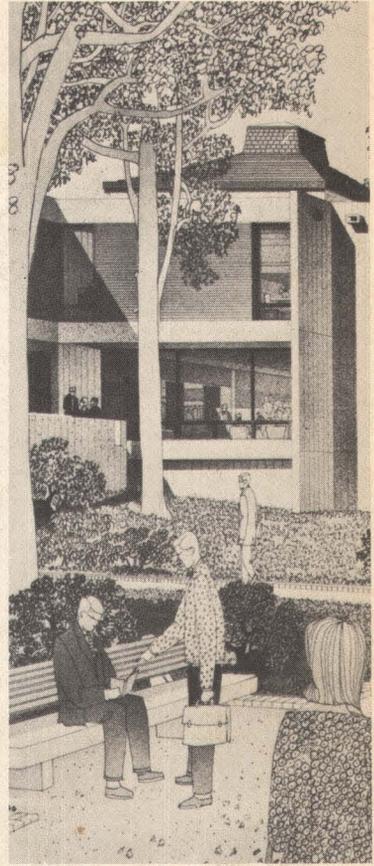


UNDERGRADUATE BULLETIN 1967-68



STATE UNIVERSITY OF NEW YORK  
AT STONY BROOK



STATE UNIVERSITY  
OF NEW YORK  
AT STONY BROOK

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COLLEGE OF ARTS AND SCIENCES  
COLLEGE OF ENGINEERING

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THE UNDERGRADUATE BULLETIN  
1967-1968

### **Cover Illustrations**

Artist's renderings depict new facilities which will be occupied during the 1967-68 academic year. A section of a new residential college complex, to be used in fall, 1967, is shown in the vertical sketch. The lower illustration shows the Lecture Hall Center, scheduled for completion in 1968.

### **Address and Phone**

The mailing address of the University is:

State University of New York  
at Stony Brook  
Stony Brook, New York 11790

The general telephone number is:  
Area code 516, 246-5000

# ACADEMIC CALENDAR

## 1967 — 1968

### *Fall Semester 1967*

NEW STUDENT ORIENTATION	September 18-20
FINAL REGISTRATION	September 19-20
CLASSES BEGIN	September 21
END OF CHANGE OF REGISTRATION PERIOD	October 4
LAST DAY TO DROP A COURSE WITHOUT PENALTY	November 22
THANKSGIVING HOLIDAY	November 23-26
CLASSES RESUME	November 27
CHRISTMAS HOLIDAY	December 21-January 2
CLASSES RESUME	January 3
LAST DAY OF CLASSES	January 13
SEMESTER EXAMINATIONS	January 15-25

### *Spring Semester 1968*

FINAL REGISTRATION	February 2
CLASSES BEGIN	February 5
END OF CHANGE OF REGISTRATION PERIOD	February 16
SPRING RECESS	April 10-16
CLASSES RESUME	April 17
LAST DAY TO DROP A COURSE WITHOUT PENALTY	April 5
LAST DAY OF CLASSES	May 18
SEMESTER EXAMINATIONS	May 20-30
COMMENCEMENT	June 4

### *Summer Session 1968*

REGISTRATION	June 24
CLASSES BEGIN	June 25
LAST DAY OF CLASSES	August 2

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## A COMMUNITY OF SCHOLARS

*The real goal of the State University of New York is summarized in our motto: "Let each become all he is capable of being." There are as many different programs of study as there are individual students, and we hope each will choose the path that is best for him.*

*We endeavor to help each student fulfill his own purpose. Many factors contribute to this goal: dedicated teaching by scholars whose research keeps them at the forefront of their fields; independent study by the student inspired by curiosity; the dialogue of learning between student and teacher and between student and classmate; the extracurricular intellectual, cultural, social and athletic activities which add depth and breadth to the whole person.*

*A university is much more than a collection of classes. By its oldest definition, it is a community of scholars in which all of its members work together to extend their understanding of nature, society, and our cultural heritage.*

*Basic to this whole effort is that fragile thing called "academic atmosphere," which includes the spirit of free inquiry. Each member of the community of scholars must find his own answers to the problems that he is exploring. Academic atmosphere requires a tradition of politeness, a tradition in which all ideas can be presented in a considerate, dignified way.*

*Because the State University at Stony Brook is still in its formative years, this generation of students will be creating the traditions that future generations will follow. Stony Brook aims especially to foster intellectual tolerance and respect for creativity and scholarship. We are all students here. By such respect, for each student and for the community of scholars, we help one another to develop our talents and understanding.*

## **AN INTRODUCTION TO STONY BROOK**

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The State University at Stony Brook is one of four University Centers of the burgeoning State University of New York. As a comprehensive university, it is devoted to undergraduate and graduate education in the traditional areas of human inquiry, to the discovery of new knowledge through research and other creative endeavor, and to an ever expanding role of public service to its community, region and state.

While the Stony Brook campus is growing rapidly to meet the soaring demand for higher education, its growth is governed by the rate at which the faculty and facilities necessary to maintain high standards can be provided. As prescribed in the Master Plan for the State University, the emphasis is on excellence of program, teaching and student performance.

### **History and Location**

The University was founded in 1957 at Oyster Bay, Long Island. Its original charter was a modest but important one: to become a center for educating secondary school teachers of mathematics and science. In 1960, however, within the context of a fast-growing State University, it was designated a University Center and given the mandate to develop undergraduate and graduate programs through the Ph.D. in the humanities, sciences, social sciences and engineering. As a comprehensive university, it was also to become a center for research.

In order to realize its larger goals, the University moved in 1962 to a new and larger campus at Stony Brook, originally consisting of a 480-acre tract of land given to the state for this purpose by philanthropist Ward Melville. As of fall, 1967, there are 32 buildings on the campus, the acreage has almost doubled, and the University is engaged in a \$50 million expansion program. The academic program continues to expand at both the undergraduate and graduate levels, the aim being a balanced institution with strength in all areas of the arts and sciences and engineering. In addition, a comprehensive medical center is being planned for the Stony Brook campus.

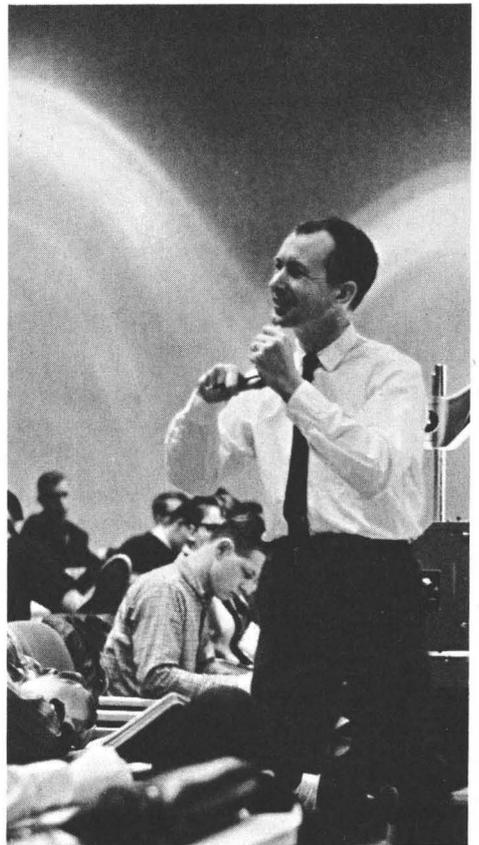
Stony Brook is located in a region of woods and hills and small historic villages on the north shore of Long Island some 50 miles northeast of New York City. The area has a distinctive New England flavor, having been settled more than three centuries ago by colonists sailing across Long Island Sound from what is now Connecticut and Rhode Island. Despite its long history and nearness to great centers of population, it retains a pastoral character.

The University thus enjoys the relative seclusion of a semi-rural setting, coupled with proximity to the cultural, scientific and industrial resources of the nation's largest city. The campus is linked to Manhattan by a pattern of four- and six-lane highways and by the Long Island Railroad (see map at back of bulletin).

### **Faculty and Students**

One of the most telling measures of excellence in any institution of higher learning is its faculty. As of September 1967, Stony Brook will have over 400 faculty members, many of them acknowledged leaders in their fields. Some 75 percent hold earned doctorates.

A complete directory of faculty members can be found in the back pages



of this bulletin. Their present distinction is only partially revealed in the listing of degrees earned and the institutions that have awarded them.

The level of student qualifications and performance at Stony Brook has also been high. Most entering students currently come from the top twenty percent of their high school graduating classes. However, academic achievement is only one of a number of factors considered in admitting a new student. The important judgment to be made is whether he is capable of successfully meeting the demands of the academic program.

Enrollment, which totaled 145 students ten years ago, will exceed 5,000 in the 1967-68 academic year. This number is expected to approach 10,000 by 1970.

The residential college plan will be an important element in this rapidly growing student population. Consisting of individual colleges of 200 to 300 students, with faculty masters living in the colleges and faculty and graduate associates participating with the students in each college's special extracurricular intellectual and cultural programs in the residences, the system will do much to scale the large university down to human proportions which encourage more meaningful relationships between students and members of the faculty.

The residential colleges, patterned somewhat after those at leading private universities, will each represent an approximate cross-section of the University, including commuter as well as residence students, with a friendly spirit much like that of a good, small liberal arts college.

### **Programs and Accreditations**

Academically, all new undergraduate students enter either the College of Arts and Sciences *or* the College of Engineering.

The College of Arts and Sciences with 19 departments offers Bachelor of Arts and Bachelor of Science degrees and programs of concentration in 23 subjects. Programs leading to provisional certification in elementary and secondary education are also available.

The College of Engineering with four departments grants the Bachelor of Engineering degree.

Currently, graduate work may be pursued in biological sciences, chemistry, earth and space sciences, English, history, mathematics, physics, psychology, sociology, and engineering. The Ph.D. is offered in nine departments and by 1970 or 1971, it is expected that graduate programs through the Ph.D. will be offered by all 23 present University departments.

There is a six-week summer session which offers undergraduate courses.

As part of the State University of New York, the University at Stony Brook is accredited by the Middle States Association of Colleges and Secondary Schools.

The College of Engineering is accredited by the Engineers' Council for Professional Development. The Department of Chemistry is accredited by the American Chemical Society.

### **The Stony Brook Campus**

The Stony Brook campus is situated minutes away from the coves and beaches of Long Island Sound. The Atlantic shore is about 20 miles to the south. The campus consists of 850 acres of rolling, densely wooded terrain, with the central core area largely cleared for the buildings now in use.

There are seven large academic structures which provide classroom, lecture hall, laboratory and office space for the divisions, schools or departments they serve. These include the Humanities Building, the Social Sciences Center, and buildings for Chemistry, Biology and Engineering. The Physics Building accommodates the departments of Physics, Mathematics, and Earth and Space Sciences. The Nuclear Structure Laboratory, which adjoins the Physics building, houses the King tandem Van de Graaff accelerator which is used for low energy nuclear research.

Eighteen two- and three-story residence hall buildings afford living quarters for 4,000 students and contain numerous lounges and dining halls. The Gymnasium, with its swimming pool, basketball and squash courts, and rooms for gymnastics and ballet, serves the curricular, intramural and intercollegiate athletic programs. It also supplies space for the Office of Physical Education and the University Theater.

The Frank Melville, Jr. Memorial Library, in addition to the customary books, periodicals, microfilm, music collections, and listening and reading facilities, provides temporary quarters for the University administration. The Infirmary building also performs a dual role, housing the University business offices.

### **Libraries**

The Melville Memorial Library, a three-story air-conditioned building, is designed for 350,000 volumes and will seat 700 students for reading and study purposes. It is intended as the first part of a large structure that will house a million and a half volumes at its next stage of development. Supplemental technical and scientific collections are housed in the science buildings and in the College of Engineering, all of which are centrally administered from the main library. In all campus libraries students have free access to the open bookstacks with reading areas and bookstacks integrated throughout. The libraries are open until midnight except on Saturday.

Small study rooms and soundproof typing rooms are provided in the



Melville Library. A special area houses the files of microfilm, microcards, microprint, and microfiche. Equipment is available for the purpose of making page copies of microform materials, and a photocopy machine can be used to copy pages from magazines and reference books.

The University Library is a selective government depository and receives large numbers of publications issued by the U.S. and other governments. About 3,300 periodicals are currently received covering all areas of knowledge, and the staff is processing books at the rate of 48,000 volumes per year. The total library collection now numbers 185,000 volumes and 48,000 documents.

The library furnishes students with recordings of speeches, poetry, and drama, as well as music in the Music Library, which occupies a portion of the first floor. The latest electronic equipment is installed, including a dial system incorporating the use of tapes and cartridges operated by remote control under the direction of a music librarian and an electronics technician.

A second unit of the library, which will increase its capacity by two and one half times, is now in the planning stages. It is expected to be occupied by 1970.

### **The Computing Center**

The Computing Center, another essential central facility of the University, has

many objectives. It not only introduces students to concepts of modern computing technology through course work and the integration of the computer-oriented approach in problem courses, but also makes the computing facilities freely available for such student activities as term papers, research projects, and theses.

The Center serves the faculty in both sponsored and unsponsored research activities and the administration in such areas as institutional research and administrative data processing. Short courses in programming and problem oriented languages are held periodically for faculty and administrative staff.

The present equipment consists of an IBM 7044 computer (with 32,768 words of storage) to perform the principal processing functions assisted by an IBM 360/30 computer to perform various peripheral functions necessary for the 7044. Additional equipment includes a high speed disc, 11 magnetic tape units, an automatic plotter, and associated tabulating equipment.

During the 1967-68 academic year, a major time-shared computing system, with capabilities which reflect the latest state-of-the-art, will be installed. This system will permit instantaneous communication to the central computer via controls located throughout the campus, thus allowing many users simultaneous access to the computing system. The Computing Center building, to be completed this year, will be located in the Engineering Quadrangle and will house the staff and equipment.

### **Campus Expansion Program**

A host of other new facilities, offering an interesting variety in architectural styling as well as academic purpose, will be constructed over the next several years. Prominent among the many new buildings to be erected will be a Campus Center, with meeting rooms, recreational facilities, an auditorium, and extensive dining facilities; a Lecture Hall Center; an Earth and Space Sciences building, and a Fine Arts Center, with buildings for music, art and theater.

Other structures will include additional facilities for the College of Engineering; an Administration Building, and an Instructional Resources Center in which new methods of visual presentation of course material will be developed.

The system of residence halls will be continuously enlarged as needs increase. New complexes employ the suite style of room arrangement as opposed to the more conventional corridor concept.

The new medical center at Stony Brook will admit its first students in 1971. Because of its location near the seashore and its growing strength in the biological sciences, Stony Brook has been designated as the site of the State's Marine Sciences Research Center.

## **STUDENT SERVICES AND ACTIVITIES**

Student programs and services—including residence halls, health services, psychological counselling, financial aid, placement, recreation, intercollegiate athletics, general advisement and student activities—are administered through the Dean of Students Office. Through these programs, students are offered opportunities to develop group and leadership skills, to seek counselling or advice regarding personal or professional needs in programs under competent professional guidance, or simply to satisfy their needs as individuals. Whenever possible, programming and staffing in the Dean of Students Office are coordinated with institutional academic goals and personnel to aid, through student life and services, in establishing a community purpose and style.

### **Academic Advising**

Each student is assigned a faculty advisor to aid him in planning his academic program and to assist him regarding any academic problem which may arise during the year. If the student has decided upon a major field, his advisor will be a member of that department. Any student who has chosen a major but has not been notified of his advisor should consult his department office. If a student is undecided as to a major, he will be assigned by the office of the Dean of Students to a faculty advisor in the field most closely related to his prevailing interest.

Any student who would like additional assistance concerning choice of academic major or help with study skills should contact Mr. Edwards, Coordinator of Guidance Services.

### **Psychological Services**

Psychological Services, through the co-sponsorship of the Dean of Students and Department of Psychology, consists of a staff of trained psychologists and counselors experienced in helping students with personal, social, educational, and vocational problems. This service is intended for students who have problems of a psychological nature or who are experiencing considerable difficulty in adjusting to university life and its demands. In addition, counselling, vocational guidance, assistance with reading and study problems, and psychological testing are offered to the students.

**Guidance Services**

The Guidance Services office provides counselling for students with personal, social, educational and vocational problems. Students are also welcomed and encouraged to consult with other members of the staff of the Dean of Students.

**Foreign Student Advisor**

Students from other nations who are studying at the University have available to them the services of a Foreign Student Advisor, located in the Dean of Students Office. This office coordinates university services related to the foreign student, such as orientation, host family program and other community contacts, financial aid, living accommodations, and immigration matters. New students should contact the Foreign Student Advisor soon after arrival on campus and plan to participate in the special orientation program for foreign students to be held before registration.

**Health Service**

The Student Health Service is located on the second floor of the Infirmary building. Students needing treatment for minor illnesses can arrange to see one of the University physicians during the daily sick call. In-bed care can be provided for residence hall students with low grade fever or other illnesses requiring short-term supervised bed rest. Any student whose illness in the opinion of the physician requires attention or treatment beyond that available at the University

*Rendering of new residential college complex.*



will be referred to his family or guardians for care at home or in a hospital, and by a physician of his choice.

A nurse is on duty at the Health Service 24 hours a day, seven days a week and one or more physicians are on call at all times. The Health Service should be called for any accident or health emergency which occurs on campus. The phone number is 5138.

All undergraduate students are required to carry an accident and sickness insurance plan. Students who do not have hospitalization, surgical and major medical coverage are required to enroll in a plan adopted by the University which was developed to meet the special needs of students.

### **Housing**

Residence life at Stony Brook is considered to be an integral part of the student's educational experience, offering opportunities for social, intellectual and cultural development. The majority of the students at Stony Brook reside on campus in the University residential colleges.

The halls are organized under a system of student self-government. Full-time professional counselors and faculty members are in residence.

The residential college plan is a significant University program that is designed to expand the cultural and intellectual opportunities in the residences as well as to foster student identity within the University and improve interpersonal relationships. Faculty members will be associated with each residential college and will work with the students in the development of programs and traditions. Commuting students may also affiliate with a residential college.

Unmarried freshmen who do not live at home during the school year are required to live in the residential colleges. Upperclass students may, under certain conditions, live in off-campus residences. Upperclass students under 21 years of age are required to have parental approval to live off-campus and must live in accommodations that meet standards set by the University.

The modern residential college facilities offer the student a variety of accommodations in individual double rooms and suites. Provided for each student are a bed, mattress, bureau, study desk and chair, and closet.

The residential colleges are arranged in Quadrangles, each housing approximately 1,000 students. Both men and women reside in a Quadrangle and all classes, freshmen through graduate, are represented. All residents of a Quadrangle eat in a common dining hall. Each residential college has its own lounges, study areas, and recreation facilities. In addition, there are some facilities for meetings and activities that can be attended by all residents of the Quadrangle. All resident students subscribe to a board plan offering 21 meals a week. Snack bar facilities are also available for commuting students.

**Orientation**

An orientation program is conducted for all incoming undergraduates during a period preceding their initial registration. For entering Freshmen, the program occurs in two phases: one during the summer and one directly prior to the beginning of classes in the fall. During both sessions, professional personnel and carefully selected and trained upperclassmen attempt to introduce new students to the academic and social realities of the University. The fall session is designed to follow up and compliment the summer session. The orientation program for transfer students occurs directly prior to the beginning of their first semester at the University. All entering undergraduates will be notified of the details pertaining to the orientation programs.

**Placement**

The University's Placement Office, located in Room 67 of the Health and Physical Education Building, provides students with a variety of services. First, students are aided in their search for part-time employment during the school year as well as for jobs during the summer recess. A Student Babysitting Service which serves members of the University as well as the community is run with the aid of the Placement Office. Second, seniors, graduates, and alumni are provided assistance and advisement in the selection and procurement of career positions. To this end, seniors are encouraged to compile a permanent credentials file which is maintained for their benefit as alumni. Information regarding teaching careers is available through the University's Department of Education.

**Special Projects**

Students interested in community activities are encouraged to take advantage of the facilities of the Office of Special Projects. There are a number of opportunities for participation in community work such as tutoring, various programs for the disadvantaged, hospital volunteer work, and youth organizations. Further information can be obtained from the Director of Special Projects located in Room 67 of the Health and Physical Education Building.

**Athletics**

Intramural sports are conducted in many areas for both men and women.

The intercollegiate program for men consists of ten sports: baseball, crew, cross-country, track, basketball, bowling, tennis, soccer, swimming, and squash.

Intercollegiate competition for women is conducted in several sports including volleyball, basketball, swimming, softball, badminton, and tennis.



### **Student Organizations**

The Student Polity, to which all undergraduates belong, allows them to govern themselves to a large extent in extra-curricular areas. The Executive Committee of Polity, composed of elected members, approves student organizations and, with the Student Activities Board, coordinates social, cultural, and recreational activities. Student publications include *The Statesman*, the newspaper; *Specula*, the yearbook; and *Soundings*, the literary magazine. The range of organizations will be suggested by the following: the Amateur Radio Club, the Film Study Group, the New Campus Theater Group, the Ski Club, the Creative Arts Society, and the Premedical-Pre dental Society. There are also several religious, political, and language organizations on campus. The Student Polity also sponsors art exhibits, concerts, lectures and films, and operates its own radio station, WUSB.

### **Campus Center**

Although construction of the building has just begun, the development of an ambitious Campus Center program of activities is already underway. The current program, temporarily centered in the Physical Education Building, includes concerts, dances, lectures, movies, festivals, and theater productions. Construction of the permanent Campus Center, which will include a cafeteria-ballroom, formal dining room and lounge, bookstore, little theater, post office, meeting and conference rooms, barber shop, beauty parlor, recreation area, radio station, craft shops, photography lab, student activities offices, lounges, bowling alleys, etc., is expected to be completed during fall, 1968. Gradual expansion of the temporary program will be aimed at a well coordinated move into the permanent structure.

## ADMISSION TO THE UNIVERSITY

The State University of New York at Stony Brook accepts applications from all men and women who have demonstrated academic competence in their prior schooling.

An applicant is admitted after a careful analysis of data provided by the high school or other scholastic records, standardized tests and school recommendations. In some cases an interview will be held to exchange information or clarify some questions presented by the record.

A strong standard college preparatory program is advised for most students. A high school diploma or equivalency certificate and three years of mathematics are required. The average student would be wise to realize he will be in the best competitive position if he offers three years of language, social studies and science. Students preparing for engineering, mathematics and science areas are urged to take four years of high school mathematics whenever possible. These programs are recommended, however, rather than required since it is felt that a student may develop academic competence and intellectual qualities in various ways both within and outside the context of formal instruction.

### **Application Procedure for New Freshmen**

An application for admission may be obtained by writing to: *Admissions Office, The State University of New York at Stony Brook, Stony Brook, New York 11790.*

A pamphlet, *How To Apply For Admission*, giving complete instructions for applying, is included with each set of application forms. The candidate is responsible for following the procedure outlined in this pamphlet, and completing the Stony Brook Supplementary Questionnaire.

While there is no fixed closing date for fall admissions, applicants are urged to file during the fall of the senior year. A late applicant may find all available spaces have been filled. Applications for the spring semester should be filed before December 15. In all likelihood, residence hall space will be available for mid-year entrants.

Candidates may request interviews for purposes of information or clarification. Interviews are of greater usefulness after the applicant's academic record has been filed in the Admissions Office. Appointments for interviews may be made by mail or by telephone to the Admissions Office, Telephone: Area Code 516, 246-5126. Appointments may be made between 10:00 a.m. and 4:00 p.m., Monday through Friday. There are no interviews conducted on Saturdays and Sundays.

In addition, the Admissions Office provides an informative talk and a tour of the campus at 3:00 p.m. every Friday during the school year, except holiday weekends. This is a group meeting and anyone desiring a personal interview should write or telephone in advance. Student guides are available in the lobby of the Admissions Office on Saturdays and Sundays for tours of the campus during daylight hours. Guides are not available when school is not in session.

Additional information may be obtained by writing to the Office of Admissions at The State University of New York at Stony Brook.

### **Transfer Students**

Any applicant who has been previously registered at a degree-granting institution must apply as a transfer student. Each transfer student, in addition to completing the application procedure outlined for new freshmen, must submit the following:

- A. An official transcript of record and a personal inventory form from each collegiate institution attended. (If no grades were earned, a statement of attendance and honorable dismissal is required.)
- B. A Course Evaluation Request (forms may be obtained from the Office of Admissions) for each course in the major field the applicant wishes considered for advanced standing.

The amount of advanced standing to be granted a transfer student will be determined by means of a complete evaluation of his previous record. Ordinarily only those courses which have been completed at an accredited collegiate institution with a grade of C or better will be considered for transfer credit. Courses in the major field will be evaluated by the department concerned for applicability to major requirements. The Admissions Office evaluates all other courses and determines if general education requirements or elective credit is to be granted. Remedial work, high school equivalents, and some technology courses will generally not receive collegiate credit. The amount of transfer credit finally allowed will be entered on the student's record. The grades earned at the previous institution are not transferrable and they will not be entered on the Stony Brook record. Transfer students will be classified according to the following schedule of semester hours accepted for transfer credit: Freshman 0-23, Sophomore 24-54, Junior 55 or more. Students in the first or second year of collegiate work will be expected to supply fall semester grades in January before a decision will be made.

The State University is admitting an ever larger number of graduates from the two year colleges. Preference will be given to these graduates if the number of applications requires a priority.

**Entrance Examination**

Applicants for admission must take the entrance examination described in *HOW TO APPLY FOR ADMISSION*. Candidates are urged to complete these requirements as early in the application process as possible. High school seniors are urged to take the Regents Scholarship Examination since this is the only examination for awarding Regents Scholarships.

Although the Scholastic Aptitude Test (SAT) of the College Entrance Examination Board is not required for admission, all applicants who sit for this examination are urged to have the results forwarded to the Admissions Office to supplement other scores. Candidates who reside out of state must submit Scholastic Aptitude Test scores. The December examination taken during the senior year is preferred.

**Notification of Admission**

The State University of New York at Stony Brook uses a "rolling decision" admission system. Notification begins in February, although in some cases notification may be earlier. The majority of decisions will be mailed in March and April. Students should not plan on receiving an answer before April.

All admissions are conditional subject to receipt of official records showing successful completion of academic work in progress at a level commensurate with the work upon which acceptance is based. It is the student's responsibility to see that the final record is sent to the Admissions Office. In addition, an acceptable medical report and payment of necessary deposits within the deadline dates are required.

**Advanced Placement**

Advanced placement may be extended to new freshmen who have completed advanced courses in secondary school or who have in other ways developed academic competencies which entitle them to special consideration. However, all students will be expected to complete the required credit hours. Candidates undertaking advanced placement courses in secondary school are expected to take the appropriate examinations and to request that their scores be forwarded to this institution. Others desiring advanced placement should submit a written request for a review of their qualifications. In most cases a special examination or examinations will be required.

## FINANCIAL INFORMATION

Tuition and fee costs are based on the schedule printed below. All charges are due and payable on the first day of the period indicated.

CHARGE OR FEE	FIRST SEMESTER	SECOND SEMESTER	YEAR		
<i>Tuition</i>					
N.Y. State Resident	\$200.00	\$200.00	\$400.00		
Out-of-State Resident	300.00	300.00	600.00		
Graduate Program	300.00	300.00	600.00		
<i>State University Fee</i>	12.50	12.50	25.00		
<i>Student Health Insurance Fee*</i>	26.50		26.50		
<i>Student Activity Fee</i>	50.00		50.00		
<i>Identification Card</i>	2.00		2.00		
<i>Damage Deposit</i>	20.00		20.00		
<i>Telephone Deposit</i>	15.00		15.00		
<i>Orientation</i>					
(Freshmen Only) **	20.00		20.00		
<i>Graduation***</i>	15.00		15.00		
<i>Room</i>	<i>1st Qtr.</i>	<i>2nd Qtr.</i>	<i>3rd Qtr.</i>	<i>4th Qtr.</i>	<i>Total</i>
Double Occupancy	\$ 96.25	\$ 96.25	\$ 96.25	\$ 96.25	\$385.00
<i>Board</i>	<i>1st Qtr.</i>	<i>2nd Qtr.</i>	<i>3rd Qtr.</i>	<i>4th Qtr.</i>	<i>Total</i>
21 Meal Plan	\$110.00	\$110.00	\$110.00	\$110.00	\$440.00

\*Student health insurance fee waived if proof of both hospital and medical insurance is presented prior to registration.

\*\*Includes orientation fees and charges for room and board.

\*\*\*Required in the year that the candidate will receive his baccalaureate, master's or doctoral degree.

A statement of all charges will be sent to the student at the beginning of the academic year, or upon his admittance. This statement contains a complete schedule of all charges, along with due dates for payment. It will be the responsibility of the student to see that all obligations are paid promptly. Complete instructions accompany each schedule.

Students who register after the official registration period must pay a late registration fee of \$15.00.

The above fees are subject to change without notice.

The University reserves the right to cancel the registration of any student who fails to meet his obligations at the University. It will be the responsibility of each student to arrange a private meeting with the Business Officer or his representative to agree on a deferred payment plan, if circumstances preclude the paying of expenses when due.

### **Preadmission Deposit**

Each new student is required to pay an advance deposit of \$50.00. This deposit, payable upon tentative or conditional acceptance, is applied against charges incurred by the depositor at the start of his attendance. The deposit is required on or before May 1st for students notified of acceptance before April 1st. For those students notified of acceptance after April 1st, or for admission in other than the Fall semester, deposits are payable within thirty days after acceptance or before registration, whichever is earlier. The deposit is refundable only in the case of those students who, having forwarded their deposits upon conditional acceptance, have later been refused admission.

New students who are remiss in paying this advance deposit may experience delay in official acceptance of offer of admission.

### **Refunds**

A student who withdraws after the first five days of a semester is entitled to only a partial refund of monies collected for tuition and fees. A schedule of refunds is available at the Business Office.

Withdrawal from a Meal Plan, with the approval of University officials, takes effect on the Monday following withdrawal and refunds will be computed on this basis.

