Teaching, 1977-78

Two additional courses chosen from any of the five categories	6
PHI 435 Senior Seminar	3

---

*Total* 33

*B. Study in related areas*

Three courses in disciplines related to the philosophy courses chosen from Category IV above.

To fulfill the above requirements, no more than two 100-level philosophy courses may be taken; at least three courses above the 300-level must be taken. Students who expect to pursue graduate study in philosophy should include in their programs PHI 200, 206, 220; and one senior reading course chosen from PHI 487, 488, and 489.

***Honors Program in Philosophy***

To qualify for the honors program a student must be a junior or a senior major with an overall average of at least 3.0 and an average in philosophy of 3.5. The student must maintain this average through the course of the honors program. To seek honors, a student must plan a program not later than first semester of senior year with a faculty advisor and the director of undergraduate studies. The program shall consist of three courses at the 300 level or higher, concentrated on related aspects of a central problem. At least one of the courses should be independent study under the direction of the advisor and lead to a senior paper. This paper will be reviewed by the advisor and one other member of the philosophy faculty and by a faculty member from outside the department. The senior paper will then be the focus of an oral examination. Honors will be awarded upon passage of the examination.

***Minor in Philosophy***

Depending upon the emphasis chosen, the minor in philosophy requires either 18 or 21 credits. Emphases from which to choose are: History of Philosophy (21 credits); Language, Logic, and Science (18 credits); Social, Moral and Legal Issues (18 credits); The Person and the Arts (18 credits); or Eastern and Western Thought (21 credits). Interested students should consult with the director of undergraduate



studies in Philosophy for details about specific courses contributing to each emphasis and for help in planning their schedules.

### **Courses\***

For details of staffing, specific content, and reading lists, the student should consult schedules posted by the Philosophy Department before registration each semester.

#### *Lower-Division Courses*

These courses offer the student various ways to become acquainted with the nature and variety of philosophical inquiries. There are no prerequisites for any 100-level courses.

#### **PHI 100 Concepts of the Person (II)**

An introduction to philosophy through readings and discussion on topics such as human identity, human understanding, human values. *Fall and spring, 3 credits*

#### **PHI 101 Introduction to Ancient and Medieval Philosophy (I)**

Readings and discussion of selected texts of philosophers such as Plato, Aristotle, Plotinus, Augustine, Aquinas. *Fall and spring, 3 credits*

#### **PHI 102 Introduction to Modern and Contemporary Philosophy (I)**

Readings and discussion of selected texts of philosophers such as Descartes, Hume, Kant, Hegel, Nietzsche, Wittgenstein, and Sartre. *Fall and spring, 3 credits*

#### **PHI 103 Philosophic Problems (II)**

An introduction to philosophy through an inquiry into one or more of the basic problems of philosophy. *Fall and spring, 3 credits*

#### **PHI 104 Contemporary Morality (IV)**

An introduction to philosophy through inquiry into moral questions raised by contemporary personal and social issues such as political protest, sexual freedom, war and peace, new life-styles. Methods of philosophical analysis will be employed in studying these moral issues. *Fall and spring, 3 credits*

#### **PHI 106 Radical Thought (IV)**

A systematic historical and critical introduction to Marxism as a political theory and as a theory of action. Course concentrates on Marx's work and on its relation to other Marxists (e.g., Lenin, Trotsky, Luxemburg, Mao) and to the New Left. *Fall and spring, 3 credits*

#### **PHI 109 Literature and Human Life (IV)**

A survey in translation of major authors and works of Western culture, focused around such problems as the self and moral values. This course is identical with CLT 109. *Fall, 3 credits*

#### **PHI 110 Literature and Artistic Creation (IV)**

A survey in translation of major authors and works of Western culture, focused around the artist's perception of the world and his creative activity. This course is identical with CLT 110. *Spring, 3 credits*

---

\*See p. 124, Course Credit and Prerequisites, and p. 125, Numbering System.

**PHI 200 Ancient Philosophy (I)**

Study of the major thinkers from Thales to Aristotle. Prerequisite: Sophomore standing or one course in philosophy; PHI 101 recommended. *Fall and spring, 3 credits*

**PHI 206 Modern Philosophy (I)**

The shifting relationships between philosophy and science which characterize the modern period (1600-1800), with special attention to these issues: rationalism vs. empiricism, necessity vs. contingency, reason vs. skepticism, God vs. nature, metaphysics vs. experience. Extensive readings from Descartes, Vico, Spinoza, Leibniz, Locke, Berkeley, Hume, Kant. Prerequisite: Sophomore standing or one course in philosophy; PHI 102 recommended. *Fall and spring, 3 credits*

**PHI 220 Introduction to Symbolic Logic (II)**

This first course in logic emphasizes the development of systematic techniques for assessing the validity of arguments: truth tables and truth value analysis, Venn diagrams, elementary quantification theory, and deduction in both the propositional calculus and quantification theory. Prerequisite: Sophomore standing or one course in philosophy. *Fall and spring, 3 credits*

**PHI 223 Introduction to Metaphysics (II)**

An introduction to philosophy through study of some of the main topics of metaphysics, for example, mind and matter, appearance and reality, freedom and determinism. Prerequisite: Sophomore standing or one course in philosophy; PHI 103 recommended. *Fall and spring, 3 credits*

**PHI 231 Introduction to Indian Philosophy: Classical Texts (III)**

Students will become acquainted with the main classical texts of India: Rig Veda, Upanishads, Buddhism, and Yoga (2500 B.C. to 400 B.C.). The emphasis will be on the necessary and sufficient contextual and structural conditions of the statements and actions of this tradition and on relating them to what may be implicit in the American experience. Prerequisite: Sophomore standing or one course in philosophy. *Fall, 3 credits*

**PHI 232 Introduction to Indian Philosophy: Philosophic Interpretations (III)**

Textual analysis of the Gita in an effort to recover its models of knowledge, the multiple structures leading to them, and the meaning of the text. Since several systems of Hindu philosophy are here presupposed, some of these and related systems will be studied: Carvaka, Mimamsa, Nyaya-Vaisishika, Samkhya-Yoga, and Vedanta (600 B.C. to 1400 A.D.). Prerequisite: Sophomore standing or one course in philosophy. *Spring, 3 credits*

**PHI 236 Introduction to Chinese Philosophy (III)**

A philosophical introduction and analysis of the main stages and modes of Chinese thought, both as reflective of the high attainment of civilization in the Chinese cultural matrix and as contributing to the contemporary dialogue between world philosophical perspectives: classical Confucianism and Taoism; the development of Chinese Buddhism; Neo-Confucian reaction and integration in the Sung and Ming; China's reaction to the West and contemporary Maoism. Prerequisite: Sophomore standing or one course in philosophy. *Spring, 3 credits*

**PHI 239 Japanese Philosophy and Aesthetics (III)**

This course traces the philosophical process of "modernization" in Japan, focusing on such philosophical and literary authors as Fukuzawa, Natsume, Mori, Watsuji, Nishida and the Kyoto School, and more recent thinkers such as Tanizaki, Kawabata, Mishima. Prerequisite: Sophomore standing or one course in philosophy. *Spring, 3 credits*

**PHI 247 Existentialism (III)**

Readings in existential philosophy and literature with special emphasis on such themes as alienation, anxiety, nihilism, absurdity, the self, value, death, and immediacy. Existentialist categories will be used to interpret contemporary life-styles and culture. Prerequisites: Sophomore standing and one course in philosophy; PHI 100 or 102 recommended. *Fall and spring, 3 credits*

**PHI 261 Philosophy and the Healing Arts (IV)**

Classical texts and recent writings bearing on medicine, various therapies, and related practices such as shamanism, social work, and counseling. Topics include the concept of nature; the perception of morbidity, reason, and experience; the doctor-patient relationship; the limits and extensions of the "medical model"; the roles of the spoken word, the grounds of the Hippocratic Oath and other such vows. Prerequisite: Sophomore standing or one course in philosophy; PHI 104 or 106 recommended. *Fall and spring, 3 credits*

**PHI 264 Philosophy of Art (IV)**

A reflective and foundational study of the experience, nature, and functions of art. Different hypotheses about the creative process are reviewed and tested for their ability to extend the enjoyment of art, for their appreciation of the multiple assumptions of the artist, and for the basis they offer for critical judgments. Prerequisite: ARH 101 or 102 and sophomore standing or one course in philosophy. *Spring, 3 credits*

**PHI 268 Philosophy of Religion (IV)**

An inquiry into the function of philosophic principles in religious thought. The course examines basic philosophic structures for such thought. It makes use of readings drawn from such writers as Augustine, Hume, Kant, Whitehead, and Buber. Prerequisite: Sophomore standing or one course in philosophy; PHI 102 or 103 recommended. *Fall and spring, 3 credits*

**PHI 270 Life, Death, and Eternity (IV)**

Some of the ageless questions arising from man's awareness of his own mortality will be investigated using philosophical classics and writings in other fields. Readings from such authors as Plato, Epicurus, Augustine, Vico, Spinoza, and Montaigne will be supplemented by materials from the mystical traditions and from contemporary American culture. Prerequisite: Sophomore standing or one course in philosophy; PHI 104 or 247 or 261 recommended. *Spring, 3 credits*

**PHI 273 Philosophy of Myth (IV)**

An examination of the structural forms of myth, the relation of myth to language, and the role of myth in social and self-interpretation. In addition to the central emphasis upon a philosophy of myth, occasional lectures will be given by experts in other areas. Prerequisites: Sophomore standing or one course in philosophy; PHI 109 or 110 recommended. *Fall, 3 credits*

**PHI 277 Political Philosophy (IV)**

An inquiry into the function of philosophic principles in political thought and action, with readings drawn from such authors as Plato, Aristotle, Machiavelli, Spinoza, Hobbes, Locke, Kant, Hegel, Mill, and Dewey. Either semester may be taken independently of the other. Prerequisite: Sophomore standing or one course in philosophy; PHI 106 recommended. *Fall and spring, 3 credits*

**PHI 279 Philosophic Perspectives on Feminism (IV)**

A representative range of textual selections from Plato, Aristotle, Mill, Hegel, Kierkegaard, and Schopenhauer to Freud, Sartre, de Beauvoir, Millet, and certain representative fictional texts is studied in order to bring out the problematic of feminism in its experiential and its philosophic dimensions. Students will be

expected to do work in the outlining of solutions which philosophy can contribute to the human and conceptual dilemmas suggested by these texts. Prerequisite: Sophomore standing or one course in philosophy; PHI 106 recommended. *Spring, 3 credits*

### **PHI 285 The Uses of Philosophy (IV)**

Introductory study of the bearing of philosophic considerations on the special arts and sciences. May be repeated. Prerequisite: Sophomore standing or one course in philosophy. *Fall, 3 credits*

## *Upper-Division Courses*

### **PHI 301 Hellenistic and Roman Philosophy (I)**

Study of representative writings of Stoicism, Epicureanism, Skepticism, and Neo-Platonism. Prerequisite: One philosophy course; PHI 101 or 200 recommended. *Spring, 3 credits*

### **PHI 304 Medieval Philosophy (I)**

Study of the writings of major thinkers from Augustine to William of Ockham. Prerequisite: One philosophy course; PHI 101 or 200 or 301 recommended. *Spring, 3 credits*

### **PHI 308 19th-Century Philosophy (I)**

Study of major representative figures of the 19th century such as Hegel, Schopenhauer, Marx, Mill, Nietzsche, Kierkegaard, Spencer, and Comte. Prerequisite: One philosophy course; PHI 102 or 206 recommended. *Fall, 3 credits*

### **PHI 320 Metaphysics (II)**

An inquiry into the first principles of all science, art, and action as these are treated in representative classical and modern authors. Prerequisite: One philosophy course; PHI 206 or 223 recommended. *Spring, 3 credits*

### **PHI 323 Philosophy of Perception (II; Formerly PHI 225)**

An inquiry into the philosophical problems pertaining to the sensing, perceiving, and observing of the world. Various historical solutions (e.g., phenomenism, representationalism, scientific realism, naive realism, etc.) will be examined. Special attention is given to contemporary views and to the impact of recent research (e.g., in the psychological and the biological sciences) on the issue in question. Prerequisite: One philosophy course or PSY 101; PHI 103 recommended. *Spring, 3 credits*

### **PHI 325 Contemporary Philosophies of Language (II)**

A discussion of current topics in the philosophy of language. Prerequisite: One philosophy course; PHI 103 or 220 recommended. *Fall, 3 credits*

### **PHI 328 Philosophic Bases of Argument (II)**

An inquiry into how principles affect or determine the structure as well as content of an argument. The question is directed first to philosophic arguments, in readings from such authors as Plato, Hume, and Nietzsche; and then to controversies or oppositions in special disciplines, in readings from such pairs as Herodotus and Thucydides, Lincoln and Douglas, and R.S. Crane and Cleanth Brooks. Prerequisite: One philosophy course; PHI 220 recommended. *Fall, 3 credits*

### **PHI 330 Advanced Symbolic Logic (II)**

This course covers such topics as: a natural deduction system of quantification theory including consistency and completeness proofs; axiomatic formal systems and associated concepts of consistency, completeness, and decidability; elementary modal logic; and introductory set theory. Prerequisite: PHI 220. *Spring, 3 credits*

**PHI 332 Theories of Knowledge (II; Formerly PHI 245)**

This course consists of a study of a variety of conceptions of the structure of knowledge, the roles of the knower, and the various kinds and status of objects known, as found in classical and contemporary epistemologies. Prerequisite: One philosophy course or PSY 101; PHI 100 or 102 or 103 recommended. *Fall, 3 credits*

**PHI 340 Indian Buddhism: Its Essence and Development (III)**

The relation between the Buddhist model of knowledge (with its historical variations) and its dependence on and variations from the previous Indian cultural idea of knowledge will be examined against the background of Western models of philosophical knowledge in their historical constitution. Material studied will range from Buddha to Tantra. Prerequisite: One philosophy course; PHI 231 or 232 recommended. *Spring, 3 credits*

**PHI 342 Chinese and Japanese Buddhism (III)**

The main philosophical and institutional stages of Chinese and Japanese Buddhism, with emphasis on the latter. Topics include: the transmission of Indian Mahayana Buddhism to China; the formation of such Chinese schools as T'ien-t'ai, Hua-yen, Pure Land, and Ch'an (Zen); the further transmission of such schools to Japan, their assimilation within, and formative influence on, Japanese culture. Japanese schools treated include Teudai, Shingon, Pure Land, Nichiren (Lotus), and Zen. Prerequisite: One philosophy course; PHI 236 recommended. *Spring, 3 credits*

**PHI 353 Philosophy of Mind (III)**

The course applies techniques of contemporary analytic philosophy to problems in the philosophy of mind. Among the topics discussed are: the logical status of discourse about psychological phenomena and events and of discourse about other minds; philosophical materialism (the identity thesis), philosophical behaviorism and the thesis of physicalism; and the distinction between thoughts and sensations. Prerequisite: One philosophy course; 206 or 223 recommended. *Spring, 3 credits*

**PHI 360 Philosophy of Education (IV)**

An inquiry into the function of philosophic principles in educational theories and institutions. The inquiry centers on the purposes of knowledge and education, the relations among the sciences and their organization into curricula, and the ways in which knowledge is acquired and transmitted. Prerequisite: One philosophy course or one course related to education; PHI 104 or 106 recommended. *Fall and spring, 3 credits*

**PHI 363 Philosophy of the Social Sciences (IV)**

A study of the philosophical foundations of the social sciences, focusing on questions concerning the structures of social reality and the methodological and epistemological status of the social sciences. Prerequisites: One philosophy course and one course in the social sciences. *Spring, 3 credits*

**PHI 364 Philosophy and Technology (IV; Formerly PHI 263)**

A systematic study of how human beings experience the surrounding world of life-space, technological artifacts, and nature. The present impact of technological culture on man's perception of his world and his beliefs about himself will be explored. This course will be interdisciplinary in scope, with readings from philosophy, architecture, technology, anthropology, and literature. Prerequisite: One philosophy or physics or engineering course; PHI 104 or 106 or 261 or 270 recommended. *Spring, 3 credits*

**PHI 366 Philosophy of Science: History (IV)**

An historical study of the reciprocal relationships that have existed between natural science and philosophy in the west from ancient Greece to modern

times. An understanding will be sought of the character of scientific and philosophical explanation through the study of various cosmological models of man, nature, and God, especially the mechanistic models and the collapse of this model in the first half of the 20th century. Prerequisite: One philosophy course and one course in natural science or history of science; PHI 206 recommended. *Fall, 3 credits*

#### **PHI 368 Philosophy of Science: Current Issues (IV)**

An introductory philosophy of science course dealing with topics selected from contemporary issues. The focus may be upon certain methodological issues, such as the nature of scientific explanation and prediction, the structure of theories, the nature of scientific revolutions, the role of laws in science; or the course may concern itself with philosophic problems in understanding specific sciences, such as the nature of space and time; or it may focus on the relations of various sciences to one another and to other areas of investigation, such as metaphysics. Prerequisites: Two philosophy courses and one natural science course; PHI 220 recommended. *Spring, 3 credits*

#### **PHI 370 Philosophical Psychology (IV)**

An examination of traditional philosophic theories concerning the nature of a person and their connection to such theories in psychology as psychoanalysis, medical models of mental illness, and theories of behavior modification. Prerequisites: Two philosophy courses and PSY 101. *Fall and spring, 3 credits*

#### **PHI 372 Ethical Inquiry (IV; Formerly PHI 275)**

An investigation of selected ethical problems. Prerequisites: One philosophy course; PHI 104 recommended. *Spring, 3 credits*

#### **PHI 375 Philosophy of Law (IV)**

An examination of the concept of law and the nature of legal reasoning. The course will explore the relationship of law to other central philosophical and social ideas, such as freedom, rights, morality, authority, welfare, property, justice, equality, and constitutionalism. Prerequisite: One philosophy course; PHI 104 or 372 recommended. *Fall and spring, 3 credits*

#### **PHI 378 Philosophy of History (IV; Formerly PHI 266)**

A critical examination of theories about historical processes and developments and an evaluation of such concepts as progress, cause, purpose, and meaning in history. Pertinent materials will be drawn from historical and philosophic writings of such figures as Hegel, Nietzsche, Berdyaev, Collingwood, and Randall. Prerequisites: One philosophy and one history course. *Fall, 3 credits*

#### **PHI 380 Literature and Philosophy (IV)**

A study of the relations between literature and philosophy through an analysis of primary texts selected to demonstrate the precise nature of the relationship between the two disciplines. Topics will vary from term to term. Prerequisites: One philosophy course and one literature course; PHI 109 or 110 recommended. *Spring, 3 credits*

#### **PHI 382 Poetics and Rhetoric (IV; Formerly PHI 272)**

A comparative study of philosophic concepts of poetics and rhetoric. Poetic theory will be studied as variously treating literature as expressive, imitative, pragmatic, and "pure" or objective. Rhetoric will be treated as stylistic ornamentation, propaganda, practical reasoning, and the basis of community. Special attention will be given to the distinction, identity, and overlap of poetics and rhetoric. Readings are from classical and contemporary authors

such as Plato, Aristotle, Sartre, and Perelman. Prerequisite: One philosophy or one literature course, PHI 109 or 110 recommended. *Spring, 3 credits*

**PHI 391, 392 Individual Systems of the Great Philosophers (V)**

A detailed study of the works of a single great philosopher. May be repeated. Prerequisite: One philosophy course. *Fall and spring, 3 credits each semester*

**PHI 393, 394 Analysis of Philosophic Texts (V)**

Detailed analysis of a major philosophic text. May be repeated. Prerequisite: One philosophy course. *Fall and spring, 3 credits each semester*

**PHI 405 Contemporary Philosophy (II; Formerly PHI 310)**

A study of leading figures and themes in contemporary (20th-century) philosophy. Readings from authors such as Wittgenstein, Heidegger, Merleau-Ponty, and Quine. Prerequisite: Two philosophy courses; PHI 206 or 247 or 308 recommended. *Fall, 3 credits*

**PHI 408 Phenomenology (III; Formerly PHI 350)**

An investigation of the methods, concepts, and history of phenomenology with particular emphasis upon its philosophical basis. Readings from the major works of representative phenomenologists such as Husserl, Scheler, Heidegger, Merleau-Ponty and Ricoeur are to be balanced by applications of phenomenological analysis to contemporary philosophical problems. Prerequisite: Two philosophy courses; PHI 206 or 247 or 308 or 405 recommended. *Fall and spring, 3 credits*

**PHI 410 Morality and Law (IV; Formerly PHI 385)**

An advanced study of the interaction of moral and legal principles and rules. Paternalism, the enforcement of morals, and the effect of law on morality will be investigated in relation to particular problem areas: medicine, sex, marriage, etc. Prerequisite: PHI 372 or 375. *Spring, 3 credits*

**PHI 415 The Philosophical Methodology of the Rig Veda (V; Formerly PHI 345)**

This course will focus on a method for bringing out the implied philosophy of the Rig Veda on topics such as knowledge, expression, the need to structure experience, and the different forms and insights generated by such structures: the embodied vision historical insights generate to guarantee man's possession of what constitutes his humanity. Prerequisites: PHI 231 or 232 and one other philosophy course. *Fall, 3 credits*

**PHI 420 Advanced Topics in Philosophy (II, III, IV)**

An advanced course treating a specialized issue or topic in philosophy or in philosophy and another discipline. The content of the course will be announced before the start of the term. May be repeated. Prerequisites: Senior major standing or five courses in philosophy. *Fall and spring, 3 credits*

**PHI 435 Senior Seminar**

An intensive study of an issue, topic, figure, or historical period in philosophy intended to provide both a culminating experience and final integration for senior philosophy majors. This seminar will emphasize careful reading, rigorous discussion, and extensive writing at an advanced level. The content of the seminar will be announced before the start of the term, and students will be consulted on the content as it proceeds. Prerequisites: Senior major standing and six courses in philosophy. *Fall and spring, 3 credits*

**PHI 487 Readings and Research in Methodology (Normally III)**

Advanced level inquiry with individualized instruction in one particular philosophical style of reasoning. Consult undergraduate advisor for specific details. May be repeated. Prerequisites: Senior major standing and permission of department. *Fall and spring, 1 to 6 credits*

**PHI 488 Readings and Research in the Uses of Philosophy (Normally IV)**

Advanced level inquiry with individualized instruction in the application of philosophical tools to one of the special disciplines. Consult undergraduate advisor for specific details. May be repeated. Prerequisites: Senior major standing and permission of department. *Fall and spring, 1 to 6 credits*

**PHI 489 Readings and Research in the History of Philosophy (Normally V)**

Advanced level inquiry with individualized instruction in the great philosophies of the past. Consult undergraduate advisor for specific details. May be repeated. Prerequisites: Senior major standing and permission of department. *Fall and spring, 1 to 6 credits*

*Graduate Courses*

Qualified seniors may take 500-level courses with the permission of the directors of undergraduate and graduate studies. Please consult the bulletin boards outside the departmental offices for course descriptions and prerequisites.

## Physical Education

**Associate Professors:** Elaine H. Budde, Director of Professional Studies, Ph.D. University of Wisconsin (General physical education); John W. Ramsey, M.S. Hofstra University (Soccer; general physical education); Leslie F. Thompson, Ed.D. Columbia University (Tennis; general physical education); A. Henry von Mechow, Chairman, M.S. State University College at Cortland (Aquatics; general physical education)

**Assistant Professors:** Paul H. Dudzick, M.A. State University of New York at Stony Brook (Crew; general physical education); Susan P. Krupski, M.S. Smith College (Tennis; general physical education); Amy Meltzer, Ed. M. State University of New York at Buffalo (Gymnastics; general physical education); Robert B. Snider, B.S. College of William and



Mary (Squash; general physical education); **Sandra Weeden**, M. Ed. University of North Carolina at Greensboro (Basketball; general physical education)

**Instructors:** **Katherine F. Banisch**, M.A.T. University of North Carolina at Chapel Hill (Fencing; yoga; general physical education); **Nobuyoshi Higashi**, Part-time, M.A. New York University (Self-defense; judo); **George Lukemire**, Part-time, B.S. Cornell University (Horsemanship); **Masataka Mori**, Part-time, B.A. Takushoku University (Karate); **Christopher Tyson**, B.S. State University College at Cortland (Soccer)

Physical education courses are devised to develop knowledge, understanding and skills of a sport or dance activity selected by the student from a wide range of offerings.

Students in the College of Arts and Sciences may include at most four credits of 100-level courses toward the 120 credits required for the baccalaureate degree; and they may take only one 100-level physical education course each term for credit.

### ***Facilities***

Physical education facilities include 12 tennis courts, a one-quarter-mile track, a baseball field, a soccer field, 4 softball and intramural football fields, and general activity areas. The Gymnasium building contains a swimming pool, a large gym, a small gym, 4 squash courts, 4 handball courts, an exercise room, a universal gym room, and a dance studio.

Most physical education facilities may be used for recreational purposes when they are not scheduled for classes, intramural or intercollegiate events, or special events. Schedule of information covering recreation hours may be obtained in the Physical Education Office.

### ***Medical Clearance for Participants***

Students having health problems which 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 as to whether or not they can safely participate in a particular program should be evaluated at the University Health Service.

## **Courses\***

### *Individual and Team Sports, Self Defense, and Physical Conditioning*

PEC 101 Paddleball/Squash

PEC 102 Racquetball/Squash

PEC 106 Basic Karate

PEC 107 Intermediate Karate

PEC 109 Self Defense

PEC 113 Basic Fencing

PEC 150 Archery/Badminton

PEC 151 Tennis/Badminton

PEC 152 Tennis/Volleyball

PEC 153 Golf/Badminton

PEC 154 Archery/Volleyball

PEC 156 Golf/Volleyball

PEC 157 Volleyball/Badminton

PEC 159 Badminton

PEC 160 Archery

PEC 164 Volleyball

*Students may not receive credit for both PEC 101 and 102.*

*Fall and spring, 1 credit each semester*

#### **PEC 105 Weight Control**

A course designed for the overweight to investigate various methods of weight and body control and figure improvement by way of such group activities as evaluation of current diet programs, group discussion, mild forms of physical exercise, and individual counseling. Prerequisites: Students must have the written approval of their family physicians. *Fall or spring, 1 credit*

#### **PEC 108 Judo**

Instruction in and practice of the fundamentals of judo: breakfalls, throws, and grappling techniques. Limited application of skills to competitive randori (sparring) and shiai (contest). *Fall and spring, 1 credit*

#### **PEC 110 Basic Aikido (Tomiki Style)**

The concept of Aikido as the spirit that carries the mind and controls the body will be studied. Aiki means making your spirit "fit in" with your opponent's as "the principle of gentleness." Course material includes fundamentals of principal arts of attacking, bending and twisting the joints, escape and defense against multiple attacks, and use of minimum strength. *Spring, 1 credit*

#### **PEC 112 Bowling**

A basic course in bowling including rules, scoring, and basic techniques of the game. This is an extra fee course. *Fall and spring, 1 credit*

#### **PEC 147 Aerobic Fitness**

A fundamental course in body conditioning with stress on cardiovascular endurance, muscular endurance, and flexibility. Students will develop an ability to maintain a high degree of aerobic fitness through such activities as long distance running and high repetition-low resistance weight training. *Fall and spring, 1 credit*

#### **PEC 161 Beginning Tennis**

Complete introduction to tennis for the beginning tennis player. Introductory approach to the game of tennis involving the description and selection of rac-

---

\*See p. 124, Course Credit and Prerequisites, and p. 125, Numbering System.

quets, utilization of various grips, development of footwork, ground strokes, singles and doubles play. Knowledge of court areas, tennis terminology, proper tennis etiquette, rules, and scoring procedures. Special emphasis on the basic fundamentals of the four major strokes: service, forehand, backhand, and volley. *Fall and spring, 1 credit*

### **PEC 168 Introduction to Yoga (Hatha)**

This activity will include instruction in various postures that are designed to enhance the physical condition of the individual through the use of breathing, relaxation, and meditation techniques. *Fall and spring, 1 credit*

## *Horsemanship*

### **PEC 180 Beginning Horsemanship**

This course is designed for the student with little or no experience in English riding and will cover basic controls and techniques employed in Hunter seat equitation. The theory program will begin the study of the environmental needs of the horse. This is an extra fee course. *Fall and spring, 1 credit*

### **PEC 181 Advanced Beginning Horsemanship**

This course is designed for the student who has acquired the basic skills in Hunter seat equitation. Techniques will be refined and cross-county and beginning jumping will be covered. Theory will include breeds, colors, and sports. This is an extra fee course. Prerequisite: PEC 180. *Fall and spring, 1 credit*

### **PEC 182 Intermediate Horsemanship**

A stable management course: the care of the horse and the control of his environment; first-aid and training of the young horse. Riding will cover sophisticated jumping techniques in the ring and in the hunt course. This is an extra fee course. Prerequisite: PEC 181. *Fall and spring, 1 credit*

## *Gymnastics*

### **PEC 117 Basic Gymnastics**

A basic course covering the four Olympic pieces: free exercise, uneven parallel bar, horse, and balance beam. *Fall and spring, 1 credit*

## *Swimming and Water Safety*

### **PEC 120 Basic Swimming**

Designed to equip students at the beginner level with basic swimming skills and knowledge. (See also PEC 128). *Fall and spring, 1 credit*

### **PEC 121 Intermediate Swimming**

Designed to equip the deep-water swimmer with more advanced strokes and water skills. *Fall and spring, 1 credit*

### **PEC 122 Advanced Swimming and Basic Rescue**

This course will cover swimming strokes and related water skills at the level of Red Cross swimmers and advanced swimmers and will also include instruction in basic rescue and water safety. Prerequisites: PEC 121 and skill proficiency test. *Fall and spring, 1 credit*

### **PEC 123 Life Saving**

This course is designed to help the student meet the requirements for the Red Cross certification of Advanced Life Saving. Prerequisites: PEC 122 and skill proficiency test. *Fall and spring, 1 credit*

**PEC 128 Basic Swimming for Non-Swimmers**

Basic swimming course limited to non-swimmers. (See also PEC 120.) *Fall and spring, 1 credit*

**PEC 129 Fundamentals of Spring Board Diving**

Prerequisite: PEC 120. *Spring, 1 credit*

**PEC 223 Water Safety Instructor**

This course is designed to help the student meet the requirements for certification as a Red Cross water safety instructor. Prerequisites: PEC 123 and skill proficiency test. *Fall and spring, 2 credits*

**PEC 226 Instructor of Adapted Aquatics**

This course is designed to help the student meet the requirements for certification as a Red Cross Instructor of Adapted Aquatics. The work includes practical experience in teaching swimming to handicapped persons. Prerequisite: PEC 223. *Fall, 2 credits*

## Dance

**PEC 130 Beginning Modern Dance**

A study of the fundamentals of modern dance, including an analysis of movement, conditioning, and simple compositional forms. *Fall and spring, 1 credit*

**PEC 135 Folk and Square Dance**

This course will cover both European and American folk dances including American square dance. *Fall, 1 credit*

**PEC 136 Social Dance**

This is a basic course covering fundamental steps in such ballroom dances as fox trot, waltz, rhumba, cha-cha, tango, and lindy. *Fall and spring, 1 credit*

## Department of Physics

**Professors:** Akito Arima, Ph.D. University of Tokyo (Theoretical nuclear physics); Nandor L. Balazs, Ph.D. University of Amsterdam (Theoretical physics; statistical mechanics; general relativity); Martin Blume, Part-time, Ph.D. Harvard University (Theoretical solid state physics: magnetic properties of matter); \*Gerald E. Brown, Ph.D. Yale University, D.Sc. University of Birmingham (Theoretical nuclear physics); \*Ernest D. Courant, Part-time, Ph.D. University of Rochester (Theory of high-energy accelerator design); \*Max Dresden,

---

\*Member, Institute for Theoretical Physics.

Executive Officer of the Institute for Theoretical Physics, Ph.D. University of Michigan (Theoretical physics: field theory, statistical mechanics, particle physics); **Leonard Eisenbud**, Ph.D. Princeton University (Theoretical physics: nuclear theory, foundations of quantum theory); **Arnold M. Feingold**, Ph.D. Princeton University (Theoretical physics: nuclear structure, beta decay); **Guido Finocchiaro**, Ph.D. Catania University (Experimental particle physics); **David B. Fossan**, Ph.D. University of Wisconsin (Experimental nuclear physics: nuclear structure and reactions); **David Fox**, Director of the Graduate Program in Physics, Ph.D. University of California at Berkeley (Theoretical physics: solid state theory, properties of molecular crystals); \***Daniel Z. Freedman**, Ph.D. University of Wisconsin (Scattering theory); \***Alfred S. Goldhaber**, Ph.D. Princeton University (Theoretical physics: nuclear theory; particle physics); \***Maurice Goldhaber**, Adjunct, Ph.D. Cambridge University (Nuclear and particle physics); **Myron L. Good**, Ph.D. Duke University (Experimental elementary particle physics); **Paul D. Grannis**, Ph.D. University of California at Berkeley (Experimental high-energy physics: elementary particle reactions); **Andrew D. Jackson**, Ph.D. Princeton University (Nuclear theory); **Peter B. Kahn**, Chairman, Ph.D. Northwestern University (Theoretical physics: the many-body problem, statistical properties of spectra; curriculum development); **Yi-Han Kao**, Ph.D. Columbia University (Experimental solid state physics: electronic structure of metals and semimetals, superconductivity); <sup>a</sup>**Janos Kirz**, Ph.D. University of California at Berkeley (Experimental particle physics); **T.T.S. Kuo**, Ph.D. University of Pittsburgh (Nuclear theory); **Edward D. Lambe**, Ph.D. Princeton University (Experimental atomic and nuclear physics, beta and gamma decay; curriculum development); **Linwood L. Lee Jr.**, Ph.D. Yale University (Experimental nuclear structure); **Juliet Lee-Franzini**, Ph.D. Columbia University (Experimental particle physics); <sup>b</sup>**Herbert R. Muether**, Director of the Undergraduate Program in Physics, Ph.D. Princeton University (Experimental nuclear physics; neutron physics); **Robert Nathans**, Ph.D. University of Penn-

---

\*Member, Institute for Theoretical Physics.

<sup>a</sup>Recipient of the State University Chancellor's Award for Excellence in Teaching, 1975-76.

<sup>b</sup>Recipient of the State University Chancellor's Award for Excellence in Teaching, 1977-78.

sylvania (Experimental solid state physics); **Peter Paul**, Ph.D. University of Freiburg (Experimental nuclear physics); **T. Alexander Pond**, Ph.D. Princeton University (Positron processes; beta and gamma decay); **Henry B. Silsbee**, Ph.D. Harvard University (Experimental physics: molecular and atomic beams; magnetic resonance); **Arnold A. Strassenburg**, Part-time, Ph.D. California Institute of Technology (Experimental particle physics; high-energy instrumentation; curriculum development); **Clifford E. Swartz**, Ph.D. University of Rochester (Experimental high-energy physics; school curriculum revision); **John S. Toll**, Emeritus, Ph.D. Princeton University (Scattering; elementary particle theory); \***William I. Weisberger**, Ph.D. Massachusetts Institute of Technology (Theoretical physics); **Lee R. Wilcox**, Ph.D. Stanford University (Quantum electronics); \***Chen Ning Yang**, Einstein Professor of Physics and Director of the Institute for Theoretical Physics, D.Sc. Princeton University; Ph.D. University of Chicago (Theoretical physics: field theory, statistical mechanics, particle physics)

**Associate Professors:** **Philip B. Allen**, Ph.D. University of California at Berkeley (Theoretical solid state physics: superconductors and superconductivity); **Robert L. deZafra**, Ph.D. University of Maryland (Experimental atomic physics; optical pumping and double resonance quantum electronics); **Roderich Engelmann**, Ph.D. University of Heidelberg (Experimental elementary particle physics); **Erlend H. Graf**, Ph.D. Cornell University (Experimental low-temperature physics); **James Lukens**, Ph.D. University of California at San Diego (Experimental solid state physics); **Robert L. McCarthy**, Ph.D. University of California at Berkeley (Experimental elementary particle physics); \***Barry M. McCoy**, Ph.D. Harvard University (Statistical mechanics); **Robert L. McGrath**, Ph.D. University of Iowa (Experimental physics: nuclear structure); <sup>c</sup>**Harold J. Metcalf**, Ph.D. Brown University (Atomic physics; level crossing techniques); **Richard A. Mould**, Ph.D. Yale University (Theoretical physics: general relativity; quantum theory of measurements); **Hwa-Tung Nieh**, Ph.D. Harvard University (Theoretical physics; elementary particles); \***John Smith**, Ph.D. University of Edinburgh (Elementary particle physics); **Gene D. Sprouse**, Ph.D. Stanford University

---

\*Member, Institute for Theoretical Physics

<sup>c</sup>Recipient of the State University Chancellor's Award for Excellence in Teaching, 1973-74

(Experimental nuclear structure); \*Peter Van Nieuwenhuizen, Ph.D. Utrecht University (Theoretical physics)

**Assistant Professors:** Charles Archie, Ph.D. Cornell University (Experimental solid state physics); Peter Braun-Munzinger, Ph.D. University of Heidelberg (Experimental nuclear physics); Hans Jöstlein, Ph.D. University of Munich (Experimental elementary particle physics); Joseph W. Serene, Ph.D. Cornell University (Theoretical solid state physics); Nigel J. Shevchik, Ph.D. Harvard University (Experimental solid state physics; photoemission)

### ***Estimated Number of Teaching Assistants: 130***

A student wishing to major in physics may elect either the research program, the general program, or an appropriate combination of the two. The *research program* is designed to serve either as a preparation for graduate study in physics or as a terminal program in preparation for employment in industry or research. While it is substantial preparation for teaching in physics at the secondary level, the more usual route to such certification is the general program.

The *general program* in physics is designed for students who wish to acquire considerable knowledge of the subject, but who do not intend to go on to a research-oriented career in physics. This program may be useful to pre-medical students, prospective secondary school science teachers, and many others interested in science. This latter group might include students who will some day work in the areas of science teaching, administration relating to science or technology, the history of science, technical writing, patent law, science and public policy, etc.

An astrophysics-physics program is offered jointly with the Department of Earth and Space Sciences.

### ***Physical Facilities***

Physics laboratories for undergraduate experiments contain equipment specifically designed to elucidate the principles of physics which are under discussion in both the lectures and recitation sections. Students perform track and air table experiments, as well as some elementary work using

---

\*Member, Institute for Theoretical Physics.

oscilloscopes, etc. At the advanced level, facilities are available for laboratory work in the basic elements of circuit theory, modern electronic logic circuitry, and the role of mini-computers. Advanced research laboratories permit students to gain expertise in nuclear, high-energy, low-temperature, solid state, and surface physics, and in quantum electronics. Students work closely with faculty doing research in these areas, and are given the opportunity to work with an ongoing research group using specifically designed research equipment.

### ***Minimum Requirements for the B.S. in Physics***

1. Ten courses in the department, six of which must be at the junior level or above. Of these six, at least two semesters must be laboratory courses and must include PHY 322, PHY 445, or PHY 446. Each of the six upper-division courses must be completed with a grade of C or better.

2. Four semesters of mathematics: MSM 131, 132 or 141, 142, MSM 231, 306.

3. Twelve credits of other science, mathematics, or science-related courses (e.g., History of Science, Science and Public Policy) chosen with the approval of the departmental advisor. PHY 333 and PHY 339 may be included.

All courses used to satisfy these minimum requirements must be taken for a letter grade.

Students wishing to major in physics must, at the end of their sophomore year, consult with their departmental advisors in order to draw up preliminary plans of study which will then be submitted to the department. The plan can be revised at any time with the advisor's approval.

### ***Honors***

To receive the Bachelor of Science in physics with honors, a student must take ten courses in the department at the junior level or above, receiving an overall grade point average in these courses of at least 3.3. Two of the ten courses must be chosen from among the following: PHY 445, 446 Senior Laboratory and PHY 487, 488 Research.

### ***The Research Program***

A student electing the research track in physics has considerable flexibility in the choice of courses. The following sample program is suggested.



## *Freshman Year*

- PHY 101 General Physics I
- PHY 102 General Physics II
- MSM 131 or 141 Calculus I or Calculus IA
- MSM 132 or 142 Calculus II or Calculus II (Honors)

## *Sophomore Year*

- PHY 251 General Physics II
- PHY 252 Optics and Waves
- PHY 308 Quantum Physics
- MSM 231 Calculus III: Linear Algebra
- MSM 232 Calculus IV: Multivariate Calculus
- CHE 131 or 141 General Chemistry or Honors Chemistry
- CHE 132 or 142 General Chemistry or Honors Chemistry
- CHE 133 or 143 General Chemistry Laboratory or Honors Chemistry Laboratory
- CHE 134 or 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
- At least one semester of PHY 335, 336 Junior Laboratory
- MSM 341 Advanced Calculus for Scientists I
- MSM 342 Advanced Calculus for Scientists II

## *Senior Year*

- PHY 443 Methods of Mathematical Physics I
- PHY 445 Senior Laboratory I
- Three selections from courses listed below:
- PHY 405 Advanced Quantum Physics
- PHY 431 Nuclear and Particle Physics
- PHY 436 Topics in Electrodynamics
- PHY 444 Methods of Mathematical Physics II
- PHY 446 Senior Laboratory II
- PHY 447, 448 Tutorial in Advanced Topics
- PHY 472 Solid State Physics
- PHY 487, 488 Research

## ***The General Program***

A student electing this program is free to choose from many possible courses depending on his or her interests and goals.

The following sample program is suggested; other choices are acceptable with the advisor's approval.

- PHY 131, 132 Introductory Physics
- MSM 131, 132 or 141, 142 and MSM 231, 306 Calculus I-IV
- PHY 241 Introduction to Quantum Physics and Relativity
- PHY 242 Topics in Classical Physics I

PHY 321, 322 Advanced Laboratory  
PHY 341 Topics in Particle and Quantum Physics  
PHY 342 Topics in Classical Physics II  
PHY 401, 402 Senior Seminar  
PHY 451, 452 Contemporary Physics from an Elementary Viewpoint

### ***The Astrophysics Program***

A student wishing to pursue a career in astrophysics must take a program of study which satisfies the minimum requirements for a B.S. in physics. In addition, he or she should take a concentration in those courses offered by the Earth and Space Sciences or Physics Departments which 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 year 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 Director of the Undergraduate Program in the Department of Physics and with the Chairman of 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.

### ***Certification for Secondary Level Teaching***

The requirements for provisional certification are set down in detail in the State-approved *Competency-Based Teacher Educational Program in Physics, 7-12*. (The complete document may be examined in the department office.) Graduates of the program are expected to display a firm grasp of fundamental educational principles, including historical, philosophical, psychological, and sociological perspectives. They must demonstrate a flexible and adaptive understanding of the basic principles of mechanics, electricity and magnetism, optics, thermodynamics and statistical mechanics, and modern physics.

In accordance with the principles of competency-based learning, the course requirements for this program are somewhat flexible, depending on the background and status of the student entering. Each program of study will be deter-

mined in consultation with the Director of the Physics Teacher Preparation Program. After entrance to the program (see below), all students will normally take PHY 450 Supervised Secondary School Teaching and PHY 454 Student Teaching Seminar.

## Requirements for Entrance into the Professional Education Program

**Declaration of Departmental Major:** Prior to entrance in the Physics Secondary Teacher Preparation Program, the student must have officially declared a major in the Department of Physics.

**Interview:** The candidate must have a personal interview with the Director of the Physics Teacher Preparation Program.

**Admission to Student Teaching:** In order to obtain the recommendation of the Director of the Physics Teacher Preparation Program for admission to student teaching, the candidate must have completed six credits in foundations of education courses, SSI 265 Drug and Alcohol Education, PHY 339 Materials and Methods in Teaching Physics with a grade of C or above, have earned at least a 2.0 grade point average in all physics and mathematics courses completed, and have an overall cumulative grade point average of at least 2.0.

## Courses\*

The courses General Physics I-III present an intensive introduction to classical and modern physics for those who may major in physics, some other physical science, or engineering.

### **PHY 100 Quantitative Methods in Science**

Instruction and practice in the methods of measuring physical phenomena and the representation and analysis of data. Although simple laboratory work will be done, the emphasis is on the transition methods from observation with appropriate precision to interpretation in terms of functional relationships. The course is designed as useful preparation for students who will later take PHY 101. *Fall and spring, 3 credits*

### **PHY 101, 102 General Physics I, II**

An introductory survey of classical physics, in which calculus is used concurrently with its development in MSM 131, 132. Mechanics, wave motion, kinetic theory, and thermodynamics are discussed during the first semester; electromagnetism, electric circuit theory, and optics during the second. Three lectures, one recitation, and two laboratory hours per week. Corequisites: MSM 131, 132 or 141, 142. *Fall and spring, 4 credits each semester*

### **PHY 103, 104 Physics for the Life Sciences**

Primarily for students majoring in biological sciences or in pre-clinical pro-

---

\*See p. 124, Course Credit and Prerequisites, and p. 125, Numbering System.

grams. A general introduction to physics, with applications to biological systems. Topics include mechanics, fluid mechanics, electromagnetism, optics, acoustics, and radiation phenomena. Three lectures, one recitation, and two laboratory hours per week. Prerequisites: MSM 121 or 131 or 141 and CHE 131, 132 or 141, 142. *Fall and spring, 4 credits each semester*

### **PHY 110 Energy Resources and the Environment**

An investigation of the role of energy in our civilization showing interaction of pure science, applied science, and technology and their impact on the environment and everyday life. Discussion centers on current status of energy resources and physical principles of energy conversion. These principles are illustrated by examining some present (e.g., fission reactors) and future (e.g., magneto-hydrodynamic generators) energy conversion systems. The environmental impact of the present rate of energy consumption of our society is discussed. The course is intended for both non-science and science majors. It may not be counted as one of the ten departmental courses required for the B.S. degree program in physics. *Fall and spring, 3 credits*

### **PHY 117 Physics and Biological Systems I**

This course consists of an introductory survey of physics with emphasis on applications to biological systems. Topics studied will include the mechanics of particles; solids and fluids; thermodynamics; optics; electricity, magnetism, and radiation phenomena. Familiarity with algebra and trigonometry is required. This course is designed to satisfy the physics entrance requirements for undergraduate health science professional programs. It is a one-semester course in elementary physics and the applications of physics to the health sciences. The laboratory program introduces elementary experimental techniques and provides an opportunity for observation of phenomena on which the theory is built. Three lecture hours and one three-hour laboratory period per week. *Fall, 4 credits*

### **PHY 118 Physics and Biological Systems II**

This course, as a sequel to PHY 117, applies the physical principles learned in the first semester to biological systems such as the eye and the ear. Radiation phenomena will also be studied with reference to their therapeutic use. This course, together with PHY 117 and PHY 119, the associated laboratory, provides a one-year sequence in introductory physics to satisfy the physics entrance requirements for students entering undergraduate health science professional programs. The course can be taken without the associated laboratory course. Prerequisite: PHY 117. *Spring, 3 credits*

### **PHY 119 Physics and Biological Systems II Laboratory**

This course is the laboratory associated with PHY 118. It builds on the experimental techniques learned in PHY 117 and provides additional laboratory experience in optical and audio systems, and in nuclear radiation techniques. Corequisite: PHY 118. *Spring, 1 credit*

### **PHY 121 An Approach to Physical Science**

Designed particularly for non-science majors, this laboratory and discussion-oriented course provides an opportunity for students to proceed from simple investigations to the formulation of powerful conceptual models. Stress is placed upon *how* rather than *what* we know. Problems and laboratory work can be completed successfully by students with no previous knowledge of college mathematics. One lecture, two discussion periods, and one two-hour laboratory period each week. *Fall and spring, 4 credits*

### **PHY 131, 132 Introductory Physics**

An introductory survey of classical and modern physics which does not require a knowledge of the calculus. Mechanics, wave motion, kinetic theory,

and thermodynamics are discussed during the first semester; electricity and magnetism, optics, atomic physics, nuclear physics, and elementary particle physics during the second. Three lecture hours, one recitation, and two laboratory hours per week. *Fall and spring, 4 credits each semester*

### **PHY 137, 138 The Nature and Use of Physical Science**

A non-mathematical course about physics to provide some broad scientific background for the educated citizen in an increasingly technological society. The course will be given as a sequence of six relatively independent modules, three per semester. The modules will be devoted to: 1) space, time, and symmetry; 2) communication, control, information, computers; 3) waves, sound, music, noise; 4) light, color, vision; 5) frontiers of modern physics, research at Stony Brook; 6) science and society, applications of technology. A student receives three credits for PHY 137 after successful completion of any three of these modules. Each additional module successfully completed during the academic year earns one credit for PHY 138. Questions on how to register for these courses should be addressed to the director of the undergraduate program in physics. *Fall and spring PHY 137, 3 credits; PHY 138, 1, 2, or 3 credits*

### **PHY 241 Introduction to Quantum Physics and Relativity**

Primarily for students in the general program. Departures from the classical physics of the last century. Special relativity, kinetic theory, thermal radiation, the particle aspect of electromagnetic radiation, the wave aspects of material particles, the Heisenberg uncertainty principle. Rutherford scattering, and the Bohr model of one-electron atoms. Three lecture hours and one three-hour laboratory per week. Prerequisite: PHY 101, 102, or PHY 131, 132 and MSM 131, 132 or 141, 142. *Fall, 4 credits*

### **PHY 242 Topics in Classical Physics**

Primarily for students in the general program. Topics include electric and magnetic fields and their connection with special relativity, electric and magnetic fields in matter, electromagnetism and Maxwell's equations in integral form, oscillatory motion, wave motion, geometrical and physical optics. Three lecture hours and one three-hour laboratory per week. Prerequisite: PHY 241. *Spring, 4 credits*

### **PHY 251 General Physics III**

This course is principally an introduction to particle and quantum physics. Topics studied will include special relativity, the particle aspects of electromagnetic radiation, the wave aspects of material particles, the concept of a wave function, and other fundamentals of the quantum theory. These ideas will be discussed as they relate to atomic spectra and structure, nuclear structure, elementary particles, and aspects of molecular and solid state physics. Three lecture hours and one three-hour laboratory per week. Prerequisites: PHY 101, 102. Corequisite: MSM 231. *Fall and spring, 4 credits*

### **PHY 252 Optics and Waves**

A survey of geometrical and physical optics. The basic phenomena of optics—ray optics, interference, diffraction, and polarization—will be observed and discussed in terms of the wave theory of light. Applications will be made to the design and performance of optical instruments and systems using crystal optics, lasers, and holography. Three lecture hours and one three-hour laboratory per week. Prerequisites: PHY 101, 102. Corequisite: MSM 231. *Fall and spring, 4 credits*

### **PHY 301, 302 Electromagnetic Theory**

Review of elementary electromagnetic phenomena and their unification in Maxwell's equations; applications of the theory to static and changing elec-

tric and magnetic fields, interaction of the fields with bulk matter, circuit theory, interaction of charged particles with electromagnetic fields, propagation of electromagnetic waves, and radiation. Prerequisites: PHY 251, 252 and MSM 306. Corequisites: MSM 341, 342. *Fall and spring, 3 credits each semester*

### **PHY 303 Mechanics**

The Newtonian formulation of classical mechanics is reviewed and applied to more advanced problems than those considered in PHY 101, 102. The Lagrangian and Hamiltonian methods are then derived from the Newtonian treatment and applied to various problems. Prerequisites: PHY 251, 252. Co-requisite: MSM 341. *Fall and spring, 3 credits*

### **PHY 306 Thermodynamics, Kinetic Theory, and Statistical Mechanics**

The course is in two parts. Those relations among the properties of systems at thermal equilibrium, which are independent of a detailed microscopic understanding, are developed by use of the first and second laws. The concept of temperature is carefully developed. The thermodynamic potentials are introduced. Applications to a wide variety of systems are made. The second portion of the course, beginning with the kinetic theory of gases, develops elementary statistical mechanics, relates entropy and probability, and treats simple examples in classical and quantum statistics. Prerequisites: PHY 251 and MSM 231. *Fall and spring, 3 credits*

### **PHY 308 Quantum Physics**

An introduction to the concepts and mathematical methods of quantum mechanics. Some stress will be placed on historical development. Topics will include early quantum theory; Schroedinger's equation in time dependent and time independent forms; one- and three-dimensional solutions, including the treatment of angular momentum and spin; and perturbation theory. Applications to simple systems, especially the hydrogen atom, will be stressed. Prerequisite: PHY 251. *Fall and spring, 3 credits*

### **PHY 321, 322 Advanced Laboratory**

Primarily for those in the *general program*. The experiments will be selected from among those presently performed in PHY 335, 336 Junior Laboratory and PHY 445, 446 Senior Laboratory. The emphasis during the first semester will be on electrical measurements including electronics. Experiments for the second semester will involve work in atomic, nuclear, and solid state physics. Two three-hour laboratory sessions per week. Corequisites: PHY 341, 342. *Fall and spring, 3 credits each semester*

### **PHY 333 Physical Principles Applied to Living Systems**

Topics will include the special sensory systems (vision and hearing) from the physical, neutral, molecular, and psycho-physical viewpoints; the operation of the nervous system as both a communications network and a biochemical phenomenon; the effects of electromagnetic radiation at ionizing and non-ionizing energies, as well as the effects of mechanical radiation (ultrasound); the structural system and the functions of muscles with accent on the heart muscle; and a detailed treatment of several types of modern instrument systems used in biological research. May not be counted as one of the ten departmental courses required for the degree. Prerequisites: PHY 103, 104 or PHY 101, 102, 251. *Spring, 3 credits*

### **PHY 335, 336 Junior Laboratory I, II**

This course aims at providing a thorough introduction to modern electronics. It begins with a review of D.C. and A.C. circuits, diode and FET characteristics. This is followed by a study of the transistor in both the linear and saturation region. The differential amplifier, because of its fundamental

importance in present day electronics, will be studied in detail. The concepts of negative and positive feedback will be introduced and demonstrated. The circuits used in digital computers (elementary logic circuits, storage registers, shift registers, adders) will also be studied. Prerequisites: PHY 251, 252. *Fall and spring, 3 credits each semester*

### **PHY 339 Materials and Methods in Teaching Physics**

Designed for prospective teachers of physics in secondary schools and two-year colleges, the course emphasizes methods and materials appropriate to the teaching of introductory physics and stresses recent curriculum developments. Students are required to become familiar with texts, laboratory materials, and other teaching aids, and are given the opportunity to demonstrate their proficiency in peer teaching situations. May not be counted as one of the ten departmental courses required for the degree. Prerequisites: PHY 241, 242. *Spring, 3 credits*

### **PHY 341 Selected Topics in Particle and Quantum Physics**

Primarily for students in the *general program*; an introduction to wave mechanics and its application to various physical systems. Topics include the Schrodinger equation, atomic structure and spectra, radioactivity, nuclear structure, introduction to the theory of solids, elementary particles, and quantum statistics. Prerequisites: PHY 242, MSM 231, 306. *Fall, 3 credits*

### **PHY 342 Selected Topics in Classical Physics II**

Primarily for students in the *general program*. A further development of selected subjects in classical physics, including Maxwell's equations, propagation of electromagnetic waves in vacuum and in matter, central forces and gravitational potential, dynamics of rigid bodies, rotating coordinate systems, fluid mechanics, and thermodynamics. Prerequisites: PHY 242, MSM 231, and 306. *Spring, 3 credits*

### **PHY 401, 402 Senior Seminar**

During the first semester each student will select two fairly short and simple papers for presentation before the class. Assignments for individuals not presenting papers will include written critiques based on criteria which must be developed by the class. In the second semester each student will deliver a colloquium talk on some creative project of his/her own. These talks may either be verbal presentations of written materials prepared to explicate a physical theory or experiment, or lecture demonstrations using equipment which the student developed. Prerequisites: PHY 341, 342. *Fall and spring, 2 credits each semester*

### **PHY 405 Advanced Quantum Physics**

This course offers further development and extension of the principles introduced in PHY 308. Topics will include the quantum mechanical description of identical particles, symmetry principles, the structure of multi-electron atoms, the application of perturbation theory to radiative transitions, external perturbations (Zeeman and Stark splitting), an introduction to the matrix formulation of quantum theory, and the quantum mechanical description of scattering. Prerequisites: PHY 303, 308, and MSM 341. *Fall and spring, 3 credits*

### **PHY 407 Physics of Continuous Media**

Topics to be covered include the response of non-ideal solids to stress, the properties of compressible fluids, viscosity, momentum transfer in fluid motion, irrotational flow, wave motion in gases, acoustics, conducting fluids, magneto-hydrodynamics waves, the physics of fully ionized gases, dynamics of degenerate fluids, application to magnetic plasmas, etc. This course is of interest to, among others, potential astrophysicists, plasma physicists, low

temperature physicists, and geophysicists. Prerequisites: PHY 303 and 306. *Fall, 3 credits*

### **PHY 431 Nuclear and Particle Physics**

Primarily for majors in physics. The topics will include: the interaction of radiation with matter, radiation detectors, nuclear structure, nuclear reactions, nuclear forces, accelerators, the properties of elementary particles and resonances. Applications of quantum mechanics and the role of symmetry principles will be stressed. Prerequisite: PHY 308. *Fall, 3 credits*

### **PHY 436 Topics in Electrodynamics**

Subjects to be studied include multipole fields, solutions of Laplace's equation, electromagnetic waves in free space and in cavities, the fields of moving charges, radiation and radiating systems, classical electron theory, spherical waves, and relativistic electrodynamics. Prerequisites: PHY 301, 302, and MSM 341. *Fall and spring, 3 credits*

### **PHY 443, 444 Methods of Mathematical Physics I, II**

This course describes a selection of mathematical techniques useful for advanced work in physics. The methods will be illustrated by applications in mechanics, hydrodynamics, heat conduction, electromagnetic theory, and quantum mechanics. Topics will be selected from the following: linear vector spaces; tensor algebra and vector analysis; matrices; Green's functions; complex variables with application to conformal mapping and contour integration; eigenvalue problems and orthogonal functions; partial differential equations; calculus of variations; integral transforms; integral equations; special functions; generalized function theory; probability. Prerequisites: PHY 301, 302, 303, and MSM 341, 342. *Fall and spring, 3 credits each semester*

### **PHY 445, 446 Senior Laboratory I, II**

Primarily for majors in physics. A number of historically important experiments are studied and performed with the aid of modern instrumentation. As they progress, students are encouraged to pursue independent projects in which there are no rigidly fixed formats or procedures. Primary emphasis is on the development of experimental skills and on professionally acceptable analysis and presentation of results, both in written and oral form. Projects are typically chosen from such fields as atomic and nuclear spectroscopy, electron physics, solid state and low temperature physics, optics, and electromagnetism. Two three-hour laboratory sessions per week. Prerequisite: PHY 308. *Fall and spring, 3 credits each semester*

### **PHY 447, 448 Tutorial in Advanced Topics**

For upper-division students of unusual ability and substantial accomplishments, reading courses in advanced topics may be arranged. Prior to the beginning of the semester, the topic to be studied is selected by the supervising member of the faculty and a reading assignment is planned. Weekly conferences with this member of the faculty are devoted to discussion of material, resolution of problems encountered, and assessment of the student's progress. May be repeated. Prerequisite: Permission of the director of the undergraduate program in physics. *Fall and spring, 2 to 4 credits each semester at discretion of instructor*

### **PHY 450 Supervised Secondary School Student Teaching**

Prospective secondary school teachers receive supervised practice teaching in a selected Long Island secondary school. The student teacher reports to that school for a full school day for the semester. The supervising teacher helps the student to execute his teaching assignments and to interpret and evaluate his experience. Not for major credit. Grading in this course shall be Satisfactory/Unsatisfactory only. Prerequisites: PHY 339 and approval of



Director of Physics Teacher Preparation Program. Corequisite: PHY 454. *Fall, 12 credits*

### **PHY 451, 452 Contemporary Physics from an Elementary Viewpoint**

The basic purpose of this course is to provide a qualitative understanding of the ideas, methods, and experimentation of contemporary physics. Extensive use will be made of dimensional arguments, order of magnitude estimates, and pictorial descriptions. The subjects to be discussed will be chosen from superconductivity, masers, Mossbauer effect, strong and weak interactions, quasars, and other topics in astrophysics. This course is intended primarily for students in the general program. Prerequisites: MSM 306 and PHY 251 or 342. *Fall and spring, 3 credits each semester*

### **PHY 454 Student Teaching Seminar**

Seminar on problems and issues in teaching physics at the secondary school level. Analysis and commentary based on students' experience in their classroom assignments. Not for major credit. Corequisite: PHY 450. *Fall, 3 credits*

### **PHY 472 Solid State Physics**

Introduction to the principal types of solids with emphasis on their electrical and magnetic properties; elementary theory of electrons in metals; energy bands. Applications to semiconductors, superconductors, para- and ferromagnetism, magnetic resonance. Prerequisites: PHY 301, 302, 306, and 308. *Spring, 3 credits*

### **PHY 475 Undergraduate Teaching Practicum**

This course will provide selected undergraduates with an opportunity to collaborate with the faculty in teaching at the introductory level. In addition to working as tutors and as laboratory assistants, students will meet once a week with a faculty supervisor to discuss problems that have been encountered and to plan future activities. Students will generally be assigned to assist in courses they have completed and in which they have excelled. Not for major credit and not repeatable; students may offer only one teaching practicum for credit. Grading in this course shall be Satisfactory/Unsatisfactory only. Prerequisites: PHY 101, 102 or PHY 103, 104 or PHY 131, 132, interview, and permission of director of undergraduate program in physics. *Fall and spring, 2 credits each semester*

### **PHY 487, 488 Research**

With the approval of the faculty, a student may conduct research for academic credit. Research proposals must be prepared by the student and submitted for approval by the faculty before the beginning of the credit period. The work is performed under the supervision of a member of the faculty. An account of the work and the results achieved is submitted to the faculty before the end of the credit period. May be repeated. Prerequisite: Permission of the director of the undergraduate program in physics. *Fall and spring, 2 to 4 credits each semester at discretion of instructor*

## **Graduate Courses**

Qualified seniors may take 500-level courses with the permission of the department chairman. See *Graduate Bulletin* for details.

Quantum Mechanics  
Statistical Mechanics  
Nuclear Physics  
Classical Physics

Astrophysics  
Solid State Physics  
Elementary Particle Physics

## Department of Political Science

**Professors:** Lee E. Koppelman, Part-time, D.P.A. New York University (Regional planning; resource management); Milton Lodge, Ph.D. University of Michigan (Political psychology; political behavior); Merton Reichler, Adjunct, M.A. Columbia University (Constitutional law); Howard A. Scarrow, Ph.D. Duke University (Comparative politics; American government); <sup>a</sup>Joseph Tanenhaus, Ph.D. Cornell University (Constitutional law; judicial process); Martin B. Travis, Ph.D. University of Chicago (International law; comparative foreign policy); Bernard Tursky, Director of Undergraduate Studies, Diploma, Lowell Institute, Massachusetts Institute of Technology (Political psychology; psychophysiology); Jay C. Williams, Ph.D. University of Chicago (Political ideologies; political film)

**Associate Professors:** Frank E. Myers, Chairman, Ph.D. Columbia University (Comparative politics; political theory; public policy); Mark Schneider, Ph.D. University of North Carolina at Chapel Hill (Public policy; urban politics)

**Assistant Professors:** Stephen P. Brown, Ph.D. University of Rochester (Political parties; legislative behavior; econometrics); James Enelow, Ph.D. University of Rochester (Voting and social choice theory; political behavior); William Gormley, Ph.D. University of North Carolina at Chapel Hill (Communications policy; energy policy; regulatory reform; mass media effects; American politics; state politics); John F. Hoadley, Ph.D. University of North Carolina at Chapel Hill (American government; methodology); Thomas O. Jukam, Ph.D. Michigan State University (Political behavior; quantitative methods); William Linehan, Ph.D. Indiana University (International relations; defense policy; methodology); Charles Whitmore, Ph.D. Yale University (Political theory; comparative politics)

**Estimated Number of Teaching Assistants: 10**

---

<sup>a</sup>Recipient of the State University Chancellor's Award for Excellence in Teaching, 1975-76

## ***Requirements for the Major in Political Science***

The major in political science leads to the Bachelor of Arts degree. The following courses are required.

	<i>Credits</i>
I. Study within the area of the major:	
A. Three out of four of the following courses:	9
POL 101 World Politics	
POL 102 American Government	
POL 103 Comparative Politics	
POL 104 Political Behavior	
B. Political Science electives:	24
1. all must be selected from courses numbered 200 or above.	
2. 12 credits must be concentrated in one of the programs of study listed below.	
3. no more than six of the twenty-four 200-level or above political science credits may be taken at another institution (exceptions made in the case of planned foreign study).	
II. Two courses numbered 300 or higher, offered by another department in subjects directly related to the chosen program of study. Courses taken at another institution may be used to satisfy this requirement. Lists of related area courses are available in the department office.	6
	<hr/>
<i>Total</i>	39

*Note:* Students may apply only 6 credits of internship courses toward fulfillment of major requirements.

### ***Programs of Study***

#### ***Comparative Politics and International Relations***

Four of the following:

POL 210, 211, 212, 236, 267, 305, 308, 311, 312, 313, 330, 331, 332, 333, 335, 337, 339, 401, 402

#### ***American Government and Public Policy***

Four of the following:

POL 220, 221, 222, 260, 317, 319, 320, 321, 322, 323, 324, 326, 327, 329, 360, 361, 362, 363, 364, 365, 366, 367

## *Political Behavior and Political Psychology*

Four of the following:

POL 239, 240, 241, 323, 332, 333, 340, 341, 342, 346, 347, 348, 360, 367

### ***Pi Sigma Alpha***

The Political Science Department at Stony Brook has a chapter of Pi Sigma Alpha, which is the national honor society in Political Science. For information regarding qualifications consult the Political Science Department.

### ***Courses \****

#### **POL 101 World Politics**

Analysis of the basic concepts and issues of international relations in the contemporary international system. The behaviors of states and their decision makers will be considered according to various models of national and international conflict. The relationship between the characteristics of nations and their foreign policies will be studied on a comparative basis. *Fall and spring, 3 credits*

#### **POL 102 Introduction to American Government**

What the informed citizen and specialist should know about the organization of American government, including the Constitution and what it means today, the Congress, political parties, pressure groups, growth of the Presidency, the Supreme Court, judicial review, federalism, separation of powers, the Bill of Rights. *Fall and spring, 3 credits*

#### **POL 103 Introduction to Comparative Politics**

Analysis of political institutions and processes in the contemporary world. This course will emphasize the interaction of political structures and processes in a variety of political settings. *Fall and spring, 3 credits*

#### **POL 104 Political Behavior**

Survey of the types, modes, and conditions of political activity (political participation, apathy, alienation); political census and cleavages (aggression, violence, war); political socialization and recruitment of political elites; psychological and social basis of uniformities and variations in political behavior. *Fall and spring, 3 credits*

#### **POL 210 Foreign Policy in the Middle East**

Survey of problems involved in the formulation of foreign policy of selected Middle East countries including Israel and Egypt. Cultural, economic, psychological, as well as political components of policy making will be examined together with the role of legislative and executive institutions. Prerequisite: POL 101. *Fall or spring, 3 credits*

#### **POL 211 American Foreign Policy**

Survey of problems involved in formulation of United States foreign policy. Whenever appropriate the American system is compared with procedures in other countries. Components of policy are analyzed; conditions abroad, traditional policy, public opinion, international law. Major constitutional provisions

---

\*See p. 124, Course Credit and Prerequisites, and p. 125, Numbering System.

as they relate to foreign policy are reviewed. Executive and legislative institutions are studied from standpoints of role and personality, with emphasis given to contemporary situations. Prerequisite: POL 101. *Fall or spring, 3 credits*

#### **POL 212 American Defense Policy**

Historical and political investigation of salient trends in American military and national security policy since World War II, with special attention to domestic political groups and forces which influence defense policy making. Models of the political process in foreign and defense policy making are contrasted in terms of available evidence. Prerequisite: POL 101. *Fall or spring, 3 credits*

#### **POL 220 Law and Politics**

The major institutional structures of the civil and criminal law systems in the United States: the adversary proceeding, the legal profession, the judiciary, juries, and patterns of fault and punishment. Each aspect will be placed in the setting of American politics: *i.e.*, in the context of legislative, executive, party, and community behavior. Prerequisite: POL 102. *Fall, 3 credits*

#### **POL 221 American Political Issues**

A consideration of some central policy issues in American politics, past and present, with emphasis on those arising in the urban industrial United States, *e.g.*, racial equality, educational opportunity, civil rights, poverty and welfare, governmental corruption. Materials will be polemical books and articles, analyses, and films. Prerequisite: POL 102. *Fall or spring, 3 credits*

#### **POL 222 State and Local Government (Formerly POL 325)**

Analysis of subnational units—including states, cities, towns, and counties—in urban and suburban settings. Relationship of these to citizens and other government units. Prerequisite: POL 102. *Fall or spring, 3 credits*

#### **POL 236 Politics in Developing Areas**

Survey of developmental politics in selected emerging nations. Emphasis is upon colonial policies prior to independence, nationalistic movements, constitution building and the emergence of leadership, parties, and interest groups. Comparison is made of the Western and non-Western political process. Prerequisite: POL 103. *Fall or spring, 3 credits*

#### **POL 238 Political Propaganda (Formerly POL 140)**

Examination of devices used to manipulate political attitudes and beliefs in both print and visual media. Course topics include politics of the mass media, political satire, political rhetoric, psychology of persuasion, etc. *Fall or spring, 3 credits*

#### **POL 240 Political Analysis**

The major purpose of this course is to introduce the student to the nature of social science inquiry. Subjects covered will include the structure of scientific knowledge, concept formation, and strategies of theory construction and confirmation. Especially recommended for students considering advanced work in any of the social sciences. Prerequisite: POL 104 and satisfaction of mathematics proficiency requirement. *Fall or spring, 3 credits*

#### **POL 241 Interpreting Political Survey Results**

This course is designed to introduce students to the logic and methods of public opinion research. Focusing primarily on political survey results, topics covered will include: the formulation and testing of hypotheses; the analysis and interpreting of tables, figures, and graphs; the interpretation of simple, descriptive statistics; and the review of major contemporary studies of

American public opinion. Prerequisite or corequisite: POL 104. *Fall or spring, 3 credits*

**POL 242 Political Culture and Socialization**

Discussion of principal concepts, methods, and findings in the related fields of political culture and political socialization with emphasis on the American political system. Substantive focus on: (1) how individuals are indoctrinated into the political culture via agents of socialization such as family, school, and mass media; (2) how the political culture influences support and opposition to the political authorities, regime, and community. Prerequisite: Sophomore standing. *Fall or spring, 3 credits*

**POL 250 Classical Political Theory: Plato to Mill**

Plato, Aristotle, St. Thomas, Machiavelli, Hobbes, Locke, Montesquieu, Hume, Mill, and Rousseau are to be read and discussed to the end of discovering their relevance to the understanding of political behavior. Prerequisite: Sophomore standing. *Fall or spring, 3 credits*

**POL 260 Introduction to Public Policy**

Discussion and analysis of the processes of agenda setting, formulation, implementation, and evaluation of public policies in selected issue areas, such as housing, land use, education, etc. The public policy-making processes of the United States will be compared with those of selected other countries. Prerequisite: POL 102. *Fall, 3 credits*

**POL 305 British Parliamentary Democracy (Formerly POL 231)**

Examination of the working of parliamentary democracy in Britain and in selected dominions with emphasis upon the nature of the societies in question and the relationship of society to the working of political institutions, ideologies, and governmental policies. Prerequisite: POL 102 and 103 and 1 other social science course. *Fall or spring, 3 credits*

**POL 308 Politics of Conflict: The Middle East (Formerly POL 213)**

The genesis and development of one of the most important international regional conflicts, the Arab-Israeli conflict. Issues of the conflict, role of external powers, and process of conflict resolution will be discussed. Prerequisite: POL 101. *Fall or spring, 3 credits*

**POL 311 Introduction to International Law**

Case book approach to standard introductory course in international law, including the following topics: state jurisdiction and responsibility, individuals, international organization, use of force. Prerequisite: POL 101. *Fall or spring, 3 credits*

**POL 312 International Organization**

A survey of alternative forms of political organization, their conditions and problems; historical precedents of international organization; the experience of the League of Nations, the United Nations and some of the more important specialized agencies; proposals for reforming the U.N.; and possible future developments. Prerequisite: POL 101. *Fall or spring, 3 credits*

**POL 313 Problems of International Relations**

Analysis of the international system, its characteristic forms, and the principal forces making for conflict and adjustment. Examination of some prevalent analytical concepts, of major current problems and developments, and of prospects and alternatives for the future. Prerequisite: POL 101. *Fall or spring, 3 credits*

**POL 317 American Election Campaigns**

Various approaches to studying strategies of American election campaigns. Quantitative and formal approaches are complemented by case studies and

other forms of qualitative evidence in pursuit of this goal. House Congressional campaigns are emphasized, but Presidential and other types of campaigns are also discussed. Prerequisite: POL 104. POL 240 or 241 is recommended. *Spring, 3 credits*

**POL 319 The Politics of Race (Formerly POL 222)**

An analysis of the role which race plays in national policy formulation in the United States. The following topics will be examined: the institutionalization of racism in the American political culture; how blacks perceive political reality; elitism and pluralism; non-violence; patriotism and black nationalism; black politics and black power; the response of government to the demands of blacks; new political forms; future directions in black-white relations. This course is identical with AFS 319. Prerequisite: Three courses in social sciences. *Spring, 3 credits*

**POL 320 Constitutional Law and Politics: United States**

A study of the role of the modern Supreme Court within the political and governmental process; its relation with Congress, the Presidency, state and local governments, parties and interest groups; and the Court's contemporary policy-making role in several areas—economic regulation, representation, race relations, censorship, religion in government, defendants' rights. Prerequisite: POL 102. *Fall and spring, 3 credits*

**POL 321 American Federalism and Intergovernmental Regulations**

A survey of the constitutional, institutional, and political interrelationships among federal, state, and local governments, covering grant-in-aid and interstate compacts. Prerequisite: POL 102. *Fall or spring, 3 credits*

**POL 322 The Presidency in the American Political System**

How presidential power developed historically; from what sources the powers of the modern presidency emanate; how decisions are made in the presidential institution; how and to what degree presidential power may or ought to be controlled. Prerequisite: POL 102. *Fall, 3 credits*

**POL 323 The Legislative Process**

An examination of American legislative institutions—Congress, state governments, local legislatures—in light of recent research. How legislatures actually operate and how American legislatures contribute to the "democratic culture." Prerequisite: POL 102. *Fall or spring, 3 credits*

**POL 324 American Political Parties and Pressure Groups**

This course examines: (1) political party organization, political leadership, finance, campaign techniques, and legal controls over parties; (2) the functions and methods of pressure groups and their interaction with policy makers; (3) the historical origins and development of the American party system; (4) the significance of parties and pressure groups for democratic ideology and the problems of political leadership in a democracy. Prerequisite: POL 102. *Fall or spring, 3 credits*

**POL 326 Politics of New York State**

Analysis of parties, pressure groups, and the political process in New York State. Particular attention paid to the legislative process in Albany. Prerequisite: POL 102. *Fall or spring, 3 credits*

**POL 327 Urban Politics**

Emphasizes both the formal and informal political institutions and processes in American cities, including governmental structures, political parties, interest groups, and service systems. Special attention will be given to community "power structures," political participation, and a comparative approach to the study of urban politics. Prerequisite: POL 102. *Fall or spring, 3 credits*

**POL 329 Politics of Community Action**

The phenomenon of community control as a contemporary political reality. The development of the idea of decentralization as a solution to social problems such as poverty and racism, as well as its deeper implications for political institutions in the U.S. will be analyzed. Prerequisite: POL 102. *Fall or spring, 3 credits*

**POL 330 Constitutional Law and Politics: Comparative**

The role of courts, lawyers, judges, and interest groups in the American and selected foreign political systems. Prerequisite: POL 320. *Fall or spring, 3 credits*

**POL 331 Comparative Political Parties and Pressure Groups**

An analysis of the nature and function of political parties and pressure groups, with emphasis upon non-American political systems, both Western and non-Western, and upon party history, electoral behavior, election campaigns, and pressure group activity. Analysis of cross-national public opinion survey data using card sorter. Prerequisite: POL 103. *Fall or spring, 3 credits*

**POL 332 Language and Politics**

The ways in which language shapes political judgments and preferences: How the words used in everyday language, in surveys, and by government to describe political events, issues, and processes carry multiple meanings. Exploration of the various experimental methods for determining the content and structure of political concepts. Prerequisite: POL 103. *Fall or spring, 3 credits*

**POL 333 Political Elites**

Analysis of the roles and composition of elite groups in a variety of political settings. The aim of the course is both to describe the predominant characteristics of such elites and to develop a theory of elite-mass relationships. Prerequisite: POL 103. *Spring, 3 credits*

**POL 335 Contemporary African Problems**

An investigation of the nature of African societies by studying the variety of African political, social, and traditional forms necessary to understanding developments in the 19th and 20th centuries. Emphasis will be upon some of the longstanding problems essential to understanding the diversity of ideas and people in the African scene. This course is identical with AFS 335. Prerequisites: Two AFS or POL courses. *Fall, 3 credits*

**POL 337 Politics in Africa**

A study of nationalism, political thought, and political institutions in Africa. Consideration is given to the quest for unity, the problems of liberation, and the political implications of social change. This course is identical with AFS 337. Prerequisites: Two AFS or POL courses. *Spring, 3 credits*

**POL 339 Politics in France and Italy**

Examination of the political process in France and Italy. The course will focus on selected problems rather than presenting a country-by-country summary. Emphasis will be placed upon the interplay of institutions, ideas, and personalities as they affect the vitality of democratic politics and the future of Western European unity. Prerequisite: POL 103. *Fall or spring, 3 credits*

**POL 340 Political Attitudes**

A treatment of the problems of public opinion and factors creating it. The course investigates: (1) the content and style of expressions of political attitudes; (2) the other political determinants of interest and participation levels and political loyalties; (3) attitude research methods. Prerequisite: POL 240. *Fall or spring, 3 credits*



**POL 341 Political Alienation, Protest, and Revolution**

Major contemporary explanations of political alienation and political protest will be discussed. Consideration of: (1) forms and causes of political alienation; (2) reasons for non-violent protest such as support for anti-regime political parties; (3) reasons for violent protest involving aggression against the regime; (4) conditions under which political protest leads to revolutionary change in existing regimes. Prerequisite: POL 240. *Fall or spring, 3 credits*

**POL 346 Political Psychology**

Focus on the application of psychological concepts and measures to political behavior. Course topics include: attitude measurement, stability and change; obedience to authority; learning theory; attention and problem solving; personality correlates of political activity; stress; and aggression. Prerequisite: POL 240. *Fall or spring, 3 credits*

**POL 347 Experimental Political Behavior**

Selected topics in political psychology, using experimental techniques, and emphasizing psycho-physiological measures of response patterns. Laboratory projects will be carried out by students in the department's psycho-physiological laboratory. Prerequisites: POL 240, PSY 102. *Fall or spring, 3 credits*

**POL 348 Political Beliefs and Judgments**

Following a review of the literature on political attitudes, the course applies psychological concepts and experimental approaches to the study of the content and structure of political beliefs and judgments. Prerequisite: POL 102 or 104. *Spring, 3 credits*

**POL 350 Contemporary Political Theory**

How has political theory assimilated the advances and discoveries in the other social sciences, developments in the analysis of language, and reversals in Hegelianism and anarchism? Original writing from Mosca to Marcuse. *Fall or spring, 3 credits*

**POL 351 Political Theory and Public Policy**

The relation between some central modern political concepts and some public policies. The course investigates such concepts as: equality; perfectability of institutions; the moral-political system; responsible government, as developed by thinkers from Rousseau to Mill. Case studies of five or six crucial policy developments (e.g., the war on poverty). Prerequisite: POL 102. *Fall or spring, 3 credits*

**POL 352 Polity and Economy**

The relationship between the political and economic systems in modern industrial society. Special emphasis will be placed on the economic influences on political support, especially in the United States. Problems of measuring support by public opinion polls, as well as econometric problems in analyzing the relationship between politics and the economy will also be discussed. Prerequisites: POL 102 and one course in economics. *Spring, 3 credits*

**POL 353 Utopian Politics**

Inquiry into the attractions and consequences of comprehensive ideological solutions to the shortcomings of the political community. Students will read four or five utopian works and a few analyses which seek to explain and evaluate this approach to political life. *Fall or spring, 3 credits*

**POL 354 Problems of Marxism**

The problems posed for Marxism by certain competing schools of political thought, by institutional and social developments in the West, in Russia, and in backward areas, and by deviationist tendencies as in China and

Yugoslavia. Particular attention will be given to the problems posed for social organization by (1) technology and its demands, (2) the ideal of high mass consumption, (3) the concept of individual development. Responses given to those problems by Marxism, Leninism, Mill, Weber, and Dewey will be surveyed. The course will relate doctrines to institutions. *Fall or spring, 3 credits*

### **POL 355 Political Persuasion Through the Arts (Formerly POL 252)**

Examination of a number of ideologically slanted works of art in order to find out their appeal. Seeks to discover how people perceive politics, what kind of symbols are attached to what patterns of thought and emotion. The terms and artistic structures of works with a political purpose will be examined: novels, dramas, movies, television programs. *Fall or spring, 3 credits*

### **POL 360 Political and Administrative Decision Making**

Exploration of approaches to the study of political choice. Topics dealt with include: decision theory, bargaining and negotiation, rationality, the political context of decision, decision tools, the empirical study of decision making, social criticism, and the decisionist perspective. Prerequisite: POL 260. *Fall or spring, 3 credits*

### **POL 361 Budgetary Process**

Budgetary process at all levels of government. Topics include the role of the budget in policy determination, in control and integration of government operations, and in relation to the private economy—planning, programming, budgeting, cost-benefit analysis. Prerequisite: POL 260. *Fall or spring, 3 credits*

### **POL 362 The Politics of Governmental Planning**

An examination of the governmental planning process of all levels—federal, state, regional, and local—with emphasis on the theory and practice of "creative federalism" related to the process and the relationships between planning and general governmental decision making. Prerequisite: POL 260. *Fall or spring, 3 credits*

### **POL 363 Policy and Administration of Natural Resources**

Policy development in the resources area as influenced by the structure and pattern of political power on international, national, state, and local levels of government. Topics include the significance of technological innovation, value orientations, and economic welfare analysis in giving direction to policy planning. Prerequisite: POL 260. *Fall or spring, 3 credits*

### **POL 364 Politics of Poverty and Welfare**

Consideration of the governmental policy-making process in welfare; poverty and welfare as problems for governmental action and public policy; poverty as a phenomenon for political analysis; national, state, and local programs to deal with poverty (particularly welfare programs); political behavior which results from poverty and the current welfare system. Prerequisite: POL 260. *Fall or spring, 3 credits*

### **POL 365 Bureaucracy and Public Administration (Formerly POL 261)**

Intended for students interested in a public service career. Topics include functions of bureaucracy in American society and in various cultural contexts; relationships between policy and administration; development of organizational and bureaucratic theories, with emphasis on decision making, innovation, and responsibility. Prerequisite: POL 260. *Fall or spring, 3 credits*

### **POL 366 Government Regulation of Business**

An examination of the scope of government regulation of business in the U.S. today—regulation at both the federal and state levels, regulation by both

“economic” and “social” agencies. The course will also compare alternative explanations for regulatory agency failures as well as possible explanations for why some regulatory agencies perform better than others. Finally, the course will consider proposed reforms, such as clearer legislative standards, curbs on “revolving door” practices, greater citizen participation in agency proceedings, and deregulation. *Fall or spring, 3 credits*

#### **POL 367 Mass Media in American Politics**

Competing theories of the power of the press will be tested by examining the literature on mass media effects—on what the public thinks and what the public thinks about. Various explanations of why it is that news organizations behave as they do will also be assessed. Conflicts between freedom of the press and such values as privacy, national security, and the right to fair trial will be discussed. The relationships between freedom of the press and the public’s right to know will also be explored. *Fall or spring, 3 credits*

#### **POL 369 Introduction to Methods of Political Research**

Introduction to the development, use, and testing of simple quantitative models of political and social phenomena. The approach centers on fitting equations to data with emphasis on how quantitative techniques can be brought to bear on the understanding of important problems of politics and public policy. Intended especially for those with an interest in public policy analysis and the law. Prerequisite: POL 240. *Fall and spring, 3 credits*

#### **POL 401, 402 Seminars in Advanced Topics**

Special projects and research papers on a topic of political interest which will be announced before the start of the term. Prerequisite: Permission of instructor. *Fall and spring, 3 credits each semester*

#### **POL 420 Problems in Constitutional Law and Politics: United States**

An advanced treatment of the work of the United States Supreme Court in selected areas of civil liberties and civil rights. Particular attention is given to the methods used in legal research and analysis. A major research paper is required. Prerequisites: POL 320 and 330 or 311. *Spring, 3 credits*

#### **POL 447 Directed Readings in Political Science**

Individually supervised reading in selected topics of the discipline. May be repeated, but total credit may not exceed 6 credits. Prerequisites: Political Science major, 15 credits in Political Science, and permission of instructor and department. *Fall and spring, 1 to 3 credits*

#### **POL 475 Undergraduate Teaching Practicum**

Each student will conduct a periodical recitation or laboratory section that will supplement a lecture course. The student will receive regularly scheduled supervision from the instructor. Responsibilities may include: preparing material for discussion and helping students with research papers. Grading in this course shall be Satisfactory/Unsatisfactory only. Prerequisites: Political Science major, senior standing, interview, and permission of instructor. *Fall and spring, 3 credits*

#### **POL 487 Directed Research**

Qualified advanced undergraduates in political science may carry out individual research projects under the direct supervision of a faculty member. May be repeated but total credit may not exceed 6 credits. Prerequisites: Political Science major, 15 credits in political science, and permission of instructor and department. *Fall and spring, 1 to 3 credits*

#### **POL 488 Internship**

Designed so that the student can participate in a local, state, or federal governmental agency or community organization. Students will be required to

submit progress reports to their department sponsor and a final report on their experience to the department faculty. Grading in this course shall be Satisfactory/Unsatisfactory only. May be repeated up to a limit of 9 credits. Prerequisite: Permission of instructor and department. *Fall and spring, 1 to 9 credits*

#### **POL 489 Washington Internship**

Designed so that students can participate in the Washington Center for Learning Alternatives (W.C.L.A.) as interns in private or public sector organizations and agencies. Students will be supervised by selected practitioners within the organization or agency. Students will be required to submit journals of experience and observation which, together with the supervisors' report, become the basis for a Satisfactory/Unsatisfactory grade. Only 3 credits for this course may be applied towards major requirements. This course is identical with SSI 489. Prerequisites: Admission to W.C.L.A., political science major with 3.0 G.P.A., 15 credits in political science, and sponsorship of a political science faculty member. Corequisite: POL 490. *Fall and spring, 9 credits*

#### **POL 490 Washington Seminar**

Seminar offered in Washington as part of the internship program of the Washington Center for Learning Alternatives (W.C.L.A.). The seminars are taught by people with experience in public and private agencies, public policy formulation, and relevant academic and professional experience. Students are offered work in several program areas designed to complement their internships, such as law and justice, congressional studies, policy studies, community-urban service, and studies in government. This course is identical with SSI 490. Prerequisite: Admission to W.C.L.A., political science major with 3.0 G.P.A., 15 credits in political science, and sponsorship of a political science faculty member. Corequisite: POL 489. *Fall and spring, 3 credits*

## Department of Psychology

**Professors:** Beverly Birns, Affiliate, Ph.D. Columbia University (Child development; psychology of women); Dana Bramel, Ph.D. Stanford University (Interpersonal perception; social psychology); Gerald C. Davison, Ph.D. Stanford University (Sexual psychology; rational-emotive therapy); James H. Geer, Ph.D. University of Pittsburgh (Sexual behavior); Marvin R. Goldfried, Ph.D. State University of New York at Buffalo (Behavioral assessment; cognitive

behavior therapy); **Richard Green**, Affiliate, M.D. Johns Hopkins University (Human sexuality; gender identity); **Harry I. Kalish**, Ph.D. University of Iowa (Applied learning; biofeedback; animal learning); **Leonard Krasner**, Ph.D. Columbia University (Behavior modification; environmental design); **Marvin Levine**, Director of Undergraduate Studies, Ph.D. University of Wisconsin (Human learning with emphasis on cognitive functions); **Robert Liebert**, Ph.D. Stanford University (Observational learning; laboratory methodology; statistics); **Emil Menzel**, Ph.D. Vanderbilt University (Primate behavior; social behavior); **John Neale**, Ph.D. Vanderbilt University (Behavior deviations; schizophrenia); **K. Daniel O'Leary**, Chairman, Ph.D. University of Illinois (Marital discord; hyperactivity in children); **Howard C. Rachlin**, Ph.D. Harvard University (Punishment; avoidance; choice; self-control); **Alan O. Ross**, Ph.D. Yale University (Psychological disorders of children; learning disabilities); **Eli Rubinstein**, Affiliate, Ph.D. Catholic University (Sexual behavior); **John Stamm**, Ph.D. University of Southern California (Experimental neuropsychology; higher cortical functions in monkeys and humans); **Bernard Tursky**, Affiliate, Diploma, Lowell Institute School, Massachusetts Institute of Technology (Psychophysiology; political psychology); **Stuart Valins**, Ph.D. Columbia University (Group dynamics; environmental psychology); **Everett J. Wyers**, Ph.D. University of California at Berkeley (Comparative and physiological psychology; memory consolidation)

**Associate Professors:** **David Cross**, Ph.D. University of Michigan (Psychophysics; mathematical models); **Thomas J. D'Zurilla**, Ph.D. University of Illinois (Abnormal psychology; behavior deviation); **David Emmerich**, Ph.D. Indiana University (Sensory processing; perception); **Ronald J. Friend**, Ph.D. University of Toronto (Social psychology; social change); **Marcia K. Johnson**, Ph.D. University of California at Berkeley (Human learning and memory); **Herbert Kaye**, Ph.D. Brown University (Developmental; learning disabilities); **Fredric Levine**, Ph.D. Northwestern University (Behavior modification; motivation; schizophrenia); **Joseph LoPiccolo**, Affiliate, Ph.D. Yale University (Sexual dysfunctions); **H. William Morrison**, Director of Graduate Studies, Ph.D. University of Michigan (Perception of abstract relations; instructional techniques);

**David M. Pomeranz**, Ph.D. University of Rochester (Environmental psychology; behavior modification); **Sally Springer**, Ph.D. Stanford University (Cognitive psychology; sensory processes; psycholinguistics); **Grover J. Whitehurst**, Ph.D. University of Illinois (Basic learning processes; operant learning)

**Assistant Professors:** **Lyn Abramson**, Ph.D. University of Pennsylvania (Learned helplessness; theory of depression); **Bernard J. Baars**, Ph.D. University of California at Los Angeles (Cognition and language; artificial intelligence); **Edward G. Carr**, Ph.D. University of California at San Diego (Behavior modification; learning disabilities); **Xenia Coulter**, Ph.D. Princeton University (Animal learning and memory; motivation); **Ernest F. Dube**, Affiliate, Ph.D. Cornell University (Cognition; cross-cultural comparisons); **James H. Dwyer**, Ph.D. University of California at Santa Cruz (Social stratification; structural equation modelling); **Alan Gilchrist**, Ph.D. Rutgers University (Perception; cognitive processes; experimental psychology; statistics); **Dale Hay**, Ph.D. University of North Carolina (Social development); **Theodore Lidsky**, Ph.D. University of Rochester (Psychobiology; animal learning); **Randall Lockwood**, Ph.D. Washington University (Animal behavior; ethological theory); **Alexandra Logue**, Ph.D. Harvard University (Operant conditioning; history of psychology); **Susan O'Leary**, Part-time, Ph.D. State University of New York at Stony Brook (Child and family problems; hyperactivity in children); **Brett Silverstein**, Ph.D. Columbia University (Causes of poor nutrition; cigarette smoking); **Everett Waters**, Ph.D. University of Minnesota (Social and personality development); **Harriet Waters**, Ph.D. University of Minnesota (Memory and cognitive development)

**Estimated Number of Teaching Assistants: 150**

### **Physical Facilities**

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

There are also Operant Laboratories (pigeons and rats), Memory and Perception Laboratories, Physiological Laboratories (marmosets, fish, primates), and Social Laboratories such as the Brentwood School tutoring project and the Long Island Equal Justice Association.