### **Residence Charges**

Room charges for an academic year are listed in the preceding schedule. Once a student has registered and occupied a room, no refund will be granted for pay-

ment made for that quarter. An advance room deposit of \$25.00 is required of all resident students, prior to each fall semester. This amount will be credited to the student's room account. The advance room deposit is refundable if application is made in writing before July 1.

Students living in the residence halls must pay for board as stated in the schedule. Payments are refundable, on a percentage basis, after official notification has been received by the Business Office. No refunds are made to students who leave the campus on weekends, nor are refunds made to any student who, for any other reason, misses meals.

Laundry service is provided at nominal cost. Arrangements are made between the student and the laundry service. Coin operated washing machines and dryers are available in the residence halls.

Each room is provided with a private telephone. A deposit of \$15.00 (listed in the schedule) must be paid prior to taking up residence. Upon graduation or withdrawal from the University, this deposit will be refunded, less any charges outstanding.

### Summer Session

Expenses for the 1967 summer session are as follows:

#### *Charge or Fee*

Tuition, New York State Resident .....	\$13.50 per credit hour
Out-of-State Resident .....	\$20.00 per credit hour
Graduate Courses .....	\$20.00 per credit hour
State University Fee .....	\$ .85 per credit hour
*Damage Deposit .....	\$20.00
Student Services Fee .....	\$ 5.00

#### *Room (Includes basic telephone rental charge)*

Double Occupancy .....	\$11.00 per week
Single Occupancy .....	\$15.00 per week

#### *Board*

A la carte

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\*Applies to all students except those registered in the previous Spring Semester who have an outstanding deposit.

### **Financial Aids**

The Financial Aid Office provides information on programs available to all students and assists students whose summer earnings and family resources are inadequate to meet college expenses completely. Listed below, in general terms, are a number of financial aid possibilities. Often a "package" of aid can be created through consultation between the student and the Financial Aid Officer which will employ one or more of these programs to meet one's individual needs.

Students who anticipate the need for financial aid should write to the Financial Aid Office for applications and further information. The office provides a booklet, *Financial Aid Programs for Undergraduate Students*, which describes all programs, eligibility criteria, and application procedures in greater detail. Stony Brook does not have an early decision plan. Applications will be available during the early spring and should be submitted during late spring or early summer for first consideration. Most financial aid awards are made during the summer months.

### **Regents College Scholarship and Scholar Incentive Awards**

These awards are sponsored by the State of New York for state residents only. Eligibility is determined on the basis of the Regents Scholarship Examination, given to high school seniors and administered by the schools. Persons achieving top scores on the examination receive Regents Scholarships. Persons achieving a certain minimum score, but not enough for a scholarship, receive Scholar Incentive Awards. Regents Scholarships theoretically range from \$250 to \$1,000, but in fact will not exceed the tuition charge. Scholar Incentive Awards range from \$100 to \$200 per year at Stony Brook where yearly tuition is \$400. Applications must be obtained directly from: The State Education Department, Regents Examination and Scholarship Center, Albany, New York 12224.

### **State University Scholarship**

Due to certain technicalities in the Scholar Incentive program mentioned above, many needy students do not receive full benefits of the award. Therefore, the State University of New York has established a program to supplement Scholar Incentive Awards. For students whose combined family taxable income is less than \$1800 per year, the State University Scholarship makes up the difference between Scholar Incentive Award and tuition charges. Contrary to what the name implies, SUS is based strictly on need, not on academic performance. Applications and further information may be obtained from the Financial Aid Office at the University.

### Educational Opportunity Grants

The Educational Opportunity Grant program was established by the Federal Government in 1965 to provide assistance for students "who would not otherwise have the means to attend college." Under this program, administered by the local colleges, awards of \$200 to \$800 per school year are made in conjunction with a "package" of financial aid (scholarship, scholar incentive, loan, part-time work) which is tailored to the individual student's needs and capabilities. The chart below shows general guidelines but is *not* the sole determinant for eligibility.

Number of children in family	"Adjusted gross income" must be less than
1	\$5300
2	6200
3	7300
4	8200
5	9000
6	9600

### National Defense Student Loans

Under this, another federal program administered by individual colleges, a needy student may borrow up to \$1000 during each year of undergraduate study and \$2500 during graduate years. No interest accumulates and repayment of a loan does not begin until nine months after graduation. From that time the student has ten years to repay at 3% interest per year. Payment may be deferred during service in the Armed Forces or Peace Corps. For persons entering the field of education, cancellation of the loan obligation is at the rate of 10% per year for a maximum of five years (or in some cases 15% is possible). Thus a person may cancel 50% or more of his total loan liability by teaching.

### NYHEAC/Federal Guaranteed Loan Program

This program permits a student to borrow money from his local bank to meet college expenses. The government will pay the interest on a loan until the student graduates, at which time the student must repay his obligation to the bank at 3% interest. The word "guaranteed" means that in the event of death or disability of the borrower, his obligation is paid in full by the government.

Details of this program are in the process of modification at present. Latest information will be available during the spring semester in the *Financial Aid Programs* booklet.

### **Part-Time Work and the College Work-Study Program**

These possibilities are mentioned last because the University recommends that, if possible, the student not work during his first year of college. It is generally a good idea to become accustomed to the academic and social pressures of college life without the additional burden of a job. In future years, however, depending on his capabilities, a student may wish to meet part of his expenses or reduce his loan obligation by taking a part-time job. The University has a limited number of positions available as part-time secretaries, laboratory assistants, cafeteria workers, etc. This area has been broadened considerably by the College Work-Study Program. Under this program the Federal Government pays a portion of the salaries of students having demonstrated need. They may be employed up to fifteen hours per week in on-campus jobs or off-campus community service projects. Provision can also be made for students to work full-time during vacation and summer periods. These positions are intended to be educationally meaningful. Often, but not always, a student can obtain a position close to his major field of interest.

### **Other State and Federal Aids**

Scholarships for children of deceased or disabled veterans are granted by New York State on the basis of an annual scholarship examination. Application should be made through the local high school principal or to the State Education Department, Albany, New York 12224. Eligible students may also receive financial assistance from the Division of Vocational Rehabilitation of the New York State Education Department.

Students whose parents receive Social Security benefits should be aware that payments for dependent children may be extended from age 18 to age 22 if the child is a full-time student and remains unmarried.

Veterans may receive assistance under the provisions of Public Law 894 (disability), 550 (Korean War), or 89-358, the cold war GI Bill, which provides payments of \$100 per month to single veterans who are in full-time study. Veterans with one dependent may receive \$150 per month. Further information may be obtained from local V.A. offices.

When approved by the Business Officer of the University, scholarships held by State University students may be applied directly to such expenses as tuition, room, board and fees. In the case of Regents or university administered financial aids, deferred payment can often be arranged, but only when an award has been approved and cash or check is pending. Students are advised to have their notices of award from all programs with them when registering at the University.

### Special Scholarships

In addition to the State scholarships, Stony Brook has been the recipient this past year of a number of special scholarships. Mrs. H. V. Kaltenborn of Stony Brook has instituted three scholarships of \$1,000 each, to be awarded annually to outstanding juniors in the fields of art, music and theater arts for use in their senior year.

The William Morris Scholarship of \$1,000 has been made available by Miss Helen Strauss for an outstanding student in theater arts.

The Suffolk County Plumbing Industry Development Fund has established two \$525 annual scholarships for engineering students. One is awarded to a junior and one to a senior.

An endowment of \$25,000 to be increased in 1967 to \$50,000 has been presented to the University by the RAC Corporation. Interest on this endowment will provide tuition scholarships for sons and daughters of former employees of the Republic Aviation Corporation.



## **ACADEMIC REGULATIONS AND PROCEDURES**

### **Registration**

Completion of registration each semester in accordance with instructions issued by the Registrar 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 addresses make it impossible for him to guarantee that every student will automatically receive these instructions. Eligible students who fail to receive registration information by September 10 for the fall semester, or January 20 for the spring semester should contact the Office of the Registrar without delay.

Registration after the close of the announced Registration Period entails the payment of a service charge of \$15.00. Registration is not permitted after the end of the second week of classes. A student is not considered registered until the appropriate forms have been filed with the Registrar and arrangements regarding tuition and fees have been made with the Business Office.

### **Course Selection**

Courses are to be chosen in accordance with the regulations of an established degree program and are to be approved by the student's academic advisor. It is the student's responsibility, however, to plan his program so that all degree requirements are met.

### **Course Load**

A student may register for 12 to 19 hours of credit each semester with the approval of his academic advisor. Normally a student will register for a course load of 15 to 18 credit hours.

A student who wishes to register for less than 12 or more than 19 hours may petition the Committee on Academic Standing on forms provided by the Registrar. Petitions to take course work in excess of 19 semester hours will normally be approved only if the student has achieved a grade-point average of 3.00 or better during each of the previous two semesters. Petitions to take less than 12 hours of work will normally be approved only when, in the judgment of the Committee, unusual circumstances, such as physical disability, exist. Such petitions should be accompanied by appropriate documentation.

### **Change of Registration**

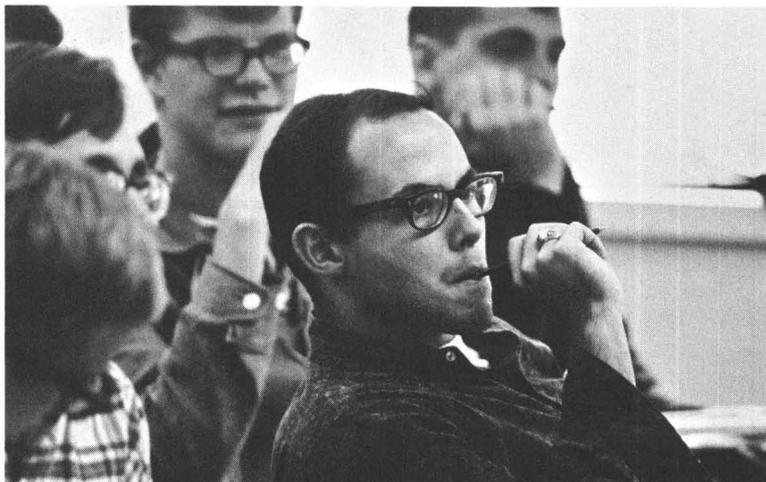
A student may change his registration only during the first two weeks of the semester. To do so he must first complete the appropriate request form and then obtain the approval of his advisor for the proposed change. Forms for this purpose are available from the Registrar. No record is made of courses dropped during this period.

After the second week of classes no course may be added. A student may, however, drop a course through the ninth week of the semester provided he has the approval of his academic advisor and the change does not reduce his course load below 12 semester hours. Students will be assigned the grade of WP (Withdrawn Passing) or WF (Withdrawn Failing) for each course dropped. After the ninth week no course may be dropped.

### **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. Only regularly enrolled students may audit a course.

A student who wishes to audit a course must obtain the written permission of the instructor and file it with the Registrar during the registration period. Attendance of a course for just a brief period requires only the verbal approval of the instructor. No petitions to change from audit to credit status will be allowed after the second week of classes.



### Assignment of Grades

In each course final grades are given at the end of the semester, except in year-long courses designated by a dash such as Biology 291-292. In such courses an R grade is given at the end of the first semester and a final letter grade only after both semesters have been completed.

Grades assigned at the completion of a course are as follows:

A (Superior), B (Good), C (Satisfactory), D (Minimum Passing), F (Failure). In addition, the following marks may be awarded at the end of the semester:

I (Incomplete) may be given at the discretion of the instructor when a student fails to complete all course requirements due to circumstances beyond his control. The date set for the completion of such requirements will ordinarily be no later than November 1st for courses taken in the prior spring semester and March 15th for courses taken in the prior fall semester. If a final letter grade of A, B, C, or D is not reported to the Registrar by these specified dates, the grade of I will automatically be changed to F. No student will be permitted to graduate with the grade of I on his record. Under unusual circumstances an instructor may extend the period for completing the course requirements. In such cases the instructor must notify the Registrar in writing before the I expires and specify the date upon which an alternate final grade will be reported. If a grade of A, B, C, or D is not reported to the Registrar by this date, the grade of I will be automatically changed to F.

WP (Withdrawn Passing) indicates withdrawal from a course while the student is doing passing work or before evaluation is possible.

WF (Withdrawn Failing) indicates withdrawal from a course while the student is doing failing work.

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

J (Audit) indicates the student registered for the course as an auditor.

P (Pass) is used to indicate passing work in those courses where the only evaluation that can be made by the instructor is either Pass or Fail.

### Grade-Point Average

For the purpose of determining grade-point averages, letter grades have the following values: A-4 points, B-3 points, C-2 points, D-1 point, and F-no points. Grades of I, WP, WF, R, J, and P are not included in the grade-point average. To compute the cumulative grade-point average, the number of points equivalent to the letter grade earned in a given course is multiplied by the number of semester hours for that course; the total number of points earned in all courses

is then divided by the total number of semester hours for which the student has been registered. Only courses taken at Stony Brook are included in a student's grade-point average.

### **Repeating Courses**

With the approval of his advisor, a student may repeat a course in which he has received a grade of D or F. All grades and semester hours will be computed in the grade-point average, but a course which has been passed may be counted only once in satisfying credit-hour requirements.

### **Academic Standing**

During the freshman and sophomore years (or the first four semesters of registration) a student must earn a grade-point average of at least 1.75 each semester to remain in good standing. Students earning a grade-point average below 1.75 during any semester will be placed on academic probation for the following semester.

During the junior and senior years (or after four semesters of registration) students must earn a grade-point average of at least 2.00 each semester to remain in good standing. A cumulative grade-point average of 2.00 for all work undertaken after entrance into the junior year (or begun after four semesters of registration) is required for graduation. Upperclassmen earning a grade-point average of under 2.00 during any semester will be placed on academic probation for the following semester.

Students on probation whose grade-point average for the probationary semester is less than 1.75 for a freshman or sophomore, or less than 2.00 for an upperclassman, will be suspended. Students who are placed on probation for a third time or those who in any semester receive more failing than passing grades will be eligible for suspension, as will those already registered if during the semester the change of an I to a letter grade places them below the level required for good standing.

### **Transfer Students**

For the purpose of interpreting academic regulations, transfer students will be placed in class according to the following schedule of semester hours completed elsewhere and accepted for credit at Stony Brook:

Freshman 0-23, Sophomore 24-54, Junior 55 or more.

**Dean's List**

Students registered for 12 or more semester hours who achieve a grade-point average of at least 3.00 during the semester (calculated after any grades of I have been made up), and who have not failed a course, will be placed on the Dean's List.

**Grade Reports**

Grade reports are prepared as quickly as possible after the conclusion of each semester. 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 his academic program and progress to his parents. Accordingly, grade reports are mailed directly to the student at his home address, usually within one week of the end of the final examination period.

**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 the Registrar at least one week before the transcript is needed. The charge for transcripts is \$1.00 per copy. Payment should be made directly to the Business Office and the receipt submitted to the Registrar along with the transcript request. Partial transcripts of a student's record are not issued. Students who have *graduated* will be provided with two free transcripts upon request from the Registrar.

Official transcripts of work taken at other institutions which have been presented for admission or evaluation of credit become the property of the University and cannot be copied or reissued. If a transcript of this work is needed it should be obtained directly from the institution concerned.

**Residence**

For a student to be certified for a degree, he must have been registered as a full-time student at the University for the two semesters immediately preceding his graduation.

**Taking Summer Courses Elsewhere**

A currently enrolled Stony Brook student who wishes to take a summer course at some other institution for transfer credit to Stony Brook must obtain the

advanced approval of both his faculty advisor and a Stony Brook Admissions Officer before doing so. Upon completion of the course with a grade of C or better and submission of an official transcript to the Stony Brook Admissions Office, appropriate transfer credit will be allowed.

### **Withdrawal from the University**

Withdrawal from the University, for any reason, will be recorded only when the form entitled "Withdrawal from the University" has been completed and submitted to the Registrar. These forms may be obtained from the Office of the Registrar. The date upon which this 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 officially withdraw on or before the day of the last class meeting prior to final examinations will receive the grade of WP or WF for each course in which they are registered. Students who terminate their attendance at the University without filing formal notification of withdrawal on the appropriate form will be automatically assigned the grade of I in each course for which they are registered.

### **Readmission to the University**

Students who have withdrawn or been suspended and who wish to be readmitted must apply for readmission through the Office of Admissions. In view of the increasing enrollment pressures, applications for readmission should be filed at least one month prior to the semester for which readmission is desired. If the student has attended another institution since leaving Stony Brook, an official transcript must be submitted before his application will be considered. In the case of students who have been suspended, at least one semester must elapse before they will be considered for readmission. A student who has been suspended twice is not eligible for readmission.

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

The University reserves the right to change academic regulations or to cancel any course for whatever reasons it may deem appropriate.



**COLLEGE OF  
ARTS AND  
SCIENCES**

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**Degree Requirements**

All candidates for the Bachelor of Arts or Bachelor of Science degrees must satisfy the following requirements, normally by attaining a passing grade in appropriate courses and exceptionally by being granted an exemption:

- |                     |            |
|---------------------|------------|
| a. English 101, 102 | 6 credits  |
| b. Humanities       | 12 credits |
| c. Social Science   | 12 credits |

This requirement is to be satisfied by the successful completion of courses from 3 of the 6 Social Science departments.

- |   |               |
|---|---------------|
| d. Two one-year sequences of course work in the areas of mathematics and science (biology, chemistry, earth and space sciences, physics), with one of the years in a course that includes a laboratory, and the other in a course in either mathematics or science. In meeting this requirement no more than one year of course work may be taken in a single department. | 14-16 credits |
|---|---------------|

(Students are to complete the above requirements at the earliest possible time.)

- |   |             |
|---|-------------|
| e. Physical Education   | 2 semesters |
| The Physical Education requirement is to be completed <i>after</i> the Freshman year.                           |             |
| f. Foreign Language   |             |
| Each candidate is required before graduation to demonstrate a two-year level of achievement in the foreign lan- |             |

guage approved for his program. This achievement may be demonstrated either by (a) passing a proficiency examination upon admission to this institution or (b) satisfactorily completing a second-year course in the foreign language approved for his program. Proficiency is thus the level of achievement normally attained after approximately two years of college study of the foreign language.

- g. For graduation a student must have earned at least 120 credits. Furthermore, he must have a cumulative grade-point average of 2.00 over his last four semesters.

The undergraduate must meet the requirements of one of the departmental programs of concentration.

Any student admitted without advanced standing will in his first year take two semesters of English composition; one year of mathematics or natural sciences; two semesters of Humanities *or* two semesters of Social Science.

Courses to meet the Humanities requirement are to be chosen from the following: Humanities 103, 104, 105, 106, 113, 114, 115, 116, 121, 122, 123. No more than 6 hours of work may be taken in any one of the following areas: Fine Arts (Humanities 113, 114, 115, 116), Literature (Humanities 103, 104, 105, 106), Philosophy (Humanities 121, 122, 123). There is no prescribed sequence nor prerequisite for any of the Humanities courses.

Courses to meet the Social Science requirements are to be chosen from the following: Anthropology 101, 102; Economics 101, 102; History 101, 102; Political Science 101, 102; Psychology 101, and any Psychology course for which the prerequisites have been fulfilled and Sociology 101, 102.

Students satisfactorily completing Mathematics 102 are assumed to have a retroactive exemption from Mathematics 101. Thus, although they will only receive the normal three credits they will be considered to have met the one-year-of-mathematics requirement in paragraph "d" above.

Students majoring in the Departments of English, Fine Arts, Philosophy, Romance Languages, and Germanic and Slavic Languages must select two semesters from the above Humanities courses in the freshman year.

Students majoring in the Departments of Anthropology, Economics, History, Political Science, Psychology, and Sociology must select two semesters from the above Social Science courses in the freshman year.

It is strongly recommended that a foreign language be elected in the freshman year.

A student may be exempted from any of the course requirements on the recommendation of the agency supervising the course.

## Elementary and Secondary Teacher Certification Programs

### Secondary Education Teacher Certification\*

The Secondary Education Teacher Certification Program is designed to prepare students to meet the New York State requirements for provisional certification to teach at the secondary level. Students must fulfill the general University requirements for either the Bachelor of Arts or Bachelor of Science degree, the requirements for the departmental major, and the program of professional study in education. The three groups follow:

1. General University Requirements (See description of degree requirements) 44-58 credits
2. Departmental Major Requirements (See description of major requirements) Credits vary according to major.

Secondary Education Teacher Certification Programs leading to provisional certification are offered in the following fields: biology, chemistry, English, foreign languages, mathematics, physics, and social studies. (Students who are preparing to teach social studies may major in Anthropology, Economics, History, Political Science or Sociology.)

3. Professional Study in Education 18 credits
  - 3.1 *Education 203 (Psychological and Social Foundations of Educational Theory)* 3 credits
  - 3.2 *Methods and Materials of Teaching* 3 credits

At present, the following courses in Methods and Materials of Teaching are being offered:

- Biology 239 (Materials and Methods in Teaching Biology)*
- English 285 (Methods of Instruction in Literature and Composition)*
- Foreign Language 239 (Methods and Materials in the Teaching of Foreign Languages)*
- History 239 (Materials and Methods in Teaching Social Studies)*
- Mathematics 321 (Geometric Structures)*
- Physics 239 (Materials and Methods in Teaching Physical Science)* For those preparing to teach either physics, chemistry or earth and space science.

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\*The Secondary Education Teacher Certification Program has been approved by and is registered with the State Education Department. Students who successfully complete this program will receive provisional certification as a secondary school teacher from the State Education Department.

3.3 Education 345, 346 ( <i>Philosophy of Education</i> )	6 credits
3.4 Education 350 ( <i>Student Teaching</i> )	6 credits

In addition, students must meet distribution requirements in their teaching fields (such as in the sciences and social sciences) as required by the State Education Department. Departmental advisors and the Director of Teacher Preparation will advise students of the courses designed to satisfy these requirements.

### **Elementary Education Teacher Certification Program\*\***

The Elementary Education Teacher Certification Program is designed to prepare elementary school teachers adequately to meet the challenges of tomorrow's expanding curricula in which more and more materials in the sciences, mathematics, social sciences, and the humanities will be presented. Students in the program, therefore, take the major portion of their courses in the liberal arts, concentrate in a discipline, and prepare for teaching with courses in the professional study of education. The three groups follow:

1. Liberal Arts (55-73 credits)
  - 1.1 Physical Science (may satisfy University requirement) 8 credits
  - 1.2 Biological Science (may satisfy University requirements) 8 credits
  - 1.3 Mathematics (may include 6 credits from University requirement) 9 credits
  - 1.4 Social Sciences (includes 12 credits from University requirements) 15 credits
  - 1.5 Humanities (includes 12 credits from University requirements) 15 credits\*
  - 1.6 English 101, 102 (exemption possible by examination) 0-6 credits
  - 1.7 Foreign Language (2 year proficiency) 0-12 credits

\*The three credits required beyond the University requirement may be taken in any Humanities department (e.g. English, Philosophy, Theater Arts)

2. Departmental Concentration (24-30 credits)

At least 24 credits of an approved departmental concentration (including the introductory year). See approved concentrations in

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\*\*The Elementary Education Teacher Certification Program has been received by the State Education Department. Following its approval and registration, students who successfully complete the program will receive provisional certification as an elementary school teacher from the State Education Department.

- Anthropology, Art, Economics, English, Germanic and Slavic Languages, History, Music, Philosophy, Political Science, Psychology, Romance Languages, Sociology, Theater Arts.
3. Professional Study in Education (33 credits)
- |  |            |
|--|------------|
| 3.1 <i>Education or History 160, History of American Education or Education or History 162, History of Western Education</i> | 3 credits  |
| 3.2 <i>Education 203, Psychological and Social Foundations of Educational Theory</i>   | 3 credits  |
| 3.3 <i>Psychology 211, Developmental and Adolescent Psychology</i>   | 3 credits  |
| 3.4 <i>Sociology 287, Sociology of Education</i>   | 3 credits  |
| 3.5 <i>Education or Philosophy 345 or 346, Philosophy of Education</i>   | 3 credits  |
| 3.6 <i>Education Senior Seminar Laboratory</i>   | 18 credits |

### Subjects of Instruction

Courses are numbered in accordance with the following general pattern:

101-199, freshman-sophomore courses

201-399, junior-senior courses

401-499, graduate courses

Courses, the titles of which are bracketed, will not be offered in 1967-1968.



**DEPARTMENT  
OF ANTHROPOLOGY**

*Professors:* PEDRO CARRASCO, LOUIS C. FARON (*Chairman*)

*Associate Professor:* PAULA BROWN

*Assistant Professors:* ROBERT F. STEVENSON, MARGARET C. WHEELER

The undergraduate program in anthropology is designed to provide the student with an introduction to the general field of anthropology, its branches, its theories and methods, and its relation to the other social sciences and the humanities. It is also intended to provide the anthropology major with an academic background suitable to specialization in a graduate program of anthropology. The curriculum emphasizes the fields of cultural and social anthropology.

**Requirements for the Major in Anthropology**

In addition to the general University requirements for the Bachelor of Arts degree, the following requirements must be met for the major in Anthropology:

A. *Study within the area of the major*

1. ANT 101 and 102 (*Introduction to Anthropology, Social Organization of Non-Western Peoples*).
2. ANT 150 (*Elementary Social Structures*).
3. Two ethnographic area courses, such as *Peoples of Africa, Peoples of South America, North American Indians*, etc.
4. Two topical courses, such as *Comparative Religious Systems, Political Anthropology, Social and Cultural Change*, etc.
5. One advanced course, *Development of Anthropological Theory and Method*.

## B. Courses in related fields

A selection of six additional units, either among listed departmental course alternatives or appropriate courses in other departments with the approval of advisor. Language proficiency requirement to be met in French, German or Spanish.

### COURSES IN ANTHROPOLOGY

#### ANT 101. Introduction to Anthropology

An introduction to the study of man's biological and cultural heritage through a consideration of the principal sub-disciplines in the field of Anthropology: 1) Physical Anthropology, with emphasis on human origins and physical variations of the human species and with the evidence for human evolution; 2) Linguistics, dealing with the description and distribution of human language; 3) Pre-historic archaeology, emphasizing the development of social and cultural systems in the old and new worlds; and 4) Ethnology, treating the life ways of contemporary peoples with emphasis on the range of social and cultural variation in the non-western world, and a critical survey of its classification.

Prerequisite: None.

Mrs. Wheeler, Staff

*Fall, 3 credits*

#### ANT 102. Social Organization of Non-Western Peoples

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, juridical or religious and economic organization.

Prerequisites: ANT 101 or permission of instructor.

Mrs. Wheeler, Staff

*Spring, 3 credits*

#### ANT 150. Elementary Social Structures

Detailed structural-functional analysis of basic organizing principles and institutions among a selected range of simpler societies of the world.

Prerequisites: ANT 101, 102 or permission of instructor.

Mrs. Brown

*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.

Prerequisites: ANT 101 and 102.

Mr. Faron

*Fall, 3 credits*

#### ANT 203. North American Indians

The various people 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.

Prerequisites: ANT 101, 102, 150 or by permission of instructor.

Mrs. Wheeler

*Fall, 3 credits*

#### **ANT 205. Peoples of Africa**

After a brief biological and archaeological introduction, the course will focus on the range of social, economic, artistic, political and religious variations in the pre-contact period, followed by a brief discussion of the colonial period and the emerging African nations.

Prerequisites: ANT 101, 102 or permission of instructor.

Mr. Stevenson

*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 of India and China.

Prerequisites: ANT 101, 102 or permission of instructor.

Mr. Stevenson

*Spring, 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.

Prerequisites: ANT 101, 102, 150 or permission of instructor.

Mrs. Brown

*Spring, 3 credits*

#### **ANT 251. Comparative Religious Systems**

A survey of the religious beliefs and practices of primitive peoples with special refer-

ence 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.

Prerequisites: ANT 101, 102 or permission of instructor.

Mr. Faron

*Spring, 3 credits*

#### **ANT 253. Political Anthropology**

Description and analysis of political institutions among the simpler societies. Selected examples will be taken from many areas of the world to show government, internal regulations and external relations in small bands, villages, tribes and states. Political development in contemporary societies will also be considered.

Prerequisites: ANT 101 and 102.

Mrs. Brown

*Fall, 3 credits*

#### **ANT 254. Problems in Political, Economic Development**

A survey of the political and economic problems faced by undeveloped peoples as they become modern nations, and a discussion of some of their successes and failures in political and economic development.

Prerequisites: ANT 101, 102, 150 or permission of instructor.

Mrs. Brown

*Spring, 3 credits*

#### **ANT 256. Urban Anthropology**

A review of current anthropological research on family and kinship behavior, status and role, personality, social stratification, mobility and assimilation patterns in contemporary urban societies.

Prerequisites: ANT 101, 102, 150. Open to Sociology majors with instructor's permission.

Mrs. Wheeler

*Spring, 3 credits*

**[ANT 261. Peasant Societies and Cultures]**

1) The concept of peasantry will be examined from political, religious and social class angles as well as from the more traditional economic view.

2) 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.

3) Special attention is given peasant societies in Latin America, Africa, and Asia.

Prerequisites: ANT 101 and 102.

Mr. Faron

*Spring, 3 credits*

Not given 1967.

**ANT 271. Social and Cultural Change**

An examination of the forms and processes of change which have been and are now taking place throughout the world, transforming isolated peoples of simple economy and social organization into participating members in modern states.

Prerequisites: ANT 101 and 102.

Mrs. Brown

*Fall, 3 credits*

**ANT 301. Development of Anthropological Theory and Method**

An evaluation of the central ideas of several schools of anthropology since the late nineteenth century, with an appraisal of their effect on contemporary anthropological theory and methodology.

Prerequisites: ANT 101 and 102.

Mr. Faron

*Fall, 3 credits*

**ANT 310. Readings in Social Anthropology**

A colloquium in social anthropology emphasizing the impact of French sociology on British anthropology and the translation of these ideas into the post World War II an-

thropological world. Students will engage in independent library research on themes of their major interests.

Prerequisites: Senior major in Anthropology, but open to senior majors in Sociology and, with consultation between departments, other senior majors in social sciences.

Mr. Faron

*Spring, 3 credits*



## DEPARTMENT OF ART

*Professors:* LEOPOLDO CASTEDO (*Chairman*), \*ALLAN KAPROW

*Associate Professor:* JACQUES GUILMAIN

*Assistant Professors:* EDWARD J. COUNTEY, JR., JAMES H. KLEEGER, ROBERT W. WHITE

*Instructor:* TED GORELICK

### Requirements for the Major in Art

In addition to the general University requirements for the Bachelor of Arts degree, the following courses are required for the major in Art:

- |  |  |            |
|--|--|------------|
| A. <i>Study within the area of the major</i> |  |            |
| 1. Studio Courses (ART 121, 122, 123, 124)   |  | 12 credits |
| 2. Theory and History                        |  | 21 credits |
| B. <i>Courses in related areas</i>           |  |            |
| Electives in Music and Theater Arts          |  | 6 credits  |
| C. <i>Departmental Examination</i>           |  |            |

During the senior year all art majors must pass a departmental examination on certain aspects of the theory and history of art. The faculty will select a set list of books covering these fields.

\*On leave academic year 1967-68.



## COURSES IN ART

### ART 120. Fundamentals of Drawing, Composition, and Design

An introductory course intended for non-art majors. Emphasis will be on drawing techniques. 6 hours studio work.

Prerequisite: Permission of instructor.

Mr. Kleege

*Fall, 3 credits*

### ART 121. Studio I (Drawing)

A course in drawing, the basis of pictorial art. Intended for art majors. Emphasis will be on life drawing. 6 hours studio work.

Prerequisite: Permission of instructor.

*Fall, 3 credits*

### ART 122. Studio II (Introduction to the Techniques of Sculpture)

A beginning course designed to introduce the student to the techniques and formal principles of sculpture. Studio exercises in the uses of sculptor's tools, and simple problems in three-dimensional design are supplemented by some lectures and recitations on the formal principles of sculpture as a medium. 6 hours studio work.

Prerequisite: ART 121, or permission of instructor.

*Spring, 3 credits*

### ART 123. Studio III (Introduction to the Techniques of Painting)

A beginning course designed to introduce the student to the techniques and formal principles of painting. Studio exercises in various media: watercolor, oil, tempera. Pure color theory and its relation to the various media. 6 hours studio work.

Prerequisite: ART 121, or permission of instructor.

Mr. Countey

*Fall, 3 credits*

### ART 124. Studio IV (Design)

A studio course in the techniques of perspective drawing, isometric projection, multi-phase drawings, motion studies, graphs, and analytical drawings, and their application to a selected project. 6 hours studio work.

Prerequisite: ART 121, or permission of instructor.

Mr. Kleege

*Fall, 3 credits*

### ART 221. Studio V (Advanced Painting I)

A course designed to develop the student's skills in composition and the applications of color theory. Watercolor and tempera will be used primarily as media in this course. Six hours studio work.

Prerequisite: ART 123, or permission of instructor.

*Fall, 3 credits*

### ART 222. Studio VI (Modeling, Casting, Direct Plaster Techniques)

A studio course designed to develop the student's technical and compositional skills in the making of sculpture created out of malleable materials, through additive techniques. Portrait and figure modeling in clay, plastilene, and direct plaster. The study and practice of plaster casting techniques, and the study of metal casting techniques. 6 hours studio work.

Prerequisite: ART 122, or permission of instructor.

*Fall, 3 credits*

### ART 223. Studio VII (Graphics I)

A graphics course devoted to the techniques of engraving, etching, aquatint, mezzotint, and dry point, supplemented by lectures and

recitations on the history of these techniques. 6 hours studio work.

Prerequisite: ART 121, or permission of instructor.

Mr. Countey

*Fall, 3 credits*

### **ART 231. Ancient Art**

The history of art in the Ancient World from earliest times through the Roman period.

Prerequisite: None.

*Fall, 3 credits*

### **ART 232. Medieval Art**

European art from the Early Christian through the Gothic period.

Prerequisite: ART 231, or permission of instructor.

Mr. Guilmain

*Spring, 3 credits*

### **ART 236. Major Artists**

A single major artist or architect will be selected (Giotto, Michelangelo, Rembrandt, Rubens, Bernini, Picasso, Brunelleschi or Wright). His development, his works, and his influence on others will be carefully analyzed through lectures and class discussions.

Prerequisite: None.

*Fall, 3 credits*

### **ART 237. Latin American Art**

A survey of the art and architecture of Ibero-America from the Precolumbian civilizations to the present time, emphasizing the Creole or *mestizo* expressions.

Prerequisite: Permission of instructor.

Mr. Castedo

*Fall, 3 credits*

### **ART 321. Studio VIII (Advanced Painting II)**

A course designed to develop the student's

skill in oil painting, and introduce him to the wide variety of modern painting media such as plastics and enamels; painting in mixed media. 6 hours studio work.

Prerequisite: ART 221 or permission of instructor.

*Spring, 3 credits*

### **ART 322. Studio IX (Stone and Wood Carving Techniques)**

A studio course designed to develop the student's technical and compositional skills in the making of sculpture created in hard materials through subtractive techniques. The study and practice of stone and wood carving. 6 hours studio work.

Prerequisite: ART 122 or permission of instructor.

*Spring, 3 credits*

### **ART 323. Studio X (Assemblage)**

Composing with more than one medium. The special, formal and aesthetic problems. 6 hours studio work.

Prerequisites: ART 221, 222 or 223, and permission of instructor.

*Spring, 3 credits*

### **ART 324. Studio XI (Graphics II)**

A graphics course devoted to the study of the techniques of woodcutting, wood engraving, intaglio color printing, and serigraphy, supplemented by lectures and recitations on Oriental color prints, and 20th century print making. 6 hours studio work.

Prerequisite: ART 123, or permission of instructor.

Mr. Countey

*Spring, 3 credits*

### **ART 332. Italian Renaissance Art**

Renaissance painting, sculpture, and architecture in Italy.

Prerequisite: ART 232, or permission of instructor.

*Fall, 3 credits*

**ART 333. Northern Renaissance Art**

Renaissance painting, sculpture, and architecture in Northern Europe.

Prerequisite: ART 232, or permission of instructor.

Mr. Gorelick  
*Fall, 3 credits*

**ART 334. Baroque and Rococo Art**

European art in the age of Baroque and Rococo.

Prerequisites: ART 332 or 333, or permission of instructor.

Mr. Gorelick  
*Spring, 3 credits*

**ART 335. Nineteenth Century Art**

European art of the nineteenth century.

Prerequisite: ART 334, or permission of instructor.

Mr. Guilmain  
*Fall, 3 credits*

**ART 336. Twentieth Century Art**

European and American art of the twentieth century.

Prerequisite: Humanities 113 or 116, or permission of instructor.

Mr. Guilmain  
*Spring, 3 credits*

**ART 337. Introduction to the Literature of Art**

A selection of writings by artists, critics, art historians and theorists will be analyzed through lectures and class discussions.

Prerequisite: At least three courses in Art History or permission of instructor.

*Fall, 3 credits*

**ART 338. Senior Seminar in Problems of Art History**

Introduction to research methods in art his-

tory and theory. Senior art majors will work on individual research projects under the supervision of the instructor.

Prerequisite: Art major with senior standing.

*Spring, 3 credits*

**ART 339. Precolumbian Art**

A survey of the artistic forms of Precolumbian civilizations, from archaeological *Olmecs* to the architecture of *Machu Picchu*.

Prerequisite: ART 237, or permission of instructor.

Mr. Castedo  
*Spring, 3 credits*

**ART 340. Iberian and Ibero-American Art and Architecture from the Fifteenth to the Eighteenth Centuries**

A study of Isabelino, Manuelino, Plateresque, Baroque, Rococo and Neo-Classical styles in the Iberian Peninsula and Colonial Ibero-America.

Prerequisite: ART 237, or 332, or 339, or permission of instructor.

Mr. Castedo  
*Spring, 3 credits*



**DEPARTMENT  
OF BIOLOGICAL  
SCIENCES**

*Professors:* FRANK C. ERK (*Chairman*), BENTLEY GLASS, MELVIN V. SIMPSON,  
GEORGE C. WILLIAMS

*Associate Professors:* EDWIN H. BATTLE, VINCENT P. CIRILLO, RAYMOND F. JONES,  
\*ROBERT W. MERRIAM, CARL MOOS, MONICA RILEY, ROBERT E.  
SMOLKER, BERNARD D. TUNIK

*Assistant Professors:* \*ALBERT D. CARLSON, LELAND N. EDMUNDS, JR., GEORGE G.  
FOGG, JAMES A. FOWLER, MARTIN FREUNDLICH, JOHN J. GAUDET, GEORGE  
J. HECHTEL, HOWARD C. HOWLAND, R. PETER KERNAGHAN, ABRAHAM D.  
KRIKORIAN, MARVIN J. ROSENBERG, ALAN WOHLMAN, CHARLES F.  
WURSTER

*Instructor:* STEVEN OBREBSKI

The undergraduate program in biology is designed to prepare students for advanced study in the biological sciences, for secondary school teaching, and for certain positions in industry and research. The core of the program consists of two one-year courses and a field course in ecology. In addition certain courses in mathematics, chemistry, and physics are required; these courses contribute to an adequate understanding of the content of the program, and are essential for advanced work in the biological sciences.

**Requirements for the Major in Biological Sciences**

In addition to the general University requirements for the Bachelor of Science degree, the following courses are required for the major in Biological Sciences:

A. *Study within the area of the major*

BIO 151, 152 (*Cytology, Genetics and Evolution*)

BIO 201, 202 (*General Physiology*)

BIO 233, 234 or BIO 235 (*Field and Theoretical Ecology*)

Seven additional credits in biology or in related courses, approved by the student's advisor.

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\*On leave academic year 1967-68.

**B. Courses in related fields***Chemistry 101, 102 (General Chemistry)**Chemistry 201, 202 (Organic Chemistry)**Chemistry 203 (Organic Chemistry Laboratory)**Physics 161, 162 (Introductory Physics)**Mathematics 102, 103 (Calculus I, II)*

Foreign Language (Proficiency in French, German, or Russian)

**HONORS PROGRAM IN BIOLOGICAL SCIENCES**

Departmental majors with a grade point average of 3.0 or better in courses in biology and related fields are eligible to apply for the honors program, and should do so before the beginning of their senior year. Interested students should consult their advisors for further information and detailed requirements.

**COURSES IN THE BIOLOGICAL SCIENCES****BIO 101, 102. Introduction to Biological Sciences**

An introductory course in biological science which acquaints the student with the nature of living organisms in terms of their structure and function; their reproduction, heredity, and development; their interrelationships with the environment; and their evolution. Closely correlated with lectures and the assigned readings are laboratory exercises which encourage the student, through independent work, to develop skill in the design, performance, and critical analysis of experiments. Two hours of lectures, one hour of discussion, and one three-hour laboratory per week. Primarily intended for non-biology majors.

*Fall and Spring, 4 credits each semester***BIO 151, 152. Cytology, Genetics and Evolution**

The emphasis is on the cytological and genetic mechanisms which underlie and provide the theoretical bases of our modern understanding of the origin, development, and modification of the individual, the pop-

ulation, the race, and the species. Three hours of lectures or discussion, and one three-hour laboratory per week.

Prerequisite: Chemistry 102 or 104, or sophomore status and permission of instructor.

*Fall and Spring, 4 credits each semester***BIO 201, 202. General Physiology**

This course considers the cell as a unit of function. Problems of tissue and organ function and interaction within organisms are considered from this viewpoint. Knowledge of the physiology of the cell is brought to bear on problems of growth, reproduction, differentiation, and maintenance. Emphasis is placed on the delineation of the broad problem areas which current and future research may enlighten. Both single-celled and multicellular organisms are used, representing both plants and animals. Three hours of lectures or discussion, and one three-hour laboratory per week.

Prerequisites: Chemistry 104.

Corequisite: Physics 161, 162.

*Fall and Spring, 4 credits each semester*

**BIO 233. Field and Theoretical Ecology I**

An examination of the interactions of living organisms with their physical and biological environments. The subject matters of modern population biology, including population ecology and dynamics, ecological genetics, and biogeography, will be discussed, with emphasis on their relevance to the study of evolving biotic communities. Credit is granted upon completing BIO 234. Two hours lecture, one four-hour laboratory period per week.

Prerequisite: Junior status or permission of instructor.

*Fall, 3 credits*

**BIO 234. Field and Theoretical Ecology II**

A continuation of BIO 233.

Prerequisite: Satisfactory completion of BIO 233.

*Spring, 3 credits*

**BIO 235. Field and Theoretical Ecology**

The contents of BIO 233 and BIO 234 are here combined into a single course given in the summer. This course offers more extensive field experience than is possible during the academic year. Class meets six hours each day for six weeks in summer.

Prerequisite: Junior status or permission of instructor.

*Summer, 6 credits*

**BIO 239. Materials and Methods in Teaching Biology**

This course, designed for prospective secondary school teachers of biology, emphasizes methods and materials appropriate to the teaching of an experimental science at that level. Two hours of lectures or discussion, and one three-hour laboratory per week.

Prerequisite: Attainment of junior status.

*Spring, 3 credits*

**BIO 244. Form and Function in Higher Plants**

This course emphasizes the developmental pathways in examining the relationships between form and function in green plants. The laboratory consists of an analysis of the development, physiology, and morphology of a variety of living plants. Two hours of lectures or discussion, and two three-hour laboratories per week.

*Spring, 4 credits*

**BIO 247. Invertebrate Zoology**

An examination of the invertebrate phyla from the viewpoint of increasing levels of structural and functional organization. Living materials are used whenever possible to emphasize the dynamic aspects of invertebrate life. Two hours of lectures or discussion, and two three-hour laboratories per week.

*Fall, 4 credits*

**BIO 248. Vertebrate Zoology**

This course emphasizes the structural and developmental aspects of vertebrate animals in an evolutionary context. Extensive experience with these forms is gained by detailed dissection of several key representatives of the group. Two hours of lectures or discussion, and two three-hour laboratories per week.

*Spring, 4 credits*

**BIO 255. Current Topics in Biology**

The participants in this informal seminar course present brief talks based on selected readings from the current literature of some area of biological investigation. The work of each semester concentrates on a different area of biology, and the course may be repeated for credit.

Prerequisite: Open to juniors and seniors with the permission of the instructor.

*Fall and Spring, 1 credit each semester*

**BIO 291-292. Senior Project**

In this course the more capable senior biology major may work under the supervision

of a member of the staff in developing an individual project making use of the knowledge and techniques acquired in previous courses. He is expected to prepare an appropriate report on his project and to present a student seminar. Credit is determined on the basis of the adequacy of the project presented.

Prerequisite: Open to qualifying biology majors, after the completion of their junior year, with the consent of the chairman and the staff member who will supervise the work.

*Fall and Spring, 1 to 2 credits per semester*

### **BIO 301. Biometry**

A course in the design and conduct of experiments and the analysis of biological data. Topics included are parent and derived distributions, probability, confidence intervals, tests of hypotheses, sample size, and the analysis of variance. Two hours of lectures or discussion, and one three-hour laboratory.

Prerequisites: One year of college mathematics that includes calculus or probability; and 16 credits of Biology and/or Psychology courses.

*Fall, 3 credits*

### **BIO 311. Aquatic Botany**

A consideration of the systematics, distribution and evolution of aquatic plants, as exemplified by the aquatic flora of Long Island. The physical, chemical and biological aspects of the aquatic environment will be investigated by means of field and laboratory experiments. The class meets six hours each day for six weeks in the summer.

Prerequisite: Chemistry 102 or 104.

*Summer, 6 credits*

### **BIO 331. Microbiology**

An introduction to the study of microorganisms through a series of problems which include considerations of taxonomy, development, structure, physiology, reproduction, and ecology. Two hours of lectures or discussion, and one two-hour laboratory per week.

Prerequisites: Chemistry 201, 202 and 203 or permission of instructor.

*Fall, 4 credits*

### **BIO 336. Marine Biology**

An introduction to the marine ecosystem with emphasis on the fishes of coastal and estuarine habitats. The demography, behavior, and physiological ecology of marine organisms are explored with relation to physical variables. Work in the field and laboratory will emphasize quantitative sampling of populations and standard oceanographic techniques in the collection of data. Two hours of lectures or discussions and six hours of laboratory and field work on Saturdays.

Prerequisites: BIO 247, 301, or equivalent.

*Spring, 4 credits*

### **BIO 343 (same as PSY 343). Seminar in Synaptic Processes**

The morphological, ionic, pharmacological, and electrical factors associated with transmission across excitatory and inhibitory synapses and neuroeffector junctions will be compared. Consideration will also be given to trophic and plastic properties of synapses such as those associated with development, regeneration, and learning. Open to juniors and seniors.

Prerequisite: BIO 202 or Psychology 340.

*Fall, 2 credits*

### **BIO 344. 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; the role of nucleus and cytoplasm; 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 mechanisms of the clock. Three hours per week of lecture, discussion, and reports.

Prerequisites: BIO 151, 152, 201, 202, or permission of instructor.

*Spring, 3 credits*

**BIO 398, 399. Special Topics from the  
Biological Literature**

Tutorial reading for senior students majoring in the biological sciences. Reading lists compiled by various instructors are available in the Departmental office. Periodic conferences, final report and examination arranged with instructor on an individual basis.

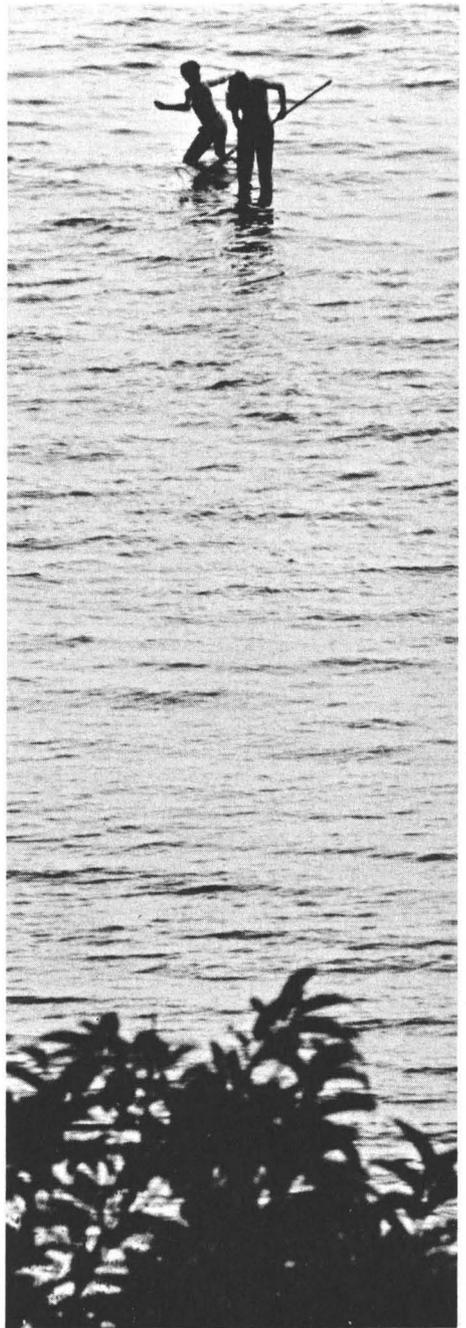
*Fall and Spring, 1 credit each semester*

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**GRADUATE COURSES**

Certain graduate courses are open to qualified advanced undergraduates. Consult the *Graduate Bulletin* for details about these courses.

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## DEPARTMENT OF CHEMISTRY

*Professors:* FRANCIS T. BONNER (*Chairman*), HAROLD L. FRIEDMAN, EDWARD M. KOSOWER, YOSHI OKAYA, FAUSTO RAMIREZ, SEI SUJISHI,\* MAX WOLFSBERG

*Associate Professors:* JOHN M. ALEXANDER, ALBERT HAIM, PAUL C. LAUTERBUR, WILLIAM J. LE NOBLE, ARNOLD WISHNIA

*Assistant Professors:* ROBERT S. BOIKESS, GEORGE F. EMERSON, THEODORE D. GOLDFARB, NOBORU HIROTA, ROBERT C. KERBER, GEORGE H. KWEL, RICHARD SOLO

*Director of Chemical Laboratories and Lecturer:* PAUL D. CROFT

The undergraduate 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, and meets the certification standards of that Committee.

In general, students intending to teach chemistry in secondary schools are advised to register for the program leading to the Bachelor of Science in *Physical Science* (*viz.*). A student who plans to complete the requirements for the B.S. degree with a major in chemistry and intends simultaneously to acquire certification for secondary school teaching must have the approval of the Chairman of the Department of Chemistry and the Director of Teacher Preparation.

### Requirements for the Major in Chemistry

In addition to the general University requirements for the Bachelor of Science degree, the following courses are required for the major in Chemistry:

#### A. *Study within the area of the major*

- CHE 101, 102 or 103, 104 (*Introductory Chemistry or Intensive Introductory Chemistry*)
- CHE 108 (*Quantitative Chemistry Laboratory*)
- CHE 153 (*Solution Chemistry*)
- CHE 154 (*Equilibrium and Thermodynamics*)
- CHE 155 (*Solution Chemistry Laboratory*)

CHE 156 (*Transport Properties and Thermodynamics Laboratory*)  
 CHE 201, 202 (*Organic Chemistry*)  
 CHE 203, 204 (*Organic Chemistry Laboratory*)  
 CHE 255, 256 (*Mechanics, Kinetics and Structure*)  
 CHE 257, 258 (*Instrumental Analysis and Structure Laboratory*)  
 CHE 305 (*Inorganic Chemistry I*)

B. *Courses in related areas*

Mathematics 102, 103 (*Calculus I, II*) and 155, 156 (*Calculus III, IV*)

Physics 101, 102, 151 (*General Physics*)

Foreign Language: German 115, if the proficiency requirement is not met in German.

SAMPLE PROGRAM FOR CHEMISTRY MAJOR

YEAR	CHEMISTRY	PHYSICS	MATH	HUM, SOC		TOTAL		
				LANG				
I	101	4 credits	102 <sup>a</sup>	3 credits	9 credits <sup>b</sup>	16 cr.		
	102,8	5 credits	103	3 credits	9 credits	17 cr.		
II	153,5	5 credits	101 <sup>c</sup>	4 credits	155	3 credits	6 credits	18 cr.
	154,6	5 credits	102	4 credits	156	3 credits	6 credits	18 cr.
III	201,3,255,257	10 credits	151	4 credits [ ] <sup>d</sup>		3 credits <sup>e</sup>	17 cr.	
	202,4,256,258	10 credits	152 <sup>f</sup>	4 credits		3 credits	17 cr.	
IV	305 <sup>g</sup>		Electives <sup>h</sup>		3 credits <sup>i</sup>	3 credits <sup>i</sup>		

<sup>a</sup>Mathematics 101 may be required of a student with deficient preparation.

<sup>b</sup>English 101-102 are required and continuation of high school language is recommended.

<sup>c</sup>Physics 101 and Chemistry 103 are urged in the first year for well-prepared students.

<sup>d</sup>Mathematics 156 may be taken here if Mathematics 101 was necessary.

<sup>e</sup>German is recommended here but may conflict with Mathematics 156 (see d).

<sup>f</sup>Physics 152 is strongly recommended but not required.

<sup>g</sup>Chemistry 305 can be taken in the third year (when offered in Spring semester) by a student who has completed Chemistry 202, 204.

<sup>h</sup>Senior electives may be Chemistry 302, 306, 315, 325 or courses in Physics, Biology, Mathematics, etc. Students with B average may take Chemistry 391,2 and/or graduate courses. Senior students, especially those preparing for graduate work, are expected to elect a senior laboratory course.

<sup>i</sup>Second year German is recommended here for students who satisfy language proficiency in German and who did not take German in high school.

## COURSES IN CHEMISTRY

*Note:* Students requesting that prerequisites or corequisites be waived may, in exceptional circumstances, receive approval following petition to the Chairman of the Department of Chemistry.

### CHE 101, 102. Introductory Chemistry

Emphasis is placed on chemical principles, presented in terms of modern theory and in a context of sufficient descriptive subject matter to lend them interpretive value. Principal topics covered are the states of matter, gas laws, atomic theory, chemical equations and stoichiometry, thermodynamics, chemical equilibrium, the EMF series, kinetic theory, reaction kinetics, properties of the elements and the periodic table, atomic structure, chemical bonding and selected topics in descriptive chemistry. Laboratory experiments illustrate the principles presented and provide an introduction to qualitative and quantitative analysis. Three lecture hours and four hours of laboratory and discussion per week during the fall semester; two lecture hours and one recitation hour per week during the spring semester.

Corequisite to 102: CHE 106 or 108, Mathematics 102.

*101, 4 credits; 102, 3 credits*

### CHE 103, 104. Intensive Introductory Chemistry

An intensive introductory chemistry course similar to CHE 101, 102 for students meeting the corequisite requirements listed below. Open to those freshmen students who have offered for admission a record indicating exceptional ability and interest in mathematics and the physical sciences. Three lecture hours and four hours of laboratory and discussion per week during the fall semester; two lecture hours and one recitation hour per week during the spring semester.

Corequisites: Physics 101, 102 and Mathematics 102, 103.

Corequisite to 104: CHE 106 or 108.

*103, 4 credits; 104, 3 credits*

### CHE 106. General Chemistry Laboratory

A continuation of the laboratory work in CHE 101 and 103, primarily for those students who do not plan to take advanced courses in Chemistry. Four hours of laboratory and discussion per week.

Corequisites: CHE 102 or CHE 104.

*Spring, 1 credit*

### CHE 108. Quantitative Chemistry Laboratory

Primarily for students who plan to take advanced courses in chemistry. Designed to develop techniques which are essential for precise and accurate chemical analysis. Gravimetric and volumetric analysis and synthesis of inorganic compounds. Six hours of laboratory and discussion per week.

Corequisite: CHE 102 or CHE 104.

*Spring, 2 credits*

### CHE 153. Solution Chemistry

Chemical equilibria in ideal systems within a framework of thermodynamic principles; solubility products; acid-base ionization constants; an introduction to reaction kinetics and mechanisms, and to transport phenomena. Three lecture hours per week.

Prerequisite: Grade of C or better in CHE 102 or 104.

Corequisites: Mathematics 103 and Physics 101.

*Fall, 3 credits*

### CHE 154. Equilibrium and Thermodynamics

The laws of thermodynamics and chemical

equilibria for nonideal systems. Three lecture hours per week.

Prerequisite: CHE 153.

Corequisite: Mathematics 155 and Physics 102.  
*Spring, 3 credits*

### **CHE 155. Solution Chemistry Laboratory**

Chemical and instrumental analysis applied to solution equilibria and reaction kinetics. Six hours of laboratory and discussion per week.

Prerequisite: Grade of C or better in CHE 108.

Corequisite: CHE 153.

*Fall, 2 credits*

### **CHE 156. Transport Properties and Thermodynamics Laboratory**

The measurement of reaction heats, EMF, transport coefficients and activity coefficients. Six hours of laboratory and discussion per week.

Prerequisite: CHE 155.

Corequisite: CHE 154.

*Spring, 2 credits*

### **CHE 201, 202. Organic Chemistry**

A systematic discussion of the structure, physical properties, and chemical reactions of the main classes of carbon compounds, based on modern views of chemical bonding, thermodynamics and kinetics. Mechanistic, as well as synthetic aspects of organic reactions are emphasized. Selected topics in the organic chemistry of naturally occurring substances are considered. Three lecture hours per week.

Prerequisites: Grade of C or better in CHE 102 or 104; CHE 106 or 108.

Corequisite to CHE 201: CHE 203.

*Fall and Spring, 3 credits each semester*

### **CHE 203, 204. Organic Chemistry Laboratory**

An introduction to the techniques of preparing and purifying organic compounds. The emphasis in the second semester is on the use of modern instrumentation as an aid to organic synthesis and qualitative organic analysis. Eight laboratory hours per week.

Corequisites: CHE 201, 202.

*Fall and Spring, 2 credits each semester*

### **CHE 255, 256. Mechanics, Kinetics and Structure**

Introductory classical, quantum and statistical mechanics with applications to molecular structure, equilibrium and kinetic phenomena. Three lecture hours per week.

Prerequisite: CHE 154.

Corequisites: Physics 151 and Mathematics 156.

*Fall and Spring, 3 credits each semester*

### **CHE 257, 258. Instrumental Analysis and Structure Laboratory**

Instrumental techniques and applications of spectroscopy, chromatography, stable and radioactive tracer analysis, polarography, electric and magnetic properties of matter. Six hours of laboratory and discussion per week.

Prerequisite: CHE 156.

Corequisites: CHE 201, 202, 203, 204, and 255, 256.

*Fall and Spring, 2 credits each semester*

### **CHE 302. Experimental Methods of Organic Chemistry**

An introduction to the techniques used in organic chemistry research. Separation, purification and structural elucidation by chemical and instrumental procedures. Laboratory work includes qualitative organic analysis and organic synthesis. Projects of an exploratory nature will be assigned to specially qualified

students. Two lecture hours and six laboratory hours per week.

Prerequisites: CHE 202 and 204.

Corequisites: CHE 256 and 258.

*Spring, 4 credits*

### **CHE 305. 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. Three lecture hours per week.

Prerequisites: CHE 255, 257, 202, 204.

Corequisites: CHE 256, 258.

*Fall\*, 3 credits*

### **CHE 306. Inorganic Chemistry II**

A continuation of CHE 305. Three lecture hours per week.

Prerequisite: CHE 305.