### ***Requirements for the Major in Psychology***

A series of core courses, electives, and options make up the major in psychology, which leads to the Bachelor of Arts degree.

A. Study within the area of the major: 30 credits in psychology to be distributed as follows:

1. Core Program:

- PSY 101, 102 Introduction to Psychology
- PYS 201 Statistical Methods in Psychology or MSA 102
- PSY 300 Research Methodology
- PSY 303 Research Methodology Laboratory

2. Distribution requirements within the major:

Two courses from each group (a and b below):

a. PSY 208 Theories of Personality

- PSY 209 Social Psychology
- PSY 211 Developmental Psychology
- PSY 215 Abnormal Psychology

b. PSY 220 Motivation

- PSY 241 Introduction to the Nervous System
- PSY 244 Comparative Psychology
- PSY 318 Animal Learning
- PSY 319 Human Learning
- PSY 321 Sensation-Perception

3. One additional course from either the 300 or 400 level.

B. Study in related areas

1. MSA 101, MSC 110 or MSM 121

2. One three-credit BIO course

3. One of the following options is also required. Because these options draw upon courses in other departments it is necessary to update the specific course numbers each year. A listing of the specific courses can be obtained from the Department of Psychology Undergraduate Office.

- a. Anthropology and/or Sociology Option
- b. Biological Sciences Option
- c. Computer Science Option
- d. History of Science Option

- e. Linguistics Option
- f. Mathematical Sciences Option
- g. Philosophy of Science Option
- h. Political Science Option
- i. Combined History and Philosophy of Science Option
- j. Combined Mathematical and Computer Science Option
- k. Additional Options:

The student may propose some other program of study representing a related area. Contact the Psychology Department office for details on how to do this. Students who are carrying a double major will be automatically granted approval for option k upon application. Completion of certain academic minor programs will also fulfill the option.

In fulfilling the above requirements A and B the student must take courses for letter grades. Courses in Section B may also fulfill College distribution requirements. The program outlined above presents the general major requirements. In addition, the department recommends that students who plan to enter graduate school in psychology include in, or add to, their programs an advanced laboratory (PSY 304-307).

*Note:* No more than 6 credits from among PSY 205, 287, 447, 475, and 487 may be taken in one semester. See also Independent Study Program, p. 122 for further limits on directed readings and research courses, and for further instructions on undergraduate teaching practica.

### ***Honors Program in Psychology***

Students apply for admission to the Psychology Honors Program in the fall of their junior year. Minimum academic requirements include a 3.0 grade point average overall and a 3.5 grade point average in psychology courses. At the time of application, students must have completed PSY 101, 102 Introduction to Psychology, PSY 201 Statistical Methods in Psychology, and one course from the psychology distribution requirements (either A or B). The department will announce the procedures and deadline for application in the middle of the fall semester.

The program is followed for three semesters. During the



spring of their junior year, students enroll in a 3-credit Honors Seminar (PSY 399) designed to review research topics currently studied by the psychology faculty. In their senior year, students register in PSY 487 (for 3 credits per semester) to work on an honors thesis. The honors project is proposed to a departmental honors committee after consultation with an appropriate faculty advisor. The thesis will be judged by three faculty members, one of whom will be from outside the department. Favorable judgment of the thesis and continued high academic performance will provide the basis for conferring honors in psychology.

### **Courses\***

#### **PSY 101, 102 Introduction to Psychology**

An introduction to psychology as the science of behavior. First semester: an introduction to the areas of personality theory, testing, and social and developmental psychology. Second semester: an intensive investigation of the major research areas covering learning, perception, and the physiological foundations of behavior. Students may choose to participate in experiments or in a library research project. Prerequisite to PSY 102: PSY 101. *Fall and spring, 3 credits each semester*

#### **PSY 201 Statistical Methods in Psychology**

The use and interpretation of elementary statistical techniques in research, emphasizing descriptive statistics, correlational analysis, and inferential statistics, including chi-square, critical ratio, t, F, and certain selected non-parametric techniques. May not be taken for credit in addition to MSA 102. Prerequisites: PSY 102 and MSA 101 or MSC 110 or MSM 121. *Fall and spring, 3 credits*

#### **PSY 205 Applications and Community Service**

Designed to provide opportunities for students to study and apply psychological principles outside the classroom (e.g., in settings such as hospitals and schools). Specific programs will vary from semester to semester. General information is available in the Undergraduate Office in the Psychology Department. Grading in this course shall be Satisfactory/Unsatisfactory only. May be repeated up to a limit of 6 credits. Prerequisite: Permission of instructor. *Fall and spring, 1 to 3 credits*

#### **PSY 208 Theories of Personality**

Contemporary theories of personality with emphasis on the experimental literature pertaining to personality development and current methods of personality assessment in the applied areas. Prerequisites: PSY 101, 102. *Fall and spring, 3 credits*

#### **PSY 209 Social Psychology**

Communication, attitude formation and change, social perception, interpersonal relations, and group performance. Prerequisites: PSY 101, 102. *Fall and spring, 3 credits*

#### **PSY 211 Developmental Psychology**

A study of the growth processes from fetal development to late childhood. Perceptual and learning characteristics are explained as they relate to in-

\*See p. 124, Course Credit and Prerequisites, and p. 125, Numbering System.

creases in cognitive and social competence in the total community. Biological factors are examined as they relate to inheritance of behavior patterns. Prerequisites: PSY 101, 102. *Fall and spring, 3 credits*

### **PSY 215 Abnormal Psychology**

Psychopathology, including the neuroses and functional and organic psychoses, will be examined. Analysis of current research in psychopathology and its relationship to the theories of abnormal behavior. Prerequisites: PSY 101, 102. *Fall and spring, 3 credits*

### **PSY 220 Motivation**

Theories of motivation from biological to existential and how they apply to human behavior. Prerequisites: PSY 101, 102. *Fall, 3 credits*

### **PSY 232 Psychological and Social Foundations of Education**

A competency-based course for students seeking secondary education teacher certification. Principles of psychology and sociology relevant to the student's future role will be considered. Topics will include traditional and contemporary issues in adolescent psychology; theories of learning; educational institutions and social processes of learning in relation to structures of societies. Not for major credit in psychology. This course is identical with SOC 232. *Fall and spring, 3 credits*

### **PSY 241 Introduction to the Nervous System**

Comparative survey of the gross and microscopic anatomy of nervous systems from coelenterates to primates. The physiological basis of behavioral organization with emphasis on the increasing structural complexities of nervous systems and behavior. Prerequisite: PSY 102 or BIO 101 or BIO 151. *Fall, 3 credits*

### **PSY 244 Comparative Psychology**

The phylogenetic distribution and evolution of both learned and unlearned behavioral patterns including kineses, taxes, instinct, respondent and operant conditioning, generalization, and discrimination. Prerequisites: PSY 101, 102 and BIO 101 or BIO 151. *Spring, 3 credits*

### **PSY 287 Supervised Research in Psychology**

Initial training and participation in techniques or duties related to a specific laboratory or field research experience under the direct supervision of a faculty member or advanced graduate student in the Department of Psychology. Students who wish to seek information on the opportunities available may do so through the Undergraduate Office of the Department of Psychology. Grading in this course shall be Satisfactory/Unsatisfactory only. Students may take two sections in a single semester, but no more than 3 credits may be applied to a section. May not be taken for more than 6 credits per faculty advisor during the student's career. Prerequisite: Permission of instructor. *Fall and spring, 1 to 6 credits*

### **PSY 300 Research Methodology (Formerly PSY 202)**

Basic principles in the design and execution of research in psychology. Prerequisite: PSY 201. *Fall and spring, 3 credits*

### **PSY 303 Research Methodology Laboratory (Formerly PSY 203)**

Designed to provide an introduction to basic techniques in research through laboratory experience. Prerequisite: PSY 300. *Fall and spring, 3 credits*

### **PSY 304 Laboratory in Social Psychology**

Techniques and experimental problems in social psychology, including natural observation, surveys, and experimental design. Prerequisites: PSY 303 and permission of instructor. *Fall and spring, 4 credits*

**PSY 305 Laboratory in Perception (Formerly PSY 301)**

Techniques and experimental problems in perception and sensation on the visual, auditory, and tactual senses. The role of motivation and selective attention on the detection and recognition of stimuli will be investigated. Prerequisites: PSY 303 and permission of instructor. *Fall and spring, 4 credits*

**PSY 306 Laboratory in Learning and Performance**

Experimental methodology as applied to associative and motivational processes: response acquisition and extinction, reward and punishment, discrimination learning, retention, perceptual-motor skills, and cognitive processes. Prerequisites: PSY 303 and permission of instructor. *Fall and spring, 4 credits*

**PSY 307 Laboratory in Physiological Psychology (Formerly PSY 302)**

Techniques and experimental problems in the neurophysiological correlates of behavior including sensation, perception, motivation, learning, and memory. Prerequisites: PSY 303 and permission of instructor. *Fall and spring, 4 credits*

**PSY 310 Studies of Social Conflict**

Students will formulate and carry out team research projects focusing on issues involving conflict within the University or in the surrounding communities. Prerequisites: PSY 101, 102, 201 and permission of instructor. *Fall and spring, 3 credits*

**PSY 311 Advanced Developmental Psychology**

Selected topics in child development: (1) social development, (2) cognitive development, (3) children's learning, and (4) the biological basis of development. One of these four topics will be explored in depth in a given semester, with another topic offered the following semester. The topic for a given semester will be announced at the time of preregistration. May be repeated once. Prerequisite: PSY 211. *Fall and spring, 3 credits*

**PSY 312 Behavior Deviation in Children**

Development and modification of behavioral deviations in children; application of principles derived from experimental analysis of behavior to problems of children. Prerequisite: PSY 211. *Fall and spring, 3 credits*

**PSY 314 The Neuropsychology of Learning Disabilities**

The relationships between learning disabilities in children and neuronal and psychological processes. The course considers anatomical, physiological, and developmental functions of the human brain and specific disorders in attention, perception, memory, language, and impulse control. Prerequisites: PSY 211 and 312. *Spring, 3 credits*

**PSY 315 Behavior Modification**

Philosophical and experimental foundations of behavior modification. Not designed for specific training in clinical techniques, but issues related to clinical application will be considered. Prerequisites: PSY 201, 215, and 303. *Fall and spring, 3 credits*

**PSY 316 Sexual Behavior**

This course will cover currently available material on patterns of sexual behavior. Material covered will include biological and sociological as well as psychological considerations. The course will present a systematic examination of the area and will include discussion of typical patterns of sexual behavior as well as consideration of sexual dysfunction and treatment. The major emphasis will be upon human sexuality; however, animal data will be presented where deemed appropriate. A substantial portion of the discussion will focus upon similarities and differences between the sexes. Prerequisites:

PSY 208 or 215 and permission of instructor. *Fall, 3 credits*

**PSY 317 Behavior Influence and Planned Environments**

The concept of "planned environments" as illustrated by research and application of behavior modification, environmental psychology, and open education. Prerequisites: PSY 215 and 312. *Fall, 3 credits*

**PSY 318 Animal Learning (Formerly PSY 218)**

Principles and techniques by which the behavior of organisms may be modified. The effects of reward and punishment and the techniques of stimuli control. Prerequisites: PSY 201. *Fall and spring, 3 credits*

**PSY 319 Human Learning (Formerly PSY 219)**

Basic concepts, empirical findings, and theoretical interpretation in the study of learning, knowing, remembering, and problem-solving. Prerequisite: PSY 201. *Fall or spring, 3 credits*

**PSY 321 Sensation-Perception (Formerly PSY 221)**

Phenomena of sensation and perception and the methods by which they may be studied. Different theoretical frameworks will be considered. Prerequisite: PSY 201. *Fall and spring, 3 credits*

**PSY 322 Advanced Statistics**

Survey of probability and sampling theory, descriptive and inferential statistics, and introduction to experimental design. Prerequisite: PSY 201. *Fall or spring, 3 credits*

**PSY 330 The Psychology of Eating and Drinking**

This course will survey theories of eating and drinking as well as cover various methods of treating drinking and eating disorders. Material from many areas of psychology will be included, for example, learning and motivation, physiological psychology, sensation and perception, and personality. Prerequisites: PSY 101, 102, a 200-level psychology course (except 205 or 287) and one semester of biology. *Fall or spring, 3 credits*

**PSY 340 Physiological Psychology**

The functions of the primate brain in behavioral processes covering sensations, perception, states of consciousness, motivation, learning, memory, and language. Prerequisites: PSY 101, 102 and BIO 101 or 151. *Fall, 3 credits*

**PSY 343 Electrical and Chemical Brain Stimulation**

Behavioral processes studied by the methods of electrical and chemical stimulation of the brain. Consideration of the electrophysiological and biochemical bases of learning, memory, and motivation. Prerequisite: PSY 340. *Fall, 3 credits*

**PSY 348 Human Memory**

Survey of recent theory and current research on the nature of human memory including iconic, short- and long-term memory, the nature of imagery, rehearsal, mnemonic strategies. Prerequisite: PSY 303. *Fall or spring, 3 credits*

**PSY 350 Cognitive Psychology**

An examination of theoretical and empirical work on human cognition. Emphasis will be placed on information processing, analysis of perception and pattern recognition, memory, attention, decision, and response processes. Prerequisite: PSY 303. *Fall or spring, 3 credits*

**PSY 352 History and Systems of Psychology**

History and present status of conceptual trends in psychology. Psychological principles and theories are traced from the early Greek philosophers through the European philosophers and empiricists to their embodiment in contem-

porary psychological theory. Prerequisite: Nine credits of psychology. *Spring, 3 credits*

### **PSY 354 Systematic Viewpoints in Psychology**

A study in depth of the theories and research of a single important psychologist or school of psychology. May be repeated with permission of the instructor. Prerequisites: PSY 101, 102. *Fall or spring, 3 credits*

### **PSY 370 The Psychology of Language**

Examination of language and a consideration of its implications for cognitive psychology. Prerequisites: PSY 319. *Fall or spring, 3 credits*

### **PSY 372 Tests and Measurements in Personality**

A study of principles of psychological assessment of personality with emphasis on theory and practice and principles of measurement theory and correlational techniques. Students will have the opportunity to develop a personality test and put these principles and techniques into practice. Prerequisites: PSY 201 and permission of instructor. *Fall, 3 credits*

### **PSY 373 Theory of Psychological Scaling**

Analyzes alternative models for transforming behavioral observations into inferred relations among stimuli and individuals. The course presents a framework within which the various scaling techniques can be grouped and their relationships understood, considering tasks to which the methods may apply, information which can be inferred, and testable consistencies implied. Prerequisite: PSY 201. *Fall or spring, 3 credits*

### **PSY 399 Contemporary Topics in Psychology**

Research topics and issues currently under investigation by members of the department will be reviewed. Each week a different faculty member will assign readings and will lecture on the theories, problems, and methods related to his/her research. Prerequisite: Admission to Psychology Honors Program. *Spring, 3 credits.*

### **PSY 413 Behavioral Tutoring**

Application of psychological principles to reduction of psychological disorders of children. Students are given the opportunity to apply the principles studied in PSY 312, under close supervision, to children with such behavior problems as specific learning disabilities or social skill deficits. May be repeated once with permission of instructor. Grading in this course shall be Satisfactory/Unsatisfactory only. Prerequisite: PSY 312. *Fall and spring, 3 credits*

### **PSY 447 Readings in Psychology**

Directed readings under the guidance of a faculty member. May be repeated. Prerequisites: Upper division standing and permission of department. *Fall and spring, 1 to 6 credits*

### **PSY 475 Undergraduate Teaching Practicum**

Each student will conduct a weekly recitation or laboratory section that will supplement a lecture course. The student will receive regularly scheduled supervision from a faculty member. Responsibilities may include preparing material for discussion and helping students with research papers. Grading in this course shall be Satisfactory/Unsatisfactory only. May not be repeated. Prerequisites: Senior psychology major and permission of instructor. *Fall and spring, 3 credits*

### **PSY 487 Independent Research in Psychology**

Upper-division students interested in carrying out independent research projects under the auspices of a faculty member in the Department of Psychology may do so under this course. The student must propose and carry

out the research project and must analyze and write up the results in a form acceptable to the sponsor. Written agreement by the faculty sponsor to undertake this responsibility and an outline of the project goals are filed with the Undergraduate Office in Psychology. These become a formal part of the student's departmental file. May be repeated up to a limit of 12 credits. Prerequisite: Permission of department. *Fall and spring, 3 to 6 credits*

**PSY 491, 492 Special Topics in Psychological Research and Theory**

Seminar for senior majors dealing with current research and theory in areas of special interest. Topics will be announced prior to the beginning of each semester. May be repeated up to a limit of 18 credits. Students may take two sections in a single semester. May not be taken for more than 6 credits per faculty member during the student's career. Prerequisites: PSY 303 and written permission of instructor. *Fall and spring, 3 credits each semester*

## Program in Religious Studies

**Professors:** Thomas J.J. Altizer, Ph.D. University of Chicago (Religion and literature; theology); Ray L. Hart, Visiting, Ph.D. Yale University (Hermeneutics; religious imagination); <sup>a</sup>Robert C. Neville, Director, Ph.D. Yale University (Philosophical theology; philosophy of religion; value theory and ethics)

**Associate Professor:** Christopher S. George, Adjunct, Ph.D. University of Pennsylvania (Indic and Tibetan Studies)

**Assistant Professor:** Sung-bae Park, Ph.D. University of California at Berkeley (Buddhist studies; Indian, Chinese, Japanese, and Korean philosophy and religious thought)

---

<sup>a</sup>Recipient of the State University Chancellor's Award for Excellence in Teaching 1974-75

The program in religious studies is designed as a flexible curriculum to introduce undergraduates to several areas of religious studies. Students may use it as a preparation for graduate study in religion, as an opportunity for exploring a wide range of religious phenomena, or as a vehicle for focusing a broadly based liberal arts curriculum. Requirements for the major may be satisfied by RLS courses and, with approval of the Program Director, by the courses from other departments listed below. Students wishing to satisfy the requirements with yet other courses may do so with the permission of the Director. Potential majors should consider fulfilling the Arts and Sciences language requirement with a language useful for research in a religious area of interest. Further information about the program may be obtained from the Director.

### ***Requirements for the Major in Religious Studies***

The major in religious studies leads to the Bachelor of Arts degree. It requires 30 credits distributed as follows:

	<i>Credits</i>
I. RLS 201 and RLS 400	6
II. Four semester courses within one of the following area emphases, chosen in consultation with the area emphasis faculty advisor:	12
A. Buddhism	
B. Chinese, Japanese, and Korean religions (including Taoism, Confucianism, Buddhism, Shintoism, and Shamanism)	
C. Christianity	
D. Indian and Tibetan religions (including Hinduism, Buddhism, and Jainism)	
E. Judaism	
F. Theology, philosophy, and method in religion	
III. Four semester courses in religious studies outside the area emphasis.	12
<i>Total</i>	30

*Note:* There is a faculty advisor for each area emphasis; students need the approval of the appropriate advisor for their selection of courses to count as falling within the area emphasis. Final approval should be sought prior to senior year registration. Religious studies majors should consult with the Program Director at each registration period.

## **Courses\***

### **RLS 101 Great Religions of the Contemporary World**

An introduction to the history, doctrine, and religious practices of Hinduism, Judaism, Buddhism, Confucianism, Taoism, Christianity, and Islam. *Fall, 3 credits*

### **RLS 111 Introduction to Tibetan Language**

An introduction to the Tibetan language, one of the most important primary sources for the study of Buddhist religion. The student will learn to pronounce and write Tibetan script, will study grammar, and by the end of the term will read elementary texts. Prerequisite: Permission of instructor. *Fall, 3 credits*

### **RLS 122 Goodness and Godliness**

A study of the diverse approaches to social values in conservative, liberal, and revolutionary religious thought, with case studies in political economy, medical ethics, and civil rights. An introduction to religious ethics. *Spring, 3 credits*

### **RLS 201 Fundamentals of Religion**

A critical introduction to the study of religion focusing upon both the modern understanding of religion and the situation of religion in the modern world. *Fall, 3 credits*

### **RLS 221, 222 Studies in Religion**

This is a lower-division study within the area of expertise of distinguished visiting faculty. The topic of the course varies from semester to semester. Students should consult the description of course offerings available from the Religious Studies office. The course may be repeated with the permission of the Director of Religious Studies. *Fall and spring, 3 credits each semester*

### **RLS 225 Medieval and Modern Religious Traditions of India**

An investigation of the religious worlds of India following the period of the Bhagavad Gita, including Hindu and Buddhist Tantric schools, medieval devotional systems, and Yoga and modern Indian religious movements in both an Indian and a Western context. *Spring, 3 credits*

### **RLS 230 Judaism**

A critical introduction to the scripture, the oral law, the traditions, the history, and the religious practices and beliefs of Judaism. This course is identical to JDS 230. *Fall, 3 credits*

### **RLS 240 Confucianism and Taoism**

An introduction to the basic philosophies and doctrines of Confucianism and Taoism, such as the concept of Tao, non-action, benevolence, and propriety. The course will explore both the similarities and the differences between these two traditions. *Fall, 3 credits*

### **RLS 251 Readings in Tibetan**

A variety of texts that relate to the study of Buddhist religion will be read in the original Tibetan. May be repeated for credit. Prerequisite: RLS 111. *Spring, 3 credits*

### **RLS 261, 262 Buddhist Classics I, II**

An introduction to Buddhist hermeneutics through the critical analysis of Chinese Buddhist texts focusing each semester on one text fundamental for Mādhyamika, Yogācāra, Tathāgatagarbha, Hua-Yan, Tien-tai chan, or Pure Land traditions. *Fall and spring, 3 credits each semester*

---

\*See p. 124, Course Credit and Prerequisites, and p. 125, Numbering System.



**RLS 270 Christianity**

A critical introduction to the scripture, tradition, history, and religious practices and beliefs of Christianity. *Spring, 3 credits*

**RLS 302 Contemporary Theology (Formerly RLS 202)**

A critical examination of contemporary theology with a primary emphasis upon modern Christian and radical theology. Prerequisite: RLS 201. *Fall, 3 credits*

**RLS 311 Theological Hermeneutics**

A critical inquiry into the ground of contemporary religious meaning and identity focusing upon the problematics of religion and theological language. Prerequisite: One religious studies course; RLS 201 recommended. *Spring, 3 credits*

**RLS 330 Special Topics**

An investigation of a particular area or dimension of religious studies which will vary from semester to semester. May be repeated with permission of program director. *Fall and spring, 3 credits*

**RLS 341 Meditation and Enlightenment**

A critical analysis of the traditions, practices, and literature of Zen and other traditions of Buddhism, with particular attention paid to the meaning of enlightenment and the practice of meditation. Prerequisite: One 200-level religious studies course. *Spring, 3 credits*

**RLS 350 Philosophical Theology: The Problem of God**

A study of twentieth-century concepts of the "religious object," examining Thomism, process theology, God as the subject of narrative, Buddhism, and speculative theology; both the dialectical and experiential aspects of the concepts will be assessed. Prerequisite: One 200-level religious studies course. *Spring, 3 credits*

**RLS 360 Theological Implications of the Holocaust**

The theological implications of the Holocaust will be examined from three religious perspectives: 1. The universal human and religious implications that transcend specific religious groups; 2. Specifically Christian implications of the Holocaust; 3. Specifically Jewish implications of the Holocaust. This course is identical with JDS 360. Prerequisite: Any 200-level religious studies course or HIS 204 or JDS / HIS 226 or 241. *Fall, 3 credits*

**RLS 370 Tibetan Buddhism**

The dynamics of Tibetan Buddhism from traditional texts and living sources; tantric practices, mandalas, meditation. Prerequisite: One 200-level religious studies course or PHI 231 or 232 or 236. *Fall, 3 credits*

**RLS 400 Religious Studies Seminar**

A proseminar for senior majors in religious studies, focusing on the problem of the relation between phenomenology, hermeneutics, and history of religions on the one hand and their theological and philosophic interpretation on the other. May be repeated once. Prerequisite: Permission of program director. *Spring, 3 credits*

**RLS 447 Readings in Religious Studies**

Intensive study of a special topic in religious studies undertaken under close faculty supervision. May be repeated. Prerequisite: Permission of program director. *Fall and spring, 1 to 6 credits*

## *Related Courses in Other Departments*

Detailed course descriptions appear under appropriate departmental listings and should be examined there.

AFS 346 Black Religion  
ANT 251 Comparative Religious Systems  
CLS 215 Classical Mythology  
EGL 342 Milton  
EGL 261, 262 The Bible as Literature  
HIS 233 Medieval History, 300-1100  
HIS 236 The Age of Reformation  
JDS / HIS 225, 226 Civilization of Israel I, II  
PHI 231 Introduction to Indian Philosophy: Classical Texts  
PHI 232 Introduction to Indian Philosophy: Philosophic Interpretations  
PHI 236 Introduction to Chinese Philosophy  
PHI 268 Philosophy of Religion  
PHI 273 Philosophy of Myth  
PHI 304 Medieval Philosophy  
PHI 340 Indian Buddhism: Its Essence and Development  
PHI 342 Chinese and Japanese Buddhism  
PHI 415 The Philosophical Methodology of the Rig Veda  
SOC 352 Sociology of Religion

Appropriate special topics from these or other departments may also be offered to fulfill major requirements with permission of the religious studies director.

## **Interdisciplinary Program in Social Sciences**

**Professors:** Beverly Birns, Coordinator of Women's Studies, Ph.D. Columbia University (Psychology; women's studies); Joel T. Rosenthal, Affiliate, Ph.D. University of Chicago (Social history); Eli Seifman, Director, Ph.D. New York University (Social science education; Asian studies)

**Assistant Professor:** Shi Ming Hu, Ed.D. Columbia University (Chinese and Asian studies; social science education)

**Lecturers:** Robert D. Bagnall, Ph.D. Temple University (Curriculum theory development); David Lichtenstein, Coordinator of Child Care and Family Studies, M.S. Bank Street College of Education (Early childhood; day care); Vera Rony, M.A. University of Chicago (Labor studies, economics)

### ***Asian Studies***

*Coordinator:* Robert H.G. Lee (History)

### ***Women's Studies***

*Coordinator:* Beverly Birns (SSI)

### ***Child Care and Family Studies***

*Coordinator:* David Lichtenstein (SSI)

This interdisciplinary degree program (SSI) is designed for students with broad interests in the findings, questions, and methods of the social and behavioral sciences. Individual plans of study are created by combining courses chosen from among the offerings of Africana studies, anthropology, economics, history, linguistics, political science, psychology, sociology, and the social sciences program courses (e.g., SSI 101), and the student must do work in at least four of these fields.

The social sciences program is the administrative home of three minors, Asian studies, child care and family studies, and women's studies. Social sciences majors who wish to follow one of these areas of concentration may choose courses in the minor so as to simultaneously fulfill a large number of their social sciences requirements. Students who are not social sciences majors are free to complete the minor by following one of the options outlined. Further information on the minors is available at the social sciences office.

### ***Requirements for the Major in Social Sciences***

The interdisciplinary major in social sciences leads to the Bachelor of Arts degree. The following courses are required.

Courses in at least four different social science departments distributed as follows:

	<i>Credits</i>
A. Two courses in <i>each</i> of any two departments	12
B. Four courses in <i>each</i> of any two other departments (At least two of the courses in each department must be numbered 300 or above)	24
C. Four additional courses in any social science department or departments numbered 300 or above	12
<i>Total</i>	<hr/> 48

*In Addition:*

1. At least 36 credits of the 48 must be earned by letter grade.

2. No more than 9 credits of reading and research may be taken, and no more than 6 credits of such work may come from any single department or program.

3. Up to 6 credits from a list of appropriate related courses numbered 300 or above may be substituted for two of the four courses needed for requirement C. With prior permission, upper-division humanities courses may be used to satisfy up to 6 hours of credit for SSI majors concentrating in the subjects of the minors.

4. At least 6 credits must be from SSI courses.

5. The 12 social science credits needed to satisfy the College distribution requirement may be simultaneously counted towards the 48 needed for the SSI major.

***Requirements for the Minor in Asian Studies***

This minor may also be taken as a field of concentration for students within the SSI major. The student should work out an individual program in consultation with the advisor.

	<i>Credits</i>
A. Study in Social Sciences	12-18
1. 6 credits in history (chosen from HIS 219, 220, 317)	
2. Up to 12 credits in social science courses listed below: at least 6 credits are to be from a department other than history.	
B. SSI 461	3
C. 6-12 credits in the humanities from courses listed below	6-12
	<hr/>
<i>Total</i>	24

At least 9 credits must be taken in upper-division courses.

Though there is no language requirement for the minor (or the concentration), at least one year of Chinese is recommended for the insight it offers into an Asian culture.

*Note:* For SSI majors who wish to choose the Asian studies concentration, there are a few differences. There should be 12 credits of social science beyond the 6 required in history, and no more than 12 of the 18 social science credits may be in history.

The humanities courses may be used to satisfy the SSI major's "appropriate courses" option if they are numbered 300 or above, with permission of the minor coordinator.

### *Social Science*

- ANT 206 People of Asia
- ANT 313 China: Social and Cultural Background
- HIS 340 Intellectual History of China
- HIS 341 20th Century China
- HIS 431 Colloquia in Asian History
- SSI 140 Introduction to China Today
- SSI 340 Education in Contemporary China

### *Humanities*

- ARH 203 Survey of Far Eastern Art
- ARH 318 History of Chinese Painting
- PHI 231 Introduction to Indian Philosophy: Classical Texts
- PHI 232 Introduction to Indian Philosophy: Philosophical Interpretations
- PHI 236 Introduction to Chinese Philosophy
- PHI 239 Japanese Philosophy and Aesthetics
- PHI 340 Indian Buddhism: Its Essence and Development
- PHI 342 Chinese and Japanese Buddhism
- RLS 225 Medieval and Modern Religious Traditions of India
- RLS 240 Confucianism and Taoism
- RLS 261, 262 Buddhist Classics I, II
- RLS 341 Meditation and Enlightenment
- RLS 370 Tibetan Buddhism

### ***Requirements for the Minor in Women's Studies***

This minor, totaling 24 credits, can also be taken as a field of concentration for students within the SSI major. At least 9 credits must be in upper-division courses. Students must work out individual programs in consultation with the coordinator.

	<i>Credits</i>
A. Study in Social Sciences	
1. SSI 102 Introduction to Women's Studies This should be taken as early as possible.	3
2. Social science courses to be chosen from the list below. These courses must be from two departments besides SSI.	9-15
3. SSI 407 Senior Seminar in Women's Studies (SSI 487 Independent Projects in the Social Sciences may be substituted with permission of coordinator.)	3

## B. Study in Humanities

6-12

To be chosen from courses listed below. If more than 6 credits are chosen, the courses must be from more than one department.

---

Total 24

SSI majors who wish to choose the women's studies concentration may use their humanities courses numbered 300 and above and approved by the coordinator to satisfy the SSI major's "appropriate courses" option. The social science courses must be in at least two departments.

### *Social Science*

AFS 370 The Black Family  
ANT 367 Male and Female in Cross Cultural Perspective  
HIS 242 Women in European History  
HIS 283 Sex in History  
SOC 204 Courtship and Marriage  
SOC 247 Women and Men  
SOC 304 Sociology of the Family  
SSI 103 Childhood: Social and Historical Perspectives  
SSI 307 Women and Psychology  
SSI 487 Independent Projects in the Social Sciences

### *Humanities*

EGL 276 Women and Literature  
HUM 122 Images of Women in Fiction  
HUM 123 Sin and Sexuality in Literature  
HUM 124 Childhood and Family in Literature  
PHI 279 Philosophic Perspectives on Feminism

### *Health Sciences*

HAS 518 Health Care of the Older Woman in American Society  
HWC 318 Women and Health Care

Many departments offer upper-division courses which permit a student to do research relating to women. When work in such a course is to be used towards the requirements of the minor or the concentration, the approval of the instructor and the minor coordinator should be obtained. There are applicable courses offered at the upper level in SSI, economics, etc.

Work within the field of women's studies can be done within most humanities and social science departments through independent reading and research courses, senior and honors seminars, and variable topics courses. Such work should be done with the approval of the coordinator.

## ***Requirements for the Child Care and Family Studies Minor***

The child care and family studies minor combines course work in child development and the family with practical, directed work in one of the campus child care centers. Courses in social sciences and psychology, work in a child care center, and a senior seminar are all combined to give students in the minor experience in a variety of disciplines and in modes of instruction and directed work in the field of applied child development.

*Credits*

### **I. Study in Social Sciences**

A. SSI 103 Childhood: Social and Historical Perspectives

3

B. SSI 280 and SSI 281: Practicum and Seminar in Child Development

6

### **II. Related Courses**

To be chosen from the list below. Some courses must be chosen from at least two departments other than SSI. At least 9 of the 15 credits must be from upper-division courses.

15

---

*Total* 24

- AFS 370 The Black Family
- ANT 352 Culture and Personality
- ANT 354 Family Kinship
- HIS 160 History of American Education
- HUM 124 Childhood and the Family in Literature
- LIN 105 Non-Standard Varieties of English
- LIN 320 Psycholinguistics
- PSY 209 Social Psychology
- PSY 211 Developmental Psychology
- PSY 311 Advanced Developmental Psychology
- PSY 312 Behavior Deviation in Children
- PSY 317 Behavior Influence and Planned Environments
- PSY 413 Behavioral Tutoring
- SOC 204 Courtship and Marriage
- SOC 243 Sociology of Youth
- SOC 247 Women and Men
- SOC 304 Sociology of the Family
- SOC 308 Poverty and Social Welfare
- SOC 380 Social Psychology
- SSI 487 Independent Projects in the Social Sciences

## **Courses\***

### **SSI 101 Social Control**

An introductory exploration of the nature and variety of social organization. Special attention is paid to political philosophy, to the concept of "social determinism," and to various forms of social bond and constraint. Readings will be drawn from the various social sciences. Prerequisite: Freshman standing. *Fall, 3 credits*

### **SSI 102 Introduction to Women's Studies**

This course is a general introduction to women's studies and to the feminist movement. It looks at the way a number of different academic disciplines have dealt with the female component of society, and it examines the contributions women have made and the roles they have played in a variety of areas. *Spring, 3 credits*

### **SSI 103 Childhood: Social and Historical Perspectives**

Theories and conceptions of child development and the practices of child-rearing will be related to social and historical changes in the 19th and 20th centuries: the effects of the Industrial Revolution and urbanization on children's lives, as well as upon theories of child-rearing; such phenomena as infant mortality, birth control, child health, and child-care arrangements; major theories, e.g., those of Freud, Skinner, Piaget, and Erikson, as products of a social and historical context. *Fall, 3 credits*

### **SSI 140 Introduction to China Today**

An introduction to the People's Republic of China through the study of selected topics dealing with life and society in China today. Selected topics include: children and youth, women, literature and art, education, medicine and health care, communes, national minorities, language reform. *Fall, 3 credits*

### **SSI 265 Drug and Alcohol Education**

The examination of drug- and alcohol-related issues as they concern the teacher. The course will examine currently available information from an interdisciplinary perspective and will be concerned with the pre-college setting. *Fall and spring, 1 credit*

### **SSI 280 Practicum in Child Development (Formerly INT 280)**

Students will work 9 hours a week in a full-day child-care center to gain practical experience in teaching, making materials and observing pre-school children. "Day-book" records will be kept and will be one of the bases for discussion in SSI 281. This course will require students to use the knowledge gained in SSI 281 in a closely supervised situation. May not be repeated for credit. Prerequisites: PSY 211 or SSI 103 and permission of instructor. Corequisite: SSI 281. *Fall and spring, 3 credits. For elective credit only.*

### **SSI 281 Seminar in Child Development (Formerly INT 281)**

Students will meet weekly to discuss their experience in the child-care center and to learn basic principles of early childhood education and development relevant to the day care situation. Lectures and demonstrations of early childhood activities will emphasize language and cognition, social and motor behavior, "play," "arts and crafts," and various techniques for organizing group and individual energies. Prerequisites: PSY 211 or SSI 103 and permission of instructor. Corequisite: SSI 280. *Fall and spring, 3 credits*

### **SSI 303 Methods in the Social Sciences**

This course is designed for social science students who want an introduction to the premises, modes of inquiry, and methods of the social sciences. Differ-

\*See p. 124, Course Credit and Prerequisites, and p. 125, Numbering System.



ent analytical methods will be covered in different semesters. May be repeated. Prerequisites: 18 hours of social sciences credit. *Schedule to be announced, 3 credits*

### **SSI 307 Women and Psychology**

The psychological impact of important physiological and sociological events and epochs in the lives of women: menstruation, female sexuality, marriage, childbirth, and menopause; women and mental health, mental illness, and psychotherapy; the role of women in the field of psychology. Prerequisite: SSI 102 and ANT 367 or PSY 101, 102 or SOC 247. *Fall, 3 credits*

### **SSI 311 Interdisciplinary Problems in the Social Sciences**

This course treats a problem that has been tackled by a number of the social sciences. It illustrates the different natures of approach, method, and findings. The actual problem chosen will vary from semester to semester. May be repeated. Prerequisites: 18 hours of social sciences credit. *Schedule to be announced, 3 credits*

### **SSI 340 Education in Contemporary China (Formerly SSC 240)**

Extensive examination of the educational practice, educational policy, and curriculum in the People's Republic of China with emphasis on the interrelationship between political ideology and the educational system. *Alternate years, 3 credits*

### **SSI 375 Social Studies Curriculum Development: Seminar-Laboratory**

An analysis of selected theoretical constructs for social studies curriculum development and their application to the design of new curriculum materials. Special emphasis given to the design, analysis, and evaluation of curriculum materials developed by the student and experimented with in actual teaching experiences. Laboratory requires a minimum of three hours per week in selected schools. Prerequisite: Permission of instructor. *Fall and spring, 4 credits*

### **SSI 397 Teaching Social Studies**

A study of social studies as a subject taught in the secondary schools, the nature of the social studies, curricula models, scope and sequence of topics offered, new programs of social studies instruction, etc. Designed for prospective teachers of social studies in secondary schools. Prerequisite: A minimum of five social science courses numbered 200 or higher. *Fall, 3 credits*

### **SSI 398 Social Studies Teaching Strategies**

An examination of the instructional methods and materials for teaching social studies at the secondary school level. Designed for prospective teachers of social studies in secondary schools. Prerequisite: SSI 397. *Spring, 3 credits*

### **SSI 407 Senior Seminar in Women's Studies**

Students will have the opportunity to explore any one issue pertaining to women's studies in depth. The research may be field based or entirely library research. Prerequisite: Completion of 15 credits of the women's studies minor. *Spring, 3 credits*

### **SSI 450 Supervised Student Teaching**

Prospective secondary social studies school teachers will receive supervised practice teaching by arrangements with selected Long Island secondary schools. The student teacher reports to the school to which he or she is assigned for a full school day for the semester. Frequent consultation with the supervising teacher helps the student to interpret and evaluate the student teaching experience. Applications must be filed in the semester preceding that in which the student plans to student teach. The dates by which applica-

tions must be completed will be announced. Grading in this course shall be Satisfactory/Unsatisfactory only. Prerequisite: Enrollment in the Social Studies Teacher Preparation Program and approval of Social Studies Coordinator. Corequisite: SSI 454. *Fall and spring, 12 credits*

#### **SSI 454 Student Teaching Seminar**

Seminar on problems and issues of teaching social studies at the secondary school level. Analysis of actual problems and issues encountered by the student in his or her student teaching experience. Corequisite: SSI 450. *Fall and spring, 3 credits*

#### **SSI 461 Senior Seminar in Asian Studies**

This interdisciplinary seminar will bring together faculty members and students to discuss and do research on various problems of current interest in the field of Asian studies, including such topics as agrarian unrest; nationalism; regional economic integration; problems of modernization, industrialization, historical continuity and discontinuity; and comparative aesthetics. A seminar director will be responsible for the selection of the topic and the faculty participants. Prerequisite: 18 credits in Asian studies. *Fall and spring, 3 credits*

#### **SSI 487 Independent Project in the Social Sciences**

Interdisciplinary independent projects in the social sciences designed to enable students to combine academic and field work on a practical or community problem. There will be an emphasis on team projects under special supervision. May be repeated. Prerequisites: 18 credits in the social sciences and permission of program director. *Fall and spring, 1 to 6 credits*

#### **SSI 489 Washington Internship**

Designed so that students can participate in the Washington Center for Learning Alternatives (W.C.L.A.) as interns in private or public sector organizations and agencies. Students will be supervised by selected practitioners within the organization or agency. Students will be required to submit journals of experience and observation which, together with the supervisors' report, become the basis for a Satisfactory/Unsatisfactory grade. Only 3 credits for this course may be applied towards major requirements. This course is identical with POL 489. Prerequisites: Admission to W.C.L.A. and 15 credits from at least three social science departments. Corequisite: SSI 490. *Fall and spring, 9 credits*

#### **SSI 490 Washington Seminar**

Seminar offered in Washington as part of the internship program of the Washington Center for Learning Alternatives (W.C.L.A.). The seminars are taught by people with experience in public and private agencies, public policy formulation, and relevant academic and professional experience. Students are offered work in several program areas designed to complement their internships, such as law and justice, congressional studies, policy studies, community-urban service, and studies in government. This course is identical with POL 490. Prerequisites: Admission to W.C.L.A. and 15 credits from at least three social science departments. Corequisite: SSI 489. *Fall and spring, 3 credits*

# Social Studies Secondary Teacher Preparation Program

*Program Coordinator:* Eli Seifman

This program offers the student the opportunity to prepare for a teaching career and to complete the requirements for a New York State Provisional Certificate as a teacher of secondary school social studies.