*Fall or Spring, 3 credits*

### **CHE 315. Intermediate Organic Chemistry**

An extension of the material introduced in CHE 201, 202. Electronic and stereochemical theory are utilized to discuss selected organic reactions, syntheses, and natural products. Three lecture hours per week.

Prerequisites: CHE 202 and 204.

*Fall, 3 credits*

### **CHE 325. Intermediate Physical Chemistry**

An introduction to the methods and theory currently used to investigate and describe atomic and molecular structure. Topics to be covered include introductory wave me-

chanics, exact and approximate solutions to the Schroedinger equation, applications to the problem of chemical bonding, and atomic and molecular spectroscopy. Three lecture hours per week.

Prerequisite: CHE 256.

*Spring, 3 credits*

### **CHE 391, 392. Senior Research**

Research to be carried out under the supervision of a staff member of the Department, on a research problem to be selected by the student after consultation with his staff supervisor. The results of this work are to be submitted to the Department in the form of a senior research report. Students who have achieved a cumulative grade point average of 3.00 or higher through their first five semesters and are interested in registering for this course should first apply to a staff member for tentative acceptance as a research student and then file a written petition with the Chairman of the Department no later than the second Monday in May preceding the student's senior year.

Prerequisites: A cumulative grade point average of 3.00 or higher and acceptance as a research student by a member of the departmental staff.

*Fall and Spring, 2-4 credits each semester*

## **GRADUATE COURSES**

*Note:* Senior chemistry students having high academic standing may petition the Department for permission to register in the following first year graduate courses.

- CHE 501 Organic Chemistry I
- CHE 502 Organic Chemistry II
- CHE 511 Inorganic Chemistry I
- CHE 512 Inorganic Chemistry II
- 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

*(See Graduate Bulletin for details.)*

\*May also be given in spring semester if there is sufficient demand.

**COURSES IN CLASSICAL LANGUAGES**

The following courses are offered pending the development of a full program:

**GRK 111, 112. Elementary Greek**

An introduction to the Greek language, including the study of grammar, with reading and writing.

Prerequisites: None.

Mrs. Wilson

*Fall and Spring, 3 credits each semester*

**LAT 151, 152. 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, Vergil, and Livy.

Prerequisite: Three years of high school Latin.

Mr. Godfrey

*Fall and Spring, 3 credits each semester*



## DEPARTMENT OF EARTH AND SPACE SCIENCES

*Professors:* SAMUEL S. GOLDICH, ALLISON R. PALMER, OLIVER A. SCHAEFFER  
(*Chairman*), BENGT STROMGREN (*Adjunct*), PETER K. WEYL

*Associate Professors:* HONG-YEE CHIU (*Adjunct*), MARVIN KALKSTEIN

*Assistant Professors:* ROBERT T. DODD, JR., GILBERT N. HANSON, RAYMOND N. SMITH

*Instructor:* CHARLES BUDDENHAGEN

The Earth and Space Sciences undergraduate program prepares the student for gainful scientific participation in the explorations of the oceans, the earth, the moon, the solar system, and the universe which are presently being conducted by industry, governmental agencies and academic institutions. These are areas of scientific inquiry in which the enormity of time or space take on an added significance. As a result, there is a fundamental interrelation of the principles involved. For this reason, the areas of oceanography, geology, geophysics, geochemistry, meteorology and astronomy are to be incorporated in a single department. While the undergraduate program is designed primarily to prepare the student for graduate study leading to an advanced degree it can also serve as a terminal course of instruction in preparation for employment by a private industry, a government agency or an academic institution. Oil and mineral exploration, geochemical, geophysical, or astronomical research or professional meteorology or oceanography are several of the many possible areas of employment.

The undergraduate program requires no specific set of courses so that a student has a wide choice to take advantage of the interdisciplinary nature of the department. In this way, a curriculum of studies can be selected which is tailored to the special interest of the student. The student's program will be planned in consultation with an advisor assigned by the department.

### Requirements for the Major in Earth and Space Sciences

In addition to the general university requirements the following are required for the major in Earth and Space Sciences:

#### A. *Study within the area of the major*

27 credits of courses in the Department of Earth and Space

Sciences of which at least 9 credits are numbered 300 or higher.

*B. Study outside the area of the major*

27 credits of courses in biology, chemistry, physics or mathematics of which at least 16 credits are in the same department. With few exceptions one year of chemistry, physics or mathematics represents a minimal requirement.

## **COURSES IN EARTH AND SPACE SCIENCES**

### **INTRODUCTORY COURSES**

The following courses while of interest and value to science students are primarily designed for the general university student who is not majoring in a physical science, but who elects the course either because of a personal interest or to fulfill the science requirement of the College of Arts and Sciences. Because these have no prerequisites and can be taken in any order, any two of the courses will meet the laboratory science elective one year sequence for the B.A. or B.S. degree. In addition, the earth science requirement for secondary school science teaching certification may be met with any two of the courses. No mathematical facility beyond simple algebra is required in any of the courses.

#### **ESS 101. Astronomy**

The subject is introduced in an historical manner and the modern ideas are interpreted on the basis of the present observations. The development of astronomy is followed from the early Greeks through Kepler and Newton down to the present time. Topics covered are: the determination of planetary and stellar distances, stellar spectra, masses of stars, structure and energy of the sun and stars, stellar evolution, galaxies, the moon and the solar system. The laboratory is devoted to telescopic observations and optical and spectroscopic measurement. Three lecture hours and one 3 hour laboratory per week.

*Fall, 4 credits*

#### **ESS 102. Geology**

Earth processes, such as weathering, sedimentation, glaciation, vulcanism, metamorphism, and mountain building are considered. Laboratory work includes the identification of minerals and rocks, introduction to maps, and field trips in the vicinity. Three lecture hours and one 3 hour laboratory per week.

*Fall and Spring, 4 credits*

#### **ESS 103. The Atmosphere**

An introduction to the near-earth environment. The course will deal primarily with the physics and chemistry of the atmosphere, top-

ics covered will include composition, structure, motions, weather, climate, and instrumentation, observations, synoptic analysis and research projects. Three lecture hours and one 3 hour laboratory per week.

*Fall, 4 credits*

### **ESS 104. Oceanography**

The surface environment on the earth is unique due to the fact that 80% of it is covered by water. This course shall examine 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 of sea water during the last half billion years will be examined. The study cuts across the usual fields of specialization as the economy of nature involves among others, the biochemistry of microscopic marine plants, inorganic weathering of rocks, and physical processes in the oceans and the

atmosphere. An attempt will be made to gain an insight into the complex life support system that has made the earth a manned satellite of the sun. Three lectures and one 3 hour laboratory per week.

*Spring, 4 credits*

### **ESS 106. The Ages Before Man**

An introduction to geological history. Methods for dating the past; techniques for interpreting geologic history; the changes of animals and plants since the beginning of life; changes in global geography; and geologic history of selected areas of North America are considered. Laboratory work includes examination of fossils, interpretation of geologic maps and cross-sections, and field trips. Three lectures and one 3 hour laboratory per week.

*Spring, 4 credits*

## **COURSES FOR UNDERGRADUATES**

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 some preparation in chemistry, physics and/or mathematics.

### **ESS 201. Rocks and Minerals**

A survey of the materials and processes of the earth's crust. The properties of minerals are shown to arise from and reflect their internal structures. A consideration of the influence of changing physical conditions on crystal structures provides the basis for a discussion of rocks and rock-forming processes, and the role of these processes in the evolution of the crust. Laboratories are devoted to the identification and interpretation of rocks and rock-forming minerals from hand specimen observations and simple physical measurements. Two lectures; two 2-hour laboratory sessions.

Prerequisites: ESS 102 and Chemistry 102 or 104, or permission of the instructor. May not be taken for credit, if a student has received credit for ESS 151, 152.

*Fall, 3 credits*

### **ESS 211. Paleontology**

An introduction to the principles and practices of the study of ancient life. The nature and variety of fossil organisms, interpretation of environments of the past, the use of fossils in problems of evolution, biogeography and geological dating are considered. Two lecture hours and one 3 hour laboratory per week.

Prerequisite: ESS 106 or permission of the instructor.

*Fall, 3 credits*

### **ESS 212. Introductory Paleontology and Stratigraphy**

A study of the major fossil invertebrate phyla stressing aspects of morphology, classification and stratigraphic distribution of fossils as

well as a study of the spatial relations of sedimentary rocks and the development of the subdivisions of the geologic time scale. Two lectures and two 2 hour laboratories per week; field trip.

*Spring, 3 credits*

**ESS 239. Materials and Methods in the Teaching of Physical Science**

Designed for prospective secondary school teachers of earth and space sciences, chemistry, and physics; the course emphasizes methods and materials appropriate to the teaching of a physical science at the high school level, and stresses recent curricular developments. Three class hours per week. This course is identical with Chemistry 239 and Physics 239.

Prerequisites: Physics 161, 162 or equivalent, Chemistry 101, 102, Mathematics 151, 152 or equivalent and concurrent study of an inter-

mediate course in either chemistry or physics.

*Spring, 3 credits*

**ESS 241. Astronomy, the Solar System**

The motions of the planets, comets, and asteroids, planetary atmospheres, the surface of the moon and the planets as well as the origin of the solar system are considered. Three lecture hours per week.

Prerequisites: ESS 101, Mathematics 156, Physics 153, or permission of the instructor.

*Fall, 3 credits*

**ESS 242. Astronomy, Astrophysics**

An introduction to astrophysics. The course is concerned with stellar phenomena, the evolution of stars, the extent of the universe, and cosmology. Three lecture hours per week.

Prerequisites: ESS 101, Mathematics 156, Physics 153 or permission of the instructor.

*Spring, 3 credits*

**COURSES FOR SENIORS**

The following courses are designed primarily for majors in Earth and Space Sciences in their senior year. The courses may be elected by seniors in other science areas. Qualified juniors will be admitted to the courses with permission of the instructor.

**ESS 301. Optical and X-ray Mineralogy**

Identification and interpretation of rock-forming minerals with the petrographic microscope and X-ray diffractometer. One hour lecture and two 3 hour laboratory sessions per week.

*Fall, 3 credits*

**ESS 302. Igneous Petrology**

Origin of igneous rocks, stressing field and relevant experimental data. Topics include the origin and differentiation of magmas, residual liquids, and the role of magmatism

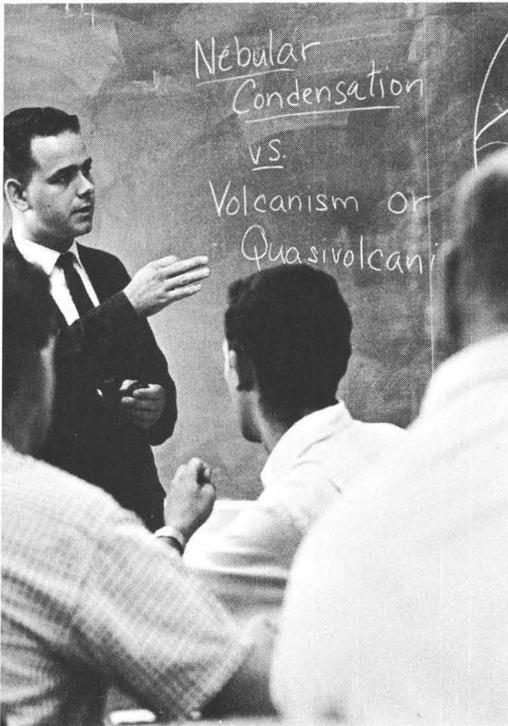
in the history of the crust. One or more field trips will be taken. Two hour lecture and one 3 hour laboratory per week.

*Spring, 3 credits*

**ESS 303. Sedimentary Petrology**

The derivation, transportation, deposition, diagenesis and lithification of sediments. The physical, chemical, and structural properties of sedimentary rocks. Laboratory work includes chemical and microscopic studies. Two hours lecture and one 3 hour laboratory per week.

*Fall, 3 credits*



#### **ESS 304. Metamorphic Petrology**

Origin of metamorphic rocks, stressing field and relevant experimental data. Topics include the thermodynamics and kinetics of metamorphism, the uses and limitations of the mineral facies concept, and the relationship between metamorphism and magmatism in the development of the crust. One or more field trips will be given. Two hour lecture and one 3 hour laboratory per week.

*Spring, 3 credits*

#### **ESS 305. Field Geology**

A field course which may be taken at any one of several approved university field stations. Credit is variable, depending on course taken.

#### **ESS 311. Advanced Paleontology**

Lecture sessions emphasizing selected examples of imaginatively resolved paleontologic problems involving systematics, paleoecology, paleobiology, evolutionary patterns. Laboratory study of selected fossil assemblages, exploring the total potential for paleontologic interpretation of each sample and emphasizing the techniques required for full development of this potential. Two lectures, two 2 hour laboratories per week; field trips.

Prerequisite: ESS 212 or permission of instructor.

*Fall, 3 credits*

#### **ESS 312. Advanced Stratigraphy**

Study of the evolution of ideas concerned with interpretation of the physical and historical interrelationships of layered rocks, and of the application of these ideas to selected stratigraphic problems. Three lectures per week; field trips.

Prerequisite: ESS 212 or permission of instructor.

*Spring, 3 credits*

#### **ESS 313. Systematic Paleontology**

Evaluation of the current methods of the study and classification of the major inverte-

brate fossil groups. Three hours lecture and one 3 hour laboratory per week.

*Fall, 4 credits*

**ESS 341. Astronomy and Galactic Dynamics**

Introduction to radio astronomy; theory of thermal and non-thermal emission; cosmic rays; discrete radio sources and their description; quasars; emission and absorption of 21 cm hydrogen lines; application to the galactic structure and interstellar gas; cosmology. Three hours lecture per week.

Prerequisites: ESS 101, Physics 212 and Physics 242.

*Fall, 3 credits*

**ESS 342. Interstellar and Galactic Astrophysics**

The general properties of the interstellar gas and dust, the reddening and polarization or depolarization of radio waves and lights, the ionization and neutral hydrogen in interstellar space. The theory and dynamics of nebula, dynamics of stars and galaxies, galactic rotation and the structure of the galaxy, introduction to radio astronomy. Three hours lecture per week.

Prerequisites: ESS 101, Physics 212 and Physics 242.

*Spring, 3 credits*

**ESS 361. Descriptive Oceanography**

A descriptive survey of the oceans of the world, their water masses and currents. Three hours lecture and recitation.

Prerequisites: ESS 104 and permission of the instructor.

*Fall, 3 credits*

**ESS 362. Physical Oceanography**

The application of fluid mechanics to the study of waves, tides and ocean currents. Three hours lecture and recitation.

Prerequisites: ESS 104, and permission of the instructor.

*Spring, 3 credits*

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**GRADUATE COURSES**

Senior students with high academic standing may petition the department to register in the following graduate courses:

ESS 501—*Precambrian Geology*

ESS 503—*Advanced Field Geology*

ESS 511—*Paleoecology*

ESS 512—*Biostratigraphy*

ESS 513—*Microfaleontology*

ESS 521—*Isotope Geology*

ESS 522—*Meteoritics*

ESS 523—*Geochemistry*

ESS 553—*Astrophysics I, Stellar Interiors*

ESS 554—*Astrophysics II, Stellar Atmospheres*

ESS 561—*Climatic Change during the Pleistocene and Recent Time.*

(See the *Graduate Bulletin* for description of the above courses.)

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## DEPARTMENT OF ECONOMICS

*Professors:* CHARLES HOFFMANN, ROBERT LEKACHMAN (*Chairman*), EGON NEUBERGER

*Associate Professors:* MARVIN M. KRISTEIN, CHARLES E. STALEY, ELIYAHU KANOVSKY

*Assistant Professors:* JAMES V. CORNEHLS, HELEN KRAMER, EDWIN F. TERRY, EDWARD VAN ROY, DIETER ZSCHOCK

### Requirements for the Major in Economics

In addition to the general University requirements for the Bachelor of Arts degree, the following courses are required for the major in Economics:

#### A. *Study within the area of the major*

ECO 101, 102 (*Economic Principles and Problems*)

ECO 211 (*Economic Analysis*)

ECO 212 (*National Income Analysis*)

ECO 221 (*Economic Statistics*)

Fifteen additional credit hours in courses in Economics.

#### B. *Courses in related areas*

Twelve credit hours in courses in related areas in the Social Sciences approved for the student's program.



## COURSES IN ECONOMICS

### ECO 101, 102. Economic Principles and Problems

A basic introduction to Economic Analysis on the "macro" and "micro" levels, with an emphasis on economic policy. Among other significant issues, the course emphasizes the fundamental thinking basic to understanding policies dealing with business fluctuations, anti-trust problems, foreign trade and the farm problem. The first semester emphasizes "macro" economics, the second "micro" economics.

Prerequisite for ECO 102: ECO 101 or permission of instructor.

Staff

*Fall and Spring, 3 credits each semester*

### ECO 201. Money, Banking and Monetary Theory

An introduction to modern monetary institutions and mechanisms, their relationship to the economy, and governmental policies in this area. Monetary theory and its application to policy questions will be stressed.

Prerequisite: ECO 101 or permission of instructor.

Mr. Kristein

*Fall, 3 credits*

### ECO 202. Business Fluctuations

The measurement and analysis of prosperity and depression. The statistical evidence for the existence of "cycles" is examined. Theories of "cycles" and fluctuations are historically studied and "tested."

Prerequisite: ECO 201 or permission of instructor.

*Spring, 3 credits*

### ECO 203. Public Finance

An analysis of the economic aspects of budgets, taxation and tax systems in the federal, state and local governmental context. The theory of tax incidence and taxes on property, incomes, consumption, etc., are exam-

ined as to nature, administration and economic effects. Intergovernmental fiscal relations are also covered.

Prerequisites: ECO 101, 102 or permission of instructor.

*Fall, 3 credits*

### ECO 206. Economics of Industrial and Labor Relations

A study of the evolution of the labor unions; of collective bargaining, with an emphasis on current labor problems, union and non-union; and of the changing composition of the labor force, wage differentials, the theory of wage determination, labor legislation and unemployment.

Prerequisite: ECO 101 or permission of instructor.

*Spring, 3 credits*

### ECO 210. International Economics

The course covers the theory of international trade, protection, commercial policy customs unions, capital movements, and international finance.

Prerequisites: ECO 101, 102 or permission of instructor.

Mr. Staley

*Spring, 3 credits*

### ECO 211. Economic Analysis

Economic theory of cost, demand, price and markets. The application of theory to familiar problems is emphasized.

Prerequisites: ECO 101, 102 or permission of instructor.

Mr. Staley

*Fall, 3 credits*

### ECO 212. National Income Analysis

The theory of national income determination, employment, distribution, price levels and growth.

Prerequisites: ECO 101, 102 or permission of instructor.

*Spring, 3 credits*

### **ECO 221. Economic Statistics**

The purpose of this course in Economic Statistics is to prepare the student to deal with a variety of statistical studies basic to Economics and related Social Sciences. The course will emphasize the collection, presentation, analysis and interpretation of various statistics. The first semester emphasizes collection, presentation, central tendency, measures of significance and correlation. Three hours of lecture and two hours of laboratory work.

Mr. Terry

*Fall, 4 credits*

### **ECO 222. Economic Statistics**

A continuation of ECO 221, which is a prerequisite.

Mr. Terry

*Spring, 4 credits*

### **ECO 225. Economic Accounting**

An introduction to some formal accounting statements commonly involved in economic analysis. Topics covered include business balance sheet and profit and loss statements, national and regional income and product statements, national and regional input-output transaction tables and flow of funds accounting.

Mr. Terry

*Spring, 3 credits*

### **ECO 233. Economics of Regulation and Control**

An examination of the structure of American industry and the deviations from competition with particular reference to governmental policy in this area. Criteria for the efficient control of prices, production, and the flow of investment funds are analyzed.

Prerequisites: ECO 101, 102 or permission of instructor.

*Fall, 3 credits*

### **ECO 234. Industrial Organization in Developing Nations**

A comparative study of industrial organization, market structure, public controls, and economic planning in Western Europe and Japan. The course will extend the principles developed in ECO 233.

Prerequisite: ECO 233 or permission of instructor.

Miss Kramer

*Spring, 3 credits*

### **ECO 235. Economic History of the United States**

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 101, 102 or permission of instructor.

Mr. Hoffmann

*Spring, 3 credits*

### **ECO 236. Economic Development of Modern Europe**

An investigation of changes in the structure of the European economy over the past four centuries with emphasis on the roles played by public policy, technological evolution, and the transformation to the market system. The relevance of current theories of economic growth to the European experience will be discussed.

Prerequisites: ECO 101, 102 or permission of instructor.

*Fall, 3 credits*

### **ECO 238. Economics of Manpower Planning**

Analyzes changing manpower requirements and labor force composition in the United States. Considers federal manpower develop-

ment programs, educational responses to unemployment problems, and American support of manpower planning and educational reform in developing countries.

Prerequisite: ECO 101, 102 or permission of instructor.

Mr. Zschock

*Spring, 3 credits*

### **ECO 304. Fiscal Policy**

The economics of government surplus, deficits, and debt. Fiscal theories and programs to sustain economic stability, high levels of employment and income and economic growth are analyzed with emphasis placed on contemporary policy problems. Fiscal policy is also related to monetary policy.

Prerequisite: ECO 212 or permission of instructor.

*Spring, 3 credits*

### **ECO 311. History of Economic Thought**

A study of the evolution of economic thought with reference to the basic problems of the disciplines: factor allocation, distribution, growth, etc. The major schools are emphasized in the survey.

Prerequisites: ECO 101, 102 or permission of instructor.

Mr. Lekachman

*Fall, 3 credits*

### **ECO 321. Econometrics**

An introduction to the mathematical approach to the measurement and extrapolation of economic variables and the testing of economic theories. The mathematical formulation of models and data provides an invaluable tool to the solution of macroeconomic problems facing the student and policy-maker.

Prerequisites: ECO 211, 212, 221 or permission of instructor.

Mr. Terry

*Fall, 3 credits*

### **ECO 322. Economic Development**

A study of the process and problems of economic growth. Models of economic growth are examined and both developed and underdeveloped economics are reviewed with a view to isolating key factors involved in the growth process.

Prerequisites: ECO 211, 212 or permission of instructor.

*Spring, 3 credits*

### **ECO 342. 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.

Prerequisites: ECO 211, 212 or permission of instructor.

*Spring, 3 credits*

### **ECO 391, 392. Senior Seminar in Economics**

The senior seminar will emphasize an examination of current research in the various areas of specialization in economics. In addition to the areas of the core courses, these may include econometrics, economic statistics, international trade, economic development, public finance, labor economics, economic history, and the history of economic thought. The student will be required to prepare a paper demonstrating his acquaintance with, and command of, basic literature and research techniques.

Prerequisite: Senior standing.

*Fall and Spring, 3 credits each semester*

## DEPARTMENT OF EDUCATION

*Professors:* LEONARD GARDNER, FRANK R. PETERS

*Assistant Professors:* JAMES E. HIGGINS, THEODORE C. ROTH, ELI SEIFMAN (*Acting Chairman and Director of Teacher Preparation*), ANNIE MAE WALKER

*Instructors:* SHI MING HU, JACK E. WILLIAMS

The Department offers students the opportunity to pursue a career and study in education by providing programs leading to provisional certification at the elementary and secondary school levels\*; courses designed to forward the study of principles and issues in the field of education; and practice and study in education in laboratory facilities maintained through cooperative arrangement with participating schools.

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\*For a detailed description of these programs, see the section of the bulletin entitled, Elementary and Secondary Teacher Certification Programs.

### COURSES IN EDUCATION

#### **EDU 150. Children's Literature**

An interpretive and critical study of literature for children in elementary grades.

Prerequisite: None.

Mr. Higgins

*Fall and Spring, 3 credits*

#### **EDU 160. History of American Education**

An analysis of various approaches to the study of the history of American education through an examination of the works of selected histories of education. 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 sub-

ject has been sub-divided, and the aims of the particular history. The semester will be devoted to the analysis of works dealing with the history of education in America. Histories of education selected for study will be chosen from among the writings of such authors as Bernard Bailyn, Maxine Greene, Lawrence A. Cremin, Raymond Callahan and others. This course is identical with History 160 (History of American Education).

Prerequisite: None.

Messrs. Seifman, Williams

*Fall, 3 credits*

#### **EDU 162. History of Western Education**

An analysis of various approaches to the study of the history of western education through an

examination of the works of selected "histories of education." Emphasis will be placed on developing an understanding of the materials 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 sub-divided, and the aims of the particular history. The semester will be devoted to the analysis of works dealing with the history of education during the ancient, medieval and early modern eras. Histories of education selected for study will be chosen from among the writings of such authors as Henri I. Marrou, E. B. Castle, William K. Medlin, Charles H. Haskins, Robert Ulich and others. This course is identical with History 162 (History of Western Education).

Prerequisite: None.

Messrs. Seifman, Williams

*Spring, 3 credits*

### **EDU 203. Psychological and Social Foundations of Educational Theory**

An examination of theories drawn from psychology, sociology and anthropology as applied to adolescent behavior and the school environment. Writings of such researchers as: Erikson, Goodman, Henry, White, Wolfenstein.

Prerequisite: None.

Mr. Peters and Staff

*Fall and Spring, 3 credits*

### **EDU 345-346. Philosophy of Education**

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. This course is identical with Philosophy 345, 346 (Philosophy of Education).

Prerequisite: Senior standing.

Messrs. Gardner, Goodman, Sternfeld, Watson

*Fall and Spring, 3 credits each semester*

### **EDU 350. Student Teaching**

Prospective secondary school teachers receive supervised practice in teaching their subjects to secondary school classes, by arrangement with selected Long Island junior and senior high schools. The student teacher reports to the school to which he is assigned for at least one-half of each school day for the semester. Frequent consultation with the supervising teacher and twice-weekly seminar meetings with a University faculty member help the student to interpret and evaluate his student teaching experience.

Applications must be filed in the semester preceding that in which the student plans to student teach. The dates by which applications must be completed will be announced.

Prerequisites: Senior standing and approval of Director of Teacher Preparation.

Mr. Seifman and Staff

*Fall and Spring, 6 credits*



## DEPARTMENT OF ENGLISH

*Professors:* PETER ALEXANDER (*Visiting*), ROBERT M. JORDAN, ALFRED KAZIN, RICHARD L. LEVIN, \*JACK LUDWIG, HERBERT WEISINGER (*Chairman*)

*Associate Professors:* ROBERT P. CREED, EDWARD FIESS, \*HOMER B. GOLDBERG, JOSEPH PEQUIGNEY, THOMAS ROGERS, JUDAH L. STAMPFER, JOHN THOMPSON

*Assistant Professors:* KENNETH ABRAMS, RICHARD BRETT, BEATRICE L. HALL, HOWARD J. HARVEY, JEREMY LARNER, GEORGIANNA LORD, RUTH MILLER, SALLIE H. SEARS, PETER SHAW, ALICE S. WILSON

*Instructors:* ROBERT A. ACKERMAN, RICHARD DUNLAVEY, JANET EGLESON, MARCEL EINSTADTER, SIDNEY FESHBACH, CATHERINE GILES, STEPHEN KOCH, RUTH R. MISHELOFF, AILEEN NAYDER, GEORGE QUASHA, WILLIAM F. WALSH

### Requirements for the Major in English

A grade of C or better in *English 101, 102* is the normal prerequisite to sophomore standing as a major in the Department.

In addition to the general University requirements for the Bachelor of Arts degree, the following courses are the requirements for the major in English:

#### A. *Study within the area of the major*

1. Introductory courses, normally to be taken in the sophomore year.  
EGL 151 (*Interpretation of Poetry*).  
One other introductory course numbered 150-199.
2. EGL 211 (*Shakespeare*).
3. Nine additional courses in the Department beyond the introductory level, to be chosen in consultation with the student's advisor. The Department expects a student to distribute the courses among a fairly wide range of periods and genres. EGL 285, *Methods of Instruction*, and EGL 290, *Writing Workshop*, cannot be counted

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\*On leave academic year 1967-68.

toward the nine additional courses. Up to two World Literature courses may be counted among the nine additional courses in the Department.

### B. Courses in related areas

1. One year of study in a foreign literature in its original language.
2. *History 155, 156.* (In special cases, a student may substitute American History in one or both semesters.)

## COURSES IN ENGLISH

### EGL 101, 102. Composition

A first-year course in writing and reading, required of all students in the University. Extensive controlled practice in writing exposition and argument, making use of essays and imaginative literature for analysis of ideas and methods and training in critical reading.

Staff

*Fall and Spring, 3 credits each semester*

### EGL 151. Interpretation of Poetry

Intensive analysis of poems in English of various periods and types and varying complexity.

Staff

*Fall and Spring, 3 credits*

### EGL 161. Interpretation of Fiction

Analysis of stylistic and structural modes employed by various writers of short stories and novels.

Staff

*Fall and Spring, 3 credits*

### EGL 171. Interpretation of Drama

Introduction to the analysis of drama, emphasizing the literary more than the theatrical dimension of the works, through examination of a range of plays from a variety of genres and periods.

Staff

*Fall and Spring, 3 credits*

### EGL 207. Chaucer

Primary emphasis on a study of *The Canterbury Tales* and *Troilus and Criseyde* in Middle English, with some attention to minor poems and other works.

Mr. Jordan

*Fall, 3 credits*

### EGL 211. Shakespeare

Examination of Shakespeare's achievement through analysis of about fifteen plays selected to represent the major types of drama he wrote.

Messrs. Levin, Stampfer, and Staff

*Fall and Spring, 3 credits*

**EGL 216. Renaissance Prose**

Study of the major prose writers of the sixteenth and earlier seventeenth centuries, examining their styles as well as the intellectual contents and contexts of their work.

Mr. Pequigney

*3 credits*

**EGL 225. Poetry of the Early Seventeenth Century**

Studies of the poems of Donne, Jonson, Herbert, Herrick, Crashaw, Vaughan, and Marvell, with some attention to the minor poets of the period.