In the selection of courses to satisfy the requirements listed below, a student and his or her advisor should make every effort to construct a program which leads to knowledge and understanding of a particular society with a language and a culture different from those of the student.

Students who wish to enter this program are expected to consult the program advisor and establish an advisement folder prior to the beginning of the junior year. Failure to do so may result in a delay in meeting the certification requirements.

## *Requirements*

*Credits*  
48

### A. Preparation in Social Science

A minimum of 48 credits in social science departments or interdisciplinary programs, excluding psychology. For departmental majors, this must include at least 15 credits outside the major department. At least 9 of these 15 credits must be in upper-division courses.

1. Included in the social science credits must be at least 18 credits of history, distributed as follows: 6 credits in U.S. history; 6 credits in European or world history; and 6 credits in history other than U.S., European, or world.

2. The major requirements of one of the following departments or interdisciplinary programs: Africana Studies, Anthropology, Economics, History, Political Science, Social Sciences Interdisciplinary Program, Sociology. Only the majors specified here are acceptable for the Social Studies Secondary Teacher Preparation Program.

These requirements include a course in foundations of education (SOC/PSY 232, PHI 360, or HIS 160); training in drug and alcohol education (SSI 265), six credits in methods and materials of teaching social studies (SSI 397 or HIS 397, SSI 398 or HIS 398 or SSI 375); student teaching (SSI 450); and a student teaching seminar (SSI 454).

## Department of Sociology

*Distinguished Professor:* <sup>a</sup>Lewis A. Coser, Ph.D. Columbia University (Theory; sociology of knowledge and intellectuals; conflict and violence; political sociology)

*Professors:* Stephen Cole, Ph.D. Columbia University (Sociology of science, medicine, and the professions); <sup>a</sup>Rose Laub Coser, Joint with Division of Social Sciences and Humanities, Health Sciences Center, Ph.D. Columbia University (Medical; family; organizations; socialization; gender roles); Kenneth A. Feldman, Ph.D. University of Michigan (Social psychology; youth; higher education); <sup>b</sup>John H. Gagnon, Ph.D. University of Chicago (Sexual behavior; marriage and the family; social change; deviance); <sup>c</sup>Norman Goodman, Chairman, Ph.D. New York University (Social psychology; marriage and the family; socialization); Robert W. Hodge, Ph.D. University of Chicago (Stratification; social change; research methods; statistics; work and the professions); Gladys E. Lang, Ph.D. University of Chicago (Mass

---

<sup>a</sup>On leave academic year 1979-80

<sup>b</sup>On leave Fall 1979

<sup>c</sup>Recipient of the State University Chancellor's Award for Excellence in Teaching, 1975-76

communications; education; collective behavior); **Kurt Lang**, Ph.D. University of Chicago (Mass communications; collective behavior; military sociology; conflict and violence); **Charles Perrow**, Ph.D. University of California at Berkeley (Organizations; social change; political sociology; conflicts and social movements); <sup>b</sup>**Hanan C. Selvin**, Ph.D. Columbia University (Research methods; statistics; marriage and the family); **Eugene A. Weinstein**, Ph.D. Northwestern University (Social interaction; social psychology; research methods)

**Associate Professors:** **O. Andrew Collver**, Ph.D. University of California at Berkeley (Demography; urban; social planning; ecology; organizations); **Erich Goode**, Ph.D. Columbia University (Deviance; criminology; religion); **Mark Granovetter**, Ph.D. Harvard University (Economic and political sociology; stratification; mathematical models; theory); **Ned Polsky**, B.A. University of Wisconsin (Deviance; criminology; stratification; sociology of the arts); **James Rule**, Ph.D. Harvard University (Theory; political sociology; social control); <sup>d</sup>**Michael Schwartz**, Ph.D. Harvard University (Political sociology; research methods; ethnic relations; mathematical models; historical methods); **Judith Tanur**, Ph.D. State University of New York at Stony Brook (Statistics; research methods; social psychology); **Andrea Tyree**, Ph.D. University of Chicago (Demography; stratification; statistics; research methods)

**Assistant Professors:** **Said Amir Arjomand**, Ph.D. University of Chicago (Comparative sociology; historical sociology; theory; sociology of religion); **Diane Lee Barthel**, Ph.D. Harvard University (Urban sociology; community; race and ethnicity; sex roles); **Ivan D. Chase**, Ph.D. Harvard University (Social stratification; conflict and cooperation; biosociology); **Wallace Davis**, Ph.D. Princeton University (Theory; sociology of knowledge; deviance; education); **Scott L. Feld**, Ph.D. Johns Hopkins University (Collective decision making; games and simulation; small groups; research methods); **Paget Henry**, Ph.D. Cornell University (Theory; political sociology; religion; social change; stratification); **John Logan**, Ph.D. University of California at Berkeley (Political sociology, industrial sociology, urban sociology); **Terry Rosenberg**, Ph.D.

---

<sup>d</sup>Recipient of the State University Chancellor's Award for Excellence in Teaching, 1974-75

University of Chicago (Demography; gender roles; research methods; ethnic relations; urban); **Gerald Zeitz**, Ph.D. University of Wisconsin (Theory; organizations; work and the professions; social change; comparative social structure)

**Lecturer:** Richard Williams, M.A. State University of New York at Binghamton (Race and ethnic relations; sociology of education)

**Estimated Number of Teaching Assistants: 55**

### **Requirements for the Major in Sociology**

The major in sociology leads to the Bachelor of Arts degree. The following courses are required.

	<b>Credits</b>
<b>A. Study within the area of the major</b>	<b>30</b>
1. Required courses	
SOC 103 Introduction to Sociology	
SOC 201 Research Methods in Sociology (to be taken no later than the sophomore year; SOC 211-212 may be substituted)	
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 years)	
2. Sociology electives (18 credits)	
<i>Option 1:</i> Free selection of courses from among all sociology course offerings.	
<i>Option 2:</i> Concentration in one or more of the following areas: Comparative political sociology; the sociology of culture; urban sociology; sociological methodology; social psychology; applied sociology; pre-teaching; pre-graduate school; pre-law school. (Further information and guidance is available from departmental advisors.)	
<i>Option 3:</i> Systematic selection of courses from a limited number of concentrations.	
<i>Note:</i> SOC 202 Statistical Methods in Sociology or SOC 211-212 are recommended for majors considering graduate study.	

### B. *Study in related areas*

1. MSM 121 Survey of Calculus or MSA 101 Introduction to Finite Mathematics or two other courses in mathematics chosen with departmental approval. The department urges students to fulfill the mathematics requirement as early in their college careers as possible.

3-4

2. At least three courses (9 credits) chosen from one of the following related social sciences: anthropology, economics, history, political science, and psychology. (Credits from applied social science professions like social work, police science, education, and management science are not applicable.)

9

---

Total 42-43

### C. *Grading Policy*

1. No more than two courses from the requirements of the department, including sociology electives (A, 2 above), mathematics (B, 1 above), and related social science courses (B, 2 above), but excluding required sociology courses (A, 1 above), may be taken pass/no credit. None of the required sociology courses may be taken pass/no credit.

2. All upper-division courses in sociology offered to fulfill major requirements must be passed with a grade of C or better.

3. For transfer students who are sociology majors, special regulations apply:

a. No grade of less than C for a sociology course taken elsewhere than at Stony Brook will be accepted for credit in the major.

b. For the requirement of three courses in a related social science and for the mathematics requirement (B, 1 and B, 2 above), any passing grade will be sufficient to transfer for credit.

*Note:* The Sociology Department requires that transfer students take at least 12 credits in sociology in residence at Stony Brook to complete the sociology major.

### ***Minor in Methods of Social Research***

This minor is intended primarily for students majoring in one of the social and behavioral science departments or interdis-

disciplinary programs who plan graduate study in one of the social or behavioral sciences or professional careers that may involve a significant amount of social research—for example, law, public health, or marketing. The requirements for the minor have been chosen to include substantive breadth, methodological power, and technical proficiency:

	<i>Credits</i>
a. Three substantive courses in one department or program in the social and behavioral sciences outside the major.	9
b. One course in quantitative methods and one course in qualitative methods, each in a department outside the major.	6
c. One course in theoretical or mathematical statistics.	3
d. One course in advanced applied statistics.	3
e. Demonstrated proficiency in computer programming; no course requirement.	—
f. SOC 405 Seminar in Methods of Social Research.	3
	<i>Total</i> 24

For further details on the minor, including suggested courses to meet the specific requirements, see Professor Hanan C. Selvin or Professor Judith Tanur.

### **Courses \***

#### **SOC 103 Introduction to Sociology**

A survey of the main concepts in sociological analysis. This course is the prerequisite for all further courses in sociology. *Fall and spring, 3 credits*

#### **SOC 201 Research Methods in Sociology**

Methods of collecting and analyzing empirical data to test sociological hypotheses. Emphasis will be on multivariate analysis of tabular and statistical data. Students planning on graduate work in sociology should consider SOC 211-212 instead of SOC 201. Not for credit in addition to SOC 211-212. Prerequisite: SOC 103. *Fall and spring, 3 credits*

#### **SOC 202 Statistical Methods in Sociology**

An introduction to the use and interpretation of statistical methods in social research; descriptive and inferential statistics. May not be taken for credit after any other statistics course. Prerequisite: SOC 103 and satisfaction of mathematics proficiency requirement. *Fall, 3 credits*

#### **SOC 204 Courtship and Marriage**

Social factors affecting courtship, mate selection, and engagement; dynamics of marital adjustment and parenthood. *Fall and spring, 3 credits*

\* See p. 124, Course Credit and Prerequisites, and p. 125, Numbering System.



### **SOC 211-212 Methods and Statistics I, II**

Students wishing a more thoroughly integrated view of sociological methodology and the place of statistical techniques in it should register for this two-semester course rather than for SOC 201 or SOC 202. Students will learn descriptive and inferential statistics in the course of designing and carrying out either individual or group research projects; the students will consider the interrelations between theory and research as well as the mechanics of carrying out the research process. Every student will be required to analyze a set of data and to write a research report. SOC 201 and SOC 202 are not available for credit for students taking SOC 211-212, and this course fulfills the methodology requirement for the major. Prerequisite: SOC 103 and satisfaction of mathematics proficiency requirement. *Fall (211) and spring (212), 4 credits each semester*

### **SOC 232 Psychological and Social Foundations of Education**

A competency-based course for students seeking secondary education teacher certification. Principles of psychology and sociology relevant to the student's future role will be considered. Topics will include traditional and contemporary issues in adolescent psychology; theories of learning; educational institutions and social processes of learning in relation to structures of societies. This course is identical with PSY 232. *Fall and spring, 3 credits*

### **SOC 243 Sociology of Youth**

Adolescent socialization; age structures and intergenerational conflict; peer groups and youth subcultures. *Fall and spring, 3 credits*

### **SOC 247 Women and Men**

The roles of women and men in modern society; changing relations between the sexes; women's liberation and related movements. *Fall and spring, 3 credits*

### **SOC 301 Principles of Sociology**

An introduction for upper-division students committed to a major in a different field who want to find out how the sociologist looks at the world. The course will illustrate the use of a sociological perspective in the analysis of the social world, rather than focus on sociological concept development. Topics to be included will be chosen from among the following: ethnic relations, deviance and delinquency, socialization, organizational analysis, the family as a social institution, population analysis, urban life. Not for major credit nor for credit in addition to SOC 103 or 302. May be used as a prerequisite for higher level sociology courses in place of SOC 103. Prerequisites: Upper-division standing and a major other than sociology. *Fall, 3 credits*

### **SOC 302 American Society**

Intended for upper-division students committed to a major in a different field who wish to look at American society through the eyes of the sociologist. Included in the course is the sociological view of American social structure in terms of power and patterns of inequality, the legal system, ethnic relations, social mobility, and urban problems. Not for major credit nor for credit in addition to SOC 103 or 301. May be used as a prerequisite for higher level sociology courses in place of SOC 103. Prerequisites: Upper-division standing and major other than sociology. *Spring, 3 credits*

### **SOC 303 Social Stratification**

Theories of social stratification; patterns of differentiation in wealth, prestige, and power; social mobility; power structures and elites. Prerequisites: SOC 103 and either SOC 201 or two other courses in the social sciences. *Spring, 3 credits*

**SOC 304 Sociology of the Family**

Analysis of the family as a major social institution; examination of the structure and functions of the family in various societies. Prerequisites: SOC 103 and either SOC 201 or two other courses in the social sciences. *Spring, 3 credits*

**SOC 307 Social Planning (Formerly SOC 207)**

Deliberate attempts to introduce change in society; methods of evaluating the success of social change programs; conditions affecting the success of such programs. Prerequisites: SOC 103 and either SOC 201 or two other courses in the social sciences. *Fall, 3 credits*

**SOC 308 Poverty and Social Welfare (Formerly SOC 208)**

Consideration of the historical and contemporary social definitions, distribution, and status of the poor in the United States; analysis of alternative explanations for their situation; and study of the effects of social welfare institutions upon the poor. Prerequisites: SOC 103 and either SOC 201 or two other courses in the social sciences. *Fall and spring, 3 credits*

**SOC 309 Social Conflicts and Movements (Formerly SOC 209)**

An examination of aggregate phenomena; "revolutionary" and "counter-revolutionary" programs and organizations. Historical and cross-cultural examples will be emphasized. Prerequisites: SOC 103 and either SOC 201 or two other courses in the social sciences. *Spring, 3 credits*

**SOC 310 Ethnic Relations (Formerly SOC 210)**

The formation, migrations, and conflicts of ethnic and other minority groups; prejudice, discrimination, and minority self-hatred. Prerequisites: SOC 103 and either SOC 201 or two other courses in the social sciences. *Fall and spring, 3 credits*

**SOC 320 Population Problems (Formerly SOC 220)**

Sources and consequences of changes in population size and composition; the "demographic explosion." Prerequisites: SOC 103 and either SOC 201 or two other courses in the social sciences. *Fall, 3 credits*

**SOC 323 Urban Society (Formerly SOC 223)**

The emergence of cities and the process of urbanization; an examination of urban structure; the consequences of the urban milieu for interpersonal relations and institutions. Prerequisites: SOC 103 and either SOC 201 or two other courses in the social sciences. *Fall and spring, 3 credits*

**SOC 336 Social Change**

The impact of technological, generational, and cultural forces on social organization from a historical and comparative perspective. Prerequisites: SOC 103 and either SOC 201 or two other courses in the social sciences. *Spring, 3 credits*

**SOC 337, 338 Sociology of Deviance and Crime (Formerly SOC 237, 238)**

An integrated consideration of deviance, crime, and delinquency from a sociological perspective. The first semester will focus on competing theories of the nature and etiology of deviant and criminal behavior, problems of research in these areas (and the related technical, legal, and ethical issues), and substantive findings for "non-victim" crimes and legal but morally stigmatized behavior. Second semester will include topics on the substantive findings about juvenile crime, adult victim crime, and a sociological view of the control of deviant and criminal behavior. Prerequisites to SOC 337: SOC 103 and either SOC 201 or two other courses in the social sciences; prerequisite to SOC 338: SOC 337. *Fall and spring, 3 credits each semester*

**SOC 341 Historical Sociology**

Sociological theories and methods applied to the study of historical phenomena such as revolutions, migration, and industrialization. Prerequisites: SOC 103 and either SOC 201 or two other courses in the social sciences. A history course is also recommended. *Fall, alternate years, 3 credits (Not offered in 1979-80)*

**SOC 351 Sociology of Literature**

Literature as a symbolic expression of social structure; the relations between literary movements and other forms of social activity. Prerequisites: SOC 103 and either SOC 201 or two other courses in the social sciences. *Spring, alternate years, 3 credits (Not offered 1979-80)*

**SOC 352 Sociology of Religion (Formerly SOC 252)**

The ways in which sociocultural processes affect and are influenced by religious belief systems and organizations; changing structures and functions of religious institutions. Prerequisites: SOC 103 and either SOC 201 or two other courses in the social sciences. *Fall, alternate years, 3 credits (Not offered 1980-81)*

**SOC 353 Sociology of Science**

Social influences on the choice of research problems and on the behavior of scientists; the social organization of scientific enterprises. Prerequisites: SOC 103 and either SOC 201 or two other courses in the social sciences. *Fall, alternate years, 3 credits (Not offered 1980-81)*

**SOC 354 Sociology of Law**

Law as an institution of social control; the legal profession, court systems, and bureaucratization of the legal process; the relation of law to social change. Prerequisites: SOC 103 and either SOC 201 or two other courses in the social sciences. *Spring, 3 credits*

**SOC 356 Political Sociology (Formerly SOC 256)**

Social structure and processes as affecting, and affected by, political behavior and organizations; the sociology of power, authority, and legitimacy. Prerequisites: SOC 103 and either SOC 201 or two other courses in the social sciences. *Fall and spring, 3 credits*

**SOC 358 War and Military Institutions**

The role of violence in social affairs; military organizations; civil-military relations. Prerequisites: SOC 103 and either SOC 201 or two other courses in the social sciences. *Fall, alternate years, 3 credits (Not offered 1980-81)*

**SOC 360 Comparative Social Structures**

The principal complex societies and their central institutions, with emphasis on industrialization and economic development. Prerequisites: SOC 103 and either SOC 201 or two other courses in the social sciences. *Spring, 3 credits*

**SOC 361 Historical Development of Contemporary Sociology**

Main currents in the development of theories and empirical studies of society, culture, and personality. Prerequisites: SOC 103 and either SOC 201 or two other courses in the social sciences. *Fall and spring, 3 credits*

**SOC 362 Introduction to Sociological Theory**

A systematic treatment of the dominant general orientations in sociology including structural-functional analysis and symbolic interactionism. Prerequisite: SOC 361. *Fall and spring, 3 credits*

**SOC 370 Work and the Professions (Formerly SOC 251)**

The social patterning of work situations and careers; relations of work organizations to each other and to larger social structures. Prerequisites:

SOC 103 and either SOC 201 or two other courses in the social sciences. *Fall, 3 credits*

**SOC 372 Mass Communications (Formerly SOC 262)**

Social influences on the content and effects of mass communications; communication systems; the public functions of mass communication. Prerequisites: SOC 103 and either SOC 201 or two other courses in the social sciences. *Fall, 3 credits*

**SOC 373 Collective Behavior (Formerly SOC 263)**

Major unstructured social phenomena—such as mob violence, panics, fads and fashions, and public opinion—as the outcome of collective problem-solving activity. Prerequisites: SOC 103 and either SOC 201 or two other courses in the social sciences. *Spring, 3 credits*

**SOC 380 Social Psychology**

Individual and social factors in human behavior; the structure of personality; identity development; communication processes; and attitudes. Prerequisites: SOC 103 or PSY 101 and either SOC 201 or two other courses in the social sciences. *Fall and spring, 3 credits*

**SOC 381 Sociology of Organizations**

Bureaucracy as a form of organization; the structure of relations between and within organizations. Prerequisites: SOC 103 and either SOC 201 or two other courses in the social sciences. *Fall, alternate years, 3 credits (Not offered 1980-81)*

**SOC 382 Small Groups**

The structure and functioning of face-to-face groups in field and laboratory settings. Prerequisites: SOC 103 and either SOC 201 or two other courses in the social sciences. *Spring, alternate years, 3 credits (Not offered 1979-80)*

**SOC 387 Sociology of Education (Formerly SOC 287)**

Educational institutions as social systems; social patterns in the life-cycles of students and teachers; class and ethnic factors in educational development. Prerequisites: SOC 103 and either SOC 201 or two other courses in the social sciences. *Fall, 3 credits (Not offered 1979-80)*

**SOC 390 Special Topics**

Lectures on topics of current sociological interest which will be announced before the start of the term. May be repeated. Prerequisites: SOC 103 and either SOC 201 or two other courses in the social sciences. *Fall and spring, 3 credits*

**SOC 401 Senior Seminars in Sociology**

Special projects and research papers on a topic of sociological interest, which will be announced before the start of the term. May be repeated once. Prerequisite: Permission of instructor. *3 credits*

**SOC 405 Seminar in Methods of Social Research**

Comparisons of assumptions underlying various statistical and methodological procedures; the interplay of substantive theory and empirical research; applied research and policy implications; the social contexts of research. The seminar should integrate the work that the student has taken in his major and minor. Prerequisite or corequisite: Completion of all other requirements for the minor in methods of social research. *Fall, 3 credits*

**SOC 447 Independent Readings**

Selected readings, usually in a special area, to be arranged by the student and the instructor. May be repeated. No more than 6 credits of SOC 447 and SOC 487 may be counted toward the major. A maximum of 3 credits may be taken with any one faculty member in any one semester. Prerequisites: Writ-

ten permission of instructor *and* of director of undergraduate studies. *Fall and spring, 1 to 6 credits*

**SOC 487 Independent Research**

Designing and carrying out a research project selected by the student and arranged by the student and the instructor. May be repeated. No more than 6 credits of SOC 447 and SOC 487 may be counted toward the major. Prerequisites: Written permission of instructor *and* of director of undergraduate studies. *Fall and spring, 1 to 6 credits*

## Department of Theatre Arts

**Professors:** Alfred G. Brooks, Ph.D. University of Illinois (Directing; 19th- and 20th-century European theatre); John Newfield, Emeritus, Ph.D. University of Vienna (Dramaturgy; theatre history; opera)

**Associate Professors:** Leonard Auerbach (Acting; stage management); William Bruehl, Ph.D. University of Pennsylvania (Directing; Asian theatre; modern drama; improvisation); Richard Dyer-Bennet (Voice); Richard Hartzell, M.Ed. Pennsylvania State University (Documentary film; film-making; television as communication); Jonathan Levy, Ph.D. Columbia University (Dramaturgy; criticism; playwriting); Thomas Neumiller, M.F.A. Yale University (Acting; directing; mime); Louis Peterson, M.F.A. Yale University (Playwriting)

**Assistant Professors:** Gordon S. Armstrong, Ph.D. University of California at Berkeley (Theatre history); William Charles Groom, M.F.A. Tulane University (Costume design; stage design); Steven Pollock, M.F.A. Yale University (Technical theatre; lighting design)

## **Requirements for the Major in Theatre Arts**

The major in theatre arts leads to the Bachelor of Arts degree. The following courses are required:

### **I. Study within the area of the major**

*Credits*

A. Core Courses (no more than 2 theatre courses may be taken per semester by freshmen):

THR 104 Analyzing Theatre: Text and Performances

3

THR 112 The Acting Process (for those *not* planning a performance emphasis)

or

THR 212 Acting I (for those planning a performance emphasis)

3

THR 123, 124 Theatre History I, II

6

THR 216 Fundamentals of Technical Theatre

3

B. Programs of Study (see below)

24

C. THR 401, 402 Senior Seminar

6

### **II. Study in Related Areas**

9

One course each from Art, Music, and English from those listed below:

ARH 101, ARH 102, MUS 101, MUS 119, EGL 241, EGL 242, EGL 243 (recommended)

---

*Total* 54

(Theatre Credits 45)

## **Programs of Study**

After completing the core courses, the student in consultation with an assigned advisor elects to emphasize a specific area of interest or a general program, choosing courses from the following groups.

### **General**

Individualized program including courses from all areas.

### **Acting**

THR 130, 218, 222, 230, 242, 312, 318, 322, 332, 342, 352, 482

### **Directing**

THR 213, 225, 226, 239, 312, 324, 325, 332, 339, 374, 489

### **History and Theory**

THR 214, 225, 324, 325, 344, 354, 364, 374, 484

### *Technical Theatre/Design*

THR 213, 223, 226, 313, 316, 323, 326, 336, 483, 486

### *Theatre Management/Stage Management*

THR 106, 213, 214, 226, 239, 316, 324, 336, 488

### **Media-Communications**

Although at present no formal major exists in the area of media-communications, a series of beginning courses are offered that provide the student with a broad view of radio, television, and film, as well as intensive work in certain selected areas. The courses listed below are recommended.

THR 107 Broadcasting Principles and Practices

THR 127 Introduction to Television

THR 227 Techniques of Film Production

THR 325 Writing for the Media

Other courses are found within the regular offerings of the department.

### **Courses\***

#### **THR 101 Understanding Theatre**

An attempt to share the excitement of the performing art of theatre. There will be guest lectures by theatre artists and craftsmen. Students will have an opportunity to work in the theatre, read plays, see theatre productions, do street theatre, and experiment with playwriting. The various theatrical traditions from the Greeks to the present are reconstructed in class. A fee will be charged for theatre trips. Not for major credit. *Fall and spring, 3 credits*

#### **THR 104 Analyzing Theatre: Text and Performance**

Productions of plays from various periods will be attended and discussed. Visits to the theatre will be preceded by lectures on the plays and on their directors. Discussions will focus on alternative methods of staging the same text, based on different interpretations. A fee will be charged for field trips. *Fall and spring, 3 credits.*

#### **THR 106 Producing the Play (Formerly THR 206)**

A study of the theatre in relation to the society in which it lives. The problems of actual production in various kinds of theatres (Broadway, Off, Off-Off, regional repertory, street theatre) will be considered. Issues such as the unions, construction costs, community involvement, and how and why the play is chosen will be discussed. Prerequisite: Sophomore standing. *Spring, 3 credits*

#### **THR 107 Broadcasting Principles and Practices**

The history and evolution of the broadcasting industry in the United States from the early days of radio to the current sophisticated communication system. The course will provide the student with a basic understanding of the industry and its relation to regulatory agencies and the public. *Spring, 3 credits*

---

\*See p.124 Course Credit and Prerequisites, and p.125, Numbering System.

### **THR 112 The Acting Process**

Introduction to the actor's craft. The broader aspects of the discipline are examined during lecture and workshop sessions; analysis, memorization, and performance of short scenes. Attendance at departmental productions is required. Recommended for non-majors and theatre students who do not anticipate emphasizing the performance areas. May not be taken for credit in addition to THR 212. *Fall and spring, 3 credits*

### **THR 117 Film Expression**

An introduction to those formative means unique to film by which the director-author express ideas. Examples of the work of great directors from Griffith to Godard are viewed, analyzed, and discussed. Narrative-dramatic film is emphasized, but Brakhage, Belson, Whitney, and others are not ignored. A foundation for both future film critics and future film-makers. This course is required for admission to all other film courses. *Fall, 3 credits*

### **THR 120 Verbal Communication**

Preparation of various types of material for verbal presentation. Basic studies in the process of interpersonal communication and small and large group communication. Practice in the orderly preparation and verbal presentation of materials in the areas of process explanation and persuasion. Basic skills of public speaking. *Fall or spring, 3 credits*

### **THR 123, 124 Theatre History I, II**

Evolving architectural concepts, scenic conventions, technology, and production techniques will be studied with reference to corresponding literary, social, and cultural trends. I, Ritual to 1660. II, 1660 to 1932. *Fall (123) and spring (124), 3 credits each semester*

### **THR 127 Introduction to Television**

How television works and an examination of the skills and techniques of the professionals and craftsmen who make it work. Directors, writers, cameramen, performers, and advertising agency people will be guest lecturers. Equipment and technique will be demonstrated, but this is not a hands-on course. Although broadcast television (both commercial and public) will be emphasized, cablevision, instructional TV, industrial training, and experiments in community communication will also be examined. *Fall or spring, 3 credits*

### **THR 130 The Human Voice**

A basic course for anyone interested in the human voice. The nature of the vocal instrument, a history of vocal pedagogy, and suggested areas for research will be given in lecture form. Elementary exercises for improving vocal function will be demonstrated, and students will participate in drill sessions and discussions. Prerequisites: Audition and permission of instructor. *Fall and spring, 3 credits*

### **THR 212 Acting I**

A study of the vocabulary and skills of the actor's craft. The first steps of the discipline of acting are considered. The first half of the course is spent in lecture and workshop sessions exploring the uses of such techniques as sense memory, concentration, and relaxation. The second half of the semester attempts to apply these techniques to work in scene study. May not be taken for credit in addition to THR 112. Prerequisites: Audition and permission of instructor. *Fall and spring, 3 credits*

### **THR 213 Stage Design I**

An introduction to the aesthetics of scene design with an emphasis on the designer's graphic language. Basic exercises in drafting, perspective drawing, and simplified rendering techniques that pertain to the organization and



presentation of the design idea. Prerequisite: THR 104 and 216. *Fall, 3 credits*

### **THR 214 Modern Drama on Stage**

A seminar examining the forms of modern drama in the context of production from 1860 to the present. Prerequisite: THR 104 or EGL 193. *Fall or spring, 3 credits*

### **THR 216 Fundamentals of Technical Theatre**

A course in basic technical theatre practice and stagecraft, incorporating elements of drafting, construction, painting, and the handling of stage scenery and properties. Laboratory work in theatre sound is also included. *Fall and spring, 3 credits*

### **THR 217 Introduction to Film-making**

This first course in film-making techniques requires students to explore the aesthetics of motion through the use of a movie camera and through the experience of combining moving images, by creative editing, into meaningful sequences. Prerequisites: THR 117 and permission of instructor. *Spring, 3 credits*

### **THR 218 Movement as Medium**

An introduction to the elements of movement—space, time, weight, and energy—through improvisation. Structured exercise to encourage appropriate body functioning—balance, coordination, flexibility, and articulateness. Prerequisite: Sophomore standing. *Fall and spring, 3 credits*

### **THR 222 Stage Makeup**

An investigation into the theory, techniques, and materials of stage makeup and its relation to character analysis. The students will explore aspects of facial anatomy, color theory, and graphic representation of three-dimensional form. They will also have the opportunity to plan and design makeup for department productions. Prerequisite: THR 112 or 212. *Fall or spring, 2 credits*

### **THR 223 Stage Costume I**

An introduction to costume design including graphic communication and basic costume construction. Exercises in design rendering techniques, pattern drafting, and design fundamentals. Prerequisite: Permission of instructor. *Fall, 3 credits*

### **THR 225 Playwriting**

A workshop devoted to planning and writing finished scripts for the stage. Students will write original material for possible production in theatre workshops. Prerequisite: EGL 102 or 202 or 285, or THR 104. *Fall or spring, 3 credits*

### **THR 226 Stage Lighting**

Basic elements of lighting principles, instrumentation, and control. Introduction to color, design, and aesthetics, including the planning of designs for individual plays. Prerequisite: THR 216. *Fall, 3 credits*

### **THR 227 Techniques of Film Production**

Instruction in planning short films and experience in executing the plans. Students may make their own films or assist a more advanced film-maker according to the discretion of the instructor. Such technical skills (lighting, sound recording, editing) as are required by the films being made will be taught. Prerequisites: THR 217 and permission of instructor. *Fall, 3 credits*

### **THR 230 Voice and Speech**

In the second stage of voice development, students who have made sufficient progress in THR 130 learn to articulate consonants without disturbing the primary affective sound-making function and thus to speak with an in-

creased range of pitch and dynamics. Prerequisites: THR 130 and permission of instructor. *Fall or spring, 3 credits*

### **THR 239 Directing I**

An introduction to the work of the director in selecting and preparing the play for production. Problems of style, interpretation, and execution. The director's approach to the actor. Prerequisites: THR 104, 112 or 212, 123, 124, 216. *Fall, 3 credits*

### **THR 242 Mime I**

A course in mime theory and history, with tutorial and practicum, available to beginning and continuing students interested in mime. Mime is used as a medium to explore further acting skills and further possibilities of performance in relation to space. Prerequisite: Audition and permission of instructor. *Fall, 3 credits*

### **THR 300 Seminar in Current Production**

Students work as assistants or apprentices on current departmental productions, closely supervised by the faculty and production staff. Weekly seminars examine the theoretical basis of all practical work being performed. Areas of assignment and examination include directing, design (costumes, settings, lights), dramaturgy, theatre technology, management, audience development, acting. May be repeated. Prerequisites: Core curriculum. *Fall and spring, 1 credit*

### **THR 312 Acting II**

Continued training in basic techniques. Advanced work in character analysis and development. Emphasis is on scene study and introduction to styles of acting. Prerequisite: THR 212 or 112 and audition. *Fall and spring, 3 credits*

### **THR 313 Stage Design II**

Principles of design for the theatre including color composition and rendering techniques. These techniques are related to the aesthetics of dramatic composition and the flexibility of modern staging. Prerequisites: THR 213 and 216. *Spring, 3 credits*

### **THR 312 Acting II**

Continued training in basic techniques. Advanced work in character analysis and development. Emphasis is on scene study and introduction to styles of acting. Prerequisite: THR 212 or 112 and audition. *Fall and spring, 3 credits*

### **THR 313 Stage Design II**

Principles of design for the theatre including color composition and rendering techniques. These techniques are related to the aesthetics of dramatic composition and the flexibility of modern staging. Prerequisites: THR 213 and 216. *Spring, 3 credits*

### **THR 316 Advanced Technical Theatre**

An advanced study of the materials and techniques of stagecraft, as well as methods of problem-solving and interaction in technical production. Emphasis on technical direction, advanced drafting, budgeting, crew organization, and planning. Prerequisites: THR 216 and permission of instructor. *Spring, 3 credits*

### **THR 318 Movement for Actors**

Application of movement concepts to acting problems. Awareness of the students' personal movement qualities, particularly in relation to characterization and interaction; the relationship of movement to voice and speech and to set, props, and costume. Prerequisites: THR 218 and permission of instructor. *Fall or spring, 3 credits*

**THR 322 Ensemble Acting**

Development in work beyond the usual concentration of two-actor scenes. Focus is upon five- and six-actor scenes, the problems involved in supporting ensemble scenes, the development of the "minor" character. Prerequisites: THR 312 and permission of instructor. *Spring, 3 credits*

**THR 323 Stage Costume II**

An advanced course in costume design involving play analysis, design, and presentation techniques. Bi-weekly projects and critiques with special emphasis on historical research. Prerequisites: THR 223 and permission of instructor. *Spring, 3 credits*

**THR 324 Current Trends in Experimental Theatre**

A study of various experimental contemporary theatres in Europe and the U.S. and analysis of their goals, methods of working, and productions. Relations of these contemporary theatres with traditional non-literary forms of popular theatre, such as pageants, carnivals, circus, Commedia dell'Arte, etc. Exploration of different types of acting, directing, and staging through practical exercise using techniques, scenarios, and scripts from the different theatres. A seminar-workshop in which guest artists may take part. Prerequisites: THR 104 or 214 or EGL 193. *Fall or spring, 3 credits*

**THR 325 Writing for the Media**

The basic preparation and construction of materials for use in media: radio, television, and motion pictures. Prerequisites: THR 225 and permission of instructor. *Fall and spring, 3 credits*

**THR 326 Advanced Stage Lighting**

Advanced topics in lighting design intended to acquaint the student with highly specialized lighting genres. Subjects will include lighting for repertory theatres, the dance, and musical theatre. This is strictly a studio design course intended for those students who have satisfactorily completed THR 226. Prerequisites: THR 226 and permission of instructor. *Spring, 3 credits*

**THR 327 Film-making Workshop**

Continues instruction and practical experience in the planning and production of motion pictures. Whatever advanced technical skills are required by the films produced will be taught; 16mm equipment will be used. Prerequisites: THR 217, 227, and permission of instructor. *Spring, 3 credits*

**THR 328 Theatrical Space**

Examination of the space utilized for theatre. Studies of theatrical architecture from earliest times to the present. Examination of the event as determinant of the spatial context. Lectures, discussions, examination of pictorial material. Prerequisites: Core curriculum. *Fall or spring, 3 credits*

**THR 330 Voice and Speech Interpretation**

In the third stage of vocal production the student learns to use the vocal function, acquired in THR 130 and 230, in the service of meaning. Having some basic control of this vocal instrument, the student begins to use it expressively in the reading of prose and poetry. Prerequisites: THR 230 and permission of instructor. *Fall and spring, 3 credits*

**THR 332 Improvisation**

Work will consist of workshop and discussion sessions during which students will drill in both verbal and non-verbal exercises and assorted theatre games leading to the development of improvisational skills for both single and group work. May be repeated once. Prerequisites: Audition and THR 112 or 212. *Fall or spring, 3 credits*

**THR 336 Stage Management**

A course in backstage theatre management. Includes analysis of the playscript to serve the physical production most efficiently; blueprint and light plot reading; making of properties. Prerequisites: THR 216 and permission of instructor. *Fall or spring, 3 credits*

**THR 339 Directing II**

Students will apply the skills and techniques learned in Directing I to specific scenes and plays. Prerequisites: THR 239 and 312. *Spring, 3 credits*

**THR 342 Mime II**

A continuation of the beginning mime course. More intensive work on performance techniques, putting together mime pieces, considerations of mime costume and make-up, and, if possible, actual performance. Prerequisites: THR 242 and permission of instructor. *Spring, 3 credits*

**THR 344 Non-Western Theatre**

An examination of the theatrical traditions of non-western cultures. A major culture will be selected for a semester of study. Attention will focus on dramatic and theatrical idioms as artifacts of indigenous religious, philosophical, and economic belief systems. Areas of study will be selected from the following: Japan, China, India, Southeast Asia, Africa, and Oceania. May be repeated once. Prerequisite: THR 101. *Fall or spring, 3 credits*

**THR 352 Advanced Acting**

Advanced scene study in various styles. Students will choose scenes from the repertoire which represent different acting styles: e.g., Elizabethan and Jacobean, Restoration, Victorian, 20th-Century Realism, Brechtian. Work will involve the exploration of the scenes, how they reflect the manners, costume, movement, and attitudes of the time; and techniques to be employed for effective staging and acting. Prerequisites: THR 322 and audition. *Fall or spring, 3 credits*

**THR 354 Topics in Dramaturgy**

Various methods of reading and understanding a play to be performed. Analysis of plays with emphasis on the theatrical values of the dramatic text. Analysis of different productions (from the past or the present) of these plays with emphasis on the literary values of the performance. May be repeated. Prerequisites: THR 104, 123, 214, *Fall or spring, 3 credits*

**THR 357 Topics in Film History and Aesthetics**

A detailed study of a particular period in the history of film (for example the Biograph Films of 1902-1908) or the history of the film of a particular nation, e.g. French, Russian, or German cinema. May be repeated. Prerequisite: THR 117 and 124. *Fall or spring, 3 credits*

**THR 364 Topics in the History of the Theatre**

Each semester will treat in depth a special topic to be announced. For example, special topics might be: the theatre of Naturalism; the epic theatre tradition; Expressionism, Dadaism, Surrealism, Futurism; American theatre. May be repeated. Prerequisites: THR 104, 123, and 124. *Fall or spring, 3 credits*

**THR 374 Topics in Theory and Aesthetics of the Theatre**

Different theoretical or aesthetic problems will be dealt with intensively each

semester. Topics might include: medieval and renaissance criticism; Reinhardt; The Theatre Theatrical; Brecht: The Theatre Didactic; Artaud: The Theatre of Cruelty and Existentialism. May be repeated. Prerequisites: THR 104, 112 or 212, 123 or 124, and 214. *Fall or spring, 3 credits.*

### **THR 399 Professional Workshop**

Opportunity for students to work with professional theatre, artist, or organization that has established ties with the department. May be repeated once. Prerequisites: Theatre Arts major and permission of department. *Fall or spring, 3 credits*

### **THR 401 Senior Seminar I**

A seminar in theatre theory. It involves examination of current theatrical practice as it relates to theatrical theory. Political theatre, didactic and activist theatre, poetic drama, Shakespearean and classical theatre production. Artaud, Brecht, and other major theorists will be examined. Prerequisites: Theatre arts major, senior standing, and permission of department. *Fall, 3 credits*

### **THR 402 Senior Seminar II**

Practicum thesis work such as acting, recitals, direction of a play, design of sets or costumes for a production, independent dramaturgical work relating to a production. Prerequisites: Theatre arts major, senior standing, and permission of department. *Spring, 3 credits*

## ***Projects Courses***

Applications for projects courses must be submitted by the end of the Advance Registration period. Students may take *no more than 6 credits* of projects courses.