Messrs. Pequigney, Stampfer

*Fall, 3 credits*

**EGL 227. Milton**

Study of all Milton's English poetry and selections from his prose works, with major emphasis on *Paradise Lost*.

Mr. Pequigney, Mrs. Wilson

*Spring, 3 credits*

**EGL 235. Restoration and Eighteenth Century Verse**

Selected lyric, satirical and intellectual poems from 1650 to 1800, with major emphasis on the poetry of Dryden and Pope.

Mr. Goldberg

*3 credits*

**EGL 236. Restoration and Eighteenth Century Prose**

Major works of satirical, intellectual, and occasional prose of the late seventeenth and eighteenth centuries, with emphasis on Swift and Johnson.

Messrs. Goldberg, Rogers

*Fall, 3 credits*

**EGL 237. Eighteenth Century English Novel**

Study of form and technique in representative works of Defoe, Richardson, Fielding, Smollett, and Sterne.

Mr. Goldberg

*Fall, 3 credits*

**EGL 247. Nineteenth Century English Novel**

Comparative analysis of representative works of Jane Austen, Thackeray, the Brontës, Dickens, George Eliot, and Hardy.

Messrs. Goldberg, Rogers

*Spring, 3 credits*

**EGL 253. Romantic Poetry**

Works of Blake, Coleridge, Wordsworth, Byron, Shelley, and Keats.

Mr. Abrams

*Spring, 3 credits*

**EGL 254. Victorian Poetry**

Works of Tennyson, Browning, Arnold, Hopkins, and Hardy, with some attention to other poetry of the period.

Messrs. Kazin, Stampfer

*Spring, 3 credits*

**EGL 256. Victorian Prose**

Readings in Carlyle, Newman, Arnold, Huxley, Mill, and Ruskin.

Mr. Rogers

*3 credits*

**EGL 260. Readings in Modern Literature**

Study of late nineteenth and twentieth century works, relating developments in English and American literature to intellectual and aesthetic currents on the Continent.

Prerequisite: EGL 161 or consent of instructor.

Miss Sears

*Spring, 3 credits*

**EGL 267. Contemporary British and American Novel**

Study of the works of such figures as Joyce, Lawrence, Fitzgerald, Faulkner, Hemingway, and Forster, as well as more recent developments.

Mr. Ludwig

*Fall, 3 credits*

**EGL 271. Representative Figures in American Literature I**

Examination of the work of major American writers from the colonial period to the Civil War.

Mr. Fiess

*Fall, 3 credits*

**EGL 272. Representative Figures in American Literature II**

Examination of the work of major American writers from the Civil War period to the present. Continuation of EGL 271, but may be taken independently.

Mr. Fiess

*Spring, 3 credits*

**EGL 281. Literary Criticism**

Study of the problems and procedures of literary criticism through analysis and application of various approaches to the interpretation and evaluation of literary works.

Messrs. Jordan, Levin and Staff

*Fall and Spring, 3 credits*

**EGL 283. The English Language**

A linguistic approach to contemporary English; phonemics, usage, and applied linguistics are stressed.

Mr. Creed and Staff

*Fall, 3 credits*

**EGL 284. History and Structure of the English Language**

Beginning with an introduction to Old English phonology, morphology and syntax, the course proceeds to an examination of the changed patterns of the language in the Middle English and Modern English eras; attention will be given to the major dialect divisions of Middle English.

Mr. Creed and Staff

*Spring, 3 credits*

**EGL 285. Methods of Instruction in Literature and Composition**

Examination of the intellectual grounds of the teaching of literature and composition in secondary school and exploration of the problems involved in communicating genuine literary values to high school students. (This course cannot be counted as one of the 9 additional courses in the Department as stated in A. 3 of the Requirements for the Major in English.)

Messrs. Goldberg, Rogers, and Staff

*Fall and Spring, 3 credits*

**EGL 290. Writing Workshop**

A workshop in the development of writing skills through practice supplemented by readings.

Prerequisite: Consent of instructor.

Mr. Larner

*Spring, 3 credits* (This course cannot be counted as one of the 9 additional courses in the Department as stated in A.3 of the Requirements for the Major in English.)

**EGL 295. The Bible as Literature**

Study of literary forms and themes in selected readings from the Old and New Testaments.

Mr. Stampfer

*Spring, 3 credits*

**EGL 306. Middle English Literature**

Study of major works of prose, poetry, and drama of the fourteenth and fifteenth centuries, exclusive of Chaucer, in Middle English.

Prerequisite: EGL 207 or consent of instructor.

Mr. Jordan

*Spring, 3 credits*

**EGL 313. Tudor and Stuart Drama**

Study of representative plays of the major dramatists (excluding Shakespeare) and genres from the beginnings of English secular drama to the closing of the theaters in 1642.

Prerequisite: Senior standing or consent of instructor.

Mr. Levin

*Fall, 3 credits*

**EGL 315. Elizabethan Poetry**

Readings in Raleigh, Spenser, Sidney, Daniel, Davies, Marlowe, and Shakespeare.

Prerequisite: Senior standing or consent of instructor.

Messrs. Pequigney, Thompson, Stampfer

*Fall, 3 credits*

**EGL 333. English Drama, 1660-1780**

Comparative analysis of representative works of the major dramatists from Dryden to Sheridan, with emphasis on the diverse forms of serious drama and the changing conception of comedy.

Prerequisite: EGL 211 or consent of instructor.

Mr. Goldberg

*3 credits*

**EGL 344. Romantic Revival I**

The French Revolution; its influence on Wordsworth and Coleridge; their development as poets; the relation of Keats and Shelley to the Romantic movements; the criticism associated with the period; its prose.

Prerequisite: Senior standing or consent of instructor.

Mr. Alexander

*Fall, 3 credits*

**EGL 345. Romantic Revival II**

The Romantic Movement continued; the prose criticism of the period (Lamb, Hazlitt, etc.) and its development in Victorian criticism; the Victorian poets insofar as they are reacting to the work of their immediate predecessors. May be taken independently of English 344.

Prerequisite: Senior standing or consent of instructor.

Mr. Alexander

*Spring, 3 credits*

**EGL 365. Joyce**

The poetry and fiction of James Joyce will be read, including passages from *Finnegans Wake*. Selected works will be carefully analyzed, with *Ulysses* the major emphasis.

Mr. Ludwig

*Fall, 3 credits*

**EGL 366. William Butler Yeats**

Readings in the poetry, plays, autobiographies, and letters.

Mr. Ludwig

*Spring, 3 credits*

**EGL 367. Modern British and American Poetry**

Study of the achievement of twentieth century poetry in English, concentrating on Yeats, Eliot, Auden, Stevens, Thomas, and Frost.

Messrs. Ludwig, Stampfer

*Spring, 3 credits*

**EGL 370. Early American Prose and Poetry, 1607-1828**

Major literary documents of the Colonial and Revolutionary periods through the Enlighten-

ment. Emphasis is on the emergence of literary forms and attitudes.

Miss Miller

*Spring, 3 credits*

**EGL 371. Major American Authors I**

Intensive study of major American writers of the earlier nineteenth century.

Prerequisite: Senior standing or consent of instructor.

Mr. Kazin

*Fall, 3 credits*

**EGL 372. Major American Authors II**

Intensive study of major American writers of the later nineteenth and twentieth centuries. May be taken independently of EGL 371.

Prerequisite: Senior standing or consent of instructor.

Mr. Kazin

*Spring, 3 credits*

**EGL 375. Major American Poets**

Studies in American poetry from Emerson to Robert Frost.

Prerequisite: EGL 271 or 272, or consent of instructor.

Mr. Kazin

*Spring, 3 credits*

**EGL 381. History of Literary Criticism I**

Analytic survey of major texts in the history of European literary theory and criticism from ancient times through the middle ages.

Prerequisites: EGL 281, senior standing, or consent of instructor.

Mr. Jordan and Staff

*Fall, 3 credits*

**EGL 382. History of Literary Criticism II**

Analytic survey of major texts in the history of European literary theory and criticism from the early Renaissance to the present. May be taken independently of EGL 381.

Prerequisites: EGL 281, senior standing, or consent of instructor.

Mr. Jordan and Staff

*Spring, 3 credits*

**EGL 384. The History of English Poetry I**

The study of the development of form, theme, and language in English verse from the fourteenth century to the end of the Renaissance.

Prerequisite: Senior standing or consent of instructor.

Mr. Thompson

*Fall, 3 credits*

**EGL 385. The History of English Poetry II**

The study of the development of form, theme, and language in English verse from the end of the Renaissance to the present.

Prerequisite: EGL 384 or consent of instructor.

Mr. Thompson

*Spring, 3 credits*

**EGL 391. Senior Honors Seminar I**

Advanced intensive study of a special literary topic in preparation for the independent work of EGL 392.

Prerequisite: G.P.A. of 3.0 in all courses taken to fill requirements for the major (A. and B. on page ) plus the recommendation of the Department.

Staff

*Fall, 3 credits*

**EGL 392. Senior Honors Seminar II**

Intensive inquiry and independent study culminating in an Honors essay.

Prerequisite: Seminar 391 or permission of instructor after satisfying minimum requirements for admission to honors.

Staff

*Spring, 3 credits*

**EGL 394. Satire and the Satiric Spirit**

Critical analysis of satire and the satiric spirit from Aristophanes through Horace, Juvenal, and Persius, to writers such as Chaucer, Rabelais, Ben Jonson, Moliere, Dryden, Swift, Voltaire, Pope, Byron, Stendhal, Flaubert.

Prerequisite: Senior standing or consent of instructor.

Mr. Ludwig

*Spring, 3 credits*

**EGL 399. Independent Project**

Advanced tutorial culminating in a major essay, permitting the student to apply his acquired disciplines and knowledge in a rigorous and original manner to a restricted topic in English or American literature.

Prerequisites: Senior standing and consent of the Department Chairman.

Staff

*Spring, 3 credits*

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**See also listings under World Literature**

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**DEPARTMENT OF GERMANIC  
AND SLAVIC LANGUAGES  
AND LITERATURES**

*Professor:* SEYMOUR L. FLAXMAN

*Assistant Professors:* RUSSELL E. BROWN (*Acting Chairman*), ANTHONY R. HIPPISELY, DANIEL C. O'NEIL, FERDINAND A. RUPLIN, JOHN R. RUSSELL, ERNESTINE SCHLANT

*Instructors:* SAMUEL BERR, IRMGARD FEIX, ELIZABETH C. GLADIR, BRIAN REGAN, LUCY VOGEL

**Requirements for the Major in Germanic and Slavic Languages and Literatures**

In addition to the general requirements for the Bachelor of Arts degree, the following courses are required for the major in Germanic and Slavic Languages and Literatures:

*A. Study within the area of the major*

1. 18 semester hours in German or Russian in courses numbered 300 or above.
2. All students who major in German or Russian will be required to achieve proficiency in a second foreign language.

*B. Courses in related areas*

18 semester hours in related courses with the approval of the departmental advisor.

*C. Teaching certification*

Students who wish to prepare for certification as secondary school teachers must take the courses in education required for certification in addition to Sections A and B. They will also be required to earn 6 credits in a conversation and composition course in the language they intend to teach. The

3 credits of Methods and Materials in the Teaching of Foreign Languages and the 12 credits of a second foreign language may, at the discretion of the Department, be counted toward the fulfillment of the related field requirements.

### Placement in Language Courses for Incoming Freshmen

Students continuing the study of a foreign language started in high school will be placed in the appropriate college course by a placement examination; however, after two years of high school preparation, they will receive no graduation credit for the first course (111) in the same language, and after three years of high school preparation they will receive no credit for the first two courses (111, 112) in the same language.

### COURSES IN GERMAN

#### **GER 111, 112. Elementary German**

An introduction to spoken and written German, stressing pronunciation, speaking, comprehension, reading, and writing. Selected texts will be read. Practice in the language laboratory supplements class work.

Prerequisite: None.

Mr. Ruplin and Staff

*Fall and Spring, 3 credits each semester*

#### **GER 115, 116. Scientific German and Technical Translation**

This course is designed to teach the student to read and translate German scientific prose of moderate difficulty. Practice in translating from German into English and in transferring ideas into the appropriate technical terminology. This course is not intended to pre-

pare the student for the proficiency requirement or the major.

Mr. O'Neil

*Fall and Spring, 3 credits each semester*

#### **GER 151, 152. Intermediate German**

The reading and interpretation of German texts, with a review of German grammar, composition, and conversation. The student gains an acquaintance with the various literary genres through examples drawn from representative German authors. Work in the language laboratory will further develop audio-lingual skills.

Prerequisites: GER 111, 112, or equivalent.

Mr. O'Neil and Staff

*Fall and Spring, 3 credits each semester*

**GER 221, 222. German Conversation and Composition**

This course consists of the active use of spoken and written German. At least one hour per week of work in the language laboratory is required.

Prerequisites: GER 152 or language "proficiency," or equivalent, and permission of instructor.

*Fall and Spring, 3 credits each semester*

**GER 231, 232. Major Writers in German**

Reading and interpretation of selected works by great German writers from the Middle Ages to the present day. These works are treated in the context of the history of German literature, so that the student is prepared for further literary study. This course is conducted partly in German.

Prerequisites: GER 151, 152, or equivalent.

Mr. Brown

*Fall and Spring, 3 credits each semester*

**GER 321. Advanced German Conversation and Composition**

A course designed to develop mastery of spoken German. Students will learn to express themselves idiomatically and fluently. At least two hours of weekly laboratory practice will be required.

Prerequisites: GER 221, 222 or junior or senior standing and permission of instructor.

Mrs. Schlant

*Fall, 3 credits*

**GER 322. Advanced German Conversation and Composition**

A course designed to acquaint students with the subtleties of German grammar and style. Extensive practice in written German.

Prerequisites: GER 221, 222 or junior or senior standing and permission of instructor.

Mrs. Schlant

*Spring, 3 credits*

**GER 333. Lessing**

Reading and interpretation of the most important dramatic and critical works by Lessing. These will be studied in connection with the development of the *Aufklärung*.

Prerequisites: GER 231, 232, or equivalent.

*Fall, 3 credits*

**[GER 335, 336. Goethe]**

Reading and interpretation of the most important works by Goethe, including the poems, plays, and novels. These will be studied against the background of Goethe's life and times.

Prerequisites: GER 231, 232, or equivalent.

*Fall and Spring, 3 credits each semester*

**GER 341. Nineteenth Century German Poetry**

The Romantic poets, especially Novalis, Brentano, Eichendorff. Post-Romantic poets, such as Mörike, Heine, Nietzsche, and Meyer. Impressionism and Symbolism: Hofmannsthal, George, early Rilke.

Prerequisites: GER 231, 232, or equivalent.

Mr. Brown

*Fall, 3 credits*

**GER 342. Twentieth Century German Poetry**

German expressionism, especially Trakl, Heym, Stramm and Werfel, and late Rilke. The Nature poetry of Loerke and Lehmann. The major survivors of Expressionism: Gottfried Benn and Bertolt Brecht.

Prerequisites: GER 231, 232, or equivalent.

Mr. Brown

*Spring, 3 credits*

**[GER 345. Nineteenth Century German Drama]**

Critical reading and analysis of nineteenth

century dramas by Kleist, Grillparzer, Büchner, and Hebbel.

Prerequisites: GER 231, 232, or equivalent.

Mr. Flaxman

*Fall, 3 credits*

**[GER 346. Twentieth Century German Drama]**

Critical reading and analysis of dramas from Naturalism, Neoromanticism, and Expressionism, and by later figures such as Bertolt Brecht.

Prerequisites: GER 231, 232, or equivalent.

Mr. Flaxman

*Spring, 3 credits*

**GER 347, 348. The German Novel from Fontane to Hesse**

A critical reading and analysis of the most important novels from the end of the nineteenth century to the end of World War II. Special attention will be given to the development of the modern German novel and to those literary movements that affect this genre.

Prerequisites: GER 231, 232, or equivalent. GER 347 is a prerequisite for GER 348.

Mr. Flaxman

*Fall and Spring, 3 credits each semester*

**GER 352. Schiller**

Reading and interpretation of the most important works by Schiller, including the poems, plays, and essays. These will be studied against the background of Schiller's life and times.

Prerequisites: GER 231, 232, or equivalent.

*Spring, 3 credits*

**GER 355. Seventeenth Century German Literature**

Representative baroque lyric (Fleming, Dach, Gerhard, Silesius, Hofmannswaldau, Gryphius), drama (Gryphius, Lohenstein), prose fiction (Grimmelshausen), and literary theory

(Opitz). Survey of political, religious and cultural factors that shaped German baroque literature. Reference to the other arts and to foreign influences and parallels, such as Shakespeare.

Prerequisites: GER 231, 232, or equivalent.

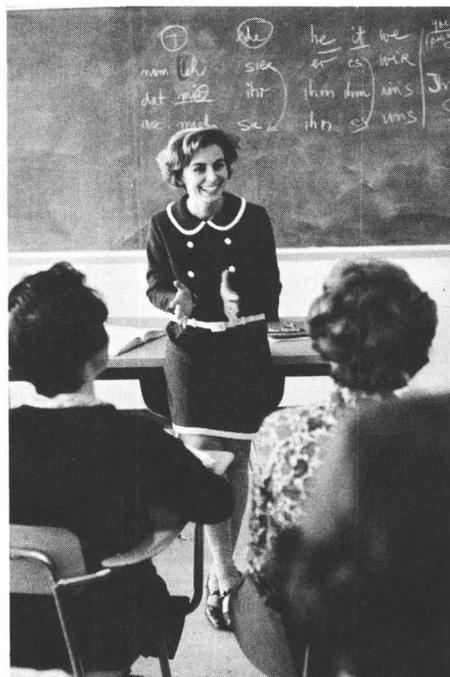
*Fall, 3 credits*

**GER 358. Sturm und Drang**

Plays of young Goethe, Lenz, Klinger, Leisewitz, Wagner; lyric of the *Göttinger Hain* and Bürger. Irrationalistic, pietistic, and revolutionary tendencies of the later eighteenth century. Influences of Shakespeare, Klopstock, Rousseau.

Prerequisites: GER 231, 232, or equivalent.

*Spring, 3 credits*



**COURSES IN RUSSIAN****RUS 111, 112. Elementary Russian**

An introduction to spoken and written Russian, stressing pronunciation, speaking, comprehension, reading, and writing. Reading of selected texts will be included. Practice in the language laboratory supplements class work.

Prerequisite: None.

*Fall and Spring, 3 credits each semester*

**RUS 151, 152. Intermediate Russian**

An intermediate course in the reading and interpretation of Russian texts, including a review of Russian grammar, composition, and conversation. The student gains an acquaintance with the various literary genres through examples drawn from representative Russian authors. Work in the language laboratory will further develop audiolingual skills.

Prerequisites: RUS 111, 112, or equivalent.

*Fall and Spring, 3 credits each semester*

**RUS 221, 222. Russian Conversation and Composition**

A course in the active use of spoken and written Russian. Additional work in the language laboratory is required. May be taken concurrently with or following RUS 211, 212.

Prerequisites: RUS 111, 112, or equivalent.

*Fall and Spring, 3 credits each semester*

**RUS 231, 232. Major Writers in Russian**

Reading and interpretation of selected works by great Russian writers. These works are treated in the context of Russian literature in the nineteenth century, so that the student is prepared for further literary study. This course is conducted partly in Russian.

Prerequisites: RUS 151, 152, or equivalent.

*Fall and Spring, 3 credits each semester*

**RUS 335. The Russian Short Story**

Reading of selected short stories from Pushkin to the present. While the emphasis will be on literary values, linguistic problems will also be considered. This course is conducted partly in Russian.

Prerequisites: RUS 231, 232, or equivalent.

*Fall, 3 credits*

**RUS 336. Pushkin**

The reading and analysis of selected works by Pushkin, with emphasis on his poetry. This course is conducted partly in Russian.

Prerequisites: RUS 231, 232, or equivalent.

*Spring, 3 credits*

**RUS 381. Nineteenth Century Russian Literature**

Study of selected topics in Russian literature of the nineteenth century. This course is conducted partly in Russian.

Prerequisites: RUS 231, 232 and one additional course in Russian literature.

*Fall, 3 credits*

**RUS 382. Twentieth Century Russian Literature**

Study of selected topics in Russian literature of the twentieth century.

Prerequisites: RUS 231, 232 and one additional course in Russian literature. This course is conducted partly in Russian.

*Spring, 3 credits*

**OTHER COURSES****Foreign Languages 239. 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: Junior standing.

Mr. Ruplin

*Fall, 3 credits*

### **Linguistics 282. Introduction to Linguistics**

A course encompassing the theory of language from Panini to the present. Some time will be devoted to comparative and historical linguistics, but the emphasis will be placed on descriptive linguistics and applied linguistics in the classroom. The course will include practical descriptive work in the language laboratory.

Prerequisites: Major in English, foreign language, or anthropology; or permission of the instructor.

Mr. Ruplin

*Spring, 3 credits*



### **Comparative Literature 348. The Theory of Comparative Literature**

The Theory of Comparative Literature will view the field of comparative literature from various aspects in an attempt to give the student an understanding of what comparative literature study means and what it involves. This will include an examination of the leading theories of comparative literature.

Prerequisites: The completion of at least two full courses in English literature, the third year of a course in a foreign language, or its equivalent, and senior standing.

*Spring, 3 credits*

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**See also listings under World Literature**

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## DEPARTMENT OF HISTORY

*Professors:* GUILLERMO CÉSPEDES, JACKSON TURNER MAIN, STANLEY R. ROSS,  
\*BERNARD SEMMEL (*Chairman*)

*Associate Professors:* WERNER T. ANGRESS (*Director of Graduate Studies*),  
DAVID B. BURNER, HUGH G. CLELAND (*Executive Officer*), ROBERT  
PAXTON, JOHN W. PRATT, JOEL T. ROSENTHAL, PHILIP J. STAUDENRAUS,  
DAVID F. TRASK, RUBEN E. WELTSCH (*Adjunct*), \*\*ALLAN K. WILDMAN

*Assistant Professors:* PER A. ÅLIN, KARL S. BOTTIGHEIMER, HERMAN LEBOVICS,  
ROBERT H. G. LEE, ROBERT D. MARCUS, RUTH SCHWARTZ

*Instructors:* KARL W. DEMUTH, ROBERT LEVINE

*Documents Collector and Lecturer:* KEITH KAVENAGH

### Requirements for the Major in History

In addition to the general University requirements for the Bachelor of Arts degree, the following courses are required for the major in History:

#### A. *Study within the area of the major*

Completion of History 101, 102 and 24 additional credit hours of history, including the following:

1. A one-year course in American History, to be taken when possible in the sophomore year.
2. A one semester senior departmental seminar, either History 391 or 392 depending upon the student's interest.
3. Advanced courses, chosen in consultation with the

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\*On leave academic year 1967-68.

\*\*On leave, spring semester, 1968.

advisor. It is recommended that all majors include some course work outside of the American and European fields.

### B. *Courses in related areas*

Completion of 18 credit hours of courses outside the department, selected with the approval of the advisor and related to the student's field of interest in History. They will generally be in the social sciences and/or humanities.

## COURSES IN HISTORY

*Please Note:* History 101 and 102 are open to all undergraduates; courses numbered from 150-199 are open to Sophomores and above; courses numbered from 200-299 are open to Juniors and above; courses numbered from 300-399 are open to Seniors only.

### **HIS 101. The Rise of Western Civilization**

A study of western society and ideas, emphasizing the development of major political, social and economic institutions, from Ancient Greece to the beginning of the French Revolution.

Staff

*Fall and Spring, 3 credits*

### **HIS 102. The Civilization of Modern Europe**

A study of European ideas and institutions during the nineteenth and twentieth centuries: the French Revolution and Napoleon; the growth of industrialism and of democracy; the Marxist challenge and the Russian

Revolution; the great world wars and the waning of European hegemony.

Staff

*Fall and Spring, 3 credits*

### **HIS 151. American History to 1877**

The United States from the Age of Discovery to the end of the Reconstruction period, with discussions of such subjects as the transplantation of European culture to America, the rise of American nationalism, the democratization of American society, the clash between the industrial North and the planting South, and the triumph of industrialism.

Staff

*Fall, 3 credits*

**HIS 152. United States Since 1877**

The history of the United States from the end of Reconstruction to the present day, with discussion of the growth of industrialism and its impact upon economic, social, cultural, and political life; the emergence of America as a world power; and American responses to the continuing crisis of contemporary civilization.

Staff

*Spring, 3 credits*

**HIS 153. Latin America to 1825**

The Spanish and Portuguese colonies in the New World, with emphasis on the European background, exploration, settlement, institutions and the struggle for independence.

Mr. Levine

*Fall, 3 credits*

**HIS 154. Latin America Since 1825**

The evolution of the Latin American nations since independence, with emphasis on political, economic and social problems.

Mr. Levine

*Spring, 3 credits*

**HIS 155. England from 1066 to 1688**

The first half of a survey course in English History. 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.

Mr. Bottigheimer

*Fall, 3 credits*

**HIS 156. England Since 1688**

A survey of 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 twentieth century realities.

Mr. Bottigheimer

*Spring, 3 credits*

**HIS 157. Far Eastern Civilization**

Chronologically, the course surveys the origin and development of Far Eastern civilization from its beginning to the mid-nineteenth century. Its emphasis will be on the intellectual, artistic, and institutional foundations of the traditional societies of China, Japan, and Korea.

Mr. Lee

*Fall, 3 credits*

**HIS 158. The Far East in Transition**

A survey of modern Far Eastern history, this course will concentrate on the social, political and economic developments in the Far East during the last one hundred years. Special attention will be given to the relationships between the United States and the Far Eastern countries.

Mr. Lee

*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 the works of selected histories of education. 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 sub-divided, and the aims of the particular history. The semester will be devoted to the analysis of works dealing with the history of education in America. Histories of education selected for study will be chosen from among the writings of such authors as Bernard Bailyn, Maxine Greene, Lawrence A. Cremin, Raymond Callahan and others. This course is identical with Education 160 (History of American Education).

Messrs. Seifman, Williams

*Fall, 3 credits*

**HIS 162. History of Western Education**

An analysis of various approaches to the study of the history of Western education through an examination of the works of selected "histories of education." Emphasis will be placed on developing an understanding of the materials 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 sub-divided, and the aims of the particular history. The semester will be devoted to the analysis of works dealing with the history of education during the ancient, medieval and early modern eras. Histories of education selected for study will be chosen from among the writings of such authors as Henri I. Marrou, E. B. Castle, William K. Medlin, Charles H. Haskins, Robert Ulich and others. This course is identical with Education 162 (History of Western Education).

Messrs. Seifman, Williams

*Spring, 3 credits*

**HIS 201. Greek History**

The origin, maturation and spread of classical Greek civilization from its pre-historic beginnings down to the Hellenistic Age.

Mr. Alin

*Fall, 3 credits*

**HIS 202. Roman History to Constantine**

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.

Mr. Alin

*Spring, 3 credits*

**HIS 203. Medieval History, 300-1100**

European History is surveyed from the decline of Rome up to the Renaissance of the twelfth century. Special attention is paid to the Carolingian Empire, feudalism, the early Church

and monasticism, and the investiture struggle.

Mr. Rosenthal

*Fall, 3 credits*

**HIS 204. The High Middle Ages, 1100-1400**

The High Middle Ages: The expansion of Europe (particularly the Crusades), the redevelopment of an urban civilization, and the origins of national states, secularism, and individualism are among the topics considered.

Mr. Rosenthal

*Spring, 3 credits*

**HIS 205. Humanism and Renaissance**

An examination of the political and ecclesiastical crisis of the later Middle Ages; two centuries of humanistic growth; the influence of the humanists on Western values and attitudes; the Renaissance as a cultural manifestation and as a historical concept.

Mr. Weltsch

*Fall, 3 credits*

**HIS 206. The Age of Reformation**

A survey of the political, social and religious changes in Europe during the fourteenth and fifteenth centuries, followed by an examination of the sixteenth century reformations and their relationship to the emerging state system; the religious wars up to 1648.

Mr. Bottigheimer

*Spring, 3 credits*

**HIS 207. 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.

Messrs. Angress, Paxton

*Fall, 3 credits*

**HIS 208. Europe 1914-Present**

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.

Messrs. Angress, Paxton

*Spring, 3 credits*

**HIS 211. American Colonial Society**

The discovery and exploration of the New World, English overseas expansion and settlement in North America, problems of trade and imperial control (1660-1714), and the evolution of American provincial society to the Revolution.

Mr. Pratt

*Fall, 3 credits*

**HIS 213. Age of the American Revolution**

The course surveys the old British Empire at the close of the French Wars; imperial reorganization and colonial resistance; the War of Independence; and the trials of the new nation and the framing of the Constitution.

Mr. Main

*Fall, 3 credits*

**HIS 214. The Early National Era**

Political, economic, social and cultural developments from the American Revolution to the rise of Jackson.

Mr. Main

*Spring, 3 credits*

**HIS 215. The Age of Jackson**

A study of the era of Andrew Jackson, which deals with the democratization of American society, the rise of a national economy, the impact of sectionalism and manifest destiny.

Mr. Staudenraus

*Fall, 3 credits*

**HIS 216. 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.

Mr. Staudenraus

*Spring, 3 credits*

**HIS 217. Recent U.S. History, 1877-1929**

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. Emphasis will be placed on the relation of the United States to the world economy and on the roots of the Great Depression.

Staff

*Fall, 3 credits*

**HIS 218. Recent U.S. History, 1929-1962**

The Great Depression and the impact of Keynesian thought, the New Deal, the rise of industrial unionism, World War II and its aftermath, the Cold War, and technological and social change are among the subjects discussed.

Staff

*Spring, 3 credits*

**[HIS 223. Latin America and the Outside World]**

An analysis of the role of the Latin American nations in world affairs during the nineteenth and twentieth centuries is undertaken, with emphasis on intellectual, economic, and diplomatic relations with the United States and Europe.

Mr. Ross

*Spring, 3 credits*

To be offered 1968-69.