### **THR 482 Projects in Performance**

Intensive, individual work on performance under faculty supervision. May be the preparation of a major role to be presented before an audience either on or off campus. Prerequisites: Core curriculum, THR 352, and permission of department. *Fall and spring, 1 to 3 credits*

### **THR 483 Projects in Theatrical Design**

Advanced individual work on theatrical design, i.e. settings or costumes. For example, the costume designs for a three-act play including concept, sketches, renderings, fabric swatches, etc., or the design for a setting for a community theatre project. Prerequisites: Core curriculum, THR 313 or 323, and permission of department. *Fall and spring, 1 to 3 credits*

### **THR 484 Projects in History, Dramatic Literature, and Theory**

Advanced individual work on a specific problem related to theatre history, dramatic literature, or dramatic theory. Prerequisites: Core curriculum, THR 364 or 374, and permission of department. *Fall and spring, 1 to 3 credits*

### **THR 485 Projects in Script Writing**

Advanced individual work resulting in a script for stage, screen, or television. Prerequisites: THR 325 and permission of department. *Fall and spring, 1 to 3 credits*

**THR 486 Projects in Technical Theatre**

Advanced work under faculty supervision on some phase of technical theatre, for example the design and execution of a lighting plot for a University production or a community theatre or the design for a new theatre, including floor plans and elevations. Prerequisites: Core curriculum, THR 316 or 326, and permission of department. *Fall and spring, 1 to 3 credits*

**THR 487 Projects in Film**

Advanced individual work on a topic related to film, resulting in either a scholarly paper or film footage. Prerequisites: THR 327 and permission of department. *Fall and spring, 1 to 6 credits*

**THR 488 Projects in Production Management**

Advanced work on a particular problem in theatre management under close faculty supervision. May be the supervision by the student of the house and the box office for a season, or a theoretical task such as a paper on the history of management in the American theatre during the 19th and 20th centuries. Prerequisites: Core curriculum, THR 336, and permission of department. *Fall and spring, 3 credits*

**THR 489 Projects in Directing**

Individual work under faculty supervision as the director of a play to be performed before an audience either on or off campus. Prerequisites: Core curriculum, THR 339, and permission of department. *Fall and spring, 1 to 3 credits*



urban  
and  
policy  
sciences

# W. AVERELL HARRIMAN COLLEGE FOR URBAN AND POLICY SCIENCES

**Professors:** Sumner Levine, Ph.D. University of Wisconsin (Financial management); Robert Nathans, Ph.D. University of Pennsylvania (Energy policy)

**Associate Professors:** Stanley M. Altman, Ph.D. Polytechnic Institute of Brooklyn (Analytic methods; evaluation of public agencies); Adele Brody, Part-time, M.L.L. New York University School of Law (Urban law; public administration in a policy analysis framework); <sup>a</sup>T. Owen Carroll, Ph.D. Cornell University (Analytic methods; energy policy; social policy); Pearl Kamer, Adjunct, Ph.D. New York University (Application of economic theory to urban, suburban, and regional problems); David Swinton, Ph.D. Harvard University (Economic analysis; minority economic problems); Harry Weiner, Dean, S.M. Massachusetts Institute of Technology (Analysis and redesign of public organizations); Dennis R. Young, Ph.D. Stanford University (Decision-making program evaluation; social policy)

**Assistant Professors:** Leland Neuberg, Ph.D. University of California at Berkeley (Social conflicts surrounding the question of municipal vs. private ownership of electrical power systems); Richard Silkman, M. Phil. Yale University (Economic analysis as it relates to education policy)

**Instructor:** Carl Carlucci, Adjunct, M.S. State University of New York at Stony Brook (Information systems for decision-making)

**Lecturers:** William Marcuse, Part-time, Ph.D. Columbia University (Mathematical and econometric modeling); Thomas Sexton, Adjunct, M.A. Hofstra University, M.S. State

---

<sup>a</sup>Recipient of the State University Chancellor's Award for Excellence in Teaching, 1973-74



University of New York at Stony Brook (Operations research; transportation modeling)

### ***Estimated Number of Teaching Assistants: 50***

The W. Averell Harriman College for Urban and Policy Sciences offers professional training for positions in government agencies at the federal, state, and local levels and for positions in the private sector that relate to public policy. Although the College's main program is at the graduate level, its Accelerated Program is open to students who have, during their freshman and sophomore years, demonstrated both an interest in public service careers and an aptitude for quantitative analysis. Graduates work as budget analysts, planners, managers, project leaders, and consultants in agencies dealing with public problems such as energy, transportation, criminal justice, science and technology, health, education, etc. The B.A. and the M.S. are earned at the end of the third year. In the final year, the student specializes in one of the following four tracks: planning, comprehensive management sciences, public policy analysis, government organization and management.

Information can be obtained from the *Graduate Bulletin* and the Director of Education of the W. Averell Harriman College for Urban and Policy Sciences, 314 Old Physics, State University of New York at Stony Brook, Long Island, New York 11794.

### ***Courses\****

#### **UPS 311, 312 Introduction to Urban and Policy Sciences**

This course covers four related topics, which are not separable, nor can they be taken as individual courses. The topics are: *Economic Analysis*—Theory is applied to a number of public policy problems from the outset. Sufficient economic theory is taught to prepare the student for the graduate program, but emphasis is placed on attacking real problems and recognizing lacunae and inadequacies in the present stock of theory. *Administration*—Personnel, information, and control systems are examined, mainly through the case method, with a view toward preparing the student to look for evidences of pathology in public agencies. *Quantitative Methods*—Sets, logic probability, matrices, algebra, and related topics are taught from the viewpoint of creating a tool-kit with which the public policy analyst and manager can approach problems that contain nonmathematical as well as mathematical aspects. The computer is introduced in the same way. *Case Studies*—Formal analyses are studied, particularly those on which important public policy deci-

---

\*See p. 124, Course Credit and Prerequisites, and p. 125, Numbering System.

sions have been based (the Coleman report, the Fleischman report on educational financing, the Carnegie Commission report on public television, the Civil Rights Commission report on pupil opportunity, etc.) with a view toward identifying their theoretical underpinnings. Prerequisite: Permission of dean. *Fall and spring, 12 credits each semester*

**UPS 331 Intermediate Economics for Public Policy Analysis**

An intermediate level course on economics theory and analysis for public policy. The course gives a treatment of welfare and efficiency implications of decentralized economies under various degrees of competition; discusses welfare economics; develops the rationale for public activity in a decentralized economic system and the concepts of consumer's surplus, public goods, externalities; considers the treatment of the distributional implications of public decisions; and discusses pricing and output policies for government industries and finance and their effect on the economy. Prerequisites: UPS 311, 312 or equivalent. *Fall, 3 credits*

**UPS 341 Models for Policy Making**

Comprehensive overview of the principles of policy analysis in the public sector. Emphasis is placed on developing the student's ability to organize unstructured problems and to evaluate policy alternatives. Case studies of public sector problems in diverse areas such as housing, education, energy, and environmental control are included. Prerequisites: UPS 311, 312. *Fall, 3 credits*



engineering  
and  
applied  
sciences

# COLLEGE OF ENGINEERING AND APPLIED SCIENCES

## *Programs in Engineering and Applied Sciences*

Technology is now being asked to provide help in solving a wide range of industrial and social problems: energy, transportation, urban development, environmental control, health services, and education. In parallel, engineers must contribute to the improvement of the quality of life in the developing nations. In all of these endeavors, the engineering problems are intimately related to the social, economic, and political aspects. Consequently, the engineering program at Stony Brook emphasizes the development of educational experiences in not only the engineering areas, but also the underlying natural sciences, the related social and behavioral sciences, and the humanities.

In order to realize these objectives, the engineering and applied sciences curriculum is much more flexible than at many other schools. The student who specializes in a particular field such as electrical, mechanical or materials engineering, as well as applied mathematics and computer science, may plan an interdisciplinary program specifically adapted to his or her career goals involving other departments or divisions of the University; he or she may choose a program of breadth, 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.

Students interested in engineering have a choice of six programs. The College of Engineering and Applied Sciences offers five different degree programs, listed below, and in collaboration with this college, the College of Arts and Sciences offers a Bachelor of Science program in Engineering Chemistry.

Bachelor of Science in:  
Applied Mathematics and Statistics  
Computer Science

Bachelor of Engineering in:  
Engineering Science  
Electrical Engineering  
Mechanical Engineering

Each upper-division student is enrolled in one of these five programs. There is, in addition, great flexibility for specialization toward desired careers because of the freedom provided by electives within any of the five programs. Thus, the student may decide to emphasize: *Computer Engineering* within electrical engineering; *Ocean Engineering* (courses ESI 280, ESC 330, and ESC 372 are appropriate, with courses selected from other parts of the University as well); *Materials Science* within engineering science by choice of electives offered by the Department of Materials Science and Engineering, or within the mechanical engineering program; *Structural Engineering* within engineering science with courses offered by the Department of Mechanical Engineering and the Department of Applied Mathematics and Statistics.

In addition, the engineering student often prepares for graduate studies in architecture, business, law, or medicine. Interested students should consult the appropriate faculty advisor for each profession:

Architecture:	Prof. Stewart Harris
Law:	Prof. Sheldon S. L. Chang
Medicine:	Prof. Vello A. Marsocci

Industrial Management/Pre-Business: Students interested in pursuing careers in management or in continuing on to a graduate degree in business administration are advised to take the following sequence of elective courses:

- ECO 101 Introduction to Economics
- ECO 214 Managerial Accounting
- ESI 290 Engineering and Managerial Economics
- MSA 310 Introduction to Mathematical Statistics
- MSA 342 Operations Research

The above course sequence is suggested. Substitutions as well as additional courses should be chosen in consultation with the Undergraduate Program advisor of the Department of Applied Mathematics and Statistics.

### ***Physical Facilities***

The College of Engineering and Applied Sciences houses several specialized laboratories for undergraduate students. The Engineering Laboratory contains many small-scale, table-top experiments which provide students with experience in planning and designing engineering experiments. The Mechanical Engineering Laboratory is a unique departmental facility pertaining to basic mechanical engineering practice and includes equipment for the measurement of stress and strain, fluid flow rates, static and dynamic pressures, and temperature and heat transfer rates. The Department of Electrical Engineering has several laboratories for undergraduate students in the areas of electrical circuits and electronics, microprocessors and programmed logic, and digital systems. A student machine shop is also available for students who have completed a course in machine shop practice and safety.

### ***Two Baccalaureate Degrees***

Qualified students whose special interests and career plans make such study appropriate may be granted permission to earn two degrees at the undergraduate level by planning a program which leads to a Bachelor of Engineering degree and either a Bachelor of Arts or a Bachelor of Science degree. For details see p. 92.

### ***BEIMS Program***

An engineering student may apply for admission to enter this special program which will lead to a Master of Science and a Bachelor of Engineering degree at the end of the fifth year. For details see individual department sections.

### ***Independent Study Projects***

An engineering student may, in consultation with faculty members, develop an individual course of academic investigation and study. The student must prepare an outline of the proposed project, clearly stating its scope, intent, and methods which will be used to conduct it. He or she must obtain from two faculty members written approval of the project and agreement to supervise it and to recommend appropriate academic credit. The project then requires final approval by the Undergraduate Academic Affairs Committee of the College of Engineering and Applied Sciences.

The maximum allowable total credit for independent study is 30 credits with no more than 18 credits in any one semester. Though independent study may be taken in any semester, it is normally expected that an engineering student will take independent study as a junior or senior. The academic credit assigned to independent study projects is normally drawn from the block of elective credits and engineering design in the curriculum.

### ***Degree Requirements***

All candidates for the Bachelor of Engineering or the Bachelor of Science degree must satisfy the University graduation requirements described on pages 00 of this *Bulletin*, the College of Engineering and Applied Sciences distribution requirements, normally by attaining a passing grade in appropriate courses, and the requirements for a major or a program.

#### ***I. Distribution Requirements***

##### **A. Proficiency in English Composition:**

All entering students are expected to demonstrate competence in the clear and logical expression of ideas in written English. This requirement may be met by passing the English proficiency examination or by completing EGL 101 English Composition. (3 credits)

**B. Twenty-one credits in the Arts and Humanities and Social and Behavioral Sciences chosen in such a way as to satisfy the distribution requirements described in items C, D, and E. (21 credits)**

##### **C. Social and Behavioral Sciences:**

Six credits to be chosen from among the offerings of the following departments or interdisciplinary programs: Africana studies,\* anthropology, classics,\* economics, history, Judaic studies,\* linguistics, political science, psychology, social sciences interdisciplinary program, and sociology.

*Note:* Not acceptable to satisfy the social and behavioral sciences requirement are the following courses: AFS 205; ANT 120 (prohibition applies to BIO majors only); ECO 114,

---

\*Appropriate choices are identified in lists heading the section of the *Bulletin* where the courses are described.

320; HIS 397, 398; LIN 191, 192, 333; POL 490; PSY 201, 205; SOC 202; SSI 280, 375, 397, 398, 490.

#### D. Arts and Humanities:

Six credits to be chosen from among the offerings in the following departments or interdisciplinary programs: Africana studies,\* art, Chinese, classics and classical languages,\* comparative literature, English, French and Italian, Germanic and Slavic languages, Hispanic languages, humanities, Judaic studies,\* music, philosophy, religious studies, and theatre arts. One Health Sciences Center course, HSH 311, is also acceptable.

*Note:* Not acceptable to satisfy the Arts and Humanities requirement are the following courses: Foreign language courses at the elementary level, *i.e.*, those numbered 111, 112, 113, 115, 116; ARS 151, 152, 281, 282; CLT 331-363; EGL 100, 101, 102, 202, 287, 288, 344-368, 372, 374, 390, 393, 394; MUS 160, 261, 262, 263, and the first two semesters of MUS 161-187 or MUS 361-387; PHI 220, 330 (prohibition applies only to students required to take two semesters of calculus for the major); RUS 339; THR 130, 216, 222, 223, 225, 226, 230, 316.

E. Starting with the class graduating in May, 1981, a sequence of at least three courses in the Arts and Humanities or the Social and Behavioral Sciences or a combination of these developing a central theme. At least two of these are to be at the 200 level or above. A list of approved sequences is available in the Engineering Undergraduate Student Office, 127 Old Engineering. Students who wish to define other suitable sequences for concentration should do so by petition to Undergraduate Academic Affairs Committee. Those graduating before May, 1981, must meet the old requirements.

## II. Major and Program Requirements

A. All candidates for the Bachelor of Science degree must satisfy, in addition to I, above, the major requirements for one of the following:

Applied Mathematics and Statistics on page 399.

Computer Science on page 406.

B. All candidates for the Bachelor of Engineering degree must

---

\*Appropriate choices are identified in lists heading the section of the *Bulletin* where the courses are described.



satisfy, in addition to I, above, the program requirements for one of the following:

Engineering Science on page 427.

Electrical Engineering on page 413.

Mechanical Engineering on page 436.

### ***Exemptions***

Exemption or semester hour credit of distribution requirements may be earned by passing special examinations. Information on advanced placement and the Challenge Program examinations as a means of earning semester hour credit toward graduation is on p. 54 and p. 55 of the *Bulletin*.

A student can gain an exemption from any of the course requirements specified in section II above by submitting a petition together with supporting material to the Undergraduate Academic Affairs Committee and getting Committee approval.

A student can gain an exemption from a required engineering course by petitioning the Undergraduate Academic Affairs Committee and by arranging with the current instructor to take a comprehensive examination (e.g., the final examination) along with enrolled students. The results of the examination and their evaluation, submitted by the instructor, together with any other supporting material submitted by the student, will provide the basis for the Committee's decision.

### ***Courses of Instruction***

Course designations are abbreviated according to the following scheme:

ESG: Engineering science courses. ESG also designates the undergraduate engineering major.

ESE: Courses offered by the Department of Electrical Engineering.

ESM: Courses offered by the Department of Materials Science and Engineering.

ESC: Courses offered by the Department of Mechanical Engineering.

ESI: Interdepartmental courses offered by the College of Engineering and Applied Sciences.

EST: Courses offered by the Department of Technology and Society.

MSA: Courses offered by the Department of Applied Mathematics and Statistics. MSA also designates

the undergraduate applied mathematics major.

**MSC:** Courses offered by the Department of Computer Science. MSC also designates the undergraduate computer science major.

Courses are numbered in accordance with the following general pattern:

- 000-099 Non-credit preparatory courses intended to remove pre-admission deficiencies.
- 100-199 Introductory courses; appropriate for and generally taken by freshmen.
- 200-299 Intermediate courses; appropriate for and generally taken by sophomores.
- 300-399 Upper-division courses; appropriate for and generally taken by juniors and seniors.
- 400-499 Special upper-division courses such as seminars, directed readings and research, teaching practica; appropriate for and generally taken by juniors and seniors. Certain 400-level courses for seniors only are so specified.

### *Technical Electives*

Any engineering departmental or interdepartmental courses listed as technical electives or recommended by a student's advisor as appropriate to his or her academic program and approved by the College of Engineering and Applied Sciences Undergraduate Academic Affairs Committee.

### *Open Electives*

Any courses offered for credit at this University. Only three credits of Physical Education can be counted toward the College of Engineering and Applied Sciences degrees.

### *Permission to Take Graduate Courses*

Undergraduates with superior academic records may take graduate courses if they receive the permission of the course instructor and of the major or program academic advisor. Forms are available in the Engineering Undergraduate Student Office, Engineering 127.

### *Pass/No Credit Option*

The only courses which may be taken on Pass/No Credit basis for the Bachelor of Engineering degree are those fulfill-

ing the arts and humanities, social and behavioral sciences, and open elective requirements.

## **Courses**

### **Engineering Science Courses**

#### **ESG 211 Engineering Laboratory I: Electrical Circuits and Electronics**

Introduction to the measurement of electrical quantities; instrumentation; basic circuits, their operation and applications; electronic devices; amplifiers, oscillators, power supplies, wave shaping circuits and basic switching circuits. Corequisite: ESG 271. *Spring, 2 credits*

#### **ESG 261 Particle and Rigid Body Mechanics**

A review of vector algebra and calculus with kinematic applications such as curves in space, displacement, velocity and acceleration of point particles in classical orthogonal coordinate systems; notion of force; statics of a single particle including gravity, friction, electrostatic and magnetostatic forces; force as a vector field; moment about a point and moment about a line, couples, work; equivalent force systems and the wrench; equilibrium of systems of mass particles; special case of the rigid body. Rigid body kinematics and the kinematics of relative motions; single particle dynamics, including charge carrying particles and elementary linear vibrations; dynamics of clusters of particles; dynamics of the rigid body. Prerequisite: PHY 101. Corequisite: MSM 221. *Fall, 4 credits*

#### **ESG 271 Electrical Sciences I**

In this course, the efficient generation, storage and transmission of energy and information are used to motivate the student's introduction to the various fields of electrical sciences. Such topics as signal analysis, electrical measurements, Kirchhoff's laws, linear circuit analysis via Laplace transforms, semiconductor devices and basic electronic circuits are covered both from the theoretical and practical viewpoints. Computer-aided techniques are included. The material in this course is coordinated with the laboratory course ESG 211. Prerequisites: MSM 221 and MSC 111 or 112. Corequisite: ESG 211. *Spring, 4 credits*

#### **ESG 301 Thermodynamics**

The absolute temperature and other thermodynamic variables, including the thermodynamic potentials, are used to describe systems in thermal equilibrium by considering their interrelationships as governed by the laws of classical thermodynamics. Applications to phase transformations, inert and chemically reacting multi-component systems, power cycles and engines are considered. Prerequisite: MSM 221. *Fall, 4 credits*

#### **ESG 302 Thermodynamics of Materials**

The basic laws and concepts of thermodynamics are elucidated, and the important thermodynamic relationships 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. Corequisite: MSM 221. *Fall, 4 credits*

#### **ESG 312 Engineering Laboratory II: Theory and Measurement in Engineering**

The following topics will be considered: interaction of theory and experimentation, formulation of the theory, theoretical planning of the experiment, uses

of theory in design of experimental apparatus, methods of data analysis, experimental problems involving sensor readout systems and electronic instrumentation in scientific research. Prerequisite: Junior standing. *Fall, 2 credits*

**ESG 313 Engineering Experimentation: Applied Mathematics and Statistics**

**ESG 314 Engineering Experimentation: Computer Science**

**ESG 315 Engineering Experimentation: Electrical Engineering**

**ESG 316 Engineering Experimentation: Materials Science and Engineering**

**ESG 317 Engineering Experimentation: Mechanical Engineering**

**ESG 318 Engineering Experimentation: Technology and Society**

Projects under faculty supervision which emphasize the principles of experimental design and data evaluation. Projects will generally be undertaken, by teams of two students, from a selection of problems submitted by the engineering faculty or suggested by the student with faculty approval. Students should register for the one course number above that names their faculty project advisor's department. Prerequisites: ESG 211, ESG 312. *Spring, 2 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 which 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 transformations in multicomponent systems is developed. These principles are applied to the control of the properties of semiconductors, commercial plastics and engineering alloys by thermochemical treatment. Corrosion, oxidation and other deterioration processes are interpreted through the interaction of materials with their environment. Prerequisites: CHE 131 or CHE 141. *Fall, 4 credits*

**ESG 333 Materials Science II: Electronic Properties**

After a review of quantum mechanics and atomic physics, the binding energy and electronic energy levels in molecules and solids are discussed. The free-electron theory of metals is introduced and applied to the quantitative treatment of a number of electron emission effects. The band theory of solids is developed quantitatively via the Kronig-Penney model and the transport properties of metals and semiconductors are discussed in detail. The physical principle of p-n junctions, transistors, tunnel diodes, etc. is explained. Fundamentals and applications of photoconductors, lasers, magnetic materials and superconductors are also discussed. Prerequisites: PHY 251 or ESI 281 (ESG 332 is not a prerequisite). *Fall, 4 credits*

**ESG 363 Mechanics of Solids**

An introduction to the mechanics of deformable solids used in engineering structures. Topics include: two-dimensional descriptions of stress; displacements and strain; elastic stress strain temperature relations; beam deformations due to bending and axial forces; statically indeterminate beams; influence of plasticity on stress analysis; torsion; buckling. Prerequisite: ESG 261. *Spring, 4 credits*

### **ESG 364 Introduction to Fluid Mechanics**

Fundamental properties of fluids and their conservation laws in the context of applications to common engineering flows. Topics covered include hydrostatics, surface tension, dimensional analysis and dynamic similitude, Euler's equation, laminar and turbulent boundary layers, lubrication, drag on immersed bodies, open channel and pipe flows, and the rotating coordinate systems. Prerequisite: ESG 261. *Fall, 4 credits*

### **ESG 372 Electrical Sciences II**

The basics of circuit theory, electronics, and electromechanics are applied to the analysis of practical electrical systems. Introduction to linear amplifiers and their system requirements, switching devices, gates, memory devices, and the design of digital logic circuits. The principles of electromechanics are reviewed and applied to the analysis of magnetic circuits, transformers, electromechanical transducers and rotating machines; the principles of feedback control are introduced. Prerequisite: ESG 271. *Fall, 4 credits*

### **ESG 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. Prerequisite: Senior standing. *Fall, 2 credits*

### **ESG 441 Engineering Design II**

Student groups carry out the detailed design of the senior projects chosen during the first semester. A final and detailed design report must be prepared. Prerequisite: ESG 440. *Spring, 4 credits*

## *Interdepartmental Open Elective Courses*

### **ESI 98 Engineering Fundamentals**

Instruction in the material contained in one or more required courses in the engineering science program. To be eligible, a student must obtain the approval of the central advising office of the College of Engineering and of the chairman of the department to which the required course is assigned. (Normally a student may not receive credit in the same semester for both the required course and tutoring in material which is contained in it.) Grading is Satisfactory/Unsatisfactory only and the course carries non-degree credit. *Fall and spring, variable up to 6 credits each semester, repetitive*

### **ESI 100 Engineering Orientation Seminar**

One-hour lecture each week by a speaker from outside or from the College of Engineering faculty. Topics will include all the various aspects of Engineering offered at Stony Brook. No reports are required. Grading is Satisfactory/Unsatisfactory only, based on attendance, and the course may be taken up to three times. Credit obtained may be applied toward the open elective requirement by an engineering student. Students may not register for both ESI 100 and ESI 101 during the same semester. *Fall and spring, 1 credit, repetitive*

### **ESI 101 Engineering Orientation Seminar and Discussion**

Students will attend the same one-hour lecture each week as in ESI 100, and fulfill the attendance requirements. In addition a formal, one hour, weekly discussion group will meet with the coordinator to discuss more fully some of the various aspects of modern engineering. Students will be required to submit a term paper on the specific area of engineering of their study and will be graded accordingly. Credit obtained may be applied toward the open elective requirement by an engineering student. Students may not register for both ESI 100 and ESI 101 during the same semester. *Fall, 2 credits*

### **ESI 193 Introduction to Energy Engineering**

An introductory course designed for science and CEAS students: energy technology and systems; safety, environmental impacts and cost effectiveness of present and anticipated energy systems. *Fall, 3 credits*

### **ESI 194 Energy and Society**

Comprehensive treatment of technology and economy of energy resources: conversion, transmission, and distribution of energy; interaction of energy problems with the home, community, nation, and the world. Student participation is required in the form of role-enacting and presentation of reports. Three hours of lecture per week. The course is primarily intended for non-engineering majors. *Spring, 3 credits*

### **ESI 205 Materials in the Modern World**

A study of modern materials, focuses on the synthesis and structure of newly developed materials and their use in today's technology. The fundamental nature of metals, ceramics, glasses, polymers, and composite materials will be explored, and their multiple uses in domestic and industrial construction will be discussed together with environmental impact. This course will provide a basic understanding of the atomic architecture of these materials, and it will show how this knowledge can be used to tailor make materials that fulfill certain novel criteria for modern technology relating specifically to their mechanical, electrical, magnetic, and thermal properties. *Spring, 3 credits*

### **ESI 281 An Engineering Introduction to the Solid State**

The purpose of this course is to prepare students for the understanding of nature and properties of the crystalline solid state, with particular attention to semiconductors and semiconductor technology. Elementary notions of statistical and kinetic theory necessary for an understanding of the behavior of assemblies of particles are introduced. The basic concepts of oscillatory motions, wave-like phenomena and classical electricity and magnetism are reviewed. Elementary quantum mechanics is introduced and a few simple problems (harmonic oscillator, electron in a box) are solved. The theory is then applied to the hydrogen atom; multielectron conductors are described; the origin of energy bands and energy gaps is explained; concepts such as Fermi energy, density of states and work function are introduced; and, finally, the optical and transport properties of metals, insulators and semiconductors are discussed. Prerequisites: PHY 101 and PHY 102 or equivalent. *Fall, 4 credits*

### **ESI 490 Career Planning**

This course is designed to familiarize students about to enter engineering with career planning. Topics covered will include professional licensing, graduate work, applying for employment, conducting interviews, and writing resumes and reports. Grading is Satisfactory/Unsatisfactory. *Spring, 1 credit*

## *Interdepartmental Technical Elective Courses*

### **ESI 202 Computer Organization and Programming**

Explores the physical structure of a computer, machine representation of information, assembly language programming, input and output communication; and introduces the student to systems programming techniques. Crosslisted with MSC 120. Prerequisite: MSC 111 or 112. *Fall and spring, 4 credits*

### **ESI 280 Introduction to Ocean Engineering**

A wide range of ocean and marine systems are examined from the technical viewpoint. These include transportation, submersibles, navigation and con-

trol, structures, mining operation, fisheries and oceanography. Technologies specific to the ocean environment such as underwater sound, materials, global instrumentation and life support will be treated in sufficient detail to enable quantitative discussion of the role of ocean engineering and coastal zone operations. *Fall, 3 credits*

### **ESI 290 Engineering and Managerial Economics**

The application of engineering involves at every turn careful consideration of economic factors. The purpose of this course is to give the engineering student a sound introduction to the applications of economic and system analysis to decision-making problems arising in engineering and industry. Topics covered include nature of the business enterprise, cash flow and financial statement analysis, the cost of capital, economic life, taxes, analysis under risk and uncertainty, return on investment and the evaluation of engineering alternatives, budgeting techniques, inventory and critical path techniques, corporate financing and patent aspects of engineering. *Fall, 3 credits*

### **ESI 291 Industrial Engineering**

A broad introduction to the problems and techniques of industrial engineering including production design of products, process planning, layout of physical facilities, plant location, job design, production standards, forecasting and inventories, quality control, and automation techniques in production. *Spring, 3 credits*

### **ESI 300 Independent Study Projects**

An engineering student may, in consultation with faculty members, develop an individual course of academic investigation and study. The student must prepare an outline of the proposed project clearly stating its scope, intent, and methods which will be used to conduct it. He must obtain from two faculty members written approval of the project and agreement to supervise it and to recommend appropriate academic credit. The project then requires final approval by the Undergraduate Academic Affairs Committee. The maximum allowable total credit for independent study is 30 credits with no more than 18 credits in any one semester. Though independent study may be taken in any semester, it is normally expected that an engineering student will take independent study as a junior or senior. The academic credit assigned to independent study projects is normally drawn from the block of elective credits and engineering design in the curriculum. *Fall and spring, variable credit*

### **ESI 301 Fuel Technology**

Introduction to nuclear and fossil fuel processing and fabrication. Topics will include: uranium isotope separation and fuel enrichment; fuel conversion and breeding; fuel element fabrication; chemical and physical methods of petroleum refining; distillation and cracking of petroleum oils; kinetics of hydrocarbon pyrolysis; physical properties and combustion of motor fuels. Composition and properties of coal; desulfurization and combustion processes; methods of coal hydrogasification and methanation. Prerequisites: PHY 102 and CHE 131 and 133. *Spring, 3 credits*

### **ESI 310 Biomedical Engineering**

A systematic and basic development of the engineering principles applicable to medicine and biological systems in terms of the following basic disciplines: biological systems analysis, biomechanics (viscoelastic, rheological properties of tissues, stress distributions in living organisms, etc.), bioenergetics and radiation technology, mass and heat transport in living systems, bioelectronics and biomaterials sciences. Applications are to bioastronautics, artificial organs, environmental control, man-machine systems and the stimulation of biological systems. *Fall, 3 credits*

**ESI 351 Energy Conversion**

Natural and secondary energy sources; methods of energy conversion including thermionic, thermoelectric and magnetohydrodynamic converters, fuel cells and solar cells. Crosslisted with ESE 351. Prerequisites: ESG 271 and ESG 201. *Spring, 3 credits*

**ESI 491 Senior Seminar in Energy Technology**

Current topics in energy technology are discussed by students, faculty members and outside invited speakers. Grading shall be Satisfactory/Unsatisfactory only. *Spring and fall, 1 credit*

## Department of Applied Mathematics and Statistics

**Professors:** Edward J. Beltrami, Ph.D. Adelphi University (Distribution and optimization theory); Yung Ming Chen, Ph.D. New York University (Partial differential equations and wave propagation); Daniel Dicker, Sc.D. Columbia University (Boundary value problems of solid and fluid mechanics); Vaclav Dolezal, Sc.D. Czechoslovak Academy of Science (Distribution theory; systems theory); Irving Gerst, Ph.D. Columbia University (Applied algebra and number theory); F. James Rohlf, Affiliate, Ph.D. University of Kansas (Evolutionary biology and numerical taxonomy); Hanan C. Selvin, Affiliate, Ph.D. Columbia University (Applications of statistical and methodological procedures to analysis of social data; sociology of blindness); Ram P. Srivastav, D.Sc. University of Glasgow; Ph.D. University of Lucknow (Integral equations and mixed boundary value problems); Reginald P. Tewarson, Ph.D. Boston University (Numerical analysis)

**Associate Professors:** <sup>a</sup>James C. Frauenthal, Director of Undergraduate Studies, Ph.D. Harvard University (Population dynamics; applied mechanics); Woo Jong Kim, Ph.D. Carnegie Institute of Technology; Ph.D. Carnegie-Mellon University (Ordinary differential equations); Martin A. Liebowitz, Ph.D.

---

<sup>a</sup>Recipient of the Chancellor's Award for Excellence in Teaching, 1977-78



Harvard University (Random processes and applications); **Gary Simon**, Ph.D. Stanford University (Statistics); <sup>b</sup>**Alan C. Tucker**, Chairman, Ph.D. Stanford University (Combinatorics and applied models)

**Assistant Professors:** **Gerard Dallal**, Ph.D. Yale University (Statistics); **Stephen Finch**, Ph.D. Princeton University (Statistics); **Bhaskar Sengupta**, Eng. Sc.D. Columbia University (Operations research; random processes); **Laurel Smith**, Ph.D. Stanford University (Statistics); **Scott Provan**, Ph.D. Cornell University (Operations research)

### ***Estimated Number of Teaching Assistants: 40***

The undergraduate program in Applied Mathematics and Statistics 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 which are currently employed by planners and researchers in government, industry and science. About half of the applied mathematics majors go on to graduate or professional schools, largely in statistics, operations research, business management and urban science. 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 MSA Graduate Placement Advisor who will assist them in choice of schools, and provide information about Graduate Record Examinations, etc. Students considering secondary school mathematics teaching can major in Applied Mathematics and Statistics or in Mathematics.

### ***Requirements for the Major in Applied Mathematics and Statistics—Bachelor of Science Degree***

In addition to the University graduation requirements and the College of Engineering and Applied Sciences distribution re-

---

<sup>b</sup>Recipient of the Chancellor's Award for Excellence in Teaching, 1973-74

quirements, the following courses are required for the major in applied mathematics and statistics:

1. Four semesters of calculus
2. MSC 111 or MSC 112

3. Twenty-four additional credits in courses designated MSA or MSE and numbered 300 and above. (A maximum of six of these credits may be replaced by an equal number of credits to be taken from approved junior level or higher mathematically oriented courses. Typical approved substitutions are: ECO 251, 252, 321; MSC 201; MSM 313; PHY 443, 444.)

4. To gain a background in fields that generate mathematical applications, a minimum of 14 additional credits shall be chosen from among the course offerings in economics, the physical sciences (not including mathematical sciences), and engineering. No more than 8 of these credits may come from any one department.

### ***Minors and Double Majors***

The department urges students in other majors who are considering a double major with MSA first to select individual MSA courses on the basis of their academic interests or vocational needs. Only after a student has taken several MSA courses should he or she decide upon this as a second major.

On the other hand, MSA students are strongly encouraged to minor or double major in another discipline. The most frequent choices of MSA double majors are computer science and economics.

### ***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 MSA major are encouraged to take, besides the required calculus sequence: some physics (either PHY 131, 132 or PHY 101, 102 or PHY 103, 104), MSC 112 and one other computer course (competence in computer programming is essential for many professional careers), and some economics. At the end of their sophomore years or the beginning of their junior years, students begin taking upper-division MSA courses, usually

starting with MSA 301 and 311. At the same time, they are strongly encouraged to continue taking MSM and MSC courses and mathematically oriented courses in other departments, such as ECO 251 and PHY 443. The following lists of course sequences for certain professions are given as a preliminary guide to students with interests in these professions. Students should talk with faculty specializing in these areas as early as possible for more specific information.

*Statistics:* MSA 301, 311, 312 and 572; another MSC course beyond MSC 112; students considering highly competitive graduate statistics programs need MSM 310 or 313, 320 and 321.

*Actuarial Science:* Preparation for second actuarial examination—MSA 301, 311 and either 312 or 572; third actuarial examination—MSA 326, 543; fourth examination—MSA 544.

*Operations Research or Management Science:* MSA 301, 310 or 311, 312, 341, 342.

*Programmer-Analyst:* MSA 301, 310 or 311, 312, 326, 341; MSC 120, 201, 205.

## **Courses**

### **MSA 101 Introduction to Finite Mathematics**

This course concentrates on mathematical concepts and techniques which are needed for the mathematical models currently being used in such fields as anthropology, biology, economics, linguistics, psychology and sociology. Topics to be covered are finite probability theory (including Markov chains), matrix algebra, and graph theory. Applications to mathematical models in the biological and social sciences will be employed throughout. This course may not be taken by students with credit for the second semester of calculus (such students should take MSA 110). Students may not receive credit for both MSA 101 and MSA 110. *Fall and spring, 3 credits*

### **MSA 102 Elements of Statistics**

The use and misuse of statistics in real-life situations; basic statistical measures of central tendency and of dispersion, frequency distributions, elements of probability, binomial and normal distributions, small- and large-sample hypothesis testing, confidence intervals, chi-square test, and regression. This course may not be taken by students with credit for MSM 231, MSA 310, MSA 311, MSA 312, ECO 320, PSY 201, SOC 202, SOC 211-212. Prerequisite: Satisfaction of Arts and Sciences mathematics proficiency requirement. *Fall and spring, 3 credits*

### **MSA 104 Introduction to Probability**

Introduction to continuous and discrete probability; basic properties of probability distributions, examples (from the physical and biological sciences), expectations; binomial, Poisson, and normal distributions. Prerequisite: One semester of calculus. Corequisite: Second semester of calculus. *Fall and spring, 1 credit*

### **MSA 110 Introduction to Mathematical Modeling**

Modeling techniques to be covered will include graph theory, difference equations, finite stochastic processes (including Markov chains) and elementary statistical sampling; necessary background in finite probability will be developed. This course is designed for two types of students: the biological and social science student who views mathematical modeling as a necessary tool for analyzing problems in his own discipline; and the mathematically oriented student for whom mathematical models serve as a motivated introduction to applicable areas of modern mathematics. Students considering a major in Applied Mathematics and Statistics are encouraged to take this course. Students may not receive credit for both MSA 110 and MSA 101. Prerequisite: One semester of calculus. *Fall and spring, 3 credits*

### **MSA 211 Exploratory Data Analysis**

Uses of medians and quartiles to describe data. Finding transformations of data which remove patterns in the variability of data. Basic concepts of regression and reexpression of data to simplify problems. Basic techniques of two-way analyses, including detection of model failure. Elementary data smoothing and its application to time sequences and regression. The course stresses the ability to write reports summarizing the results the student has obtained. Prerequisites: 2 years of high school algebra (especially familiarity with plotting) and satisfaction of the writing requirement. *Fall, 3 credits*

### **MSA 301, 302 Finite Mathematical Structures I, II**

This course introduces the student to graph theory and combinatorial analysis. The emphasis is on solving applied problems rather than on theorems and proofs. Techniques used in problem-solving will include generating functions, recurrence relations and network flows. This course develops the type of mathematical thinking that is fundamental to computer science and operations research. Corequisite: Third semester of calculus. *MSA 301, fall, 3 credits; MSA 302, spring, 3 credits*

### **MSA 310 Introduction to Mathematical 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, significance test. MSA 310 may not be taken for credit in addition to ECO 320. Prerequisite: Two semesters of calculus. *Fall and spring, 3 credits*

### **MSA 311, 312 Probability and Statistics I, II**

Finite, discrete and continuous probability distributions; random variables; conditional probability; multivariate distributions; laws of large numbers; central limit theorem; statistical application (random sampling, estimation, significance testing, hypothesis testing, regression correlation); further topics. Prerequisite: Three semesters of calculus. *MSA 311, fall and spring, 3 credits; MSA 312, spring, 3 credits*

### **MSA 320 Applied Differential Systems**

Properties of ordinary differential equations with diverse applications to problems in the natural and social sciences. (No background in areas of application is required.) The course is designed for students in the mathematical sciences who are interested in basic uses of the calculus. Prerequisite: Three semesters of calculus. *Fall, 3 credits*

### **MSA 326 Numerical Analysis**

Direct and indirect methods for the solution of linear and non-linear equations. Computation of eigenvalues and eigenvectors of matrices. Quadrature, differentiation and curve fitting. Numerical solution of ordinary and partial dif-

ferential equations. Prerequisite: MSC 111 or 112 and three semesters of calculus. *Fall and spring, 3 credits*

### **MSA 331 Mathematical Models in the Social Sciences**

About ten models are discussed in detail. These involve preference rankings, ecology of competing species, market stability, stabilization of money flow, conditioned conformity, population growth, organization theory and optimal scheduling. Prerequisites: Three semesters of calculus and either MSA 310 or 311. *Spring, 3 credits*

### **MSA 332 Topics in Population Modeling**

Discussion of models for growth and development of human and animal populations, with emphasis on mathematical thinking and methods. Each semester course will focus on a particular topic such as demography, ecology or epidemiology. Courses may be repeated once. Prerequisites: Three semesters of calculus and MSA 311. *Fall, 3 credits*

### **MSA 341 Operations Research I: Deterministic Models**

This course presents linear programming with a view towards 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. Prerequisite: Three semesters of calculus. MSA 341 and MSA 342 may be taken in either order, though it is recommended that MSA 341 be taken first. *Spring, 3 credits*

### **MSA 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. Prerequisites: Three semesters of calculus and either MSA 310 or MSA 311. MSA 341 and MSA 342 may be taken in either order, though it is recommended that MSA 341 be taken first. *Fall, 3 credits*

### **MSA 361 Engineering Mathematics A**

Introduction to partial differential equations of engineering; methods of solution including separation of variables, Fourier series and integrals; elements of numerical analysis. Prerequisite: MSM 221. *Fall and spring, 4 credits*

### **MSA 362 Engineering Mathematics B**

Vector and related techniques used in fluid dynamics and electromagnetic fields; methods of complex variables in engineering applications. Prerequisite: MSM 221. *Fall and spring, 4 credits*

### **MSA 487 Research in Applied Mathematics**

A course which will give the students an opportunity to be involved in an independent research project with supervision by the faculty. Permission to register will require that students have average grades of B in their courses and that they obtain the agreement of a faculty member to supervise their research. May be repeated once. Prerequisite: Permission of instructor and department. *Fall and spring, 3 credits*

### **MSA 491 Workshop in Applied Mathematics**

Lectures will be given by the course instructor and by visitors on topics of current interest in applied mathematics. Projects involving mathematical modeling will be undertaken by small groups of students with the supervision of faculty. Reports will be submitted by each group of students at the end of the semester. Prerequisite: Permission of instructor. *Spring, 3 credits*

## *Applied Mathematics and Statistics Courses Approved as Engineering Technical Electives*

*MSA 301, 302 Finite Mathematical Structures I, II*

*MSA 310 Introduction to Mathematical Statistics*

*MSA 311, 312 Probability and Statistics I, II*

*MSA 320 Applied Differential Systems*

*MSA 326 Numerical Analysis*

*MSA 331 Mathematical Models in the Social Sciences*

*MSA 332 Topics in Population Modeling (may be taken only once)*

*MSA 341, 342 Operations Research I, II*

*MSA 487 Research in Applied Mathematics*

*MSA 491 Workshop in Applied Mathematics*

## Department of Computer Science

**Professors:** **Arthur J. Bernstein**, Ph.D. Columbia University (Computer systems; operating systems; computer networks); **Herbert L. Gelernter**, Ph.D. University of Rochester (Artificial intelligence; scientific applications); **Jack Heller**, Chairman, Ph.D. Polytechnic Institute of Brooklyn (Information organization and retrieval; humanities data processing; data structures); **Richard B. Kieburtz**, Ph.D. University of Washington (Theory of computation; programming languages); **David R. Smith**, Ph.D. University of Wisconsin (Switching theory; digital system design; computer architecture); **Daniel H. Tycko**, Ph.D. Columbia University (Pictorial data processing; pattern recognition; computer systems)

**Associate Professor:** **Yechezkel Zalcstein**, Ph.D. University of California at Berkeley (Parallel and asynchronous computation; computational complexity; automata and formal languages)

**Assistant Professors:** **John C. Cherniavsky**, Ph.D. Cornell University (Theory of computation; logic); **Kattamuri Ekanadham**, Ph.D. State University of New York at Stony

Brook (Operating systems; security; microprocessor networks); **Peter B. Henderson**, Ph.D. Princeton University (Scheduling theory); **David Maier**, Ph.D. Princeton University (Computational complexity; algorithm analysis; database systems); **Bruce Russell**, Ph.D. National University of Ireland (Programming languages; formal semantics, programming methodology); **Sharon Salveter**, Ph.D. University of Wisconsin (Learning; natural language understanding; knowledge representation)

### ***Estimated Number of Teaching Assistants: 30***

#### ***Undergraduate Program in Computer Science***

The undergraduate major in computer science is designed to combine a liberal arts program with sufficient pre-professional education in computer science to prepare the student for graduate study or for a career in the computing field. The intent is to offer the breadth of education which will enable students to place computing in the perspective of an extension of man's intellectual power, while offering the depth of education required to understand how to utilize the power of computing.

Students will learn concepts and skills needed for designing, programming, and applying computer systems while learning the theoretical foundation of computer science. They will also have sufficient freedom in the program to pursue other academic interests in the liberal arts, sciences, and engineering to complement their study of computer science. Many students will be able to utilize the flexibility of the program to satisfy the requirements of a second major for the baccalaureate degree.

#### ***Physical Facilities***

The laboratory in the Computer Science Department has its own PDP 11/60 computer (which is connected to mass storage devices, an analog-to-digital converter, and a graphics terminal), as well as 24 LSI-11 microcomputers. Although used mainly for graduate research, they are also available to qualified undergraduate students engaged in special independent projects.

The campus Computing Center, a major centralized facility to service the computing needs of instruction, research, and administration, is used very heavily in most undergraduate

computer science course work. This central computer complex consists of a UNIVAC 1110 — 3x2 system with 3 million characters of main memory, 2 billion characters of on-line disk storage, and a complement of tape drives, printers, and card processing equipment. More than 120 remote devices are located on the Stony Brook campus and are connected via a communication network. A tape library of more than 6,000 magnetic tapes provides for storage of users' programs and data in machine accessible form. An upgrading of the facility to an 1100/80 — 2x1 system is planned for spring 1979, designed to increase memory to over 4 million characters.

### ***Requirements for the Major in Computer Science—Bachelor of Science Degree***

In addition to the University graduation requirements, the following courses are required for the major in computer science:

#### ***I. Required courses***

A. MSC 112 (or equivalent), MSC 120, MSC 201, and three other MSC courses chosen from among MSC 205, 303, 304, 305, 306, 345, 352, and 487.