**HIS 224. Modern Mexico**

The social, economic and political history of Mexico from 1876 to the present, with emphasis on the background, development and aftermath of the Revolution of 1910.

Mr. Ross

*Spring, 3 credits*

**HIS 225. Social History of Colonial Spanish America**

A study of social structure, typologies, stratification and dynamics of the Spanish colonies in the New World during the sixteenth to eighteenth centuries from the Conquistadores to the forerunners of independence. Special emphasis will be given to interracial relations and social position of Indians, *mestizos* and *castas*.

Mr. Céspedes

*Spring, 3 credits*

**HIS 226. Economic History of Colonial Spanish America**

A history of land ownership, production, industry, monetary systems and trade, focussed on the two basic types of economic structure: capitalistic, tropical agriculture and mining for export to Europe; and non-capitalistic, self-sufficient, economic farms on marginal and frontier zones. Emphasis is on problems of manpower (slavery, *encomienda*, *mita*, etc.), transatlantic trade and navigation, and the impact of the colonies on Spanish and European economic development.

Mr. Céspedes

*Fall, 3 credits*

**HIS 228. History of Brazil**

Brazil from colonization to the present: the transplantation of European culture to Brazil; the development of modern society; problems of political, ethnic, economic and cultural development.

Mr. Levine

*Spring, 3 credits*

**HIS 233. Early Modern England: Change and Reformation, 1509-1603**

An examination of the development of English society from the reign of Henry VIII to the death of Elizabeth. Attention will be focused upon the decline of medieval institutions, the course of the Reformation and its impact upon the political, economic and intellectual life of the society.

Mr. Bottigheimer

*Spring, 3 credits*

**HIS 234. Early Modern England: Revolution and War, 1603-1714**

An enquiry into the source, nature, and outcome of the English Revolution, conceived as a single, systematic disorder causing intermittent crises throughout the seventeenth century. Particular topics will include the Parliamentary struggles of the 1620's, the civil war of the 40's and the re-establishment of stability in 1688.

Mr. Bottigheimer

*Fall, 3 credits*

**[HIS 236. England, 1782-1867: Industrialism, Reform, and the Advent of Democracy]**

An examination of English political, social, economic, and intellectual development from the time of the younger Pitt and the early years of industrialism to the coming of democracy and the emergence of the *Pax Britannica*; the wars of the French Revolution; the struggles for political and economic reform; romanticism and philosophical radicalism; free trade and the Workshop of the World.

Mr. Semmel

*Fall, 3 credits*

To be offered 1968-69.

**[HIS 237. Modern Britain, 1867 to the Present: England in the Age of Democracy]**

An analysis of English society from the era of Gladstone and Disraeli to that of Wilson and Heath; the continuance of reform; the rise of socialism and the Labour party; imperialism; the world wars against Germany; the welfare state; the decline of Britain's international, economic, and political position.

Mr. Semmel

*Spring, 3 credits*

To be offered 1968-69.

**HIS 239. Materials and Methods in Teaching Social Studies**

This course emphasizes the methods and materials appropriate to the teaching of a broad range of subject matter in the social sciences at the high school level. It is designed for prospective secondary school teachers of social studies.

Prerequisite: Permission of the Chairman of the student's major department.

Mr. Seifman

*Fall and Spring, 3 credits*

**[HIS 241. 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 problems of its relations with the West.

Mr. Wildman

*Fall, 3 credits*

To be offered 1968-69.

**HIS 242. Soviet Russia**

The ideological and social background of the Russian Revolution and the evolution of Soviet rule, the problems of industrialization, the relations with the capitalist West and

totalitarian control over society are the subjects of analysis.

Mr. Wildman

*Fall, 3 credits*

**HIS 244. East Central Europe, 1453-1945**

A survey of the territorial belt between the German and Russian power bases; the rise and decline of the Polish, Bohemian and Hungarian Kingdoms; the role of the Hapsburg Empire; the Eastern Question; the national movements and successor states up to the Second World War.

Mr. Weltsch

*Spring, 3 credits*

**HIS 253. Social and Intellectual History of Europe, 1648-1848**

A history of social and political thought in post-Reformation Europe, the Age of Enlightenment, with particular reference to such developments as the beginnings of modern science, empiricism, rationalism, the philosophical origins of the French Revolution, romanticism, nationalism, industrialization and Marxism.

Mr. Lebovics

*Fall, 3 credits*

**HIS 254. Social and Intellectual History of Europe, 1848-Present**

A history of social and political thought in post-1848 Europe with particular reference to the social and political implications of Darwinism, socialism, new conservatism, Freudianism, and the varieties of existential thought.

Mr. Lebovics

*Spring, 3 credits*

**HIS 262. Contemporary China**

This course will examine the history of China from the Revolution of 1911 to the present day. It will emphasize the intellectual, social

and political movements of twentieth century China.

Mr. Lee

*Spring, 3 credits*

**[HIS 271. American Constitutional Origins]**

A study in the law, institutions, and customs of the American constitutional system. The course will examine the English and colonial foundations of American constitutionalism, formation of the federal Constitution, the instituting of new government, and the rise of political democracy.

Mr. Pratt

*Fall, 3 credits*

To be offered 1968-69.

**[HIS 272. American Constitutional Development]**

The development of the federal constitutional system with emphasis on the national sovereignty—states rights controversy to 1876, the effects of industrial change, the enlargement of the Presidency, and the impact of crisis government on the American Constitution in the twentieth century.

Mr. Pratt

*Spring, 3 credits*

To be offered 1968-69.

**HIS 273. Social & Intellectual History of the United States to 1865**

A study of the development of American institutions and thought in the years before the Civil War.

Mr. Staudenraus

*Fall, 3 credits*

**HIS 274. Social & Intellectual History of the United States Since 1865**

A study of the development of American insti-

tutions and thought in the years since the Civil War.

Mr. Staudenraus

*Spring, 3 credits*

**HIS 275. History of U. S. Foreign Relations, 1774-1900**

The evaluation of American foreign policy and diplomacy from 1774 to 1900 in terms of: acquisition and confirmation of independence; geographical expansion and economic growth; achievement of great power capabilities and imperialistic consequences.

Mr. Trask

*Fall, 3 credits*

**HIS 276. History of U. S. Foreign Relations, 1900 to the Present**

The evaluation of American foreign policy and diplomacy from 1900 to the present in terms of: the Imperial interlude; the cycle of violence associated with two World Wars; post World War II development, especially the Russo-American confrontation and social revolution in the non-Western world.

Mr. Trask

*Spring, 3 credits*

**HIS 277. Origins of American Industrial Society to 1900**

The course considers the preconditions for and the coming of the industrial revolution. It considers the various labor systems in early America; varieties of agricultural enterprise; the development of commercial banking, the rise of a national market, the birth of mass production, and the emergence of an industrial society.

Mr. Cleland

*Fall, 3 credits*

**HIS 278. Development of American Industrial Society Since 1900**

The course considers the political problems of an industrial society, the rise of scientific

management, the coming of giant enterprise, the evolution of the labor force, the rationalization of government, the growing role of science, and the social adjustments in an industrial society and resulting changes in the national self-image.

Mr. Cleland

*Spring, 3 credits*

**HIS 281. Modern France, 1750-1815:  
Old Regime, Revolution  
and Napoleon**

Within a framework of political history, emphasis will be placed upon the origins and dynamics of the French Revolution and the effect upon society and thought.

Mr. Paxton

*Fall, 3 credits*

**HIS 282. Modern France, 1815-Present**

The French nation's search for definition in the nineteenth and twentieth centuries with much attention given to the social and economic background to political change.

Mr. Paxton

*Spring, 3 credits*

**HIS 284. History of Spain**

A survey course on the history and civilization of Imperial and modern Spain (ca. 1479-1963), with an introduction to the formative period of the nationality from pre-history to the end of the Middle Ages. Special attention will be paid to the sixteenth through the eighteenth centuries' foreign and colonial policies, and economic, social and cultural aspects.

Mr. Céspedes

*Fall, 3 credits*

**HIS 285. Germany, 1806 to 1890**

The course will examine the development of Germany from the Napoleonic period, through unification and the founding of the Empire, to Bismarck's dismissal. Although the empha-

sis will be on political and social aspects of this period, economic and cultural trends will be included in the investigation.

Mr. Angress

*Fall, 3 credits*

**HIS 286. Germany, 1890 to the Present**

The course will examine the development of Germany from Bismarck's dismissal, through the Wilhelmian period, the First World War, the Weimar Republic and the Third Reich to and beyond the Second World War. Although the emphasis will be on political and social aspects of this period, economic and cultural trends will be included in the investigation.

Mr. Angress

*Spring, 3 credits*

**HIS 391. Senior Seminar in United  
States History**

Introduction to historical methods and problems in history; emphasis on discussion, oral and written reports, and a critical final paper.

Mr. Levine

*Fall, 3 credits*

**HIS 392. Senior Seminar in European  
History**

Introduction to historical methods and problems in history; emphasis on discussion, oral and written reports, and a critical final paper.

Mr. Rosenthal

*Spring, 3 credits*

## INTERDEPARTMENTAL COURSES IN THE HUMANITIES

### HUM 103. The Classical Tradition

A study of major texts beginning with Homer, Sophocles, Herodotus or Thucydides, Ovid, Petrarch, Cervantes, and Shakespeare.

Staff

*3 credits*

### HUM 104. The Judaeo-Christian Tradition

A study of major texts from the Bible through the medieval period ending with Shakespeare. Focus will be on the Bible, St. Augustine, and Dante.

Staff

*3 credits*

### HUM 105. The Comic and Satiric Traditions

A course differentiating the aims of comedy and satire starting with an evaluation of comedy and satire in the twentieth century and then following a chronological line of the comic and satiric writers from Aristophanes to Günter Grass.

Staff

*3 credits*

### HUM 106. The Age of Enlightenment

A review of the phenomenon of the European Enlightenment, including an analysis of the forces in thought and literature that created the Age of Reason. Readings will include the works of such writers as Molière, Racine, Voltaire, Diderot, Leibniz, Lessing, Montesquieu, Goethe, and Richardson.

Staff

*3 credits*

### HUM 113. The Classical Tradition in Western Art

An analysis of the classical tradition in Western Art from the time of its birth in Greece through its survival and development in later antiquity, the Middle Ages, the Renaissance, and modern times, to its present aspects in "purist" art.

Staff

*3 credits*

### HUM 114. Music in Western Civilization

Examines the musical heritage of Europe and America in terms of its development from antiquity to the present day. A survey of medieval and Renaissance forms will introduce a closer study of the period after 1600. Emphasis will fall on major composers and specific works.

Staff

*3 credits*

### HUM 115. The Forms and Traditions of Modern Theater

A course designed to introduce the general student to the nature of drama and theater in the modern world, to the basic elements of theater arts, and to important contemporary and modern drama examined in the full dimensions of projected productions. Each student, during the semester, is expected to see and evaluate a professional Broadway (or off-Broadway) play in performance.

Staff

*3 credits*

### HUM 116. The Expressionist Tradition in Art

A careful exploration of expressionism, in the strictest sense a development in Northern

European Art of the period ca. 1800-1919, will be followed by an examination of similar manifestations in the art of the more distant past. While the common denominators in terms of world view attitudes, and styles of the works considered will be carefully examined, care will be taken to acknowledge their individual differences.

Staff

*3 credits*

### **HUM 121. Ancient and Medieval Philosophic Classics**

Readings and discussions of major philosophic texts of ancient and medieval philosophers such as: Plato, Aristotle, Cicero, Marcus Aurelius, Plotinus, Lucretius, St. Augustine, St. Thomas.

Staff

*3 credits*

### **HUM 122. Modern Philosophic Classics**

Readings and discussions of major philosophic texts of Renaissance and post-Renaissance philosophers such as: Machiavelli, Bacon, Hobbes, Descartes, Pascal, Spinoza, Locke, Hume, Diderot, Rousseau, and Kant.

Staff

*3 credits*

### **HUM 123. Philosophic Classics: Major Issues**

The focus is upon certain recurrent philosophic issues emerging from man's social, intellectual, religious and artistic experience in the traditions of Western civilization.

Staff

*3 credits*



## DEPARTMENT OF MATHEMATICS

*Professors:* ALFRED ADLER (*Visiting*), WILLIAM D. BARCUS, RAOUF DOSS, WILLIAM G. LISTER, PETER SZÜSZ

*Associate Professors:* WILLIAM C. FOX (*Acting Chairman*), GODFREY ISAACS (*Visiting*), SAUL KRAVETZ, DONALD WEHN, EUGENE ZAUSTINSKY

*Assistant Professors:* GREGORY BACHELIS, HUGO D'ALARCAO, JACK HACHIGIAN (*Visiting*), PAUL G. KUMPEL, JR., Y. Y. OH, DAVID SCHROER, R. SHANTARAM, HENRY TRAMER

*Instructors:* ALLAN EDELSON, LOUIS PIGNO, JOSEPH SEIF, CHRISTOPHER WASIUTYNSKI

The undergraduate program in mathematics is designed to prepare the student for graduate study in the mathematical sciences, for secondary school teaching, or for certain positions in industry. The required courses provide a common core of instruction in the principal branches of mathematics, while the elective courses allow the student to improve his preparation for more specialized objectives.

Prospective graduate students are advised to elect MAT 302 and 331, and to meet the University language requirement in French, German, or Russian. Many graduate schools require two of these three languages.

Prospective secondary school teachers of mathematics must elect MAT 321 and are advised to elect MAT 331.

The standard one-year sequences creditable toward the Bachelor of Arts or Bachelor of Science requirements are: 111, 112; 101, 102; 101, 112. A student who receives credit for 102 without previously completing 101 is considered to have completed a year sequence for the purposes of this requirement.

### Requirements for the Major in Mathematics

In addition to the general University requirements for the Bachelor of Science degree, the following courses are required for the major in mathematics:

MAT 102, 103, 155, 156, 201, 202, 232, 301

MAT 312 or MAT 323

*Physics* 101, 102

Nine additional credit hours in mathematics courses numbered above 200.

## COURSES IN MATHEMATICS

### **MAT 101. Elementary Functions**

Relations, graphs, functions, algebraic operations on functions. Analysis of rational, trigonometric and exponential functions. An entering student whose program requires courses in the sequence 102, 103, 155, 156 may, with his advisor's approval, elect this course as a preliminary if his preparation for MAT 102 is inadequate.

*Fall, 3 credits*

### **MAT 102. Calculus I**

The derivative and integral; fundamental properties, interpretations and computations for elementary functions.

*Fall and Spring, 3 credits*

### **MAT 103. Calculus II**

Selected applications of the derivative and integral. Computational methods in integration. First order differential equations. Taylor's formula.

Prerequisite: MAT 102.

*Fall and Spring, 3 credits*

### **MAT 111. Introduction to Mathematical Science I**

Selected topics from logic, probability, elementary functions and analytic geometry. MAT 111, 112 is the year sequence designed for students who are not considering a major field with special requirements in mathematics.

*Fall, 3 credits*

### **MAT 112. Introduction to Mathematical Science II**

An introduction to the calculus. Differentiation and integration with geometric applications.

Prerequisite: MAT 101 or 111. A student may not take both MAT 102 and 112 for credit.

*Spring, 3 credits*

### **MAT 155. Calculus III**

Vector geometry in space. Vector-valued functions on  $n$ -space. Elements of the linear algebra of real vector spaces. Introduction to vector calculus.

Prerequisite: MAT 103.

*Fall and Spring, 3 credits*

### **MAT 156. Calculus IV**

Vector calculus; the differential, Jacobian, directional derivatives, local properties of implicitly defined relations. Multiple integrals; basic properties and applications.

Prerequisite: MAT 155.

*Fall and Spring, 3 credits*

### **MAT 201, 202. Advanced Calculus**

Elementary point set topology, the topology of metric spaces. Limits, continuity, mean value theorems. The operations of differentiation and integration and their interchange with limits. The implicit function theorem. Surfaces, with an introduction to manifolds. Differential forms. Stokes' theorem. Change of variable in an integral.

Prerequisite: MAT 156.

*Fall and Spring, 3 credits each semester*

### **MAT 203. Topics in Calculus I**

Ordinary and partial differential equations; Bessel functions, Legendre polynomials and general orthogonal systems of functions. Fourier and Laplace transforms.

Prerequisite: MAT 156.

*Fall, 3 credits*

### **MAT 204. Topics in Calculus II**

Functions of a complex variable: contour integration, conformal mapping and applications. Prerequisite: MAT 156. May not be taken for credit in addition to MAT 301.

*Spring, 3 credits*

**MAT 205. Probability and Statistics**

Sample spaces and distribution functions. The binomial, Poisson, and normal distributions. Limit theorems. Linear bivariate analysis. Selected tests and estimates.

Prerequisite: MAT 156.

*Fall and Spring, 3 credits*

**MAT 232. Algebra I**

The construction of the domain of integers and the rational, real and complex number systems, leading to a consideration of the abstract algebraic structures represented by these systems. Groups and rings together with their homomorphisms and quotient structures, integral domains, particularly unique factorization domains and principal ideal domains, fields and polynomial domains.

Prerequisite: MAT 155.

*Fall and Spring, 3 credits*

**MAT 233. Number Theory**

Congruences, quadratic residues, quadratic forms, continued fractions, Dophantine equations, number-theoretical functions, and properties of the prime numbers.

Prerequisite: MAT 155.

*Fall, 3 credits*

**MAT 234. Linear Algebra**

Vector spaces over fields; linear transformations, the orthogonal and unitary groups, canonical forms for matrices, the spectral theorem, multilinear algebra.

Prerequisite: MAT 232.

*Spring, 3 credits*

**MAT 301. Introduction to Complex Analysis**

Holomorphic functions; the Cauchy-Riemann equations, Cauchy's theorem, Taylor series,

maximum modulus theorem. Meromorphic functions; Laurent series, the Cauchy residue theorem.

Prerequisite: MAT 202.

*Fall and Spring, 3 credits*

**MAT 302. Introduction to Real Analysis**

Lebesgue and Lebesgue-Stieltjes measures and integrals and their fundamental properties. Comparison with Riemann integration. Basic properties of  $L_2$ .

Prerequisite: MAT 202.

*Spring, 3 credits*

**MAT 312. Introduction to Topology**

Basic topological properties; convergence, continuity, compactness, connectedness. Construction of spaces, metrics, local properties, and topics selected from homotopy, covering spaces, simplicial homology.

Prerequisites: MAT 202 and 232.

*Fall, 3 credits*

**MAT 321. Geometric Structures**

Formal geometries, their relationship and interpretations; projective, affine, Euclidean and non-Euclidean geometrics. Required of candidates for secondary certification in mathematics.

Prerequisite: MAT 232.

*Spring, 3 credits*

**MAT 323. Introduction to Differential Geometry**

Local theory of curves and surfaces in Euclidean space; fundamental forms, curvature, geodesics. Introduction to global differential geometry.

Prerequisite: MAT 202.

*Spring, 3 credits*

**MAT 331. Algebra II**

Elementary group theory; composition series, the Sylow theorems, the fundamental theorem of Abelian groups. Field extensions; the splitting field of a polynomial, the fundamental theorem of Galois theory.

Prerequisite: MAT 232.

*Spring, 3 credits*

**MAT 341, 342. Independent Study in Special Topics**

A reading course for upperclass students of exceptional ability. The topic is chosen by the student with the advice of a supervising member of the faculty, who will suggest appropriate sources. Weekly conferences are devoted to discussion of the material.

Prerequisite: Permission of the instructor.

*Fall and Spring, 3 credits each semester*

**GRADUATE COURSES**

(For details see the *Graduate Bulletin*)

Real Analysis I, II

Complex Analysis

Algebraic Systems I, II

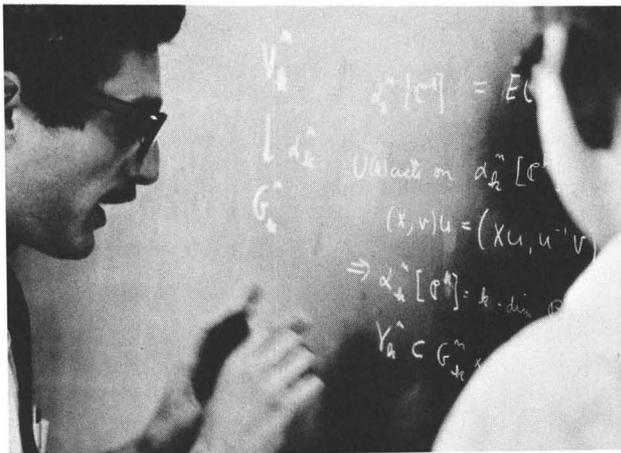
Algebraic Topology I, II

Differential Geometry

Riemannian Geometry

Lie Groups and Lie Algebras

Independent Study



## DEPARTMENT OF MUSIC

*Professors:* BILLY JIM LAYTON (*Chairman*), ISAAC NEMIROFF

*Associate Professors:* BERNARD GREENHOUSE, JOHN LESSARD, PAUL MAKANOWITZKY

*Assistant Professors:* SAMUEL BARON, EDWARD A. BONVALOT, MARTIN CANIN,  
SIMON KARASICK, MARK D. ORTON

*Performing Artists in Residence and Lecturers:* ADELE ADDISON, JACK KREISELMAN

### Requirements for the Major in Music

In addition to the general University requirements for the Bachelor of Arts degree, the following courses are required for the major in Music:

#### A. *Study within the area of the major*

- |  |            |
|--|------------|
| 1. Theory (MUS 121, 122, 221, 222, 321, and either 326 or 235) | 18 credits |
| 2. History (MUS 237, 240, 323)                                 | 9 credits  |
| 3. Performance   | 16 credits |

(MUS 112, 113, University Chorus, is required for two years. With permission of the Chairman of the Department the student may take as few as 8 credit hours in Performance and apply the remaining credits to Theory and/or History.)

#### B. *Study in related areas*

Electives in Art and Theater Arts	6 credits
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#### C. *Entrance requirements*

The entering student who chooses to declare a major in music may do so only after having satisfied the Department of his technical ability and previous experience.

### D. Piano Proficiency

Students whose declared major is music must, prior to their junior year, pass a proficiency examination in piano. They will be required to play simple piano pieces (chosen by the Department), and demonstrate a sufficient acquaintance with the keyboard to be able to play theory examples as these occur in the course of study.

## COURSES IN MUSIC

### MUS 101. University-Community Chorus

Study and performance of a repertory from the Middle Ages to the present. Meeting twice weekly. Attendance at rehearsals and performances obligatory. Open to students, faculty, staff, and outsiders.

Prerequisite: Auditions.

Mr. Orton

*Fall and Spring, no credit*

### MUS 102. Instrumental and Vocal Instruction

Half-hour or one-hour individual lessons each week, with 5-10 hours practice required.

Prerequisite: Permission of instructor.

Miss Addison (voice), Messrs. Baron (flute), Canin (piano), Greenhouse (cello), Karasick (brass instruments), Kreiselman (clarinet), Makanowitzky (violin)

*Fall and Spring, 1 or 2 credits each semester*

(Credit is repetitive and may be extended to 14 credit hours over a four-year period, with the permission of the Department Chairman.)

### MUS 103. Instrumental Ensemble

One or two three-hour weekly sessions devoted to reading and rehearsals of works drawn from the repertory of music for appropriate instruments.

Prerequisite: Permission of instructor.

*Fall and Spring, 1 or 2 credits each semester*

### MUS 112, 113. University Chorus

Open to all students. Study and performance of a repertory from the Middle Ages to the present. More than three unexcused absences from rehearsals eliminates credit. Meeting three hours per week. MUS 112 (Fall Semester) carries no credit, but it is a prerequisite for MUS 113 (Spring Semester) which carries 1 credit. May be repeated for a maximum of two credits.

Prerequisite: Auditions.

*Fall and Spring*

### MUS 121. Fundamentals of Music I

Sight reading, sight singing, notation, rhyth-

mic and melodic dictation, intervals, the construction of scales.

Prerequisite: Ability to read music and permission of instructor.

*Fall, 3 credits*

### **MUS 122. Fundamentals of Music II**

Continuation of MUS 121. The formation and function of chords on the different degrees of the scale. Harmonic analysis of music from the Classical through the Romantic periods. Prerequisite: MUS 121, or permission of instructor.

*Spring, 3 credits*

### **MUS 123. Elementary Theory I**

Note reading in treble and bass clefs. Rhythmic exercises in simple and compound time. Intervals, scales, basic chords and progressions; elements of counterpoint.

Prerequisite: None.

*Fall, 3 credits*

### **MUS 124. Elementary Theory II**

This course deals with the interrelationship between the elements of harmony, melody, counterpoint and rhythm as presented in MUS 123. The construction of original melodies and harmonic progressions enables the student to experience first hand the process involved in the extension of a motivic commitment to a fully-sentenced musical expression.

Prerequisite: MUS 123, or permission of instructor.

*Spring, 3 credits*

### **MUS 154. Music in the Romantic Era**

Seven men, all born within ten years, receive particular attention. Berlioz, Mendelssohn, Chopin, Schumann, Liszt, Wagner, and Verdi are seen not only as pivotal composers, but—in several instances—as critics too, contributing eloquently to the aesthetics of their day.

Prerequisite: MUS 123, or permission of instructor.

*Fall, 3 credits*

### **MUS 221. Harmony I**

The traditional use of triads and the seventh chords in all positions. Exercises in four-part harmony with figured and unfigured basses. Elementary keyboard harmony.

Prerequisite: MUS 122, or permission of instructor.

*Fall, 3 credits*

### **MUS 222. Harmony II**

Harmonization of melodies, modulation, and use of sequences; continuation of keyboard harmony. Introduction to post-classical harmonic procedures.

Prerequisite: MUS 221, or permission of instructor.

*Spring, 3 credits*

### **MUS 233. Introduction to Opera**

This course will seek to examine single works from the most significant operatic composers and will attempt to define the changing relationships between words and music, between voice and orchestra, and between one concept of drama and another. Representative works from Monteverdi to Stravinsky will be heard and sections of them will be analyzed as carefully as time permits. General operatic conventions, as well as each composer's individual realization of them, will be discussed.

Prerequisites: Ability to read music and permission of instructor.

*Spring, 3 credits*

### **MUS 235. Counterpoint I**

Construction of melodic lines. The study of the principles of counterpoint through written exercises in two or three parts, all species.

Prerequisite: MUS 222, or permission of instructor.

*Fall, 3 credits*

**MUS 236. Counterpoint II**

Written exercises in four parts, all species and combinations of species. Extended application of contrapuntal principles.

Prerequisite: MUS 235.

*Spring, 3 credits*

**MUS 237. The Music of Europe Before 1600**

From the monophonic arts of the early Middle Ages to the polyphonic ones of the late Renaissance.

Prerequisite: MUS 122, or permission of instructor.

*Fall, 3 credits*

**MUS 238. Contemporary Music**

European and American music of the twentieth century.

Prerequisites: Ability to read music and permission of instructor.

*Spring, 3 credits*

**MUS 240. The Music of Europe from 1600 to 1830**

The dates of Peri's *Euridice* and Schumann's *Opus 1* establish the limits of a study that embraces the Baroque and Classical eras.

Prerequisite: MUS 237, or permission of instructor.

*Spring, 3 credits*

**MUS 321. Form and Analysis**

Principles of musical construction. The components of harmony, counterpoint, rhythm, and thematic development as integral forces in the growth of a form. The changing concepts in the use of tonality and the resultant changing forms. The problem of continuity. Analysis of pertinent literature.

Prerequisite: MUS 222, or permission of instructor.

*Fall, 3 credits*

**MUS 322. Orchestration**

The instruments of the classical orchestra—their ranges, transpositions, and technical possibilities. Introduction to orchestration of dynamics through doublings and mixtures of various timbres. Arrangement of simple piano pieces for small combinations.

Prerequisite: MUS 236, or permission of instructor.

*Spring, 3 credits*

**MUS 323. Music After 1830**

The combination in the nineteenth century of tradition and experiment will serve not only to extend the musical perspectives of the past but also to introduce, as the second aim of the course, those of the present day.

Prerequisite: MUS 240, or permission of instructor.

*Fall, 3 credits*

**MUS 326. Tonal Counterpoint**

This course is a study of the art of combining voices under the conditions of tonal harmony as observed in the works of Bach through the composers of the Romantic period. It includes the analysis of pertinent literature and the writing of original exercises demonstrating the various principles and elements.

Prerequisite: MUS 222, or permission of instructor.

*Fall, 3 credits*

**MUS 328. Composition**

The application of the elements of harmony, rhythm, and melody to motivic structure and development; composition in small forms.

Prerequisites: MUS 326 or equivalent and permission of instructor.

*Spring, 3 credits*

**MUS 330. Conducting**

Basic baton technique and the analysis and preparation of instrumental and vocal scores for performance.

Prerequisites: MUS 326 or equivalent and permission of instructor.

*Spring, 3 credits*

**MUS 331. Advanced Harmony I**

Exercises with modulations to distant keys, sequences, and canons.

Prerequisites: MUS 222 and permission of instructor.

*Fall, 3 credits*

**MUS 332. Advanced Harmony II**

Extended modulating exercises, alterations, and ornaments.

Prerequisite: MUS 331.

*Spring, 3 credits*

**MUS 398, 399. Independent Project**

Individual study under the guidance of a staff member leading to a major essay or composition.

Prerequisite: Permission of Department Chairman.