B. MSM 131, 132, 231 (or MSM 141, 142, 310) and MSM 313.

C. MSA 301, 326, and 310 (or 311).

D. ESE 318.

#### ***II. Additional requirements***

Students must satisfy the distribution requirements of the College of Engineering and Applied Sciences as specified in paragraphs A-E on pages 389-90 of this *Bulletin*. In addition, the student should take 12 credits from among the course offerings in the natural sciences and engineering, not including courses in mathematics, applied mathematics, or the core computer science courses listed in IA of the requirements of the major specified above. Furthermore, with respect to paragraph B, a student should take 27 credits in the Arts and Humanities and the Social and Behavioral Sciences instead of the 21 credits indicated.

#### ***III. Grading***

Students must receive a grade of C or better in upper-division computer science courses and ESE 318 in order to use them to fulfill the MSC major requirements. The Depart-



ment will not accept P/NC grades for courses listed under I, above which are used to satisfy major requirements.

### ***Requirements for the Minor in Computer Science***

The minor in computer science concentrates on the practical aspects of computing. The minor includes all practically oriented hardware and software courses required of computer science majors and therefore provides students with a good preparation for many entry-level positions in the computer field. Although students electing the minor need not fulfill the mathematics requirement specified for majors, they must have proficiency in mathematics through the level of MSM 120. The requirements of the minor are:

1. MSC 112 (or equivalent), 120, 201, and 205.

2. (a) Software track: MSC 304, 305, and 306

or

(b) Hardware track: MSC 345, 306, and ESE 318.

### ***Suggestions for Elective Courses***

Students are encouraged to concentrate their elective courses in no more than two disciplines chosen according to their secondary interests so as to obtain depth in these areas. Students interested in the theory of computation are encouraged to take MSM 371 Logic. Those interested in computer hardware should consider ESE 316 Digital Devices and Circuits, ESE 346 Computer Communications, ESE 349 Introduction to Fault Diagnosis for Digital Systems, and ESE 380 Microprocessors and Programmed Logic. Other related courses can be found in the listings of the Departments of Mathematics, Applied Mathematics and Statistics, Electrical Engineering, and the Interdisciplinary Program in Linguistics. Also, there is a large selection of graduate courses in the department's Master of Science program which are available, as electives, to eligible seniors. Students should consult with faculty members of the Department of Computer Science early in their careers in planning their programs.

### ***Sample Program (required courses only)***

<i>Freshman</i>	<i>Sophomore</i>	<i>Junior</i>	<i>Senior</i>
MSM 131	MSM 231	MSA 301	MSA 310
MSM 132	MSM 313	MSA 326	ESE 318
MSC 112	MSC 201	MSC elective	MSC elective
MSC 120			MSC elective

## Courses

### **MSC 100 The Societal Impact of Computers**

A critical assessment of the role that computing and data processing play in contemporary society. Following an introduction to the information management capabilities that automation can provide, a study will be made of economic, legal, and moral issues involved in the utilization of these capabilities. Crosslisted with EST 100. *Fall and spring, 3 credits*

### **MSC 110 Survey of Computer Science (Formerly MSC 101)**

A non-rigorous introduction to computer science and computer programming. Similar to MSC 112, except computer applications are stressed. Students gain experience using a modern high-level language to solve a variety of applications oriented problems. Primarily for students *not* planning to take further computer science courses. May not be taken for credit in addition to MSC 111 or MSC 112. *Fall and spring, 3 credits*

### **MSC 111 Computer Science for Engineers (Formerly MSC 101)**

An introduction to computer science and the use of the computer for solving scientific and engineering related problems. Students will gain experience using the FORTRAN programming language. Primarily for engineering students *not* planning to take advanced computer science courses. May not be taken for credit in addition to MSC 110 or MSC 112. *Fall and spring, 3 credits*

### **MSC 112 Introduction to Computer Science (Formerly MSC 101)**

A rigorous introduction to the fundamental concepts of computer science, including algorithms, problem-solving techniques, data structures, and machine principles. Students will gain experience using a modern high-level computer programming language to solve a variety of numeric and non-numeric problems. Primarily for students planning to take further computer science courses. May not be taken for credit in addition to MSC 110 or MSC 111. *Fall and spring, 3 credits*

### **MSC 120 Computer Organization and Programming (Formerly MSC 102)**

Explores the physical structure of a computer, machine representation of information, assembly language programming, input and output communication; and introduces the student to systems programming techniques. Crosslisted with ESI 202. Prerequisite: MSC 112 (or equivalent). *Fall and spring, 4 credits*

### **MSC 201 Advanced Programming**

Development of techniques in non-numeric programming with particular emphasis on data representation. Detailed treatment of recursive data structures, searching and sorting. Introduces concepts of modular design of programs. Involves writing large programs in PASCAL. Prerequisite: MSC 112 (or equivalent). Students not having PASCAL background are advised to see the instructor prior to registration. *Fall and spring, 3 credits*

### **MSC 205 Introduction to Business Data Processing**

A basic introduction to the techniques of business data processing applications using concepts of sequential and direct access storage mediums. Typical data processing problems in the commercial area will be considered using two most frequently used higher level languages: PL/1 and COBOL. Concepts of unified data base construction and maintenance will be considered from the viewpoint of management information systems. Prerequisite: MSC 201. *Fall, 3 credits*

### **MSC 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: MSC 120 and MSM 313. *Fall, 3 credits*

### **MSC 304 Compiler Design**

Topics studied include formal description of programming languages, lexical analysis, syntax analysis, symbol tables and memory allocation, code generation, and interpreters. Prerequisite: MSC 201. *Spring, 3 credits*

### **MSC 305 Data Base Design**

An introduction to use and design of data base management systems. Discussions of logical data organization from the relational, hierarchical, network and entity set models. Techniques for designing data base management systems and physical storage methods will be studied from the maintainability, consistency and usability points of view. Prerequisite: MSC 205. *Spring, 3 credits*

### **MSC 306 Operating Systems**

Students are introduced to the structure of modern operating systems. Topics include virtual memory, resource allocation strategies, concurrency and protection. The design and implementation of a simple system will be performed. Prerequisites: MSC 120 and MSC 201. *Fall, 3 credits*

### **MSC 345 Computer Architecture**

Starts with functional components at the level of registers, busses, arithmetic and memory chips; and then uses a register transfer language to manipulate these in the design of hardware systems up to the level of complete computers. Specific topics also included are micropogrammed control, user level instruction sets, I/O systems, and device interfaces, control of memory hierarchies, and parallel processing organizations. Crosslisted with ESE 345. Prerequisites: MSC 120 and ESE 318. *Spring, 3 credits*

### **MSC 346 Computer Communications**

Crosslisted with ESE 346. *Spring, 3 credits*

### **MSC 352 Heuristic Programming and the Simulation of Intelligent Behavior by Machine**

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: MSC 201 and MSC 303. *Spring, 3 credits*

### **MSC 370 Digital Simulation and Modeling**

Crosslisted with ESE 370. *Fall, 3 credits*

### **MSC 371 Computer Graphics**

Display devices and processors, with emphasis on processor-cathode ray tube interface. Generation of characters, straight lines, and curves specified by descriptive geometry and by differential equations, geometrical transform. Input devices, and basic instruction sets. Processor logic steps in instruction handling. Introduction to three-dimensional graphics. Crosslisted with ESE 371. Prerequisite: MSC 120 and ESE 318. *Spring, 3 credits*

### **MSC 380 Microprocessors and Programmed Logic**

Crosslisted with ESE 380. *4 credits*

### **MSC 381 Microprocessors and Programmed Logic II**

Crosslisted with ESE 381. *3 credits*

### **MSC 475 Undergraduate Teaching Practicum**

This course provides an opportunity for selected undergraduate students to collaborate with the faculty in teaching an introductory computer science course. Students will be responsible for regular recitation sections, consulting with students in the Computing Center, and tutoring. Students will meet once a week with the faculty to discuss and plan teaching activities. Prerequisite: Upper division standing, recommendation of a faculty member, and approval by the department. *Fall and spring, 3 credits/non-repetitive*

### **MSC 487 Research in Computer Science**

A course which involves the student in an independent research project under the supervision of a faculty member. May be repeated. Prerequisite: Permission of instructor and department. *Fall and spring, 3 credits*

## ***Computer Science Courses Approved as Engineering Technical Electives***

*MSC 201 Advanced Programming*

*MSC 205 Introduction to Business Data Processing*

*MSC 303 Introduction to the Theory of Computation*

*MSC 304 Introduction to Systems Programming*

*MSC 345 Computer Architecture*

*MSC 487 Research in Computer Science*

## **Computer Engineering**

More and more frequently the solutions to current design problems in computer and data processing equipment lie in the area between strictly hardware or software solutions. It is important for students who wish to specialize in computer hardware to be fluent in modern software techniques and to be familiar with digital electronics and the application of large-scale integrated devices.

The following course sequence shows how to shape a program appropriate to computer engineering and simultaneously meet the requirements of the Bachelor of Engineering degree in Electrical Engineering. Students' attention is also particularly drawn to two courses which are basic to computer engineering, namely ESE/MSC 380 Microprocessors and Programmed Logic, and MSC 306 Operating Systems.

## Sample Course Sequence in Computer Engineering

	<i>Fall</i> <i>Credits</i>		<i>Spring</i> <i>Credits</i>
<i>Freshman</i>			
EGL 101	3	PHY 102	4
PHY 101	4	MSM 132	4
MSM 131	4	MSC 120	4
MSC 111	3	HUM/SOC elective	3
HUM/SOC elective	3		
	—		—
<i>Total</i>	17	<i>Total</i>	15
<i>Sophomore</i>			
CHE 131	4	ESG 211	2
CHE 133	1	ESG 271	4
ESG 261	4	ESE 318	4
MSM 221	3	MSC 201	3
HUM/SOC elective	3	MSA 361	4
	—		—
<i>Total</i>	15	<i>Total</i>	17
<i>Junior</i>			
ESG 312	2	MSA 310	3
ESG 372	4	Technical elective	3
MSA 301	3	ESG 314 or 315	2
HUM/SOC elective	3	ESE 316	3
ESI 281	4	MSC 304	3
		HUM/SOC elective	3
	—		—
<i>Total</i>	16	<i>Total</i>	17
<i>Senior</i>			
ESG 440	2	ESG 441	4
ESE 330	3	ESE 346	3
ESG 333	3	MSC 345	3
Technical elective	3	Technical elective	3
HUM/SOC elective	3	HUM/SOC elective	3
Open elective	3		
	—		—
<i>Total</i>	17	<i>Total</i>	16

## Department of Electrical Engineering

**Professors:** Ludwig Braun, Joint with Technology and Society, D.E.E. Polytechnic Institute of Brooklyn (Bioengineering and computers in education); H.R. Carleton, Joint with Materials Science and Engineering, Ph.D. Cornell University (Optical materials; electro-optics; ultrasonics; optical instrumentation); Sheldon S.L. Chang, Ph.D. Purdue University (Optimal control; energy conservation; information theory; economic theory); Chi-Tsong Chen, Chairman, Ph.D. University of California at Berkeley (Systems and control theory; digital signal processing); Velio A. Marsocci, Eng.Sc.D. New York University (Solid-state electronics; biomedical engineering); Paul Richman, Adjunct, M.S. Columbia University (Field effect transistors and integrated circuits); David R. Smith, Joint with Computer Science, Ph.D. University of Wisconsin (Logic design; computer architecture); George W. Stroke, Dr.E.Sc. University of Paris, Sorbonne (Optical information processing, optical communication); Gary L. Thomas, Ph.D. University of California at Berkeley (Solid-state electronics, transport phenomena in solid state device, magnetoelastic interaction); John G. Truxal, Joint with Technology and Society, Sc.D. Massachusetts Institute of Technology (Control and systems engineering; science education)

**Associate Professors:** Patrick E. Barry, Adjunct, Ph.D. State University of New York at Stony Brook (Systems and control; optimization theory); Maurice Halioua, Adjunct, Ph.D. University of Paris (Optical information processing and applications); Stephen S. Rappaport, Graduate Program Director, Ph.D. New York University (Communication theory; systems); Kenneth L. Short, Undergraduate Program Director, Ph.D. State University of New York at Stony Brook (Digital system design; instrumentation); Hang-Sheng Tuan, Ph.D. Harvard University (Electromagnetic theory; integrated optics; microwave acoustics)

**Assistant Professors:** Yih-Chyun Jenq, Ph.D. Princeton University (Data and computer communications); Edward T. Lee, Ph.D. University of California at Berkeley (Pattern recognition; computer architecture; systems analysis); Charles R. Waters, Adjunct, Ph.D. State University of New York at Stony Brook (Control and systems engineering)

## ***Estimated Number of Teaching Assistants: 40***

The Department of Electrical Engineering offers a set of programs with course offerings that span the subject matter of contemporary electrical engineering. Through the Department's offerings a student can develop the requisite background and skills suited to his own interests and career goals. While most electrical engineering students go into industry upon graduation, many go directly to graduate school for further study in business or other professions. Many continue their education on a part-time basis. The programs described below have sufficient flexibility to meet a large variety of individual objectives.

### ***Undergraduate Programs in Electrical Engineering***

*EE Program:* Students interested in specializing in the area of electrical engineering may register, normally at the beginning of the junior year, in the Electrical Engineering Program. At the completion of the program, the student will receive the Bachelor of Engineering in Electrical Engineering degree. The program requires a minimum core of any five electives (excluding ESE 499) to be taken in the Electrical Engineering Department. In addition, it is suggested that Engineering Experimentation (ESG 315) and Engineering Design (ESG 440, 441) be carried out under the supervision of the Electrical Engineering faculty, unless another option is approved by the undergraduate committee. The core sequence selected, along with additional courses and technical electives, is chosen in consultation with a faculty advisor, taking into consideration the particular interest of the student. This will provide a thorough foundation fitted to individual goals.

### ***Bachelor of Engineering Degree in Electrical Engineering***

#### ***Minimum Requirements***

The minimum requirements for the Bachelor of Engineering degree in Electrical Engineering are as follows:

- |    |  |                         |
|----|--|-------------------------|
| A. | Total credits: 128   |                         |
| B. | University graduation requirements, p. 103                                       |                         |
| C. | College of Engineering and Applied Sciences distribution requirements, p. 389-90 | <i>Credits</i><br>21-24 |

- D. Mathematics 17 minimum  
MSM 131, 132, 221 and any two of the following courses  
with at least one chosen from the first group:  
(MSA 301, MSA 361\*, MSA 362\*)  
(MSA 210, MSA 310, MSA 311)
- E. Natural Sciences 17 minimum  
PHY 101, 102, CHE 131 and 133 or CHE 141 and 143,  
and one of: ESI 281, PHY 251, CHE 132, CHE 142, MSC  
120, or any BIO course
- F. Computer Science 3 minimum  
MSC 111 or 112
- G. Engineering Sciences 20 minimum  
ESG 271, 372, 211, 261, 312 and one of: ESG 302, 332,  
333\*
- H. Engineering Synthesis Design 8 minimum  
ESG 315, ESG 440, ESG 441 (Projects to be carried out  
under the supervision of the faculty of Electrical  
Engineering unless approved otherwise by the under-  
graduate committee)
- I. Engineering Specialization and Technical Elective  
27 minimum  
9 technical electives, 5 of which must be chosen from  
the technical elective offerings of the Electrical  
Engineering Department (excluding ESE 499; no more  
than 3 credits of ESE 390)
- J. Open Electives variable for a  
ESI 190\* total of 128  
Any undergraduate University course offered for  
academic credit may be chosen for open elective  
credits. No more than 3 credits of Physical Education  
can be used to satisfy open elective requirements.  
Graduate level courses may be taken to satisfy either  
open elective or technical elective requirements with  
approval.

---

\*The courses denoted by the asterisk are recommended unless a more  
suitable course is chosen in consultation with a faculty advisor.



## Sample Course Sequence in Electrical Engineering

The following is a sample course sequence. This sequence insures that prerequisite and corequisite courses are taken in proper order. *Note:* Elective courses must be chosen to satisfy minimum requirements for all B.E. Degree Programs.

<i>Freshman</i>	<i>Fall Credits</i>		<i>Spring Credits</i>
MSM 131 Calculus I	4	MSM 132 Calculus II	4
PHY 101 Gen. Phys. I	4	PHY 102 Gen. Phys. II	4
EGL 101 Composition	3	MSC 111/112 Intro. to Computer Sci.	3
ESI 190 Man, Tech., Society	3	HUM/SOC elective	3
HUM/SOC elective	3	HUM/SOC elective	3
	—		—
<i>Total</i>	17	<i>Total</i>	17

### *Sophomore*

MSM 221 Calculus III Differential Equations	3		
CHE 131/141 Chemistry**	4	MSA 362 Eng. Math B	4
CHE 133/143 Chem. Lab.**	1	ESG 211 Elec. Sci. Lab.	2
PHY 251 Mod. Phys./ ESI 281	4	ESG 271 Elec. Sci. I	4
ESG 261 Part. & Rigid Body Mech.	4	HUM/SOC elective	3
	4	ESE 318 Digital Syst. Design	4
	—		—
<i>Total</i>	16	<i>Total</i>	17

### *Junior*

MSA 361 Eng. Math A*	4	ESG 315 Eng. Expt.	2
ESG 312 Eng. Lab. II	2	ESE 315 Feedback Controls	3
ESG 372 Elec. Sci. II	4	ESE 311 Elec. Circuits Design	3
ESE 340 Basic Commun. Theory	3	HUM/SOC elective	3
ESE 319 Fields & Waves	3	ESE 380 Micro-processor & Progr. Logic	4
	—		—
<i>Total</i>	16	<i>Total</i>	15

\*The courses denoted by the asterisk are recommended unless a more suitable course is chosen in consultation with a faculty advisor.

\*\*Can be taken instead in fall semester of first year.

*Senior*

ESG 333 Electr. Prop. of Mat.	4	ESG 441 Eng. Des. II	4
ESG 440 Eng. Des. I	2	Open elective	3
Technical elective	3	HUM/SOC elective	3
Technical elective	3	Technical elective	3
HUM/SOC elective***	3	Open elective	2
	<hr/>		<hr/>
<i>Total</i>	15	<i>Total</i>	15

***Specialized Areas in Electrical Engineering***

Some of the major areas of specialization are listed below. This list is not meant to be exhaustive. For more detailed information concerning additional areas and specific course recommendations students should consult "Undergraduate's Guide to Electrical Engineering Program" which is available from the office of the Department of Electrical Engineering.

- Biomedical Engineering
- Communication and Information Sciences
- Control and System Theory
- Computer Engineering
- Electrical Power Systems
- Electronic Networks and Circuits
- Solid State Electronics and Electromagnetics

***BEIMS Program***

An engineering student may apply for admission to this special program, which will lead to a Master of Science and a Bachelor of Engineering degree (either in Electrical Engineering or Engineering Science) at the end of the fifth year. Students in the program take, in the senior year, 3 credits of ESE 599 which replaces 4 credits of ESG 441, and 3 credits of a graduate course. In the 5th year the student will take 24 graduate credits, of which at least 15 credits are course work and 6 credits are ESE 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 only 24 credits are needed in the fifth year as opposed to 30 credits for a regular M.S. student.

---

\*\*\*Starting with class of May 1981.

## ***Minor in Electronics & Instrumentation***

The Department of Electrical Engineering sponsors a minor program in electronics and instrumentation designed for non-engineering *users* of electronic instruments and those who may need to use electronic instrumentation in their field of study. High school trigonometry (or equivalent) is the only requirement. The minor in electronics and instrumentation consists of five (5) courses:

ESE 100 Basic Electronics

ESE 201 Digital Electronics and Instrumentation

ESE 300 Analog Electronics and Instrumentation

ESE 301 Microcomputers and Automated Instrumentation

ESE 302 Projects in Instrumentation

Students who plan to major in engineering may take any of these courses as open electives but will not be given technical elective credit.

## ***Courses***

### ***Departmental Open Electives***

#### **ESE 100 Basic Electronics**

Provides an introduction to electronic devices, circuits and systems, and basic laboratory instruments (e.g., multimeters, oscilloscopes, etc.) for non-engineering students. This course is designed to provide a practical knowledge of basic electronics, electronic devices and instrumentation. Presented from an applied point of view, utilizing demonstrations and laboratory experiments. Prerequisite: high school trigonometry or equivalent. *Fall, 4 credits, one 3-hour laboratory per week*

#### **ESE 201 Analog Electronics and Instrumentation (Formerly ESE 300)**

This course extends the concepts developed in earlier courses. Topics covered include transducers, analog integrated circuits, operational amplifiers, signal conditioning, feedback, oscillators, servoamplifiers, recording potentiometers, sample and hold circuits, analog switches, and D/A converters. Prerequisite: ESE 100 or equivalent. *Fall, 4 credits, one 3-hour laboratory per week*

#### **ESE 300 Digital Electronics and Instrumentation (Formerly ESE 201)**

This course is intended to provide a practical knowledge of digital electronic devices, circuits and systems, and digital laboratory instruments for non-electrical engineers. Presented from an applied point of view, using demonstrations and laboratory experiments. Topics include: binary number representation, digital logic, integrated circuits, flip-flops, memory devices, sequential circuits, counters, digital measuring instrumentation and displays. Prerequisite: ESE 201 or equivalent. *Spring, 4 credits, one 3-hour laboratory per week*

#### **ESE 301 Microcomputers and Automated Instrumentation**

The course extends the concepts of digital circuits and systems introduced in ESE 300 to include programmed logic, microprocessors, microcomputers and automated instrumentation. The course begins by describing both the

general organization of a microcomputer and its various levels of programming languages. Topics in hardware components include: microprocessors, read only memories, read write memory, clocks, bus structures, address decoding devices and interrupt facilities. Software features are also examined. These include basic instructions and format. Emphasis in this course is given to understanding and using microcomputers and automated instruments. Prerequisite: ESE 201. *Spring, 4 credits, one 3-hour laboratory per week*

### **ESE 302 Projects in Instrumentation**

This course involves the students in individual projects which are related to their discipline. Each student works under the supervision of a faculty member from the department. Prerequisite: ESE 300 or ESE 301. *Fall and spring, 2 credits*

### **ESE 475 Undergraduate Teaching Practicum**

This course offers an opportunity for selected senior students to collaborate with the faculty in teaching. Each student will conduct a laboratory section, a regular recitation or special tutorials that will supplement a regular engineering course. Students will meet regularly with a faculty member to discuss teaching strategies and problems encountered with students. Prerequisite: Departmental approval and permission of instructor. *Fall and spring, 3 credits per semester and repetitive*

## *Departmental Technical Electives*

### **ESE 303 Electronic Circuits and Instrumentation**

A course which presents the elements of electronic circuitry and instrumentation at an introductory level: operation of electronic devices; operational aspects of power supplies, amplifiers, oscillators and logic circuits; application to instrumentation; television, radio, audio amplifiers and recorders; a discussion of the new advances in electronic devices and circuits. This course is designed primarily for non-electrical engineering students. Prerequisite: PHY 101, 102, or permission of instructor. *Fall, 3 credits*

### **ESE 304 Electronic Instrumentation & Operational Amplifiers**

The design of electronic instrumentation: structure of basic measurement systems, transducers, analog signal conditioning with operational amplifiers, sampling, multiplexing, A/D and D/A conversion; digital signal conditioning, data input and display, automated measurement systems. Application of measurement systems to pollution, biomedical and industrial monitoring will be considered. Prerequisite: ESG 372. *Fall, 3 credits*

### **ESE 310 Modern Circuit Theory**

Matrix representation of circuits; applications to filter and transmission lines and coaxial cables; the concepts of linearity and reciprocity; network theorems; stability of active circuits; transient response, nonlinear and time varying circuits; state variable representation. Prerequisite: ESG 271. *Spring, 3 credits*

### **ESE 311 Electronics Circuits Design**

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 by computer-aided techniques. Prerequisite: ESG 372. *Spring, 3 credits*

### **ESE 312 Electronic Circuit Design II**

Material covered will be a continuation of that introduced in ESE 311 with

special emphasis placed on computer-aided design of electronic circuits. Prerequisite: ESE 311. *Spring, 3 credits*

### **ESE 315 Introduction to Feedback Control Theory**

An introduction to the concepts of system control through feedback and the mathematical techniques required in the modeling, analysis, and design of feedback control systems. Examples are from such fields as electronics, aircraft guidance, economics, biology, and machine control. Prerequisite: ESG 271. *Spring, 3 credits*

### **ESG 316 Digital Devices and Circuits**

Switching characteristics of devices: Bipolar transistors, MOSFET's, C.C.D.'s. Circuit analysis of leading IC gate technologies: TTL, ECL, MOS, CMOS, dynamic MOS. Interfacing logic families. Application of small scale IC's in control and timing circuits. Large scale integrated circuits: organization and characteristics of R.A.M.S., ROM's and PLA's. Optoelectrical devices. A small number of laboratory sessions included. Prerequisite: ESG 372. *Fall, 3 credits*

### **ESE 318 Digital Systems Design**

Intended to be of use to non-specialists, and, in addition, to be part of the digital circuits and systems sequence. The course starts from a description of digital circuits regarded as functional blocks and leads to a consideration of the logical design of combinational and sequential digital systems. It is presented from an applied point of view, utilizing demonstrations and laboratory experiments. Topics include: binary representation of information, gate types, combinational circuit design, counters, registers, arithmetic circuits, sequential circuit design, and programmed logic. *Fall and spring, 4 credits*

### **ESE 319 Introduction to Electromagnetic Fields and Waves**

Fundamental experimental results of electromagnetism. Topics include mathematical formulation of integral laws and derivation and physical interpretation of differential Maxwell equations in free space; interaction of electromagnetic sources and fields, engineering applications; electromagnetic energy and power; generation of electromagnetic fields and waves in unbounded media by known sources; and simple antenna theory. *Fall, 3 credits*

### **ESE 321 Electromagnetic Waves and Fiber Optics**

Propagation of electromagnetic waves in free space and dielectrics; wave propagation in anisotropic media and crystals; guided electromagnetic waves and surface waves; microwave waveguides, thin film planar optical waveguides, and optical fibers; introduction to the fundamentals of optical fiber communication components and systems. Prerequisite: ESE 319. *Spring, 3 credits*

### **ESE 330 Integrated Electronics**

An introduction to semiconductor electronics leading to the characterization of various passive and active devices, with emphasis on integrated electronic structures: theory of p-n junction transistors; device design techniques; the applications of these devices in active networks; operation principles of analog circuits. Prerequisite: ESG 372. *Fall, 3 credits*

### **ESE 331 Physical Electronics**

A study of the physical principles involved in the operation of electronic devices such as bipolar transistors, field effect transistors, lasers, superconducting and magnetic devices. Prerequisites: PHY 251, ESG 271. *Fall, 3 credits*

### **ESE 332 Lasers and Optical Electronics**

Basic radiation theory, Gaussian beams, optical resonators; interaction of radiation and atomic systems, theory of laser oscillation; investigation of specific solid, gas and semiconductor lasers; parametrics and second harmonic generation; modulation and detection of optical radiation; noise processes in optical generation and detection. Prerequisite: ESG 372. *Spring, 3 credits*

### **ESE 333 Lasers Technology and Utilization**

Reviews briefly the fundamentals of laser theory, and then addresses itself in its main part to the various types of lasers, from the point of view of theory as well as of construction and design. Singled out are lasers which have found their most widespread application in areas ranging from engineering measurements and physics (including spectroscopy) to optical image processing and astronomy, as well as in many different areas of medicine and biology. Appropriate mathematical background is introduced in the course. Prerequisites: ESG 271 and ESG 372. *Spring, 3 credits*

### **ESE 340 Basic Communication Theory**

Basic concepts in both analog and digital data communications: signals, spectra and linear networks; Fourier transforms, energy and power spectra, filtering; amplitude, frequency, phase and pulse modulation schemes; time and frequency multiplexing; discussion of problems encountered in practice; noise and band-width considerations; data transmission; simple error-checking codes. *Fall, 3 credits*

### **ESE 341 Information Theory and Coding**

Statistical characteristic of languages, information sources as random processes, measurement of information, noiseless coding; the binary symmetric channel and other digital channels; channel capacity; introduction to algebraic coding, theory for noisy channels, communication with feedback. Prerequisite: ESG 271. *Spring, 3 credits*

### **ESE 342 Data Communications Systems**

Pulse modulation and sampling. All-digital networks. Pulse code modulation. Digital modulation techniques including ASK, FSK, PSK, DPSK. Error Control Coding. Exchange of reliability for rate. Synchronous and asynchronous systems. Line control. Equalization. Message and circuit switching. Packet radio channels. Prerequisite: ESE 340. *Spring, 3 credits*

### **ESE 345 Computer Architecture**

Crosslisted with MSC 345. *Spring, 3 credits*

### **ESE 346 Computer Communications**

Basic communication concepts, signals, spectra, bandwidth, data rate. Sampling and pulse modulation, all-digital networks. High-speed synchronous digital transmission, asynchronous transmission. Error control. Circuit switching and message switching. Full duplex and half duplex transmission modes. Packet radio channels. Pure and Slotted Aloha and Reservation systems. Throughput and capacity. Communication protocols. Prerequisite: 3 semesters of calculus. May not be taken for credit in addition to ESE 340 or ESE 342. *Spring, 3 credits*

### **ESE 347 Digital Signal Processing**

Covers the following main topics: Sampling and reconstructing of signals, z-transform, fast Fourier transform and its implementation and application; design of finite-impulse-response (IIR) filter and optimal filters; realization problems; effects and analysis of quantization errors; power spectrum analysis. *Fall, 3 credits*

### **ESE 348 The Computer as a Laboratory Instrument**

Computer-system architecture and design philosophy is described in lectures; laboratory experiments demonstrate basic principles of real-time measurement, control, and computation. Role of computer as dedicated system component in data acquisition, control, automated testing, real-time transforms, and signal processing is developed by "hand on" experiments. Prerequisites: ESE 318 or permission of the instructor. *Fall, 3 credits*

### **ESE 349 An Introduction to Fault Diagnosis of Digital Systems**

Designed to be a follow-up to ESE 318, in order 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 the discussions of test generation, test selection, and fault dictionaries. Emphasis is on test generation for fault detection, fault location, fault location within a module, and fault correction. Some basic reliability enhancing design techniques for digital circuits and systems are also discussed. Prerequisite: ESE 318. *Spring, 3 credits*

### **ESE 350 Electrical Power Systems**

Fundamental engineering theory for the design and operation of a modern electric power system. Modern aspects of generation, transmission and distribution will be considered with appropriate inspection trips to examine examples of these facilities. The relationship between the facilities and their influence on our environment will be reviewed. Topics included are: power system fundamentals, characteristics of transmission lines, generalized circuit constants, transformers, control of power flow and of voltage, per units system of computation, system stability, and extra-high voltage a.c. and d.c. transmission. Prerequisite: Junior or senior engineering majors; senior non-engineering majors with permission of instructor. *Spring, 3 credits*

### **ESE 351 Energy Conversion**

Natural and secondary energy sources; methods of energy conversion including thermionic, thermoelectric and magnetohydrodynamic converters, fuel cells and solar cells. Colisted with ESI 351. Prerequisite: ESG 271 and 301. *Spring, 3 credits*

### **ESE 352 Electromechanical Energy Converters**

Basic principles of energy conversion; D.C., induction, and synchronous rotary converters; the three-phase system and symmetrical components; the relationships between voltage, current, flux and m.m.f.; equivalent circuits and operating characteristics of rotary converters; analysis of saturation effects. Prerequisite: ESG 372. *Fall, 3 credits*

### **ESE 360 Optical Information Processing I**

An introduction to the field of modern image processing and optical computing, together with all required mathematics. Particular emphasis is placed on generally applicable fundamentals and on the principles of experimental implementations. The theory is developed and illustrated with examples drawn from the most recent applications, including holography (3-D laser imaging), optical pattern recognition, image deblurring, holographic interferometry (vibration and stress analysis), information storage and retrieval, optical memories. Electron microscopy, microwave, radar, X-ray and ultrasonic imaging, including medical applications are discussed. All the necessary fundamentals of modern optics are introduced at appropriate times throughout the course. *Fall, 3 credits*

**ESE 361 Optical Information Processing II**

The field of modern image processing and optical computing together with all required mathematics, including additional fundamentals and ramifications based on the material presented in ESE 360. *Spring, 3 credits*

**ESE 370 Digital Simulation and Modeling**

Modeling of engineering, social, biological systems, and deterministic and random signals. Topics include model structuring, parameter identification, scaling, data sampling and restoration. Simulation on large and small computers with GPSS, Fortran, and machine language. Prerequisite: ESG 171 or equivalent. *Fall, 3 credits*

**ESE 371 Computer Graphics**

Display devices and processors, with emphasis on processor-cathode ray tube interface. Generation of characters, straight lines, and curves specified by description geometry and by differential equations. Geometrical transform. Input devices, and basic instruction sets. Processor logic steps in instruction handling. Introduction to three-dimensional graphics. Prerequisite: ESE 318. Crosslisted with MSC 371. *Spring, 3 credits*

**ESE 380 Microprocessors and Programmed Logic**

This course presents the concepts and design techniques necessary for the implementation of digital systems using programmed logic devices such as microprocessors, read only memories (ROMs) and programmable logic arrays (PLAs). Emphasis is on microprocessor based systems design. Hardware and software design techniques are equally emphasized. Laboratory work involves the actual structuring, programming and debugging of programmed logic systems. Prerequisites: ESE 318 and MSC 120. *Fall and spring, 4 credits*

**ESE 381 Microprocessors and Programmed Logic II**

This course is a continuation of ESE 380 and emphasizes systematic approaches to and trade-off's in the design of microprocessor-based systems from initial specification to implementation. Prerequisite: ESE 380. *Spring, 3 credits*

**ESE 390 Special Topics in Digital Systems**

A vehicle for new course material of current interest in the area of digital systems. When offered, a specific title and course description will be made available at registration time. Prerequisite: ESE 318 or equivalent. *Spring, variable and repetitive credit*

**ESE 499 Research in Electrical Sciences**

An independent research project with supervision by the faculty. Permission to register will require that the student have an average grade of B in all engineering courses and the agreement of a faculty member to supervise the research. Only three credits of research electives (MSA 487, MSC 487, ESE 499, ESC 499, ESM 499, EST 499) may be counted towards fulfillment of technical elective requirements. *Fall and spring, 3 credits, repetitive*



# Interdepartmental Program in Energy Technology

**Participating Faculty:** Abraham L. Berlad, Mechanical Engineering (Program Chairman); Sheldon S. L. Chang, Electrical Engineering; Edward E. O'Brien, Mechanical Engineering; Leslie L. Seigle, Materials Science and Engineering; Gary L. Thomas, Electrical Engineering; Franklin F. Y. Wang, Materials Science and Engineering; Lin-Shu Wang, Mechanical Engineering; Chin H. Yang, Mechanical Engineering

The industrial and population expansions of the world have created demands for energy which are rapidly exhausting our traditional supplies. Problems in energy utilization and conservation and the development of new energy sources are of critical importance to the future of our society. Demand is growing for engineers trained in various aspects of the energy technology field to work on the solution of these problems in industrial organizations and governmental agencies. This program offers courses for students in all departments interested in energy technology and a suggested curriculum for those who wish to concentrate in this field.

## ***Suggested Curriculum***

Students should plan to satisfy the requirements for the Bachelor of Engineering degree in Engineering Science, or in a department in the College of Engineering and Applied Sciences, including the courses listed below.

### ***Engineering Science Core Program***

ESG 301 or ESG 302, ESG 363 or ESG 364

### ***Interdepartmental Open and Technical Electives***

ESI 193 or ESI 194, ESI 301, ESI 351

### ***Engineering Specialization and Technical Electives***

Six courses chosen from among the following departmental offerings:

ESE 350, ESE 352, ESE 370, ESM 328, ESM 352, ESC 305, ESC 323, ESC 328, ESC 393, ESC 398

## Courses

- ESI 193 Introduction to Energy Engineering\*
- ESI 194 Energy and Society\*
- ESI 301 Fuel Technology\*\*
- ESI 351 Energy Conversion\*\*
- ESI 491 Senior Seminar in Energy Technology\*\*
- ESE 350 Electric Power Systems\*\*\*
- ESE 352 Electromechanical Energy Converters\*\*\*
- ESE 370 System Simulation, Modeling and Identification\*\*\*
- ESM 328 Introduction to Nuclear Engineering\*\*\*
- ESM 352 Materials in Energy Conversion\*\*\*
- ESC 305 Heat and Mass Transfer\*\*\*
- ESC 323 Combustion\*\*\*
- ESC 328 HVAC and Energy Conservation\*\*\*
- ESC 393 Engineering Fluid Mechanics\*\*\*
- ESC 398 Thermodynamics of Power Generation\*\*\*

## Interdisciplinary Program in Engineering Chemistry

**Program Committee:** Patrick Herley, Materials Science and Engineering; Robert Kerber, Chemistry

The interdisciplinary program in engineering chemistry, offered by the College of Arts and Sciences in collaboration with the College of Engineering and Applied Sciences, is designed to provide students with a basic understanding of the chemistry and materials technology underlying modern materials engineering, and leads to the B.S. 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 will enable the student to emphasize such different aspects of solid state sciences as polymeric materials, modern industrial processes, mineral resources, bio-materials, etc. The program is a basic preparation for training chemical-materials engineers who can enter

---

\*For course description see Interdepartmental Open Elective Courses.

\*\*For course description see Interdepartmental Technical Elective Courses.

\*\*\*See course description under departmental listing.

a wide range of industries or proceed to graduate work in either solid state chemistry or materials science.

### **Requirements for the Major**

Students electing this major, which leads to the B.S. degree, must fulfill the distribution and proficiency requirements of the College of Arts and Sciences.

		<i>Credits</i>
<i>Mathematics and Science Requirements</i>		
MSM 131	Calculus I (Tracks A or B), and MSM 132 Calculus II	8
MSM 231	Calculus III and 306 Calculus IV or	
MSA 221	Calculus III: Differential Equations and MSA 362 Mathematics for Engineers	6-7
MSC 111	Introduction to Computer Science	3
CHE 131, 132	General Chemistry or CHE 141, 142 Honors Chemistry	8
CHE 133, 134	General Chemistry Laboratory or CHE 143, 144 Honors Chemistry Laboratory	2
PHY 101, 102	General Physics I, II; PHY 251 General Physics III	12
<i>Sub-total</i>		39-40
<i>Core</i>		
CHE 301, 302	Physical Chemistry I, II	6
CHE 303	Solution Chemistry Laboratory	2
CHE 304	Transport Properties and Thermodynamics Laboratory	2
CHE 321	Organic Chemistry	3
<i>Sub-total</i>		13
ESG 332	Materials Science I: Structure and Properties of Materials	4
ESG 333	Materials Science II: Electronic Properties	4
ESM 302	Materials Design and Techniques	4
<i>Sub-total</i>		12
<i>Total</i>		64-65

### *Electives*

Selection of technical and open electives to give a total number of credits of 120. Students are advised to divide their electives among courses that strengthen their interests within the College of Engineering and Applied Sciences and the Chemistry Department, and courses in the social sciences and humanities that help them place the problems of society and industry in perspective. Prior approval of electives by the Engineering Chemistry Program Committee is required in order to achieve an appropriate balance between science, engineering, social sciences, and humanities.

For students who plan to pursue postgraduate studies in chemistry it is recommended that a reading knowledge be obtained in German, French, or Russian. Students who wish to meet the American Chemical Society certification requirements must take, in addition to the above, CHE 322, CHE 333, CHE 334 (organic), CHE 355 and one additional advanced chemistry course.

## **Engineering Science Program**

The engineering science program, in which all departments of the College participate, furnishes the student with a broad background in the basic engineering disciplines. It is designed for those who wish an engineering education of a less specialized nature, or whose career goals lie outside the boundaries of the conventional engineering departments. Through the proper choice of electives and design projects a degree of specialization may be achieved within the engineering science program. Recommended course sequences in materials science and mechanics for this purpose are indicated below. In addition, with the help of a faculty advisor, the student may design a program uniquely suited to his own interests and objectives which cuts across departmental and college lines. Engineering students who wish to earn a B.E. degree with concentration in applied analysis and statistics,

computer science, or materials science should elect the engineering science program. It is also well suited as preparation for graduate studies in architecture, business, law, or medicine. Information about these studies can be provided by the faculty advisors listed on page 387.

### ***Minimum Requirements for the Bachelor of Engineering Degree in Engineering Science***

A. Total credits: 128

B. University graduation requirements, p. 103

*Credits*

C. College of Engineering and Applied Sciences  
distribution requirements, pp. 389-90 21-24

D. Mathematics 18 minimum  
MSM 131, 132, 221, MSA 361, MSA 362 (or approved upper  
division course in mathematics)

E. Sciences 21 minimum  
PHY 101, 102, 251; CHE 131, 132, 133 or CHE 141, 142, 143

F. Introductory Courses in Computer Science 3 minimum  
MSC 111 or 112

G. Engineering Science Core Program 32 minimum  
ESG 211, 312 required. In addition, a student is required to  
take seven courses of the following nine with at least two  
courses each in mechanical engineering, materials  
science, and electrical engineering.

Mechanical Engineering ESG 261, 301, 363, 364

Materials Science and Engineering ESG 302, 332, 333

Electrical Engineering ESG 271, 372

H. Engineering Synthesis and Design 8 minimum  
Satisfied through the project phase of ESG 313, 314, 315,  
316, 317 or 318 (2 credits each) and ESG 440 and 441 (6  
credits)

I. Engineering Specialization and Technical Electives 28-8 Core

Two engineering science core courses (8 credits) may be used towards satisfying the technical elective requirements. In addition, the student should select courses of specialization suggested by each department to acquire depth of knowledge complementary to the breadth of subject material in the core program.

- J. Open Electives and Other Requirements as many credits  
Any undergraduate University course as may be  
offered for academic credit may be required for a  
chosen for open elective credits. total of 128.  
No more than 3 credits of Physical  
Education can be used to satisfy  
open elective requirements.

## ***Recommended Course Sequences***

### ***Electrical Engineering***

Students who wish to enroll in the Engineering Science Program and who are interested in electrical engineering should choose elective courses in consultation with a faculty advisor in the Electrical Engineering Department. This will assure appropriate consideration of the student's interests and goals.

### ***Materials Science and Engineering***

A student may acquire professional preparation in the field of materials science by selecting the engineering science courses ESG 302, 332, 333. In addition he or she should take the elective courses ESM 302, 306 and two additional materials science courses from the list given below.

- ESM 302 Materials Design and Techniques
- ESM 306 Mechanical Properties of Engineering Materials
- ESM 307 Physical Metallurgy
- ESM 310 Kinetic Processes in Solids
- ESM 325 Diffraction Techniques and the Structure of Solids
- ESM 336 Electronic Materials
- ESM 355 Processing of Materials

Further specialization in various branches of materials science such as physical metallurgy, ceramics, environmental corrosion and protection of materials, strength of materials, electronic and magnetic materials, biomedical materials, etc. may be obtained by taking additional elective courses. Details concerning elective course sequences in materials science are available in a brochure which can be obtained from the office of the department.

### ***Mechanical Engineering***

Specialization may be obtained within the general area of mechanics in the field of energy and environmental engineering, fluid mechanics and geophysics, and structural engineer-

ing. Students are advised to select a course sequence in consultation with a departmental advisor in the field. Typical elective sequences are as follows:

**Energy and Environmental Engineering:**

ESC 305, 322, 323, 345, 372, 379, 397, 398; ESE 351

**Fluid Mechanics and Geophysics:**

ESC 345, 361, 372, 379; ESS 347

**Structural Engineering:**

ESC 330, 332, 333, 334, 336, 342, 381; ESM 306

## Department of Materials Science and Engineering

**Professors:** John C. Bilello (Dean, College of Engineering and Applied Sciences), Ph.D. University of Illinois (Dislocations; mechanical properties; fracture); Herbert R. Carleton, Joint with Electrical Engineering, Ph.D. Cornell University (Optical materials; electro-optics); Allen N. Goland, Adjunct, Ph.D. Northwestern University (Neutron diffraction); Patrick J. Herley, Ph.D. Rhodes University, South Africa; Ph.D. Imperial College, London (Thermal decomposition; catalysis); Herbert Herman, Chairman, Ph.D. Northwestern University (Phase transformations; protective coatings); Franco P. Jona, Ph.D. Eidgenossische Technische Hochschule (Surface structures); C.H. Li, Adjunct, Ph.D. Purdue University (Physical metallurgy); Charles T. Prewitt, Affiliate, Ph.D. Massachusetts Institute of Technology (Crystallography); Leslie L. Seigle, D.Sc. Massachusetts Institute of Technology (Thermodynamics; diffusion; protective coatings); Franklin F. Y. Wang, Ph.D. University of Illinois (Magnetism; dielectrics; physical ceramics)

**Associate Professor:** Joseph Jach, D. Phil. (Oxon.) University of Oxford (Chemical reactivity of solids)

**Assistant Professors:** Clive R. Clayton, Ph.D. University of Surrey (Corrosion; ESCA); John M. Liu, Ph.D. Johns Hopkins University (Fracture mechanics; non-destructive testing)

The Department of Materials Science and Engineering offers a wide range of interdisciplinary programs in conjunction with other science and engineering departments on campus. These programs are designed to provide a basic training for prospective graduates who can enter a wide range of industries or proceed to further graduate studies in materials science. These joint programs are aimed at the materials aspect of mechanical engineering, ocean engineering, electrical engineering, and chemistry. For example, see the Engineering Chemistry program or the Program in Energy Technology. For a program within the framework of the Mechanical Engineering Program a materials option is available using the following four courses as technical electives: ESG 302, ESM 302, 306, and 307. Individualized programs are also available in Biomedical Materials, Electronic Materials, Environmental Properties of Materials, and Materials in Energy Conversion.

### ***BE / MS Program***

An engineering student may apply for admission to this special program which will lead to a Master of Science and a Bachelor of Engineering degree at the end of the fifth year. A student in the program takes, in the senior year, 3 credits of ESM 599 which replaces 4 credits of ESG 441, and 3 credits of a graduate course. In the fifth year the student will take 24 graduate credits, of which at least 15 credits are course work and 6 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.

### ***The Physics of Materials Program***

Physics majors who wish to pursue a career in engineering physics, particularly in the application of solid state physics to materials science and engineering, are encouraged to take part in this program. In addition to completing the requirements for the B.S. in Physics, these students 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 would be eligible for admission to the master's degree program in materials science and engineering. Interested students should consult with the Chairman of the Department of Materials Science and Engineering in their junior year.

## **Courses**

### *Departmental Technical Electives*

#### **ESM 302 Materials Design and Techniques**

The relationship between the microscopic structure of materials and their macroscopic properties will be studied in a laboratory/lecture course in which the student will perform investigations using research grade equipment. Techniques for the production of new materials or the modification of existing materials in order to satisfy design criteria for engineering applications will be discussed and carried out in the laboratory. Topics such as crystal growth, impurity doping (e.g., in semiconductors), heat treatment, precipitation, and solute hardening will be covered. The effects of such treatments upon the structure of a wide range of materials (metals, semiconductors, ceramics, and glasses) will be studied using X-ray diffraction, and optical and electron microscopy. The effects of structural change upon the mechanical, electrical, magnetic, optical, and environmental-sensitive properties of materials will be measured and correlated with the controlling treatments. *Fall, 4 credits*

#### **ESM 305 Materials for Ocean Engineering**

The engineering properties of various alloys and non-metals will be examined relative to marine applications. Of central importance will be the deterioration of materials in the sea due to corrosion, erosion, cavitation, biofouling, etc. These effects will be considered in the selection of materials for desalination plants, deep submersibles, hulls and superstructures, propulsion systems, marine hardware and fasteners. Prerequisite: Junior standing or permission of instructor. *Spring, 3 credits*

#### **ESM 306 Mechanical Properties of Engineering Materials**

A unified approach for all solid materials will be made with regard to the correlation between microstructure and their macroscopic mechanical properties. The course deals with various testing techniques for delineating mechanical properties of materials, considering elasticity, anelasticity, plasticity, dislocation theory, cohesive strength, fracture, and surface wear. Attention is given to strengthening mechanisms for solids, metals, ceramics, and polymers, with a view towards learning how manipulation of microstructure can be used to design materials of specified properties. Discussion of the various engineering applications of materials and of materials selection for a number of specified tasks is pursued. *Spring, 3 credits*

#### **ESM 307 Physical Metallurgy**

A study will be made of the physical and mechanical properties of a wide range of metals and alloys, with special reference to engineering practice. Industrial processing and heat treatment of ferrous alloys will be emphasized. Lecture, demonstrations and laboratories. Prerequisite: ESG 332. *Fall, 3 credits*

### **ESM 309 Thermodynamics of Solids**

This course is concerned with the application of thermodynamics to analysis of phase equilibria and reactions in solids. Topics include ideal and real solutions, phase equilibrium diagrams, first and higher order phase transitions, and thermodynamics of diffusion, oxidation and corrosion reactions. Prerequisite: ESG 301 or ESG 302. *Fall, 3 credits*

### **ESM 310 Kinetic Processes in Solids**

Atomistic rate processes in solids will be studied, with emphasis on diffusion in crystals. Theory of diffusion and experimental techniques will be developed, and the role played by a broad class of crystalline imperfections will be examined. Topics will include annealing of deformed materials, kinetics of defect interactions, thermally controlled deformation, kinetics of nucleation and growth, and solidification and precipitation. *Spring, 3 credits*

### **ESM 325 Diffraction Techniques and Structure of Solids**

The structure of solids can be studied using X-ray, neutron and electron diffraction techniques. X-ray diffraction techniques are emphasized in this introductory course. Topics covered are: coherent and incoherent scattering of radiation, structure of crystalline and amorphous solids, stereographic projection and crystal orientation determination. The concept of reciprocal vector space is introduced early in the course and is used as a means of interpreting diffraction patterns. Laboratory work in X-ray diffraction patterns is also included to illustrate the methods. Prerequisite: ESG 332. *Fall, 3 credits*

### **ESM 328 Introduction to Nuclear Engineering**

Introduces the concepts used in modern nuclear engineering practice. The fundamentals of Atomic and Nuclear Physics are reviewed and this is followed by discussions of Neutron Diffusion and Moderation, Nuclear Reactor Theory in the steady state, and the time-dependent reactor. Some other topics covered will be the interaction of radiation with matter; radiation protection and shielding; and licensing, safety and environmental aspects of nuclear engineering. Prerequisites: CHE 131 or equivalent; MSM 131 or equivalent. *Fall and spring, 3 credits*

### **ESM 335 Introduction to Polymers**

The objective of this course is to provide an introductory survey of the physics, chemistry, and technology of polymers. The topics covered include classification of polymers, molecular forces and bonds, structure of polymers, measurement of molecular weight and size, rheology and mechanical properties, thermodynamics of crystallization, polymerization mechanisms, and commercial polymer production and processing. Prerequisite: ESG 332. *Fall, 3 credits*

### **ESM 336 Electronic Materials**

The properties of intrinsic and extrinsic semiconductors are discussed with particular attention first to the equilibrium distribution of electrons in the bands and then to the non-equilibrium transport of charge carriers. The properties and applications of photoconductors and of luminescent materials are then described. The concept of stimulated emission is introduced, laser operation explained and laser materials discussed in relation to their applications in science and technology. Other topics considered are the properties of magnetic materials, of dielectric materials and of superconductors. Prerequisite: ESG 333. *Fall, 3 credits*

### **ESM 337 Dielectric and Magnetic Materials**

A survey of the properties of dielectric and magnetic materials pertinent to their application in modern technology. Emphasis is given to the practical material parameters which determine their uses. *Spring, 3 credits*

### **ESM 340 Advanced Techniques of Materials Research I (Electron Microscopy)**

A combined lecture/laboratory course on the theory and operation of electron microscopes for the determination of microstructure in engineering materials. The lectures will deal with the theory of the electron microscope and image formation, including kinematical and dynamical theory of diffraction contrast. The laboratory section will cover varied aspects of specimen preparation and microscope operation. Prerequisite: Permission of instructor. *Spring, 4 credits*

### **ESM 346 Physical Chemistry of Solid Interfaces**

The behavior and chemical properties underlying solid-gas, solid-liquid, and solid-solid interfaces: the principal concepts determining the energetics and kinetics of nucleation at solid surfaces; adsorption and the specific factors influencing heterogeneous catalysis on gas-solid interfaces, with examples drawn from industrial processes; the colloidal state, including the classification, preparation, and properties of colloids. This course is identical with CHE 346. Prerequisite: CHE 302 or permission of instructor. *Spring, 3 credits*

### **ESM 348 Electrochemistry at Metal-Liquid Interfaces**

Introduction to basic electrochemical processes occurring at metal-solution interfaces under free and controlled conditions. Emphasis on electrochemistry of corrosion, plating processes and batteries. Crosslisted with CHE 348. Prerequisites: CHE 132, 134; PHY 102. *Spring, 3 credits*

### **ESM 351 Materials in Medical and Dental Sciences**

A thorough survey of the uses of materials in the medical and dental sciences. Current research and the problems encountered in each area will be reviewed. Topics include general considerations of materials requirements; corrosion and wear under physiological conditions; mechanical stress; interaction of materials with blood and the problems of clotting; transport of biological substances through membranes; application to the development of artificial arteries, hearts, heart valves, oxygenators, artificial kidneys and other organs; bone and dental implants. Prerequisite: Permission of instructor. *Spring, 3 credits*

### **ESM 352 Materials in Energy Conversion**

The efficiency of energy conversion devices is limited by the availability and properties of essential materials. The use of materials in energy conversion systems is examined, with emphasis on advanced devices such as magneto-hydrodynamics, thermoelectrics, thermionic devices, solar energy converters, and fuel cells. The way in which materials properties influence device capability is analyzed, and factors controlling energy output and conversion efficiency are explained. Materials problems in energy storage systems are examined. Prerequisite: ESG 323 or ESG 333. *Spring, 3 credits*

### **ESM 355 Processing of Materials**

The mechanical and thermal processing of a wide range of metallic and non-metallic materials will be reviewed. Both traditional and more modern forming operations will be examined. Recently developed schemes of thermomechanical treatment and thermal processing for the control of microstructure and properties will be explored. Prerequisite: ESG 332. *Spring, 3 credits*

### **ESM 499 Research in Materials Science**

A course which involves the student in an independent research project with supervision by the faculty. Permission to register requires that the student have an average grade of B in all engineering courses and the agreement of a faculty member to supervise the research. Only three credits of research

electives (MSA 487, MSC 487, ESE 499, ESM 499, ESC 499, EST 499) may be counted towards fulfillment of technical elective requirements. *Fall and spring, 3 credits, repetitive*

## Department of Mechanical Engineering

**Professors:** David Azbel, Research, Ph.D. Mandeleev Institute of Chemical Technology, Moscow (Heat and mass transfer; fluid mechanics; chemical engineering); **Fred Berg, Jr.**, Visiting, M.A. Polytechnic Institute of Brooklyn (Machine design and servomechanisms); **Abraham L. Berlad**, Ph.D. Ohio State University (Combustion; energy technology); **W.S. Bradfield**, Ph.D. University of Minnesota (Vehicular dynamics; fluid mechanics; hydrofoil hydrodynamics); **R.D. Cess**, Ph.D. University of Pittsburgh (Planetary atmosphere; climatology); **Fu-pen Chiang**, Ph.D. University of Florida (Experimental stress analysis; solid mechanics); **Stewart Harris**, Chairman, Ph.D. Northwestern University (Physics of fluids; environmental engineering); **T.F. Irvine, Jr.**, Ph.D. University of Minnesota (Heat transfer; thermodynamics); **R.S.L. Lee**, Ph.D. Harvard University (Suspension flow; fire research; bio-fluid mechanics); **E.E. O'Brien**, Ph.D. Johns Hopkins University (Fluid mechanics; turbulence); **George Stell**, Ph.D. New York University (Thermodynamics, statistical dynamics); **James Tasi**, Ph.D. Columbia University (Mechanics of solids); **Ching H. Yang**, Ph.D. Lehigh University (Structural design; energy technology; combustion theory)

**Associate Professors:** Rene Chevray, Ph.D. University of Iowa (Fluid mechanics); Sultan Hameed, Adjunct, Ph.D. University of Manchester, England (Atmospheric physics and chemistry); Joseph Hogan, Ph.D. New York University (Planetary atmospheres; satellite meteorology); Prasad Varanasi, Ph.D. University of California at San Diego (Planetary spectroscopy); Lin-Shu Wang, Ph.D. University of California at Berkeley (Dynamic meteorology)

**Assistant Professors:** John Caldwell, Adjunct, Ph.D. University of Wisconsin (Astronomy); Sneh Keerti S. Varma, Visiting, Ph.D. University of Utah (Planetary atmospheres; meteorology)

***Estimated Number of Teaching Assistants: 35***

In addition to participating in the program leading to the Bachelor of Engineering degree in Engineering Science (described above), the Department of Mechanical Engineering also offers the Bachelor of Engineering in Mechanical Engineering. This program is designed to meet the special needs of the student who wishes to pursue in depth studies in the area of mechanical engineering as preparation for either a professional career or graduate study.

Mechanical engineering is a broad field concerned with all aspects of the planning, design, development, manufacture, and evaluation of energy conversion, power generation, environmental control systems, land and marine transport vehicles, and production machines. These concerns, in recent times, are made evident in mechanical engineers' special interest in areas typified by high-speed transportation, control of pollution from power-producing devices, noise abatement, and new sources of power such as fuel cells, solar energy, and nuclear reactors.

In addition to studies in the areas of humanities and social sciences, and the engineering concentration requirements, students in the mechanical engineering program must also take the mechanical engineering concentration which consists of courses in technical drawing, manufacturing processes, kinematics and design processes, applied thermodynamics, heat and mass transfer, and mechanical engineering laboratory. Although mechanical engineering is broad in scope it is still possible for the student to obtain a measure of specialization through his choice of elective courses, which can be in the areas of power/energy, or mechanical engineering design, including structural analysis and design. The requirements for the mechanical engineering degree and a typical course sequence are given below.

***BE/IMS Program***

An engineering student may apply for admission to this special program, which will lead to a Master of Science and a

Bachelor of Engineering degree (either in Mechanical Engineering or Engineering Science) at the end of the fifth year. A student in the program takes in the senior year 3 credits of ESC 599 which replaces 4 credits of ESG 441, and 3 credits of a graduate course. In the fifth year the student will take 24 graduate credits of which at least 15 credits are course work and 6 credits are ESC 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.

***Degree Requirements—Mechanical Engineering***

A. Total credits: 128

B. University graduation requirements, p. 103

*Credits*

C. College of Engineering and Applied Sciences  
distribution requirements, pp. 389-90

21-24

D. Engineering Concentration Requirements

1. Mathematics

15

MSM 131, 132, 221 and MSA 361

2. Sciences

17

PHY 101, 102, 251 (or ESI 281) and CHE  
131/141, 133/143

3. Computer Science

3

MSC 111

4. Engineering Science

24

ESG 211 and 312

4

5. Mechanics

ESG 301 Thermodynamics

4

ESG 261 Particle and Rigid Body Mechanics

4

ESG 363 Mechanics of Solids

4

ESG 364 Mechanics of Fluids

4

6. Materials Science

ESG 332 Structure and Properties of Materials

4

7. Electrical Sciences

ESG 271 Electrical Sciences I

4

8. Engineering Synthesis and Design

8

This requirement is satisfied through the project phase of ESG 313, 314, 315, 316, 317, or 318; and ESG 440 and 441

(2)

(6)

- E. Mechanical Engineering Core Courses 18
- The following courses must be taken to satisfy the mechanical engineering core requirements:
- ESC 202 Technical Drawing
  - ESC 305 Heat and Mass Transfer
  - ESC 310 Machine Kinematics and Design
  - ESM 355 Processing of Materials
  - ESC 372 Mechanical Engineering Laboratory
  - ESC 398 Thermodynamics of Power Generation

- F. Technical Electives 12
- Central to the engineering curriculum is concentrated study to achieve a depth of understanding of one or more of the engineering disciplines. Specialized programs in Mechanical Engineering will be suggested by the Department. No more than 3 credits of ESC 499 may be used.

- G. Open Electives and Other Requirements variable
- Any undergraduate University course offered for academic credit may be chosen for open elective credits. No more than 3 credits of Physical Education can be used to satisfy open elective requirements. Graduate level courses may be taken to satisfy either open elective or technical elective requirements with approval. No more than 6 credits of ESC 499 may be used.

---

*Total* 128 credits

***Sample Course Sequence Satisfying Minimum Requirements for a B.E. in Mechanical Engineering***

	<i>Fall Credits</i>		<i>Spring Credits</i>
<i>Freshman</i>			
MSM 131	4	MSM 132	4
PHY 101	4	PHY 102	4
EGL 101	3	MSC 111	3
HUM/SOC Elec.	3	ESC 202	3
HUM/SOC Elec.	3	HUM/SOC Elec.	3
	<hr style="width: 10%; margin: 0 auto;"/>		<hr style="width: 10%; margin: 0 auto;"/>
<i>Total</i>	17	<i>Total</i>	17

### *Sophomore*

MSM 221	3	MSA 361	4
ESI 281/PHY 251	4	ESG 211	2
CHE 131/141	4	ESG 271	4
CHE 133/143	1	ESG 363	4
ESG 261	4	HUM/SOC Elec.	3
	—		—
<i>Total</i>	16	<i>Total</i>	17

### *Junior*

ESG 312	2	ESG 317	2
ESG 301	4	ESC 305	3
ESG 364	4	ESC 310	3
ESG 332	4	ESC 398	3
HUM/SOC Elec.	3	ESM 355 or Elec. Tech. Elec.	3 3
	—		—
<i>Total</i>	17	<i>Total</i>	17

### *Senior*

ESG 440	2	ESG 441	4
ESC 372	3	ESM 355 or Elec.	3
Tech. Elec.	3		
Tech. Elec.	3	Remaining electives	
HUM/SOC Elec.	3	to complete requirements	
	—		—
<i>Total</i>	14		

## **Courses**

### *Departmental Open Electives*

#### **ESC 101 Atmospheres**

An introduction into the chemical properties, temperature, motions, and cloud formation within planetary atmospheres. Emphasis is placed on the earth's atmosphere, but in order to provide insights into general atmospheric phenomena discussion and specific examples will be drawn from our rapidly expanding knowledge of the atmospheres of other planets. The approach to the subject will be deductive, showing how the properties of atmospheres may be deduced by means of general arguments based on the laws of physics and chemistry. Contemporary topics, such as possible man-made influence upon the earth's global climate, will also be included. *Spring, 3 credits*

#### **ESC 102 Weather and Climate**

An introduction to the nature and causes of common meteorological phenomena, severe weather occurrences, and climatic patterns. A description of the general features of our atmosphere will be followed by specific treatment of such topics as formation and movement of air masses and large-scale storms; techniques for weather prediction; weather satellites; hurricanes, tornadoes and thunderstorms; cloud and precipitation types; and optical and acoustical phenomena. The climatic history of the earth will be discussed as well as actual and potential effects of air pollution on weather and climate. *Fall, 3 credits*



### **ESC 201 Earth, Sea and Air**

An examination of the three elements of our environment stressing the interaction between them. Introductory lectures describing the basic physical properties and structure of the atmosphere, oceans and solid earth will be followed by detailed discussion of energy transfer between these three elements, the hydrologic cycle, and the effects of land and ocean distribution on the circulation of atmosphere and ocean, weather and climate. *Spring, 3 credits*

### **ESC 222 Environmental Pollution and Its Control**

Cross-listed with EST 222. *Fall or spring, 3 credits*

## *Departmental Technical Electives*

### **ESC 202 Fundamentals of Technical Drawing**

Undertakes a thorough study of basic rendering techniques and skills required for technical drawing including orthographic axonometric projections, rotations, and perspective. Drafting techniques such as line quality, lettering, and accuracy will be emphasized. The final four weeks will consist of an individual project which reflects the student's interests and reinforces the material taught in the course. *Fall and spring, 3 credits*

### **ESC 302 Internship in Engineering Science—Mechanics**

This program is designed to provide an educational opportunity for several outstanding students seeking in-the-field enrichment in a special branch of mechanics. Selected students may choose to participate in an approved cooperative work-study program involving SUNY and one or more outstanding laboratories. Lectures by SUNY faculty are augmented by a work-study program conducted in residence at the prescribed outside laboratory. Prerequisite: Permission of instructor. Grading in this course shall be Satisfactory/Unsatisfactory only. *Summer, 3 credits*

### **ESC 305 Heat and Mass Transfer**

The fundamental laws of momentum, heat and mass transfer; and the corresponding transport coefficients. Principles of steady-state and transient heat conduction in solids are investigated. Laminar and turbulent boundary layer flows are treated, as well as condensation and boiling phenomena, thermal radiation, and radiation heat transfer between surfaces. Applications to heat transfer equipment are covered throughout the course. Prerequisite: ESG 301. *Spring, 3 credits*

### **ESC 310 Machine Kinetics and Design**

Analysis of displacements, velocities, accelerations, and associated forces in plane motion mechanisms by mathematical and computer methods; study of the fundamental principles of design as applied to mechanical components such as bearings, gears, shafting, springs, screws, belts, and clutches under both static and dynamic loading; principles of lubrication. Prerequisite: ESG 261. *Spring, 3 credits*

### **ESC 322 Nonequilibrium Processes in Environmental Systems**

Introduction to the kinetic rate processes, flow, and stability of nonequilibrium systems; combustion, condensation, vaporization and related environmentally important thermokinetic processes; thermokinetic stability and the stability of coupled ecological systems; combustion and air-pollution. Applications are to nonequilibrium atmospheric processes. Prerequisite: ESG 301. *Fall, odd numbered years, 3 credits*

### **ESC 323 Combustion**

Lectures and laboratory work designed as an introduction to the fundamentals of combustion processes: Combustion theory; experimental properties of the ignition, quenching, propagation and stability of flames; explosions and detonations; combustion processes and air pollution; radiative properties of flames; dust explosions. Applications are to modern systems. Prerequisite: ESG 301. *Fall, 3 credits*

### **ESC 325 Thermal Systems in Nuclear Power Engineering**

Nuclear fuel as the alternative energy source to fossil fuel for central-station power generation: kinetics and reactor control, reactor heat generation and removal, reactor coolants and special reactor types, reactor safety; energy conversion methods and power plants. Prerequisites: ESC 305, ESM 328. *Offered on demand, 3 credits*

### **ESC 328 HVAC and Energy Conservation**

Engineering performance; efficiency; and applications of heating, ventilating, and air conditioning technology. Relation of energy conversion and storage systems to energy conservation in the home, commerce, industry, and transportation. Corequisite: ESG 301. *Spring, 3 credits*

### **ESC 329 Chemical Reactor Design**

Application of combustion, thermodynamic, chemical kinetic, and fluid mechanical principles to chemical reactor design: reactor stability; performance criteria and design optimization; Batch reactors; the continuous Stirred Tank Reactor; Plug Flow and Laminar Flow Tubular Reactors; Heterogeneous Reactors; Solid-Fluid, Gas-Liquid, and Liquid-Liquid Reactors. Prerequisites: ESC 323 or permission of the instructor. *Spring, even numbered years, 3 credits*

### **ESC 330 Structural Analysis**

Structural stability. Statically determinate and indeterminate structures. Analysis of trusses and frames in two dimensions. Displacement of structures using the method of virtual work. Method of superposition for analyzing statically indeterminate structures. Slope-deflection equations and moment distribution. Prerequisite: ESG 363. *Fall, 3 credits*

### **ESC 332 Model Analysis of Architectural and Civil Structures**

The use of models to study the behavior of structures under various loadings. The principle of similitude which governs the relationship between a model and its prototype will be discussed in detail. The principle of Muller-Breslau and the methods based on the principle for obtaining influence lines will be demonstrated. Students will be formed into small groups and each group will carry out a complete project involving the design, manufacture, testing and analysis of the model. Prerequisite: ESG 363. *Spring, even numbered years, 3 credits*

### **ESC 333 Reinforced Concrete Design**

Introduction to concrete design code: foundation planning and general information; design of reinforced concrete slabs, girders and columns; pile foundation and spread footing; and prestressed concrete beam design. Corequisite: ESC 330. *Fall, even numbered years, 3 credits*

### **ESC 334 Structural Steel Design**

Introduction to structural steel design codes: analysis of loading; design of steel tension and compression members, beams, built-up sections, composite sections, and riveted, bolted, and welded connections; design of steel buildings; plastic design and analysis. Corequisite: ESC 330. *Spring, odd numbered years, 3 credits*

### **ESC 336 Soil Mechanics**

Identification of soils; seepage problems; influence of porewater pressure on stress and compressibility; theory of consolidation and settlement; strength theory and conditions of failure. Prerequisites: ESG 363 and 364. *Spring, odd numbered years, 3 credits*

### **ESC 342 Introduction to Experimental Stress Analysis**

The concepts of three dimensional stress and strain, their transformation laws, and their mutual relationships will be discussed in detail. Results from theory of elasticity as pertinent to experimental stress analysis will also be presented. Experimental techniques studied include two-dimensional photoelasticity, resistance strain gauge, moire method, brittle coating and analog methods. The application of different techniques to the measurement of stress and strain in models as well as actual structures will be demonstrated. Students will be formed in small groups and each group will be assigned different laboratory projects to gain experience in various experimental stress analysis methods. Prerequisite: ESG 363. *Fall, 3 credits*

### **ESC 345 Theoretical Meteorology**

This course is an introduction to the quantitative interpretation of the thermal and dynamical structure of planetary atmospheres. Topics to be covered include: hydrostatic equilibrium; hydrostatic stability and convection; solar and terrestrial radiation; the atmospheric equations of motion for a rotating planet; atmospheric energy relationships and general circulation. Prerequisite: Permission of instructor. *Spring, 3 credits*

### **ESC 346 Dynamic Meteorology**

Introduction to the structure and dynamics of the large-scale atmospheric motions that are responsible for our weather and climate. Topics will include: principles of fluid dynamics; Coriolis force, geostrophic equilibrium, and the Proudman-Taylor theorem; circulation and vorticity; baroclinic instability, cyclogenesis, frontogenesis, and the weather systems; climate and the general circulation of the atmosphere. Prerequisites: ESG 301, 364, PHY 306, or permission of instructor. *Fall, 3 credits*

### **ESC 348 Elements of Atmospheric Science**

An introduction to the physical and chemical processes which determine the structure and composition of our atmosphere. A discussion of the chemical composition of the neutral atmosphere and ionosphere will be followed by the development of the basic equations governing atmospheric structure. The major processes at work in each region of the atmosphere will be delineated. The origin and history of our atmosphere will be discussed and man's impact on its future will be considered. Comparisons will be drawn between our own environment and the atmospheres of other planets. Prerequisites: PHY 102, MSM 132, ESC 101. *Fall, 3 credits*

### **ESC 349 Weather Prediction**

Will include a review of the development of synoptic meteorology and numerical weather prediction. Growth of air masses, fronts and cyclones will be examined. Instruction will be given in the analysis of meteorological data and the construction of surface and upper air charts. Techniques for forecasting the weather phenomena (thunderstorms, tornadoes and hurricanes) will be discussed, along with methods for predicting temperature, cloudiness and precipitation. Students will actively participate in preparing weather maps and making forecasts, making use of the new Stony Brook Weather Observatory. *Fall, 3 credits*

### **ESC 350 Applied Meteorology**

Application of the principles and methods of weather prediction to the actual practice of weather forecasting. Students will prepare daily forecasts in the Stony Brook Weather Observatory using data acquired from the National Weather Service. Prerequisite: ESC 349. *Spring, 2 credits*

### **ESC 351 Synoptic Meteorology I**

Introduction to the dynamics of weather systems: a theoretical explanation of how fronts and pressure systems originate and develop; the relation of pressure systems to upper atmospheric processes; the role of divergence and convergence; and the application of vorticity principles. Students will plot and analyze surface and upper air charts and interpret satellite photographs and radar scope data. Prerequisite: ESG 364 or permission of instructor. *Fall, 4 credits*

### **ESC 361 Vehicular Dynamics**

Covers air, sea, and interface vehicles, emphasizes the application of fluid dynamic principles in evaluating the performance potential of student originated (or instructor assigned) vehicle designs. This leads to consideration of static and dynamic lifters; fluid mechanical thrusters (including foils, propellers, windmill propulsion systems and jets); fluid dynamic drag; the prediction of vehicle rectilinear performance; the fluid mechanics of maneuvering; and static and dynamic stability. The study of these topics is carried out by the students through application to the individual design analysis of vehicles of their choice. Prerequisite: ESG 364. *Spring, odd numbered years, 3 credits*

### **ESC 372 Mechanical Engineering Laboratory**

This course emphasizes basic mechanical engineering measurements such as temperature, flow rate, pressure, force, and strain. In addition, certain basic experiments are performed such as physical property measurements, heat exchanger characters, stress measurements, and column buckling. *Fall, 3 credits*

### **ESC 381 Structural Dynamics**

The dynamic response of engineering structures is studied for steady state and transient load conditions. Topics studied are: single degree of freedom system; multi-degree of freedom system with normal coordinates; dynamic response of elastic strings, rods, and beams to mechanical loading; effect of viscoelastic behavior. Prerequisite: ESG 363. *Spring, 3 credits*

### **ESC 385 Physiological Fluid Mechanics**

Crosslisted with EST 385. *Spring, 3 credits*

### **ESC 390 Physical Oceanography**

A description of the general physical and chemical properties of the ocean will be followed by discussion of specific topics such as energy transport by ocean currents; factors influencing temperature and salinity distributions and formation of water masses; air-sea interactions; sound and light propagation; and formation of sea ice. Prerequisite: Permission of instructor. *Spring, 3 credits*

### **ESC 391 Statistical Theory of Fluids**

A study of the bulk properties of fluids, especially the equilibrium properties of dense fluids determined through the use of molecular distribution function and various perturbative procedures. During the latter half of the course one or more particular systems or problems (e.g., ionic or polar fluids, critical phenomena) are examined in some detail to illustrate the use of the general methods developed. Prerequisites: ESG 301 and permission of instructor. *Spring, 3 credits*

### **ESC 393 Engineering Fluid Mechanics**

This course has two objectives: to study the application of the principles of fluid mechanics to important areas of engineering practice such as turbomachinery, hydraulics, and wave propagation; and to prepare students for advanced course work in fluid dynamics. As such it extends the study of viscous effects, compressibility, and inertia begun in ESG 364. Prerequisite: ESG 364. *Spring, 3 credits*

### **ESC 397 Air Pollution and Its Control**

Air pollution is studied from the standpoint of causes, effects and controls. This includes a study of air resources, climatology and meteorological considerations in air pollution studies. The causes of air pollution are stressed, with consideration being given to variations in characteristics in different parts of the country. Physical, chemical, and physiological effects of air pollution on man, plants, animals and structures are considered. Social costs are also reviewed to determine an economic basis for control in addition to esthetic and health bases. The scientific principles of controlling gaseous and particulate air pollution are discussed and related to engineering practices in the control of air pollution. Prerequisite: Senior standing or permission of instructor. *Fall, 3 credits*

### **ESC 398 Thermodynamics of Power Generation**

Review of the fundamentals of thermodynamics. Applications of thermodynamics to the analysis of power-producing systems, including internal combustion engines and gas turbines. Considerations such as the increase of efficiency, improved design, optimum operating conditions and alternate methods of power generation are given on the basis of the second law of thermodynamics. Changes in energy technology required in the light of energy and related environmental problems are discussed. Prerequisite: ESG 301. *Spring, 3 credits*

### **ESC 499 Research in Mechanics**

A course which involves the student in an independent research project with supervision by the faculty. Permission to register requires that the student have an average grade of B in all engineering courses and the agreement of a faculty member to supervise the research. Only three credits of research electives (MSA 487, MSC 487, ESE 499, ESM 499, ESC 499, EST 499) may be counted towards fulfillment of technical elective requirements. *Fall and spring, 3 credits, repetitive*

## Department of Technology and Society

**Distinguished Teaching Professor:** John G. Truxal, Sc.D. Massachusetts Institute of Technology (Technology and society; automatic control)

**Professors:** Ludwig Braun, Joint with Electrical Engineering, Ph.D. Polytechnic Institute of Brooklyn (Computers in education; bioengineering); Emil J. Piel, Chairman, Ed.D. Rutgers University (Technology and society; decision making; curriculum development); Marian Visich, Jr., Associate Dean of Engineering and Applied Sciences, Ph.D. Polytechnic Institute of Brooklyn (Technology and society; space mechanics; aerospace propulsion)

**Associate Professors:** Arthur Gilmore, Adjunct, M.S. University of Colorado (Aero-engineering); Thomas T. Liao, Ed.D. Columbia University (Science education; educational technology; curriculum development); Lester Paldy, M.S. Hofstra University (Physics; science policy and education)

**Assistant Professors:** Robert H. Seidman, M.S. Syracuse University (Computer applications and information science); Dean Winter, Ph.D. Colorado State University (Physiological fluid mechanics; experimental biomechanics)

**Lecturer:** Philip Reese, M.S./A.S. State University of New York at Stony Brook (Educational technology)

Individuals are increasingly dependent on modern technology which now impinges on almost every facet of life. Furthermore, governmental decisions require public understanding of the capabilities, characteristics, and limitations of modern technology. Finally, industrial and government employees in all careers increasingly find a working knowledge of modern technology to be of critical importance in their work.

The Department of Technology and Society is the activity within the College of Engineering and Applied Sciences which encompasses the courses offered by the College for students majoring in disciplines within the College of Arts and Sciences. Credit for at least six courses in modern engineering and the technology-society interface will represent completion of a minor in technology and society.

Students may apply for admission to the minor program at any time after completion of the first year of college, although individual courses may be taken during that time. Requirements for admission are completion of the required course EST 190 Man, Technology, and Society and one year of college mathematics or the equivalent.

## **Courses**

### **EST 100 Societal Impact Computers**

Crosslisted with MSC 100. *Spring, 3 credits*

### **EST 190 Man, Technology, and Society**

In a consideration of the interaction of technology with both the individual and the social institution, case studies of current socio-technological problems are used to introduce the major concept of modern information science. The concepts include modeling, decision making, feedback, stability, and dynamics. Particular areas include energy, solid waste, transportation, health delivery, and communication. In each case study the emphasis is on the people-technology interaction. The course includes the science background of social and political decisions, and then consideration of the values of the available alternatives. Primarily intended for non-engineering majors. *Fall and spring, 3 credits*

### **EST 191 Introduction to Technology Assessment (Issues, Methods, and Cases)**

Technology assessment and the consideration of alternative futures in relation to social control of technological development. Technology-initiated assessment methods will be discussed via cases such as the elimination of the SST (Super Sonic Transport) program and a technology assessment of weather modification. Assessments initiated by a socio-technological problem will also be studied by considering examples such as options for United States energy policy and mass transportation options. A series of innovative small-group activities will be used. Besides the usual seminar format for discussing issues, student activities will include a classroom presentation of the public television program called "The Advocates," working with analog and digital computer simulations and doing a term project as part of an interdisciplinary team. Primarily intended for non-engineering majors. *Spring, 3 credits*.

### **EST 192 Introduction to Modern Engineering**

This course is designed to familiarize students with systems and decision-making concepts of modern engineering and technology. The conceptual areas to be studied include 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 will be used. *Fall, 3 credits*

### **EST 210 The Exploration of Space**

The course presents the basic engineering and scientific concepts of the exploration of space. The main topics covered include the role of man in space, space exploration. The course is primarily intended for non-engineering students. Prerequisites: EST 190, and one year of college mathematics. *Fall, 3 credits*

**EST 220 Cybernetics**

The course covers the basic concepts of cybernetics: control and communication in machines and men. The four principal topics are signals in electronic systems; sensors for signal detection and modification; communication with machines and people; and automatic feedback control, including automation and natural systems. The course is designed primarily for non-engineering students. Prerequisites: EST 190, and one year of college mathematics. *Fall, 3 credits*

**EST 222 Environmental Pollution and Its Control**

This course will focus primarily on the areas of air and water pollution. The sources of pollutants will be examined as will the methods which have been devised (or are under consideration) for their control. The possible effects of pollutants on health, property and the global and local environment will also be considered. In the latter case, the particular problems of Long Island will be given special attention. Because of their unique nature, air and water pollution problems associated with the operation of nuclear power plants will be discussed separately. Other topics which will be discussed include solid waste disposal and noise. Crosslisted with ESC 222. *Spring, 3 credits*

***Departmental Technical Electives*****EST 385 Physiological Fluid Mechanics**

The basic principles of fluid mechanics are used to analyze different internal and external physiological flows. Examples are taken from cardiovascular, respiratory and micturition flow along with external flows associated with swimming and flying. Crosslisted with ESC 385. *Spring, 3 credits*

**EST 499 Research in Technology and Society**

An independent research project with faculty supervision. Permission to register will require an average grade of B in all engineering courses and the agreement of a faculty member to supervise the research. Only 3 credits of research electives (MSA 487, MSC 487, ESE 499, ESC 499, ESM 499) may be counted toward fulfillment of technical elective requirements. *Fall and Spring, 3 credits, repetitive*





health  
sciences  
center

# THE HEALTH SCIENCES CENTER

The Health Sciences Center is an integral part of the Stony Brook Campus, offering a comprehensive education in the health professions. It consists of six Schools which provide the special education needed for the training of a larger range of health professionals: the Schools of Allied Health Professions, Basic Health Sciences, Dental Medicine, Medicine, Nursing, and Social Welfare, and the University Hospital. The Schools receive support services from Biomedical Computer Services, Media Services, the Division of Laboratory Animal Resources, the Health Sciences Center Library, and the Office of Student Services.

## *Clinical Campuses*

The Health Sciences Center has affiliation arrangements with more than 80 hospitals and agencies. Four of these are referred to as "clinical campuses": Hospital of the Medical Research Center, Brookhaven National Laboratory; Long Island Jewish-Hillside Medical Center and Queens Hospital Center affiliation; Nassau County Medical Center; and Northport Veterans Administration Hospital.

## *Facilities*

The Health Sciences Center is located on the east side of Nicolls Road, adjacent to the Main Campus and the South Campus. The main teaching-research building is a five-level network structure, 5.3 acres in base size topped with two clinical towers, one housing ten levels of medical research laboratories and faculty offices. The other tower has five levels of basic science research laboratories and faculty offices.

Currently under construction, with opening scheduled for 1980, the University Hospital will be a central teaching facility for all the educational programs of the Health Sciences Center and will provide specialized patient care services for the region.

Planning and construction funds have also been approved for a permanent dental facility adjacent to the Health Sciences Center. Construction is expected to begin by 1982.

### ***Program Offerings***

Current offerings include both undergraduate and post-baccalaureate programs. All undergraduate programs begin in the upper division.

In the academic years 1979-81, the School of Allied Health Professions is offering baccalaureate degree programs in cardiorespiratory sciences, medical technology, physical therapy, and physician's assistant education.

Baccalaureate degree programs are also offered by the Schools of Nursing and Social Welfare.

Also in the academic years 1979-81 the Health Sciences Center is enrolling M.D. candidates in the School of Medicine, D.D.S. candidates in the School of Dental Medicine, and master's degree candidates in the Schools of Social Welfare, Nursing (Nurse-Practitioner program), and Allied Health Professions (master's degree in health sciences).

The School of Basic Health Sciences offers postgraduate doctoral degree programs in anatomical sciences, microbiology, pathology, pharmacological sciences, and physiology and biophysics.

### ***Admissions Procedures***

There are no freshman admissions to the Health Sciences Center. High school students interested in eventual enrollment in any of the Health Sciences Center baccalaureate programs must apply for admission to Stony Brook or to another college to complete their freshman and sophomore years.

Applications for all undergraduate programs can be obtained from the Office of Student Services in the Health Sciences Center. Applications for most undergraduate programs are available in the fall of the year preceding the year of anticipated matriculation. Admissions are in the fall of each year only. Admission decisions are made by committees in each of the School; application processing and records are handled in the Health Sciences Center Office of Student Services.

## ***Eligibility***

All baccalaureate programs are upper-division programs and last approximately two years. In order to be eligible for consideration, students must have completed 57 university credits or their equivalent before matriculating in the program to which they seek admission. Some programs require specific courses prerequisites.

Admission to all undergraduate programs is by formal application only. Standards set by professional accrediting bodies limit enrollments in each of the programs, and, therefore, admission is on a selective basis. Applications are accepted from both Stony Brook students and from students transferring to Stony Brook from other educational institutions. Stony Brook undergraduate students are not automatically admitted to HSC programs; they should note that admission to any of the undergraduate programs is not simply a "change of major."

## ***Courses Open to Main Campus Undergraduates***

The courses listed in this section are offered by the Health Sciences Center but are open for elective credit to undergraduate students enrolled in courses of study in all departments of the University. To register for these courses students should have completed their freshman and sophomore years, or have earned a minimum of 57 university credits.

If students are not able to pre-register for these courses, they may register by submitting an add card during the Health Sciences Center regular registration or during the add-drop period.

The Health Sciences Center academic calendar differs from the main campus calendar because some of the Health Sciences Center programs are scheduled on a modular basis, each of five weeks' duration.