*Fall and Spring, 3 credits each semester*



**DEPARTMENT  
OF PHILOSOPHY**

*Professors:* SIDNEY GELBER (*Chairman*), ROBERT STERNFELD, HAROLD ZYSKIND

*Associate Professors:* VICTORINO TEJERA (*Visiting*), WALTER WATSON

*Assistant Professors:* PAUL W. COLLINS, SIDNEY GENDIN

*Instructors:* DONALD F. GOODMAN, JOHN LANGO, DAVID ROSENTHAL, DORIS E. YOCUM

**Requirements for the Major in Philosophy**

In addition to the general University requirements for the Bachelor of Arts degree, the following courses are required for the major in Philosophy:

*A. Study within the area of the major*

Two (2) semesters from any of the following courses:

PHI 151 (*Ethics*)

PHI 161 or 162 (*Logic or Symbolic Logic*)

PHI 211 (*Problems of Esthetics*)

PHI 237 (*Theory of Knowledge*)

Two (2) semesters of the following courses:

PHI 201 (*Major Thinkers: Ancient and Medieval*)

PHI 202 (*Major Thinkers: Modern*)

Two (2) semesters from the following:

PHI 391, 392 (*Advanced Seminar*)

PHI 393, 394 (*Analysis of Philosophic Texts*)

In addition: (a) Two (2) semesters from among any 200 courses, with the exception of PHI 201, 202, 211 and 237, and (b) two (2) semesters from among any 300 courses, with the exception of PHI 345, 346, 391, 392, 393 and 394.

*B. Courses in related areas*

Approved electives outside Philosophy (three semesters)

## COURSES IN PHILOSOPHY

### PHI 151. Ethics

Designed to acquaint the student with the tradition of ethical inquiry and to provide him with some of the intellectual instrumentalities needed to make valid practical judgments. Representative classical and modern works, such as those of Spinoza, Kant, William James, and Sartre, are studied to make clear the character of ethical problems and the principles and methods available for their solution.

Mr. Watson, Miss Yocum

*Fall, 3 credits*

### PHI 161. Logic

The first course in logic concentrates on the subject-matter of logic in the strict sense, i.e., names, propositions, and inferences, as these are treated by various logicians and used in various areas of knowledge.

Mr. Gendin

*Fall, 3 credits*

### PHI 162. Symbolic Logic

This course covers topics such as: proof and rules of inference of propositional calculus, predicate logic at first order along with related concepts of normal forms, quantification, etc., metalogical concepts of consistency, completeness, decidability of a logical system, etc.

Prerequisite: PHI 161.

Mr. Gendin

*Spring, 3 credits*

### PHI 201. Major Thinkers in the History of Philosophy: Ancient and Medieval

Study of the writings of major thinkers from Plato and Aristotle to such thinkers as Lucretius, Cicero, Augustine, and Aquinas on problems of metaphysics and epistemology. Related

problems in other areas are treated when these are an extension or part of the central metaphysical issues.

Prerequisite: Two semesters in Humanities.

Mr. Goodman

*Fall, 3 credits*

### PHI 202. Major Thinkers in the History of Philosophy: Modern

Study of the writings of the major thinkers from Descartes to Kant on the problems of metaphysics and epistemology.

Prerequisite: Two semesters in Humanities.

Mr. Sternfeld

*Spring, 3 credits*

### PHI 211. Problems of Esthetics

An introduction to esthetics, examining the range of its problems treated by recent and contemporary authors such as Freud, Clive Bell, Dewey, Santayana, and Sartre.

Prerequisite: Two semesters in Humanities.

Mr. Zyskind

*Fall, 3 credits*

### PHI 213. Philosophy of Art

Comparative study of various philosophies of art, with emphasis on their application to literature. Such authors are read as Plato, Kant, and Croce.

Prerequisite: Two semesters in Humanities.

Messrs. Goodman, Zyskind

*Fall, 3 credits*

### PHI 214. Philosophy of Literary Form

Study of the philosophic bases of such literary concepts as tragedy and comedy and of their relevance to practical experience and history. Such authors are read as Aristotle,

Hume, Kant, Nietzsche, Bergson, and Unamuno.

Prerequisite: Two semesters in Humanities.

Mr. Zyskind

*Spring, 3 credits*

### **PHI 215, 216. Political Philosophy**

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: Two semesters in Humanities.

Mr. Gelber

*Fall and Spring, 3 credits each semester*

### **PHI 217. Concept Formation in the Social Sciences**

A critical analysis of theory construction in the social sciences with emphasis on such concepts as model formation, typology, ideal types, function, cultural adaptation and evolution.

Prerequisites: Two semesters of Biology or Social Science or one semester of each. (Biology is given as an alternative prerequisite because on the approach represented by this course many social science concepts, such as function or evolution, have biological analogues.)

Mr. Collins

*Fall, 3 credits*

### **PHI 220. Philosophy of History**

A critical examination of theories of 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: Two semesters of Humanities and one semester of History.

Messrs. Gelber, Zyskind

*Spring, 3 credits*

### **PHI 228. Philosophy of Religion**

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: Two semesters in Humanities.

Mr. Goodman

*Spring, 3 credits*

### **PHI 235. Philosophy of Science**

An inquiry into the function of philosophic principles in the natural sciences, with the focus on concepts such as space, time, causality and life as they are treated in important philosophic and scientific works.

Prerequisite: One year of Natural Science.

Mr. Collins

*Spring, 3 credits*

### **PHI 237. Theories of Knowledge**

This course consists of a study of a variety of conceptions of the structure of knowledge, the roles of the knower, the various kinds and status of objects known as found in classical and contemporary epistemologies.

Prerequisite: PHI 161.

Mr. Sternfeld

*Fall, 3 credits*

### **PHI 241. Philosophy of Rhetoric**

The nature and role of philosophic principles in determining various theories of rhetoric and propaganda are studied, with attention to the relation of rhetoric to political strategy,

psychological manipulation, and literary devices. Such authors are read as Plato, Aristotle, Francis Bacon, Cicero, Machiavelli, and I. A. Richards.

Prerequisite: Two semesters in Humanities.

Mr. Zyskind

*Fall, 3 credits*

### **PHI 251. Analytic Philosophy of Mind**

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: Humanities 122 or consent of instructor.

Mr. Rosenthal

*Fall, 3 credits*

### **PHI 301. Metaphysics**

An inquiry into the first principles of all science, art, and action as these are treated in representative classical and modern authors.

Prerequisite: One semester of Philosophy.

Miss Yocum

*Fall, 3 credits*

### **PHI 309. Logical Theory**

This course concentrates on contemporary treatments of logical problems including concepts in the philosophy of science such as truth and proof, and further treats problems in the philosophy of mathematics as these have become merged with those of logic in contemporary philosophies.

Prerequisite: PHI 161.

Mr. Sternfeld

*Spring, 3 credits*

### **PHI 310. Contemporary Philosophies of Experience**

This course is a study of recent philosophies which have made important contributions to the study of the concept of experience. Works from such thinkers as Dewey, Bradley, Husserl, James, Whitehead, Bergson, Sartre, Santayana, Heidegger will be used.

Prerequisite: One semester of Philosophy.

Mr. Sternfeld

*Fall, 3 credits*

### **PHI 311. Contemporary Philosophies of Language**

This course examines the modern attempt to treat all basic problems in terms of language. Readings are from authors such as Ludwig Wittgenstein, J. L. Austin, Martin Heidegger, Richard McKeon, and Rudolph Carnap.

Prerequisite: One semester of Philosophy.

Messrs. Sternfeld, Watson

*Spring, 3 credits*

### **PHI 312. Contemporary Value Theory**

Examination of the nature and status of value judgments, emphasizing problems of verification. Articles in contemporary literature by Frankena, Lewis, Browning, Dewey, Hempel, Nagel, Scheffler, White, etc.

Prerequisite: PHI 151 or 237.

Miss Yocum

*Spring, 3 credits*

### **PHI 313. Existentialism**

Study of the origins and relevance of contemporary existentialist writers. The implication for modern thought of Kierkegaard, Nietzsche, and Husserl will be examined. Additional readings are from Buber, Camus, Heidegger, Jaspers, and Sartre.

Prerequisite: One semester of Philosophy.

Mr. Goodman

*Fall, 3 credits*

**PHI 315. American Philosophy**

An evaluation of the major contributions in American philosophic thought as reflected in the works of such figures as William James, Josiah Royce, C. S. Peirce, George Santayana, G. H. Mead, Alfred N. Whitehead, and John Dewey.

Prerequisite: One semester of Philosophy.

Mr. Gelber

*Spring, 3 credits*

**PHI 345, 346. History and Philosophy of Education**

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. This course is identical with Education 345, 346 (History and Philosophy of Education).

Prerequisite: Senior standing.

Messrs. Gardner, Goodman,  
Sternfeld, Watson, Zyskind

*Fall and Spring, 3 credits each semester*

**PHI 391, 392. Advanced Seminar**

This course acquaints majors in philosophy with the broad perspectives of philosophy, and they are given a major responsibility for contributing material and subject-matter for discussion. Emphasis is on independent examinations of broad scope covering a wide range of writings unified by a single theme or problem.

Prerequisite: Two courses in Philosophy.

Staff

*Fall and Spring, 3 credits each semester*

**PHI 393, 394. Analysis of Philosophic Texts**

Detailed analysis of a major text in philosophy. The course is designed to acquaint

philosophy majors with the fundamental discipline of philosophy as a carefully wrought discursive argument which formulates, investigates, and resolves fundamental problems.

Prerequisite: Two courses in Philosophy.

Staff

*Fall and Spring, 3 credits each semester*

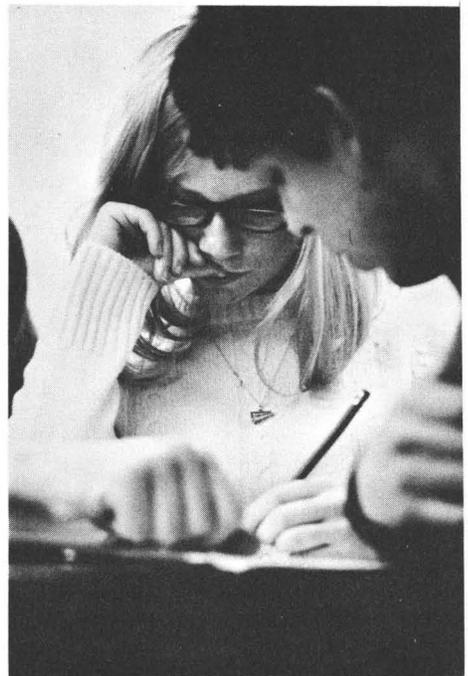
**PHI 399. Reading and Research in Philosophy**

Individually supervised reading and research for senior Philosophy majors. The student prepares a program of work in consultation with the instructor, meets with the instructor at regular intervals throughout the semester, and presents evidence of his accomplishment at the end of the semester. Approval of the instructor must be secured before registering.

Prerequisites: Philosophy major of senior standing and permission of Department.

Staff

*Fall and Spring, 1-3 credits each semester*



## PHYSICAL EDUCATION

*Assistant Professors:* HERBERT M. BROWN, BARBARA A. HALL, A. HENRY VON MECHOW (*Acting Director*), JOHN W. RAMSEY, MILDRED A. WEHRLY

*Instructors:* ROBERT B. SNIDER, EDITH STEPHEN

### Physical Education Requirement

Two semesters of Physical Education are required for graduation. This requirement may be met by the satisfactory completion of two semester courses in Physical Education, participation in intercollegiate or intramural sports, or by a combination of these three and is to be completed *after* the Freshman year. No credits or grades will be given for Physical Education courses.

Each student must earn a minimum of one hundred points which may be acquired as follows:

*A. Instructional Classes:*

50 points will be awarded for the satisfactory completion of each semester of an instructional class. Course participation will be graded on pass or fail.

*B. Intercollegiate Sports:*

25 to 50 points will be awarded for participation in an intercollegiate sport.

*C. Intramural Sports:*

10 points will be awarded *normally* for satisfactory participation in an intramural sport season.

Students may take courses in Physical Education beyond the two semester requirement without credit.

## COURSES IN PHYSICAL EDUCATION

Physical Education courses for men are indicated as PEM; courses for women are PEW; those courses that are co-educational are PEC.

### PEM 100, 101. Individual and Team Sports

Fall (PEM 100) and spring (PEM 101) courses designed to acquaint students with rules, practice techniques, skills, visual aids and game activity in various individual and team sports. Men's sections for each semester will consist of two sports as scheduled by the Physical Education Office according to the availability of staff and facilities.

Selections will be made from among the following activities:

Touch football, soccer, basketball, volleyball, softball, baseball, wrestling, track, squash, handball, badminton, tennis, gymnastics, golf, physical-conditioning.

Staff

*Fall and Spring*

### PEW 100, 101. Individual Sports

Fall (PEW 100) and spring (PEW 101) courses designed to acquaint students with rules, practice techniques, skills, visual aids and officiating of various individual sports. The fall sports for women (PEW 100) include golf, badminton, and squash. The spring sports (PEW 101) include badminton, tennis and archery.

Staff

*Fall and Spring*

### PEW 102, 103. Team Sports

Fall (PEW 102) and spring (PEW 103) courses designed to acquaint students with rules, practice techniques, skills, visual aids and officiating of various team sports. The fall sports for women (PEW 102) include field hockey, volleyball and basketball. The spring sports (PEW 103) include basketball, fencing and softball.

Staff

*Fall and Spring*

### PEC 111. Recreational Sports

A course designed for students interested in recreational activities and meeting for a double period (2½ hrs.) once a week. Sports included are riding, bowling and golf. A special fee of \$25.00 is necessary for enrollment in this course.

Staff

*Spring*

### PEM 120; PEW 120. Basic Swimming

Separate courses for men and women designed to equip students at the non-swimmer and beginner levels with basic swimming skills and knowledge.

Staff

*Fall and Spring*

### PEM 121; PEW 121. Intermediate Swimming

Separate courses for men and women designed to equip the novice swimmer with more advanced strokes and water skills.

Staff

*Fall and Spring*

### PEC 122. Advanced Swimming and Life Saving

A course designed to equip the student with advanced strokes, life saving and water safety skills. A prerequisite is demonstration of a skill level necessary for participation in this course.

Miss Hall

*Fall and Spring*

### PEC 123. Water Safety Instructor

This course is designed to help the student meet the requirements for certification as a Red Cross Water Safety Instructor.

Prerequisite: PEC 122 or equivalent.

Mr. von Mechow

**PEW 124. Synchronized Swimming**

A fundamental course designed to acquaint students with various synchronized swimming stunts, natography and the organization of water ballet.

Prerequisite: Demonstration of skills with approval of instructor.

Miss Hall

*Spring*

**PEW 130. Basic Modern Dance**

A study of the fundamentals of modern dance, including an analysis of movement, conditioning techniques and simple compositional forms.

Staff

*Fall*

**PEW 131. Advanced Modern Dance**

A study in modern dance composition with intensive experimentation in individual and group choreography.

Staff

*Spring*

**PEW 132. Movement Fundamentals**

A basic course designed to orient students with all phases of movement. Course will include the role of exercise, weight control, balance, relaxation, locomotor skills, rhythmic skills, play skills and work skills.

Staff

*Fall*

**PEW 133. Folk and Social Dance**

A basic course in dance divided into two phases, folk and social dance. Course will include traditional American and European folk dances and the fundamentals of ballroom dancing.

Staff

*Spring*

**PEW 140. Basic Gymnastics**

A basic course covering the four olympic pieces: free exercise, un-even parallels, horse and balance beam.

Staff

*Fall*

**PEW 141. Advanced Gymnastics**

An advanced course covering the four olympic pieces, including adaptation of techniques in compositional performances.

Staff

*Spring*

**Points for Men's Intercollegiate Sports**

Baseball .....	25
Basketball .....	50
Bowling .....	25
Crew: Fall, Spring .....	25, 50
Cross-Country .....	25
Golf .....	25
Indoor Track .....	25
Soccer .....	25
Squash .....	50
Swimming .....	50
Tennis .....	25
Track and Field .....	25



**INTERDEPARTMENTAL PROGRAM IN THE PHYSICAL SCIENCES**

The program leading to the Bachelor of Science in Physical Science is a joint undertaking of the Departments of Chemistry and Physics. It is designed primarily as proper preparation for a student intending to teach either chemistry or physics at the high school level. With the permission of the supervising committee, however, a student preparing for advanced work in certain other fields (e.g., medicine, patent law, technical administration, etc.) might also elect this program. The aim of the program is to provide a broader than usual, yet nonetheless substantial, introduction to the content, methods, and current directions of development of the physical sciences.

**Requirements for the Major in Physical Science**

In addition to the general University requirements for the Bachelor or Science degree, the following courses are required for the major in Physical Science:

*Physics* 101, 102 and *Physics* 151, 152

*Chemistry* 101, 102 or *Chemistry* 103, 104; *Chemistry* 108 and either *Chemistry* 153, 154, and 155 or *Chemistry* 201, 202, and 203.

*Mathematics* 102, 103 and *Mathematics* 155 156

*Physics* 351, 352, or 341, 342 or *Chemistry* 255, 256.

One additional year of physics or chemistry.

**Certification Requirements**

The following are New York State requirements for certification to teach a science at the secondary level:

Two years in the certified subject.

One year each in mathematics, biology, chemistry, physics, and earth science.

Eight hours in the theory and practice of education.

Eight hours in teaching methods and practice teaching.

To satisfy these requirements for certification in both chemistry and physics, a student must take the following courses in addition to the University requirements and major requirements:

*Biology* 101, 102 or an eight-hour biology equivalent acceptable to the committee

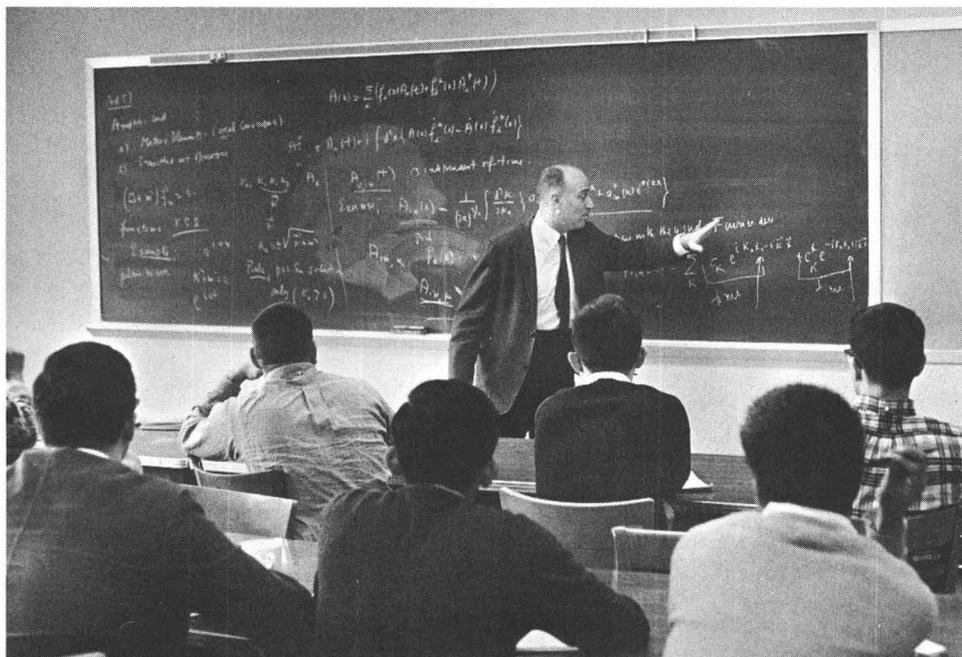
*Earth and Space Sciences* 101, 102 (Introduction to Earth and Space Sciences)

*Education* 203 (Psychological and Social Foundations of Educational Theory)

*Education* 345, 346 (History and Philosophy of Education)

*Chemistry/Physics/Earth and Space Science* 239 (Materials and Methods in Teaching Physical Science)

*Education* 350 (Practice Teaching)



## DEPARTMENT OF PHYSICS

*Professors:* NANDOR L. BALAZS, ERNEST D. COURANT<sup>o</sup>, MAX DRESDEN\*, LEONARD EISENBUD, ARNOLD M. FEINGOLD, DAVID FOX, MAURICE GOLDHABER (*Adjunct Professor*), MYRON L. GOOD, EDWARD D. LAMBE, BENJAMIN W. LEE\*\*, LINWOOD L. LEE, JR.\*\*\*, ANDRÉ MARTIN\*\* (*Visiting Professor*), MARCOS MOSHINSKY (*Visiting Professor*), HERBERT R. MUETHER, T. ALEXANDER POND (*Chairman*), JULIAN SCHWINGER\*\* (*Visiting Professor*), ARNOLD A. STRASSENBURG, JOHN S. TOLL, CHEN NING YANG† (*Einstein Professor*)

*Associate Professors:* OAKES AMES, HONG-YEE CHIU<sup>Δ</sup>, PAUL P. CRAIG<sup>o</sup>, ROBERT DEZAFRA, PETER B. KAHN, YI-HAN KAO, JULIET LEE-FRANZINI, RICHARD A. MOULD, HENRY B. SILSBEE, CLIFFORD E. SWARTZ, PATRICK THADDEUS<sup>Δ</sup>

*Director of the Physical Laboratory:* KARL EKLUND‡

*Assistant Professors:* DAVID B. FOSSAN, ALFRED S. GOLDHABER\*\*, PAUL D. GRANNIS, RUDOLPH C. HWA\*\*, BORIS KAYSER\*\*, PAUL R. KRAMER, PETER PAUL, ROBERT WEINBERG, DINO ZANELLO (*Visiting*)

The undergraduate major in physics is designed to serve either as 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 specialty in physics of the Program in Physical Science.

A student intending to qualify for the Bachelor of Science in Physics should complete PHY 101, 102, 151, 152, and *Mathematics* 102, 103, 155, 156 by the end of his second year. These constitute necessary preparation for the more intensive and formal required courses of the upperclass major. The latter courses extend

\*Executive Officer, Institute for Theoretical Physics.

\*\*Member, Institute for Theoretical Physics.

\*\*\*Director, Nuclear Structure Laboratory.

†Director, Institute for Theoretical Physics.

‡Associate Director, Nuclear Structure Laboratory.

ΔMember, NASA Goddard, on part-time appointment at Stony Brook.

<sup>o</sup>Physicist, Brookhaven National Laboratory, on part-time appointment at Stony Brook.

his mathematical and experimental competences, and lead serially through classical physics to a senior year in modern physics. Additional elective courses allow further substantial accomplishment in theoretical and experimental physics. Able students with extraordinary preparation may accelerate this program sufficiently to allow inclusion of courses from the Department's graduate offerings in the senior year.

### Requirements for the Major in Physics

In addition to the general University requirements for the Bachelor of Science degree, the following courses are required for the major in Physics:

PHY 101, 102 and 151, 152 (*General Physics*) \*

One year of Chemistry (commonly, *General Chemistry*)

*Mathematics* 102, 103 and 155, 156 (*Calculus*)

PHY 201, 202 (*Electromagnetic Theory*)

PHY 211 (*Thermodynamics, Kinetic Theory and Statistical Mechanics*)

PHY 212 (*Mechanics*)

PHY 235, 236 (*Junior Laboratory*)

PHY 341, 342 (*Modern Physics*)

*Mathematics* 203, 204 (*Topics in Calculus*)

Foreign Language: The proficiency requirement must be met in French, German, or Russian.

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\*In special circumstances students who have taken Physics 161, 162 instead of Physics 101, 102 and 151, 152, will be allowed to work for the Bachelor of Science in Physics. Permission of the Chairman of the Department of Physics is necessary before entering the junior year, and evidence of special proficiency may be required.

**COURSES IN PHYSICS****PHY 101, 102. General Physics I and II**

This course presents a number of the concepts, laws and models of physics in the context of the current use of these ideas. The wide range of utility and insight afforded by a small set of concepts is heavily stressed. The problems are chosen to provide experience in physical reasoning, requiring relatively limited mathematical skill. Basic theories, including the kinematics and dynamics of point particles, the interaction of charges and currents in vacuum, special relativity, and an introduction to quantum phenomena and concepts, are covered. The laboratory program introduces the student to elementary experimental techniques, and provides an opportunity for the observation of the phenomena on which the theory is built. Two lecture hours, one recitation hour, and one three-hour laboratory per week.

Corequisite: Mathematics 102, 103.

*Fall and Spring, 4 credits each semester*

**PHY 151. General Physics III**

A further development of the work of PHY 101, 102, particularly extending the physical ideas from one and two particle systems to many particle systems. Topics include rigid body calculations, probability and distribution functions, wave phenomena and electromagnetic radiation. Two lecture hours, one recitation hour, and one three-hour laboratory per week.

Prerequisite: Grade of C or better in PHY 101, 102.

Corequisite: Mathematics 155.

*Fall, 4 credits*

**PHY 152. General Physics IV A**

A further investigation of the quantum domain, including spectra and their classification, duality and uncertainty, superposition, probability amplitude, and special instances of quantum behavior. Two lecture hours,

one recitation hour, and one three-hour laboratory per week.

Prerequisite: PHY 151.

Corequisite: Mathematics 156.

*Spring, 4 credits*

**PHY 153. General Physics IV B**

A further investigation of the quantum domain, including spectra and their classification, duality and uncertainty, superposition, probability amplitude, and special instances of quantum behavior. Two lecture hours and one recitation hour per week.

Prerequisites: PHY 151 and approval of the Chairman of the Department of Physics and the student's major department.

Corequisite: Mathematics 156.

*Spring, 3 credits*

**PHY 161, 162. Introductory Physics**

A survey of general physics designed primarily for students in the College of Arts and Sciences whose subsequent studies will not require extensive use or further development of physical principles. Emphasis is placed on classical dynamics, electricity and magnetism, and on modern developments in atomic structure. The laboratory is devoted to exhibition of phenomena closely related to important physical concepts. The mathematical development is not as intensive as is that of PHY 101, 102, 151, 152. Three instructional hours and one three-hour laboratory per week.

*Fall and Spring, 4 credits each semester*

**PHY 201, 202. Electromagnetic Theory**

Primarily for majors in physics. The unification of the elementary forms of the various electromagnetic equations into Maxwell's equations is reviewed, and the theory is then applied to the following topics: static electric and magnetic fields, interaction of the

fields with bulk matter, circuit theory, fields in resonant cavities, optics, and interaction of charged particles with electromagnetic fields. The special theory of relativity is also discussed. Three class hours per week.

Prerequisites: PHY 151, 152 and Mathematics 155, 156, each with a grade of C or better or permission of the Chairman, Department of Physics.

Corequisite: Mathematics 203, 204.

*Fall and Spring, 3 credits each semester*

### **PHY 211. Thermodynamics, Kinetic Theory, and Statistical Mechanics**

Designed primarily for majors in physics, 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. Three class hours per week.

Prerequisites: PHY 151, 152 and Mathematics 155, 156, each with a grade of C or better, or permission of the Chairman, Department of Physics.

Corequisite: Mathematics 203.

*Fall, 3 credits*

### **PHY 212. Mechanics**

Primarily for majors in physics. 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.

Prerequisite: PHY 211, or permission of the Chairman.

Corequisite: Mathematics 204.

*Spring, 3 credits*

### **PHY 235, 236. Junior Laboratory**

Primarily for majors in physics. The main emphasis is on electrical measurements, electronics and optics, supplementing the material presented in PHY 201, 202. Two three-hour laboratories per week.

Prerequisite: Junior standing.

Corequisite: PHY 201, 202.

*Fall and Spring, 3 credits each semester*

### **PHY 239. Materials and Methods in Teaching Physical Science**

Designed for prospective secondary school teachers of physics and chemistry, the course emphasizes methods and materials appropriate to the teaching of a physical science at the high school level, and stresses recent curricular developments. Three class hours per week. This course is identical with Chemistry 239.

Prerequisites: PHY 161, 162 or equivalent, Chemistry 101, 102, Mathematics 151, 152 or equivalent, and concurrent study of an intermediate course in either chemistry or physics.

*Spring, 3 credits*

### **PHY 241, 242. Electricity and Magnetism**

Designed primarily for students in the physical science program, this course treats the basic phenomena and concepts in electricity and magnetism, leading to the formulation of Maxwell's equations. The course emphasizes applications to electric circuits, motors, instruments, generators, and electronics. Some work in physical optics is included. Three lecture hours and one three-hour laboratory per week.

Prerequisites: PHY 161, 162 or PHY 151, 152,

and Mathematics 155, 156; or permission of the Chairman, Department of Physics.

*Fall and Spring, 4 credits each semester*

### **PHY 341, 342. Quantum Mechanics and Modern Physics**

Designed primarily for majors in physics, this course covers topics in atomic and molecular structure, solid state physics, nuclear physics, and elementary particle physics. The phenomena requiring quantum theoretical descriptions are studied, leading to an introduction to quantum mechanics, which is then used as a tool for the investigation of other topics. Three class hours per week.

Prerequisites: PHY 201, 202, 211 and 212, and Mathematics 203, 204.

*Fall and Spring, 3 credits each semester*

### **PHY 343, 344. Methods of Mathematical Physics**

This course, designed primarily for majors in physics, 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. Three class hours per week.

Prerequisites: PHY 201, 202, 211 and 212, and Mathematics 203, 204, or permission of the Chairman of the Department of Physics.

*Fall and Spring, 3 credits each semester*

### **PHY 345, 346. Senior Laboratory**

Primarily for majors in physics. A number of the historic experiments studied in PHY 341, 342 are duplicated, but with the aid of

modern instrumentation. During the second term more lengthy projects are explored in depth, with emphasis on development of experimental skills and on professionally acceptable description and analysis of results. Typical projects involve work in atomic and nuclear spectroscopy, the photoelectric effect, beta-ray spectroscopy, magnetic resonance, solid state phenomena, and similar topics. In the second term, students may be called upon to formulate plans for their own experiments, based on readings in journals and reference works. Two three-hour laboratory sessions per week.

Prerequisites: PHY 235, 236 or permission of the Chairman.

Corequisites: PHY 341, 342.

*Fall and Spring, 3 credits each semester*

### **PHY 351, 352. Modern Physics**

Primarily for students in the physical science program. A survey of recent developments in physics, including introductions to theories of relativity and of quantum mechanics and consideration of the structure and properties of atomic, molecular, and nuclear systems. Other modern developments, such as the nature of solids, low temperature physics, and plasma physics, will be discussed briefly. Three lecture-recitation hours.

Prerequisites: PHY 241, 242.