# School of Basic Health Sciences

## Courses

### Anatomical Sciences

#### **HBA 364 Primate and Human Evolution (Formerly HBA 200)**

The evolution of non-human primates and humans will be considered from the viewpoints of the fossil record and comparative morphology of living forms. The course will include discussion of the origin of primates, the radiation into major groups, the diversity of living primates and human emergence. Emphasis will be placed on relating the structure of fossil and living forms to their behaviors. Prerequisite: ANT 120, 121, an introductory course in biology, and permission of instructor. *Spring, 4 credits*

#### **HBA 393, 394 Special Topics from the Anatomical Sciences Literature**

Tutorial readings in anatomical sciences with periodic conferences, reports, and examinations arranged with the instructor. Open to junior or senior students. Prerequisite: Permission of instructor. *Fall and spring, 1-2 credits each semester*

#### **HBA 398, 399 Research Project in Anatomical Sciences**

An independent research project under faculty supervision, with emphasis on the principles of experimental design, data collection, evaluation of findings, and reporting of results. The student is expected to prepare a report on the project and be able to discuss his or her work. Open to junior or senior students. Prerequisite: Laboratory experience and permission of the supervising instructor. *Fall and spring, 2 to 4 credits each semester.*

## Microbiology

#### **HBM 320 General Microbiology**

A course in microbiology, with emphasis on molecular structure and function of bacteria and viruses, mechanism of antibiotic action and resistance, and immunology. Included are some representative examples of well known infectious disease processes such as occur with diphtheria. This course satisfies the microbiology requirement for admission to nursing, veterinary, and optometry professional schools. Prerequisite: CHE 112, 133, BIO 152 and 206, and permission of instructor. *Spring, 3 credits*

#### **HBM 321 General Microbiology Laboratory**

Designed to complement the lecture material of HBM 320, the optional laboratory will cover basic and applied microbiological methods. Techniques such as growth of bacteria in liquid and agar media, quantitative methods of determination of bacterial concentrations, antibiotic sensitivity, and Gram-staining are included. For pre-health science professions students. Prerequisites: CHE 112, 133, BIO 152 and 206, and permission of instructor. Corequisite: HBM 320. *Spring, 1 credit*

#### **HBM 330 Molecular Biology of the Cell**

The mammalian cell is rapidly becoming accessible to analysis at the molecular level. This course will study in depth those parts of metabolism, regulation, and genetics that are unique to higher cells, including viruses which infect and transform them. With this background, a selected small number of specialized cellular functions will be elaborated upon. Wherever possible, original research papers will be used in lieu of secondary textbook sources. Prerequisites: BIO 310 and 360 and permission of instructor. *Spring, 3 credits*

### **HBM 393, 394 Special Topics from the Microbiology Literature**

Tutorial readings in microbiology with periodic conference, reports, and examinations arranged with the instructor. Open to junior or senior students. Prerequisite: Permission of instructor. *Fall and spring, 1-2 credits each semester*

### **HBM 398, 399 Research Project in Microbiology**

An independent research project under faculty supervision, with emphasis on the principles of experimental design, data collection, evaluation of findings, and reporting of results. The student is expected to prepare a report on the project and be able to discuss his or her work. Open to junior or senior students. Prerequisites: Laboratory experience and permission of the supervising instructor. *Fall and spring, 2 to 4 credits each semester*

## **Pathology**

### **HBP 310 Pathology**

A study of the basic mechanisms of disease and the pathophysiology of the important illnesses of man. Primarily for Health Sciences Center students; others admitted with special permission. Prerequisites: BIO 151, 152 and permission of instructor. *Fall, 3 credits*

### **HBP 390 Selected Topics in Experimental Pathology**

The course will be in the form of seminars by members of the faculty in the Department of Pathology and will cover a broad spectrum of topics including cardiovascular disease, arthritis, defects in the immune system, connective tissue diseases, transplantation immunology, experimental carcinogenesis, immuno- and histochemistry, radiation pathology, tumor immunology, environmental pollutants and chronic obstructive lung disease, and cell culture as a tool for the study of disease. Prerequisite: Advanced courses in biology. An understanding of biochemistry will be useful. *Fall, 2 credits*

### **HBP 393, 394 Special Topics from the Pathology Literature**

Tutorial readings in pathology, with periodic conferences, reports, and examinations arranged with the instructor. Open to juniors or seniors. Prerequisite: Permission of instructor. *Fall and spring, 1-2 credits each semester*

### **HBP 398, 399 Research Project in Pathology**

An independent research project under faculty supervision, with emphasis on the principles of experimental design, data collection, evaluation of findings, and reporting of results. The student is expected to prepare a report on the project and be able to discuss his or her work. Open to junior and senior students. Prerequisites: Laboratory experience and permission of the supervising instructor. *Fall and spring, 2 to 4 credits each semester*

## **Pharmacological Sciences**

### **HBH 100 Drugs and Society**

A series of lectures offered by the Department of Pharmacological Sciences will analyze modern concepts in the mechanism of action and application of some important drugs. The course is designed primarily for undergraduate science majors with the view of creating an appreciation of the nature of research on drugs and chemicals and their profound influence on all members of society. Prerequisite: Introductory courses in biology and chemistry would be helpful, but are not required. *Fall, 1 credit*

### **HBH 331 Fundamentals of Pharmacology**

A course in general pharmacology, emphasizing basic principles that underlie actions of drugs on physiological processes with particular reference to their therapeutic and toxic actions. Primarily for nursing and allied health students; others by special permission. Prerequisite: HBA 300 or BIO 206 or HBY 350 or BIO 230. Permission of instructor. *Spring, 5 credits*

### **HBH 372 Pharmacology: Selectivity of Drugs — Its Physical Basis**

This lecture and discussion course will begin with a statement of the nature and aims of selectivity. Then as necessary introduction to methods of building selectivity into a drug molecule, those basic principles will be discussed that underlie the action of drugs (and other biologically active agents) on cells. The treatment will be at the level of underlying physical and chemical principles (molecular biology) and will include, amongst others, the following topics: the nature of receptors, distribution phenomena, structure-action relationships, drug metabolism, chemotherapy, and pharmacodynamics. The second part of the course deals with the three cardinal principles of selectivity, namely the use of favorable differences in distribution, biochemistry, and cell structure. Prerequisite: BIO 310, CHE 322 or 332, and permission of instructor. *Fall, 3 credits*

### **HBH 393, 394 Topics in Pharmacology**

Tutorial readings in pharmacology with periodic conferences, reports, and examinations arranged with the instructor. Open to junior or senior students. Prerequisite: Permission of instructor. *Fall and spring, 1-2 credits each semester*

### **HBH 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 and be able to discuss his or her work. Open to junior or senior students. Prerequisite: Laboratory experience and permission of supervising instructor. *Fall and spring, 2 to 4 credits each semester*

## **Physiology and Biophysics**

### **HBY 310 Cell Physiology**

The physiology of animal cells; excitation, conduction, transduction, transport, motility, secretion, and responses to transmitters and hormones. Not open to students who have taken BIO 333. Prerequisites: PHY 101 or 103 and BIO 230. *Spring, 3 credits*

### **HBY 350 Physiology**

The normal functioning of human tissues and organs and their regulation by the nervous and endocrine systems. Special emphasis will be given to physiological control systems and the preservation of the constancy of the internal environment. Lectures, conferences, demonstrations. Does not count as an upper-division course for Arts and Sciences students. Prerequisites: College courses in biology and chemistry. Some background in physical science. Primarily for Health Sciences students; others by permission of instructor. *Fall, 4 credits*

### **HBY 393, 394 Special Topics from Physiology and Biophysics Literature**

Tutorial readings in physiology and biophysics and periodic conferences, reports, and examinations arranged with the instructor. Open to junior or senior students. Prerequisite: Permission of instructor. *Fall and spring, 1-2 credits each semester*

### **HBY 398, 399 Research Project in Physiology and Biophysics**

An independent research project under faculty supervision, with emphasis on the principles of experimental design, data collection, evaluation of findings, and reporting of results. The student is expected to prepare a report on the project and be able to discuss his or her work. Open to junior or senior students. Prerequisite: Laboratory experience and permission of supervising instructor. *Fall and spring, 2 to 4 credits each semester*

## **School of Dental Medicine**

### **Courses**

#### **HD 320, 321 Oral Biology Research I, II**

The student will conduct his/her independent research projects 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 his/her experimental methods, results, and conclusions. These courses are offered for third-year undergraduate students. A copy of the student's transcript must be submitted with the application. Prerequisite: Permission of department. BIO 152 and CHE 132 and 134 recommended. Prerequisite for HD 321: HD 320. *Fall and spring, 4 credits per semester*

#### **HD 420, 421 Oral Biology Research III, IV**

The student will conduct his/her 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 his/her experimental methods, results, and conclusions. HD 420, 421 is offered for fourth-year undergraduate students in Arts and Sciences. A copy of the student's transcript must be submitted with the application. Prerequisite: Permission of department. BIO 152 and CHE 132 and 134 recommended. Prerequisite for HD 421: HD 420. *Fall and spring, 4 credits per semester*

#### **HDP 320, 321 Introduction to Periodontal Research**

The student will be taught various techniques and procedures used in current periodontal research. He or she will be expected to undertake a small research project implementing these techniques. Prerequisites: CHE 132 and 134, BIO 152, and permission of instructor. *Fall and spring, 1 to 4 credits, repetitive to 8 credits maximum*

#### **HDP 420, 421 Research in the Biology and Pathology of the 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. Prerequisites: HDP 320, 321 and permission of instructor. *Fall and spring, 2 to 4 credits, repetitive to 8 credits maximum*



## Division of Social Sciences and Humanities

**Professors:** Rose Laub Coser, Ph.D. Columbia University (Medical sociology); Daniel M. Fox, Ph.D. Harvard University (History; public administration); Howard R. Kelman, Ph.D. New York University (Health care evaluation and administration); Eugene Weinstein, Ph.D. Northwestern University (Sociology)

**Lecturers:** Marcia J. Kramer, M.A. Harvard University (Economics); Steven M. Stowe, Part-time, Ph.D. State University of New York at Stony Brook (History); James S. Terry, Part-time, M.A. State University of New York at Stony Brook (History); <sup>a</sup>Peter C. Williams, J.D., Ph.D. Harvard University (Law; philosophy)

The Division of Social Sciences and Humanities is an expression of the Health Sciences Center's commitment to integrate University disciplines with the training of health professionals. Faculty of the division, all members of their respective University departments in the social sciences and humanities, function in several roles. In an effort to increase the awareness of health sciences students of the historical, social, economic, political, and philosophic context of their professional careers, the division offers interdisciplinary learning experiences designed to develop critical thinking processes and substantive knowledge about the health professional's place in the world. The division also provides opportunities for students to engage in further study of the disciplinary perspectives represented by its members through courses offered through the division, through other Schools of the Health Sciences Center, and in their University departments exploring the analytical and methodological application of the courses to health and illness. Finally, the Division looks forward to participating in degree-granting programs for students wishing to combine their professional training with formal research and teaching preparation in the social sciences and humanities.

---

<sup>a</sup>Recipient of the State University Chancellor's Award for Excellence in Teaching, 1977-78

*Note:* Graduate students wishing to work in areas with 300 listings may, by taking independent study (HSH 590-1, 2, 3), arrange a course of study.

## **Courses\***

### **HSH 300 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. Clinical cases will be presented to the class each week by practicing physicians or other health care professionals. Topics will include allocation of scarce resources, issues of dying and killing, experiments on humans, etc. Discussion will focus on the social, historical, ethical, and artistic import of the cases. *Fall, 3 credits*

### **HSH 331 Legal and Ethical Issues in Health Care**

This course is intended to introduce students to some of the major ethical and legal doctrines that affect health care professionals. The doctrines will be discussed by addressing ourselves to 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: access to and evaluation of health care delivery. Since the goal of the course is to sensitize professionals to legal and ethical issues like those they will be called upon to resolve, students will be expected to take part in class discussions and do readings. *Spring, 3 credits*

### **HSH 361 Health and Society**

An examination of the reciprocal relationships between health, health care organizations, and social structure: the contribution of social factors in the definition and determination of health and disordered states of health, the impact of ill health on social institutions and groups. *Fall, 2 credits*

### **HSH 365 Illness and Health in the Social Context**

Illness as a social fact: structural sources of health and illness in family and community; health restoring agents, physician and nurse; the function and organization of hospitals. *Fall, 2 credits*

### **HSH 487 Independent Study**

Projects must be approved by the Division. Prerequisite: Permission of instructor. *Fall or spring, 1 to 3 credits*

---

\*See p. 124, *Course Credits and Prerequisites*, and p. 125, *Numbering System*



directories

## Directories

State University of  
New York

*Trustees*

*General Statement*

*Campuses*

State University at  
Stony Brook

*Council*

*Officers of  
Administration*

# State University of New York

## *BOARD OF TRUSTEES*

Donald M. Blinken, B.A., <i>Chairman</i> . . . . .	New York City
James J. Warren, L.H.D., <i>Vice Chairman</i> . . . . .	Albany
Steven Allinger . . . . .	Albany
Robert R. Douglass, A.B., LL.B. . . . .	New York City
Manly Fleischmann, A.B., LL.B. . . . .	Buffalo
William D. Hassett, Jr., B.A., L.H.D. . . . .	Snyder
John L.S. Holloman, Jr., B.S., M.D. . . . .	East Elmhurst
Mrs. Nan Johnson, B.A., M.A. . . . .	Rochester
Mrs. Judith Davidson Moyers, B.S. . . . .	Garden City
John A. Roosevelt, A.B. . . . .	New York City
Mrs. Edward Siegel, R.N. . . . .	Roslyn
Roger J. Sinnott, B.S. . . . .	Utica
Mrs. Walter N. Thayer . . . . .	New York City
Thomas Van Arsdale, B.E.E. . . . .	New York City
Darwin R. Wales, B.A., LL.B. . . . .	Binghamton

---

*Chancellor of the University* . . . . Clifton R. Wharton, Jr., B.A.,  
M.A., Ph.D., LL.D., L.H.D., D.P.S.

*Secretary of the University* . . . . Martha J. Downey, B.S., M.A.

## **GENERAL STATEMENT**

State University's 64 geographically dispersed campuses bring educational opportunity within commuting distance of virtually all New York citizens and make up the nation's largest, centrally managed system of public higher education.

When founded in 1948, the University consolidated 29 State-operated, but unaffiliated, institutions. In response to need, the University has grown to a point where its impact is felt educationally, culturally, and economically the length and breadth of the State.

More than 340,000 students are pursuing traditional study in classrooms or are working at home, at their own pace, through such innovative institutions as Empire State College, whose students follow individualized and often non-traditional paths to a degree. Of the total enrollment more than 100,000 students are 24 years of age or older, reflecting State University's services to specific constituencies, such as refresher courses for the professional community, continuing educational opportunities for returning servicemen, and personal enrichment for the more mature persons.

State University's research contributions are helping to solve some of modern society's most urgent problems. It was a State University scientist who first warned the world of potentially harmful mercury deposits in canned fish, and another who made the connection between automobile and industrial smoke combining to cause changes in weather patterns. Other University researchers continue important studies in such wide-ranging areas as immunology, marine biology, sickle-cell anemia, and organ transplantation.

More than 1,000 public service activities are currently being pursued on State University campuses. Examples of these efforts include: special training courses for local government personnel, State Civil Service personnel, and the unemployed; participation by campus personnel in joint community planning or project work; and campus-community arrangements for community use of campus facilities.

A distinguished faculty includes nationally and internationally recognized figures in all the major disciplines. Their efforts are recognized each year in the form of such prestigious awards as Fulbright-Hayes, Guggenheim, and Danforth Fellowships.

The University offers a wide diversity of what are considered the more conventional career fields, such as engineering, medicine, literature, dairy farming, medical technology, accounting, social work, forestry, and automotive technology. Additionally, its responsiveness to progress in all areas of learning and to tomorrow's developing societal needs has resulted in concentrations which include pollution, urban studies, computer science, immunology, preservation of national resources, and microbiology.

SUNY programs for the educationally and economically disadvantaged have become models for delivering better learning opportunities to a once-forgotten segment of society. Educational Opportunity Centers offer high school equivalency and college preparatory courses to provide young people and adults with the opportunity to begin college or to learn marketable skills. In addition, campus-based Educational Opportunity Programs provide counseling, developmental education, and financial aid to disadvantaged students in traditional degree programs.

Overall, at its EOC's, two-year colleges, four-year campuses and university and medical centers, the University offers 3,600 academic programs. Degree opportunities range from two-year associate programs to doctoral studies offered at 12 senior campuses.

The 30 two-year community colleges operating under the program of State University play a unique role in the expansion of educational opportunity, by providing local industry with trained technicians in a wide variety of occupational curriculums; by providing transfer options to students who wish to go on and earn advanced degrees; and by providing the community with yet another source for technical and professional upgrading as well as personal enrichment.

During its brief history, State University has graduated more than 650,000 alumni, the majority of whom are pursuing their careers in communities across the State.

State University is governed by a Board of Trustees, appointed by the Governor, which directly determines the policies to be followed by the 34 State-supported campuses. Community colleges have their own local boards of trustees whose relationship to the SUNY board is defined by law. The State contributes one-third to 40 per cent of their operating cost and one-half of their capital costs.

The State University motto is: "To Learn—To Search—To Serve."

## CAMPUSES

### UNIVERSITY CENTERS

State University at Albany  
State University at Binghamton  
State University at Buffalo  
State University at Stony Brook

### COLLEGES OF ARTS AND SCIENCE

College at Brockport	College at Old Westbury
College at Buffalo	College at Oneonta
College at Cortland	College at Oswego
Empire State College	College at Plattsburgh
College at Fredonia	College at Potsdam
College at Geneseo	College at Purchase
College at New Paltz	

### COLLEGES AND CENTERS FOR THE HEALTH SCIENCES

Health Sciences Center at Buffalo University Center  
Health Sciences Center at Stony Brook University Center  
Downstate Medical Center at Brooklyn  
Upstate Medical Center at Syracuse  
College of Optometry at New York City  
College of Veterinary Medicine at Cornell University\*

### AGRICULTURAL AND TECHNICAL COLLEGES

College at Alfred	College at Delhi
College at Canton	College at Farmingdale
College at Cobleskill	College at Morrisville

### SPECIALIZED COLLEGES

College of Agriculture and Life Sciences at Cornell University\*  
College of Ceramics at Alfred University\*  
College of Environmental Science and Forestry at Syracuse  
College of Human Ecology at Cornell University\*

\*These operate as "contract colleges" on the campuses of private universities.



College of Technology at Utica/Rome  
Fashion Institute of Technology at New York City\*\*  
Maritime College at Fort Schuyler  
School of Industrial and Labor Relations at Cornell  
University\*

## COMMUNITY COLLEGES

(Locally-sponsored, two-year colleges under the program of State University)

Adirondack Community College at Glens Falls  
Broome Community College at Binghamton  
Cayuga County Community College at Auburn  
Clinton Community College at Plattsburgh  
Columbia-Greene Community College at Hudson  
Community College of the Finger Lakes at Canandaigua  
Corning Community College at Corning  
Dutchess Community College at Poughkeepsie  
Erie Community College at Buffalo  
Fulton-Montgomery Community College at Johnstown  
Genesee Community College at Batavia  
Herkimer County Community College at Herkimer  
Hudson Valley Community College at Troy  
Jamestown Community College at Jamestown  
Jefferson Community College at Watertown  
Mohawk Valley Community College at Utica  
Monroe Community College at Rochester  
Nassau Community College at Garden City  
Niagara County Community College at Sanborn  
North Country Community College at Saranac Lake  
Onondaga Community College at Syracuse  
Orange County Community College at Middletown  
Rockland Community College at Suffern  
Schenectady County Community College at Schenectady  
Suffolk County Community College at Selden  
Sullivan County Community College at South Fallsburg  
Tompkins Cortland Community College at Dryden  
Ulster County Community College at Stone Ridge  
Westchester Community College at Valhalla

---

\*These operate as "contract colleges" on the campuses of private universities.

\*\*While offering a limited number of baccalaureate degree programs, in addition to the associate degree, FIT is financed and administered in the manner provided for community colleges.

# State University of New York at Stony Brook

## *MEMBERS OF THE COUNCIL*

Subject to powers of State University trustees defined by law, the operations and affairs of the State University at Stony Brook are supervised locally by a Council appointed by the Governor. Members of the Council at time of printing are listed below. All positions listed are correct as of January 1979.

R. Christian Anderson, *Chairman*  
*Brookhaven*

Jerald C. Newman  
*North Woodmere*

Samuel G. Easterbrook  
*Dix Hills*

Peter J. Papadakos  
*St. James*

Leonard L. Eichenholz  
*Valley Stream*

John V. Scaduto  
*Long Beach*

Donald Jaffin  
*Manhasset*

Andrew E. Ullmann  
*Cold Spring Harbor*

Donald J. Leahy  
*Douglaston*

Mitchel D. Grotch  
(student, non-voting)  
*Brooklyn*

## OFFICERS OF ADMINISTRATION

All positions are correct as of February 12, 1979.

T. Alexander Pond, A.B.,  
A.M., Ph.D.  
*Acting President*

Sidney Gelber, A.B., M.A.,  
Ph.D.  
*Academic Vice President*

Carl E. Hanes, Jr., B.S.C.  
*Vice President for  
Finance and Business*

Jacob Bigeleisen, A.B.,  
M.S., Ph.D.  
*Vice President for  
Research; Dean of  
Graduate Studies*

J. Howard Oaks, A.B.,  
D.M.D.  
*Vice President for the  
Health Sciences*

Elizabeth Wadsworth, A.B.,  
M.A., Ph.D.  
*Vice President for  
Student Affairs*

Sheldon Ackley, A.B., M.A.,  
Ph.D.  
*Assistant to the  
President*

Emile Adams, A.A., B.A.  
*Assistant Vice President  
for Student Affairs*

Malcolm Agostini, B.S.,  
M.A., Ed.D.  
*Special Assistant to the  
President for Affirmative  
Action*

John C. Bilello, B.Met.,  
M.S.,  
Ph.D.  
*Dean, College of  
Engineering and Applied  
Sciences*

Richard Brown, A.A.S.,  
B.A., C.P.A.  
*Controller*

Roland Buck, B.S., M.S.,  
Ed.D.  
*Director, Stony Brook  
Union*

John F. Burness, A.B.  
*Deputy to the President  
for University Affairs*

Robert Chason, A.B., M.A.  
*Assistant Vice President  
for Finance and  
Business; Business  
Manager*

Robert L. Cornute, A.A.S.,  
B.A., M.A.  
*Director of Public Safety*

Robert Darino, E.E.  
*Director, Physical Plant  
(East Campus)*

Kevin Jones, B.M.E.  
*Director, Physical Plant  
(West Campus)*

Peter DeMaggio  
*Director, General Institutional Services*

Claudia Justy, B.A., M.A.  
*Acting Director of  
Residence Life*

Michael Elliott, B.A., M.S.  
*Director, University  
Hospital*

James Keene, A.B., M.S.  
*Director of Career  
Development*

Alan Entine, B.A., M.A.,  
Ph.D.  
*Assistant Academic Vice  
President*

Charles Kim, B.S., M.S.,  
Ph.D.  
*Associate Dean of the  
Graduate School*

Daniel Frisbie, A.B., E.D.M.  
*Director of Admissions*

Richard Koehn, B.A., Ph.D.  
*Provost for Biological  
Sciences*

Sanford M. Gerstel, B.C.E.,  
M.A., M.B.A., P.E.  
*Deputy to the President  
for Administrative Operations*

Robert Marcus, B.A., M.A.,  
Ph.D.  
*Dean for Undergraduate  
Studies*

John Hale, B.S.C.E., M.S.  
*Director, Computing  
Center*

George Marshall, B.B.A.  
*Director, Department of  
Safety*

Gerald Hartman, B.S., M.D.  
*Director of University  
Health Service*

Joseph McConkey, B.B.A.  
*Assistant Vice President;  
Director of Management  
Systems*

Mary Ann Hoover  
*Director of Payroll*

Anne McKeen  
*Bursar*

Estelle James, B.A., Ph.D.  
*Provost for Social and  
Behavioral Sciences*

James McKenna, B.A., M.A.  
Ph.D.  
*Director of Academic  
Planning*

Ruth Miller, B.A., M.A.,  
Ph.D.  
*Assistant Academic Vice  
President*

Lawrence Noonan, B.A.  
*Director of the Budget*

Lester G. Paldy, Ph.D.  
*Dean for Continuing  
Education*

Donald S. Petrey, B.S.,  
Ph.D.  
*Provost for Humanities  
and Fine Arts*

Edward Podolnick, B.A.,  
M.A., Ph.D.  
*Director of University  
Counseling Center*

Aaron Rosenblatt, B.B.A.  
*Supervisor of University  
Disbursements*

Robert Schneider, A.B.,  
M.A., Ph.D.  
*Associate Dean for  
Research*

Jerry K. Schubel, B.S.,  
M.A.T., Ph.D.  
*Director, Marine Sciences  
Research Center*

Carl J. Singler, B.B.A.,  
C.P.A.  
*Director of Internal Audit*

John Brewster Smith, B.S.,  
M.S.  
*Dean of Library Services  
and Director of Libraries*

Richard Solo, B.Sc., Ph.D.  
*Director of Orientation*

William Strockbine, A.B.,  
M.A./L.S.  
*Director of University  
Records*

Sei Sujishi, B.S., M.S.,  
Ph.D.  
*Provost for Physical  
Sciences and Mathe-  
matics*

Charles R. Wagner, A.B.,  
Arch.  
*Director of Facilities  
Planning*

Ralph Watkins  
*Director of Special  
Programs*

Harry Weiner, Ph.D.  
*Dean, W. Averell  
Harriman College for  
Urban and Policy  
Sciences*

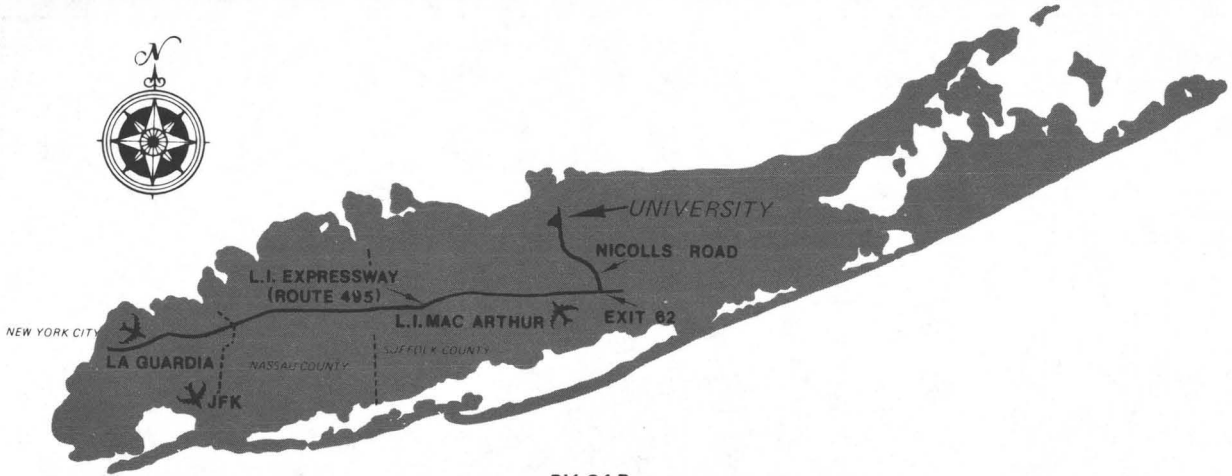
Bache Whitlock, B.A., M.A.  
*Director of Financial Aid*

David Woods, B.A., M.A.  
*Director of University  
Relations*

Lee Yasumura, B.A.  
*Director of Personnel*



maps



## **TRANSPORTATION TO STONY BROOK**

### ***BY AIR***

Stony Brook is located ten miles from Long Island-MacArthur Airport and 50 miles from Kennedy International and LaGuardia Airports.

### ***BY CAR***

Take the Long Island Expressway (Route 495) east from the Queens-Midtown Tunnel in Manhattan. Leave Expressway at Exit 62 and follow Nicolls Road north for nine miles. Turn left at the University.

### ***BY RAILROAD***

Take the Long Island Rail Road's Port Jefferson line from Pennsylvania Station (Manhattan) or Flatbush Avenue Station (Brooklyn), or Jamaica Station. Change trains at Jamaica or Huntington, according to LIRR timetable. Get off at Stony Brook Station. Inquire for free campus bus.

STATE UNIVERSITY OF NEW YORK AT  
**Stony Brook**



Railroad Station

Route 25A

North "P" Lot

N.Y. State Conservation Bldg.

H Quad

Athletic Fields

MAIN CAMPUS

Nicolls Road

G Quad

Kelly Quad

Main Entrance

Point of Woods

Daniel Webster Drive

Stage XII Quad

Tabler Quad

Health Sciences Center

EAST CAMPUS

SOUTH CAMPUS

Nicolls Road

□ Under Construction

■ Parking Lots

■ VISITORS' PARKING is restricted to these lots, at posted rates.

FREE BUSES run regularly from North and South "P" Lots to the rest of the campus.

to Route 347 and L.I. Expressway

to Route 25A

Stony Brook Road

South "P" Lot

to Route 347



## BUILDING INDEX

	Map Location	Off'i Bldg. No.			
1 - ADMINISTRATION BUILDING	h 6	020	28 - GERSHWIN COLLEGE	j 5	065
2 - AMMANN COLLEGE	f 5	032	29 - GRAY COLLEGE	f 5	031
3 - BARUCH COLLEGE	h 1	082	30 - GREELEY COLLEGE	j 1	093
4 - BASIC SCIENCES BUILDING	j 7	400	31 - GYMNASIUM	g 4	006
5 - BENEDICT COLLEGE	a 6	033	32 - H CAFETERIA	e b	033
6 - BIOLOGY BUILDING	h 4	004	33 - HAMILTON COLLEGE	h 1	085
7 - CARDOZO COLLEGE	j 4	062	34 - HAND COLLEGE	k 3	071
8 - CHEMISTRY BUILDING	g 4	002	HEALTH SCIENCES CENTER	j 7	400
9 - CHEMISTRY GRADUATE BUILDING	g 4	02G	35 - HEATING PLANT	g 2	008
10 - CLINICAL SCIENCES TOWER	j 7	400	36 - HENRY COLLEGE	j 4	063
11 - COMMISSARY	g 2	041	37 - HUMANITIES BUILDING	h 5	001
COMMUTER COLLEGE in GRAY COLLEGE (29)			38 - INFIRMARY	f 5	036
12 - COMPUTING CENTER	j 3	014	39 - INSTRUCTIONAL RESOURCES CENT	i 5	026
13 - COOLING TOWER	g 2		INTERNAT'L COL in KELLER COL (41)		
14 - DEWEY COLLEGE	i 1	081	40 - IRVING COLLEGE	g 6	030
15 - DOUGLASS COLLEGE	k 3	072	41 - JAMES COLLEGE	f 5	034
16 - DREISER COLLEGE	k 3	073	42 - KELLER COLLEGE	j 1	092
17 - EARTH & SPACE SCIENCES BLDG.	h 3	019	43 - KELLY CAFETERIA	i 1	080
18 - EISENHOWER COLLEGE	h 1	083	44 - LABORATORY OFFICE BUILDING	i 5	027
19 - ELECTRIC SUB STATION	f 2	010	45 - LANGMUIR COLLEGE	e 6	035
20 - ENGINEERING BUILDING	i 4	011	46 - LECTURE HALL CENTER	i 5	025
21 - ENGINEERING HEAVY LAB	i 3	013	47 - LIBRARY, FRANK MELVILLE, JR	g 4	005
22 - ENGINEERING LIGHT LAB	i 3	012	48 - LIFE SCIENCES (GRAD. BIO.) BLDG	i 6	04G
23 - N.Y.S. ENV. CONSERVATION BLDG.	d 6		49 - LIFE SCIENCES LIBRARY	i 5	04G
24 - FACILITIES & PLANT ENGRG. BLDG.	g 2	042	50 - MATH TOWER	g 3	03G
25 - FINE ARTS CENTER	g 5	021	51 - MOUNT COLLEGE	j 4	064
26 - G CAFETERIA	f 6	030	52 - O'NEILL COLLEGE	f 6	030
27 - GARAGE	h 2	078	53 - PHYSICS BUILDING	g 3	003
			54 - PHYSICS GRADUATE BUILDING	g 3	03G
			55 - POINT OF WOODS SCHOOL	i 8	
			56 - ROTH CAFETERIA	j 4	060
			57 - SANGER COLLEGE	k 2	074
			58 - SCHICK COLLEGE	h 1	084
			59 - SERVICE BUILDING	g 2	007
			60 - SOC'L & BEHAV SCIENCES BLDG	i 6	028
			61 - SOCIAL SCIENCES LAB BLDG (A)	h 5	24A
			62 - SOCIAL SCIENCES OFF BUILDING	h 5	24B
			63 - SOUTH CAMPUS A	i 5	301
			64 - SOUTH CAMPUS B	i 5	302
			65 - SOUTH CAMPUS C	i 5	303
			66 - SOUTH CAMPUS D	i 6	304
			67 - SOUTH CAMPUS E	j 6	305
			68 - SOUTH CAMPUS F	m 6	306
			69 - SOUTH CAMPUS G	m 6	307
			70 - SOUTH CAMPUS H	m 6	308
			71 - SOUTH CAMPUS J	m 5	309
			72 - SOUTH CAMPUS K	n 5	310
			73 - SOUTH CAMPUS L	m 5	311
			74 - STAGE XII CAFETERIA	i 2	090
			75 - STIMSON COLLEGE	k 3	091
			76 - STONY BROOK UNION	g 5	037
			77 - TABLE CAFETERIA	k 3	070
			THEATRE in SOUTH CAMPUS B(63)		
			78 - TOSCANINI COLLEGE	j 2	075
			79 - UNIVERSITY HOSPITAL	i 8	400
			80 - VAN DE GRAAFF ACCELERATOR	g 4	03V
			81 - WAGNER COLLEGE	i 1	094
			82 - WHITMAN COLLEGE	i 4	061

# INDEX

Academic Advising	91
Academic Calendar	10
Academic Dishonesty	101
Academic Grievances	102
Academic Minor	120
Academic Programs	29
Academic Standing	99
Administration, Officers of	465
Admission	43
Admissions, Health Sciences Center	449
Advanced Placement Credit	54
Advanced Standing by Examination	54
Advanced Study of World Religion, Institute for	25
Advancement on Individual Merit (AIM) Program	47
Africana Studies	126
American Studies, Institute of	25
Anatomical Sciences	451
Anthropology	130
Application Forms (Financial Aids)	86
Application Procedures for New Freshmen	45
Applied Mathematics and Statistics	398
Applied Sciences, College of Engineering and Art	385 138
Arts and Sciences, College of	115
Asian Studies	354
Astronomy/Planetary Sciences Concentration	189
Astrophysics	320
Attendance	98
Auditing	90
Awards and Honors	104
Basic Educational Opportunity Grants (BEOG)	79
Basic Health Sciences, School of	451
Biochemistry	149
Biological Sciences	149
Biology	151
Biophysics	453
Board of Trustees (SUNY)	459
Business, Economics and	199
Campus Activities	26
Campus Description	20
Campus Judiciary Office	39
Campuses (SUNY)	462
Career Development	38
Challenge Program for Advanced Credit	55, 97
Change in Course Registration	89
Changes in Regulations and Course Offerings	114
Charges or Fees	60
Chemistry	168
Child Care and Family Studies	355
Chinese	177
Class Status	99

Classical Civilization	178
Classics and Classical Languages	177
Clinical Campuses, Health Sciences Center	448
College Level Examination Programs	55
College Work-Study Program (CWSP)	82
Committee on Academic Standing and Appeals (Arts and Sciences)	101
Community Ties	23
Commuter College	37
Comparative Literature	180
Computer Engineering	410
Computer Science	404
Computing Center	35
Contemporary Arts and Letters, Center for	24
Contents	5
Counseling Center	38
Course Credit and Prerequisites	124
Course Load	90
Course Registration	89
Courses of Study	6
Deferment	62
Deferred Enrollment	53
Degree Programs	19, 120
Degree Requirements	116
Dental Medicine, School of	454
Departmental Honors Programs	108
Departmental Major	120
Directed Readings and Research	123
Directories	457
Disabled, Office for the	39
Disabled Students	52
Distribution Requirements	117
Earth and Space Sciences	186
Ecology and Evolution	153
Economic Research Bureau	24
Economics	197
Educational Communications Center	24
Educational Opportunity Program (EOP)	76
Electrical Engineering	412
Electronics and Instrumentation	417
"Emancipated" or "Independent" Student Status	70
Empire State College	24
Energy Research, Institute for	25
Energy Technology	423
Engineering and Applied Sciences, College of	385
Engineering Chemistry	205, 424
Engineering Concepts Curriculum Project	24
Engineering Science	426
English	207
English as a Second Language	39
Equivalent Opportunity/Religious Absences	98
Examinations	46
Extended Day Program	51

Facilities, Services, and Activities	33
Faculty and Research	22
Federal Programs of Financial Aid	79
Federated Learning Communities	121
Fees	60
Final Examinations	96
Financial Aids	69
Financial Informaion	59
Foreign Languages Secondary Teacher Preparation Program	219
Foreign Student Affairs, Office of	39
Foreign Students	52
Foreign Study	111
French and Italian	221
Full-Time Non-Matriculated Status	57
Full-Time/Part-Time Status Change	91
General Academic Information	88
General Statement (SUNY)	460
Geological Oceanography Concentration	189
Geology Concentration	188
Geology Minor	191
German	235
Germanic and Slavic Languages and Literature	234
Grade Point Average	97
Grading System	94
Graduation, Application for	109
Graduation Requirements	103
Greek	177
Guaranteed Student Loan Program	74
Gymnasium	35
Health Sciences Center	447
Health Service, University	42
Hispanic Bilingual-Bicultural Studies	243
Hispanic Languages and Literature	241
History	248
Honorary Societies	107
Honors, Departmental	108
Honors, University	108
Humanities	262
Incoming Student Seminars	124
Independent Study Program	122
Industrial Cooperation, Center for	24
Interdisciplinary Courses	267
Interdisciplinary or Interdepartmental Major	120
International Art of Jazz	25
Internships	123
Interviews	47
Introduction to Stony Brook	17
Italian	221

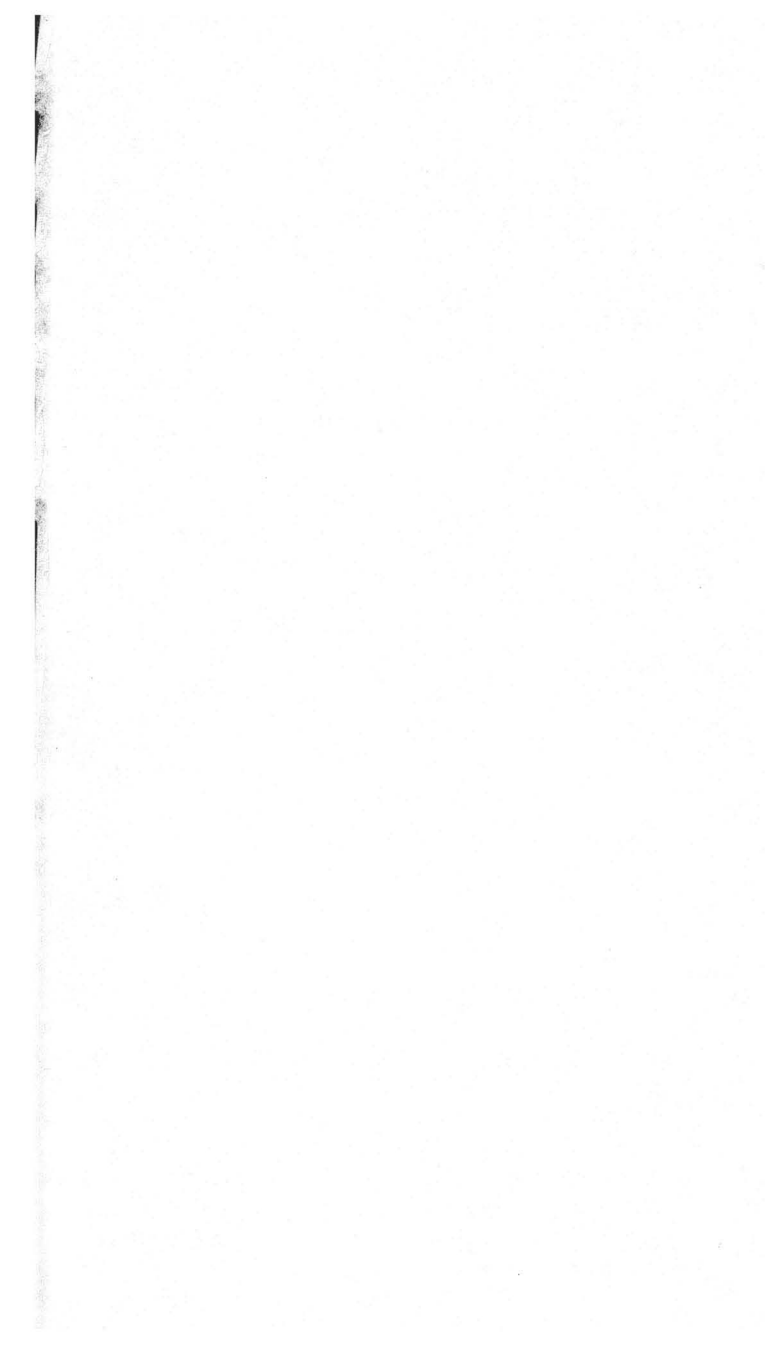
Journalism Minor .....	212
Judaic Studies .....	268
Latin .....	177
Leave of Absence .....	112
Liberal Arts .....	270
Libraries .....	34
Linguistics .....	271
Location .....	19
Long Island Research Institute .....	26
Major, Selection and Change of .....	91
Maps .....	468
Marine Sciences Research Center .....	25
Materials Science and Engineering .....	429
Mathematics .....	276
Mathematics Secondary Teacher Preparation Program .....	287
Mechanical Engineering .....	434
Methods of Social Research .....	365
Microbiology .....	451
Minor, Academic .....	120
Minor East European Languages .....	239
Minor, Selection of .....	92
Museum Computer Network .....	25
Museum of Long Island Natural Sciences .....	25
Music .....	289
National Direct Student Loan Program (NDSL) .....	81
Non-Degree Study .....	55
Notification of Admission .....	53
Nuclear Structure Laboratory .....	25
Numbering System, Undergraduate Course .....	125
Off-Campus Housing Service .....	37
Pff-Campus Housing Services .....	37
Orientation/Academic Advising Program .....	57
Other Expenses .....	67
Part-Time Matriculation .....	51
Part-Time Non-Matriculated Study .....	55
Pass/No Credit Academic Record Option .....	95
Pathology .....	452
Payment of Fees and Charges .....	62
Pharmacological Sciences .....	452
Phi Beta Kappa .....	108
Philosophy .....	300
Photography .....	141
Physical Education .....	310
Physics .....	315
Physics of Materjals .....	320
Physiology .....	453

Pi Sigma Alpha .....	330
Poetry Center .....	25
Polish .....	239
Political Science .....	328
Portuguese .....	245
Pre-Enrollment Deposit and Refund Policy .....	54
Prerequisites .....	124
Proficiency Requirements .....	116
Psychology .....	338
Readmission .....	113
Refund Policy .....	64
Regents Award for Children of Deceased or Disabled Veterans .....	77
Regents College Scholarships .....	70
Regents Nursing Scholarships .....	77
Registration .....	89
Religious Studies .....	348
Repeating Courses .....	97
Research Foundation .....	25
Research Group for Human Development and Educational Policy .....	25
Research Involving Human Subjects .....	102
Residence Life .....	36
Residence Requirement .....	103
Russian .....	236, 240
Satisfactory/Unsatisfactory Grading .....	96
Scandinavian .....	239
Science and Mathematics Teaching Center .....	26
Selection of Major, Change of Major, Addition of a Second Major .....	91
Selection of Minor .....	92
Semester Grade Reports .....	97
Semester Registration .....	89
Sigma Xi .....	108
Slavic Languages and Literatures .....	234
Social Sciences .....	352
Social Sciences and Humanities .....	455
Social Security Payments to Children of Deceased or Disabled Parents .....	83
Social Studies Secondary Teacher Preparation Program .....	361
Sociology .....	362
Spanish .....	241
Special Centers and Institutes .....	24
Special Programs .....	39
State Aid to Native Americans .....	78
State Programs of Financial Aid .....	70
State University of New York Board of Trustees .....	459
General Statement .....	460
Campuses .....	462
Statistics, Applied Mathematics and .....	398

Stony Brook Council .....	464
Stony Brook Foundation .....	26
Stony Brook Radiation Laboratory .....	26
Stony Brook Union .....	40
Student Affairs .....	36
Student Directory .....	109
Student Educational Records .....	109
Students .....	22
Study Abroad .....	222
Study at Other Institutions .....	110
Summer Session Charges .....	66
Supplemental Educational Opportunity Grants (SEOG) .....	81
Swedish .....	239
Taproot Workshops, Inc. ....	26
Tau Beta Pi .....	108
Teacher Preparation .....	123
Biology .....	159
Earth Science .....	191
English .....	210
Foreign Languages Secondary .....	219
French .....	227
German .....	236
Italian .....	227
Mathematics Secondary .....	287
Physics .....	320
Russian .....	236
Social Studies Secondary .....	361
Spanish .....	243
Technology and Society .....	444
Theoretical Physics, Institute for .....	25
Theatre Arts .....	371
Tours and Interviews .....	47
Transcripts .....	110
Transfer Credit Policies .....	50
Transfer of Credit .....	103
Transfer Students .....	48
Tuition .....	60
Tuition Assistance Program .....	70
Two Baccalaureate Degrees .....	92
Undergraduate Academic Affairs Committee (Engineering and Applied Sciences) .....	101
Undergraduate Programs .....	30
Upward Bound, Office of .....	39
U.S. Bureau of Indian Affairs Aid to Native Americans—Adult Vocational Training Program .....	84
U.S. Bureau of Indian Affairs Aid to Native Americans—Higher Education Assistance Program .....	84
Urban and Policy Sciences, W. Averell Harriman College for .....	381
Urban Sciences Research, Institute for .....	25

Veterans Administration (VA) Educational Benefits . . . . .	85
Veterans Affairs, Office of . . . . .	39
Visiting Student Program . . . . .	110
Visiting Student Status . . . . .	57
Withdrawal . . . . .	112
Women's Studies . . . . .	355
Yiddish . . . . .	239





### ***Address and Phone***

The mailing address of the University is:  
State University of New York at Stony Brook  
Long Island, New York 11794

The general telephone number is:  
(516) 246-5000

*For assistance in obtaining updated information for the 1980-81 academic year, call the Office of University Relations at (516) 246-3542.*



STATE UNIVERSITY OF NEW YORK AT STONY BROOK  
LONG ISLAND, NEW YORK 11794