*Fall and Spring, 4 credits each semester*

### **PHY 391, 392. Research**

With the approval of the faculty, a major in the Department 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.

Prerequisite: Permission of the Chairman of the Department of Physics.

*Fall and Spring, 2 credits each semester*

### PHY 393, 394. Tutorial in Advanced Topics

For upperclass 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.

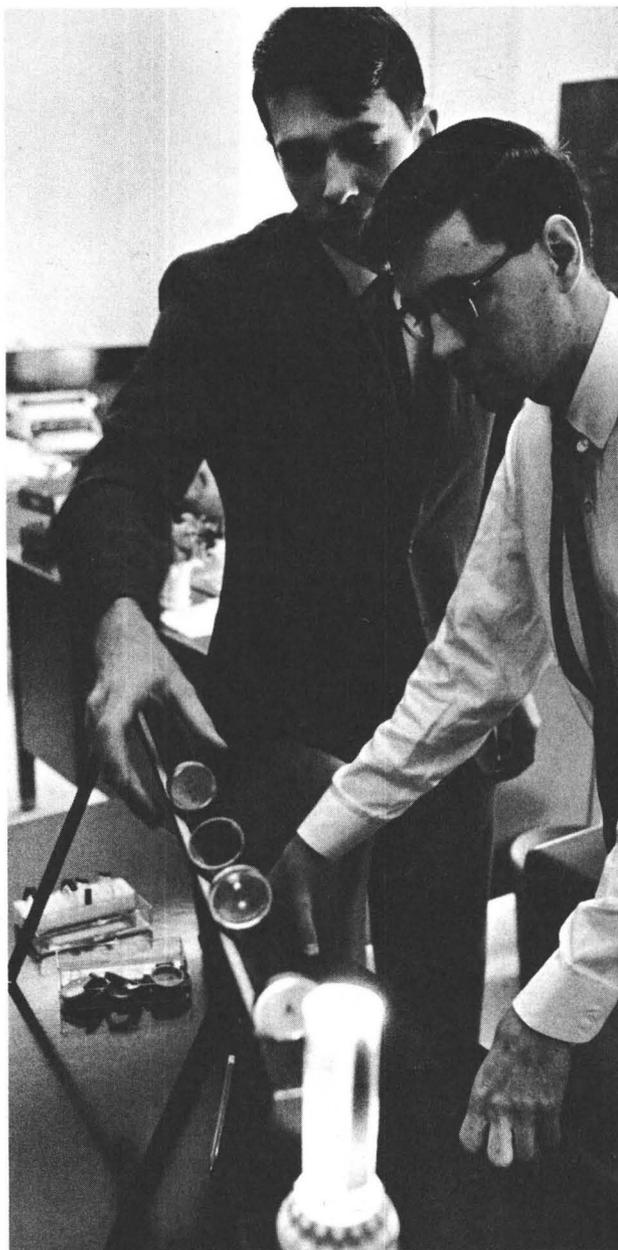
Prerequisite: Permission of the Chairman of the Department of Physics.

*Fall and Spring, 2 credits each semester*

### GRADUATE COURSES

(For details see the *Graduate Bulletin*)

Analytical Mechanics  
 Electrodynamics  
 Quantum Mechanics  
 Statistical Physics  
 Nuclear Physics  
 Special Research Projects  
 Special Study  
 Solid State Physics  
 Solid State Theory  
 Theoretical Nuclear Physics  
 Advanced Quantum Mechanics  
 Elementary Particles  
 Quantum Field Theory  
 Relativity  
 Special Topics in Theoretical Physics  
 Special Topics in Nuclear Physics  
 Special Topics in Solid State Physics  
 Thesis Research



**DEPARTMENT  
OF POLITICAL  
SCIENCE**

*Professors:* SANFORD A. LAKOFF, MARTIN B. TRAVIS (*Chairman*), JAY C. WILLIAMS, JR.

*Associate Professors:* HOWARD A. SCARROW, ASHLEY L. SCHIFF

*Assistant Professors:* FRANK E. MYERS, PETER RANIS, HERBERT H. WERLIN

*Instructors:* WINFRIED FRANKE, HARRIET POLLACK, MERTON L. REICHLER

In addition to the general University requirements for the Bachelor of Arts degree, the following courses are required for the major in Political Science:

A. *Study within the area of the major*

Completion of 24 credit hours in political science including:

1. Introduction to *Political Theory, Comparative Government, American Government, International Relations*
2. A course in research methods in political science (either *Political Science 391* or *392*)
3. Advanced work, with the consent of the advisor, in courses which emphasize diverse current approaches to political science

B. *Courses in related areas*

Completion of 9 credit hours in appropriate courses in the social sciences and/or humanities, selected with approval of the advisor.

## COURSES IN POLITICAL SCIENCE

### **POL 101. American Government**

This course will cover 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.

Staff

*Fall and Spring, 3 credits each semester*

### **POL 102. Comparative Government**

An introduction to the analysis of political systems with major examples being drawn from British, Western European, and Soviet systems. Comparison of these systems with each other and with that of the U.S. Emphasis upon the formal institutions of government as well as the dynamics of politics.

Staff

*Fall and Spring, 3 credits each semester*

### **POL 103. International Relations**

Introductory survey 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.

Mr. Franke

*Fall and Spring, 3 credits each semester*

### **POL 156. Introduction to Political Theory**

The course will examine the treatment given perennial theoretical problems in political theory from Plato to Dewey and McIver. The main emphasis will be placed on such problems as (1) definition of the political community, (2) relation of political institutions to each other, to cultural states, to parts of

the community, to varieties and aspects of human nature and to ethical norms, (3) the effect which methods of inquiry have on the definition of problems and relevant data.

Mr. Williams

*Fall and Spring, 3 credits each semester*

### **POL 201. American Political Thought**

An analysis of the major policy problems from the Revolution to the present, with the aim of discovering the prevailing concerns, methods, and spirit of American thought in civic matters.

Mr. Williams

*Fall, 3 credits*

### **POL 202. 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.

Mr. Williams

*Spring, 3 credits*

### **POL 209. Politics in the Developing Areas**

Survey of developmental politics in selected emerging nations. Emphasis upon colonial policies prior to independence, nationalistic movements, constitution building, and the emergence of leadership, parties, and interest groups. Comparison of the Western and non-Western political process.

Mr. Werlin

*Fall, 3 credits*

**POL 210. Politics of Tropical Africa**

A study of traditional African society, the rise of African nationalism, the transition to independence, and the problems that have arisen since independence. Political parties in Africa, interest groups, local government, regional associations, public administration, political ideology, inter-African and foreign relations will be considered.

Mr. Werlin

*Spring, 3 credits*

**POL 211. Comparative Political Parties and Pressure Groups**

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 102 or consent of instructor.

Mr. Scarrow

*Fall, 3 credits*

**POL 213. British Parliamentary Democracy**

Examination of the working of parliamentary democracy in Britain and in selected Dominions, with emphasis upon the nature of the societies in question, and the relationship of society to the working of political institutions, ideologies, and governmental policies.

Prerequisite: POL 102 or consent of instructor.

Mr. Myers

*Fall, 3 credits*

**POL 214. Politics of Latin America**

A comparative investigation of political trends

in Latin American nations. The course will include a survey of twentieth century political change, contemporary political culture, the framework and institutions of government and the interacting social and political forces of the post-World War II period. Attention will be centered on Latin America within the general pattern of political modernization, political development and prevailing ideologies. Wherever applicable, there will be an analysis of policy-making and the role of political leadership.

Mr. Ranis

*Spring, 3 credits*

**POL 216. Democratic Politics in Western Europe**

Examination of the political process in France, Italy and Western Germany. 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 102 or consent of instructor.

Mr. Myers

**POL 221. 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 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.

Mr. Travis

*Fall, 3 credits*

**POL 222. International Organization**

The course will cover 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.

Mr. Franke

*Spring, 3 credits*

**POL 223. Latin America and the United States**

Survey of the international relations of the Latin American republics; formulation of Latin American policy; relations with the United States and Europe; relations with international organizations (U.N. and O.A.S.); international trade; economic and financial development.

Mr. Travis

*Fall, 3 credits*

**POL 224. 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.

Mr. Travis

*Spring, 3 credits*

**POL 226. Problems of International Relations in Latin America**

Consideration in depth of selected problems of foreign relations in Latin America including policy formulation, inter-American community development, and foreign policies of key Latin American governments.

Prerequisite: POL 223 or History 154 or consent of instructor.

Mr. Travis

*Spring, 3 credits*

**POL 230. American Constitutional Law**

A study of the role of the modern Supreme Court within the political and governmental process; its relations 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.

Mr. Reichler

*Spring, 3 credits*

**POL 241. Political Attitudes and Propaganda**

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) the nature, varieties, and actual effects of propaganda. Some attention will also be given to attitude research methods.

*Fall, 3 credits*

**POL 242. 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.

*Spring, 3 credits*

**[POL 244. Private Government]**

Treats an assortment of significant private groups in the U.S. (corporations, unions, churches, professional associations, radical movements) in terms of their exercise of political power internally and externally. Topics include "shareholder democracy," union de-

mocracy, lobbying, church and state and political extremism.

Mr. Lakoff

*Fall, 3 credits*

To be offered 1968-69.

**POL 250. Bureaucracy and Public Administration**

Intended for students interested in a public service career. 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.

Mr. Schiff

*Spring, 3 credits*

**POL 251. 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. The significance of technological innovation, value orientations, and economic welfare analysis in giving direction to policy planning.

Mr. Schiff

*Fall, 3 credits*

**POL 253. State and Local Government**

Roles of states in the federal system. Federal-state, inter- and intra-state relations, urbanization and the growth of metropolitan communities. Urban politics and decision-making in selected policy areas.

*Fall, 3 credits*

**[POL 255. Government and Science]**

Impact on society of advances in science and technology. Public policy regarding contracting for research and development, grants to

universities for research and training. Coordination and control of science policy by the executive and Congress. The role of scientists in foreign policy.

Mr. Lakoff

*Fall, 3 credits*

To be offered 1968-69.

**POL 391. Research Methods in Political Science: American Political Institutions**

Contributions and limitations of several approaches to and methods of the study of American politics and government, e.g., those emphasizing historical and institutional development, those focusing on interest and power conflicts, those analyzing political decision-making, and those concentrating on behavioral and interdisciplinary data; and the values of each approach in the quest for valid generalizations and predictions.

Prerequisite: Enrollment limited to seniors.

Mr. Reichler

*Fall, 3 credits*

**POL 392. Research Methods in Political Science: Comparative Politics**

Approaches to the study of political systems with emphasis upon comparative analytical schemes, and upon comparison of specific institutions and patterns of behavior. Attention will also be devoted to the development of the study of comparative politics, including methods and problems of cross-governmental (international and intranational) and cross-cultural comparison.

Prerequisite: Enrollment limited to seniors.

Mr. Scarrow

*Spring, 3 credits*

## DEPARTMENT OF PSYCHOLOGY

*Professors:* HARRY I. KALISH (*Chairman*), LEONARD KRASNER (*Director Clinical Training*), LEWIS PETRINOVICH, EVERETT J. WYERS.

*Associate Professors:* DANA BRAMEL, MARVIN R. GOLDFRIED (*Director Psychological Services*), MARVIN LEVINE, JEROME E. SINGER.

*Assistant Professors:* GERALD C. DAVISON, THOMAS J. D'ZURILLA, EDWARD M. EISENSTEIN, LESTER G. FEHMI, DAVID M. POMERANZ (*Assistant Director, Psychological Services*), MARIUS C. SMITH, JOSEPH L. YOUNG

### Requirements for the Major in Psychology

In addition to the general University requirements for the Bachelor of Arts degree, the following courses are required for the major in Psychology:

#### A. *Study within the area of the major*

Completion of 25 units in Psychology

PSY 101 (*General Psychology*)

PSY 102 (*Learning and Motivation*)

PSY 162 (*Statistical Methods in Psychology*)

PSY 205 (*Experimental Psychology*)

12 credit hours in Psychology electives, only six hours may be chosen from 300 level courses.

#### B. *Courses in related areas*

The Department requires that students take 15 credits of courses related to Psychology. These courses will be selected after consultation with the student's advisor.

## COURSES IN PSYCHOLOGY

### PSY 101. General Psychology

An introduction to psychology as the science of behavior, this course familiarizes the student with the major areas of behavior: conditioning, learning, perception, motivation, psychological development, personality, and measurement. Stress is placed on contemporary research. Prerequisite to all other courses in psychology.

Staff

*Fall, 3 credits*

### PSY 102. Learning and Motivation

A critical examination of the basic concepts, empirical findings, and theoretical interpretations in the experimental study of learning and motivation.

Prerequisite: PSY 101.

Messrs. Levine, Smith

*Fall and Spring, 3 credits each semester*

### PSY 162. Statistical Methods in Psychology

Designed to provide the student with a knowledge of the use and interpretation of elementary statistical techniques in research. Emphasis is placed on descriptive statistics, correlational analysis, and inferential statistics, including chi-square, critical ratio, t, F, and certain selected non-parametric techniques. Two lecture sessions and a one-hour laboratory each week.

Prerequisites: PSY 101, 102.

(PSY 102 may be waived with permission of instructor.)

Mr. Young

*Fall and Spring, 3 credits each semester*

### PSY 205. Experimental Psychology

Application of the experimental method to the analysis of behavioral phenomena in human beings and animals. Design and execution of experiments, in conditioning, learning, perception, motivation, conflict, and certain selected personality problems. One lec-

ture, one seminar and one two-hour laboratory period per week.

Prerequisites: PSY 101, 102, and permission of the instructor.

Mr. Smith

*Fall and Spring, 4 credits each semester*

### PSY 208. Theories of Personality

Contemporary theories of personality will be studied with emphasis on the experimental literature pertaining to personality development. Current methods of personality assessment in the applied areas will also be considered.

Prerequisite: PSY 101.

Staff

*Fall, 3 credits*

### PSY 209. Social Psychology

Behavior, and methods of studying behavior in groups and social situations will be considered. The topics will include communication, behavior in large and small groups, opinion and attitude measurement and change, and social interaction.

Prerequisite: PSY 101 (possible prerequisite or corequisite PSY 162).

Messrs. Bramel, Singer

*Fall and Spring, 3 credits*

### PSY 210. Empirical and Theoretical Studies of Social Conflict

Classical and current views of social conflict will be considered. Emphasis will be placed on recent empirical and mathematical studies, and a number of laboratory exercises will illustrate contemporary methods in the study of social conflict. The views of Plato, Machiavelli, and others will be compared and con-

trasted with current empirical and theoretical work.

Prerequisites: PSY 101, and permission of the instructor.

*Spring, 3 credits*

### **PSY 211. Development and Adolescent Psychology**

A study of the hereditary, maturational and learning factors responsible for the personality development of the human organism from birth through adolescence. Emphasis will be on the theoretical research aspects of social learning from the point of view of modified behaviorism and modern cognitive social psychology.

Prerequisite: PSY 101, or permission of Department Chairman.

Mr. D'Zurilla

*Fall and Spring, 3 credits*

### **PSY 215. Abnormal Psychology**

The major categories of psychopathology, including the neuroses and functional and organic psychoses, will be examined. Emphasis will be placed on an analysis of current research in psychopathology and its relationship to the theories of abnormal behavior.

Prerequisite: PSY 101.

Messrs. Davison, Kalish, Krasner

*Fall and Spring, 3 credits each semester*

### **PSY 244. Comparative Psychology**

This course will be concerned with the phylogenetic distribution and evolution of both learned and unlearned behavior patterns with an emphasis on the former. Such phenomena as kineses, taxes, instinct, respondent and operant conditioning, generalization and discrimination will be considered.

Prerequisites: PSY 101 and Biology 101 or equivalent.

Mr. Eisenstein

*Fall, 3 credits*

### **PSY 330, 331. Research in Psychology**

Selected senior majors in Psychology will be offered a laboratory apprenticeship. The work consists of laboratory or field work by the student under the direct supervision of a faculty member in the Department of Psychology.

Prerequisites: Advanced standing in Psychology and written permission of the faculty supervisor.

Staff

*Fall and Spring, 1 to 3 credits each semester*

### **PSY 332, 333. Readings in Psychology**

Senior majors in Psychology will be afforded the opportunity to read selectively under the guidance of a faculty member.

Prerequisites: Major in Psychology, senior standing and permission of Department Chairman.

Staff

*Fall and Spring, 1 to 3 credits each semester*

### **PSY 340. Physiological Psychology**

This course will consider in detail the evolution of the nervous system with an emphasis on integrative processes and their relationship to behavior.

Prerequisites: PSY 101, 102 and Biology 101, or equivalent.

Mr. Eisenstein

*Spring, 3 credits*

### **PSY 352. History and Systems of Psychology**

The history and present status of conceptual trends in Psychology. The development of psychological principles and theories will be traced from the early Greek philosophers, through the European philosophers and em-

piricists to their embodiment in contemporary psychological theory.

Prerequisite: Nine credits of Psychology.

Mr. Petrinovich

*Spring, 3 credits*

**PSY 391, 392, 393. Special Topics in Psychological Research and Theory**

A seminar to be offered to selected senior majors and to be organized by the faculty member who will deal with current research and theory in areas of special interest to him. Topics will be announced prior to the beginning of each semester.

Prerequisites: PSY 101, 102, 162 and 205, and permission of the instructor.

Staff

*Fall and Spring, 3 credits each semester*



**DEPARTMENT OF  
ROMANCE LANGUAGES  
AND LITERATURES**

*Professors:* JEANLOUIS CORNUZ (*Visiting*), OSCAR A. HAAC (*Acting Chairman*)

*Associate Professors:* LINETTE F. BRUGMANS, HERMAN IVENTOSCH, LEONARD R. MILLS

*Assistant Professors:* HARRIET R. ALLENTUCH, CAROL K. BLUM, FREDERICK BROWN, JAIME GIORDANO, JAMES MCKENNA, DONALD PETREY, JOSEPH TURSI, BENKT WENNBURG

*Instructors:* SALOME BENEDICT, MICHELINE BESNARD, SAUL BIALILEW, LISA DAVIS, ALFRED EHRENFELD, JEREMIAH FALLON, MARGARET FRIEDMAN, GABRIELA GREENFIELD, GABRIEL LANDAU, BERNARD NOUIS, NORMAN POULIN, MARGERY RESNICK, GEMMA ROBERTS, GEORGES TURKEWICZ, ELIO ZAPULLA, ELLEN ZELLNER

**Requirements for the Major in Spanish and French**

In addition to the general requirements for the Bachelor of Arts degree, the following requirements of the Department of Romance Languages must be met:

*A. Study within the area of the major language:*

1. Nine semester hours in intermediate courses 221 (or by permission 222), 231, and 232.
2. Eighteen semester hours on the 300 level, including French 321 and 322 for French majors and Spanish 321 for Spanish majors.

*B. Courses in related areas:*

1. Proficiency in a second foreign language.
2. Nine semester hours in related courses with the approval of the department advisor.

### C. *Teacher certification:*

In addition to the requirements in A and B above, students must take courses in education required for certification including a course in methods of teaching a foreign language. A student must also demonstrate to the department that his ability in the language qualifies him for a teaching position.

## Placement in Language Courses for Incoming Freshmen

Students continuing the study of a foreign language started in high school will be placed in the appropriate college course by a placement examination; however, after two years of high school preparation, students will receive no graduation credit for the first course (111) in the same language and after three years of high school preparation they will receive no credit for the first two courses (111, 112) in the same language. "Language proficiency" is normally defined as the level of achievement attained in course 152. All courses except French 100 are conducted in the foreign language.

### COURSES IN FRENCH

#### **FRN 100. Reading French**

An introduction for graduate students to attain a basic reading knowledge of French.

Prerequisite: None.

Mr. Turkewicz

*Fall and Spring, no credit*

#### **FRN 111, 112. Elementary French**

An introduction to spoken and written French, stressing pronunciation, speaking, comprehension, reading, and writing. Selected texts will be read. Practice in the language laboratory supplements class work.

Prerequisite: None.

Staff

*Fall and Spring, 3 credits each semester*

#### **FRN 151, 152. Intermediate French**

An intermediate course in conversation, composition, and the interpretation of French texts. Practice in the language laboratory will further develop audiolingual skills.

Prerequisite: FRN 112, or equivalent.

Staff

*Fall and Spring, 3 credits each semester*

#### **FRN 153. Intermediate French**

A review of French, also conversation, composition and the interpretation of French texts as offered in course 152. Practice in the language laboratory will develop audiolingual skills.

Prerequisites: A placement test score exempt-

ing courses 111, 112 and 151, and three years of high school French.

Staff

*Fall, 3 credits*

**FRN 221. French Conversation and Composition**

A course in the active use of spoken and written French. At least one hour per week of work in the language laboratory is required.

Prerequisites: FRN 152, 153, "language proficiency," or permission of the instructor.

Mrs. Brugmans and Staff

*Fall, 3 credits*

**FRN 222. Readings and Discussion of Modern Authors**

*Explication de texte*, oral and written reports.

Prerequisite: FRN 221 or permission of the instructor.

Mr. Brown and Staff

*Spring, 3 credits*

**FRN 231. Major Writers in French through the Eighteenth Century**

Reading and interpretation of selected works by great French writers from the Middle Ages to the eighteenth century. Works are treated in the context of the history of French literature.

Prerequisites: FRN 152, 153, "language proficiency," or permission of the instructor.

Mrs. Allentuch and Staff

*Fall, 3 credits*

**FRN 232. Major Writers in French since the Nineteenth Century**

Reading and interpretation of selected works by great French writers from the nineteenth

century to the present. Works are treated in the context of the history of French literature. Prerequisites: FRN 152, 153, "language proficiency," or permission of the instructor.

Mrs. Allentuch and Staff

*Spring, 3 credits*

**FRN 302. Pensée et Culture (French Civilization)**

French writers and artists and their interpretation of society. The intellectual and cultural climate of modern France.

Prerequisites: FRN 231, 232, or permission of the instructor.

Mr. Cornuz

*Spring, 3 credits*

**FRN 321. Advanced French Conversation, 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 two hours of weekly laboratory practice will be required.

Prerequisite: FRN 221, or 222, or permission of the instructor.

Mrs. Brugmans

*Fall, 3 credits*

**FRN 322. Advanced French Grammar and Composition**

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 221, or 222, or permission of the instructor.

Mrs. Brugmans

*Spring, 3 credits*

**FRN 335, 336. French Literature in the Seventeenth Century**

Reading of selected masterpieces from *Le Grand Siècle*.

Prerequisites: FRN 231, 232, or permission of the instructor.

Mrs. Allentuch

*Fall and Spring, 3 credits each semester*

**FRN 337, 338. French Literature in the Eighteenth Century**

Reading of selected works from representative authors of the main literary genres of the eighteenth century, including the *philosophes* and their forerunners. Attention will also be given to the development of the drama and the novel.

Prerequisites: FRN 231, 232, or permission of the instructor.

Mr. Haac

*Fall and Spring, 3 credits each semester*

**[FRN 341. Poetry since Baudelaire]**

A study of the major poets and "schools" since Romanticism, with discussion of changing poetic practices and doctrines. Critical readings in Baudelaire, Rimbaud, Mallarmé, and Verlaine, with explication of individual poems.

Prerequisites: FRN 231, 232, or permission of the instructor.

Mrs. Brugmans

*Fall, 3 credits*

To be offered 1968-69.

**[FRN 342. Twentieth Century Poetry]**

A study of the major poets from Apollinaire to St. John Perse. Explication of individual poems.

Prerequisites: FRN 231, 232, or permission of the instructor.

Mrs. Brugmans

*Spring, 3 credits*

To be offered 1968-69.

**FRN 345. Modern French Fiction to 1945**

Critical reading and interpretation of French fiction in the twentieth century, with emphasis on Proust and Gide.

Prerequisites: FRN 231, 232, or permission of the instructor.

Mrs. Brugmans

*Fall, 3 credits*

**FRN 346. Modern French Fiction**

Critical readings with emphasis on Malraux, Sartre, Camus.

Prerequisites: FRN 231, 232, or permission of the instructor.

Mrs. Brugmans

*Spring, 3 credits*

**FRN 347. The Modern French Theater**

Representative French playwrights from Alfred Jarry to the present, with particular emphasis on the post-war theater.

Prerequisites: FRN 231, 232, or permission of the instructor.

Mr. Brown

*Fall, 3 credits*

**FRN 361. Nineteenth Century French Literature I**

Critical readings and discussion of Romanticism.

Prerequisites: FRN 231, 232, or permission of the instructor.

Mr. Cornuz

*Fall, 3 credits*

**FRN 362. Nineteenth Century French Literature II**

Critical readings and discussion of Realism, Symbolism, Naturalism.

Prerequisites: FRN 231, 232, or permission of the instructor.

Mr. Cornuz

*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 the language laboratory supplements class work.

Prerequisite: None.

Mr. Tursi

*Fall and Spring, 3 credits each semester*

**ITL 151, 152. Intermediate Italian**

An intermediate course in the reading and discussion of selected Italian texts. An intensive grammar review with practical language laboratory exercises will offer an opportunity to develop conversational ability.

Prerequisite: ITL 112, or equivalent.

Mr. Tursi

*Fall and Spring, 3 credits each semester*

**ITL 221. Italian Conversation**

A course in spoken Italian. At least one hour of laboratory is required.

Prerequisites: Italian 152, "language proficiency," or permission of the instructor.

Mr. Tursi

*Fall, 3 credits*

**ITL 222. Readings and Discussion of Modern Authors**

Readings, explication, oral and written reports.

Prerequisite: ITL 221 or permission of the instructor.

Mr. Tursi

*Spring, 3 credits*

**COURSES IN PORTUGUESE****POR 111, 112. Elementary Portuguese**

An introduction to spoken and written Portuguese, stressing pronunciation, speaking, comprehension, reading and writing. Selected texts will be read. Practice in the language laboratory supplements class work.

Prerequisite: None.

Mrs. Greenfield

*Fall and Spring, 3 credits each semester*

**POR 151, 152. Intermediate Portuguese**

An intermediate course in conversation, composition, and the interpretation of Portuguese texts. Practice in the language laboratory will further develop audiolingual skills.

Prerequisites: POR 111, 112.

Mrs. Greenfield

*Fall and Spring, 3 credits each semester*

**COURSES IN SPANISH****SPN 111, 112. Elementary Spanish**

An introduction to spoken and written Spanish, stressing pronunciation, speaking, comprehension, reading, and writing. Selected texts will be read. Practice in the language laboratory supplements class work.

Prerequisite: None.

Staff

*Fall and Spring, 3 credits each semester*

**SPN 151, 152. Intermediate Spanish**

An intermediate course in conversation, composition, and the interpretation of Spanish texts. Practice in the language laboratory will further develop audiolingual skills.

Prerequisite: SPN 112, or equivalent.

Staff

*Fall and Spring, 3 credits each semester*

**SPN 221, 222. Spanish Conversation and Composition**

A course in the active use of spoken and written Spanish. At least one additional hour per week of work in the language laboratory is required.

Prerequisites: SPN 152, "language proficiency," or permission of the instructor.

Mr. Giordano and Staff

*Fall and Spring, 3 credits each semester*

**SPN 231. Major Writers in Spanish**

The reading and interpretation of selected works by great Spanish writers from the Middle Ages to the Golden Age and the Renaissance. Texts are treated in the context of the history of Spanish literature.

Prerequisites: SPN 152, "language proficiency," or permission of the instructor.

Mr. McKenna

*Fall, 3 credits*

**SPN 232. Major Writers in Spanish**

The reading and interpretation of selected works by great Spanish writers from the 18th to the 20th centuries. Texts are treated in the context of the history of Spanish literature.

Prerequisites: SPN 152, "language proficiency," or permission of the instructor.

Mr. McKenna

*Spring, 3 credits*

**SPN 302. Cultura y Ambiente Intelectual de la España Moderna [Spanish Civilization]**

Spanish writers and artists and their interpretation of society. The intellectual and cultural climate of modern Spain.

Prerequisites: SPN 231, 232, or permission of the instructor.

Mr. McKenna

*Spring, 3 credits*

**SPN 321. Spanish Stylistics**

The writing of Spanish and the elements of style in Spanish including the translation of modern texts.

Prerequisite: SPN 221, or 222, or permission of the instructor.

Mrs. Roberts

*Fall, 3 credits*

**SPN 333, 334. Major Writers in Spanish America**

The reading and interpretation of selected works by representative writers of Spanish America.

Prerequisite: SPN 152, or permission of the instructor.

Mr. Giordano

*Fall and Spring, 3 credits each semester*

**SPN 337. Spanish Prose of the Golden Age except Cervantes**

An examination of the major prose genres, beginning with the *Celestina*, and including the Chivalresque, Picaresque, and Pastoral narrations, as well as some consideration of Mystic and Historical prose.

Prerequisites: SPN 231, 232, or permission of the instructor.

Mr. Iventosch

*Fall, 3 credits*

**SPN 338. Spanish Poetry of the Golden Age**

An examination in depth of Spanish poetic literature from the late Middle Ages to the Baroque, from the Cancioneros to Góngora.

Prerequisites: SPN 231, 232, or permission of the instructor.

Mr. Iventosch

*Spring, 3 credits*

**[SPN 340. Cervantes]**

A consideration of the literary career of Cervantes including lyrics, theater, novels, short stories, and *Don Quixote*.

Prerequisites: SPN 231, 232, or permission of the instructor.

Mr. Iventosch

*Spring, 3 credits*

To be offered 1969.

**SPN 361. Spanish Literature of the Eighteenth and Nineteenth Centuries**

A brief glance at the eighteenth century will be followed by an examination of the major writers and movements of the nineteenth, including Romanticism, Realism, Naturalism, and Modernism.

Prerequisites: SPN 231, 232, or permission of the instructor.

Mr. Iventosch

*Fall, 3 credits*

**SPN 364. Contemporary Hispanic Poetry**

Peninsular and Latin American poetry from Modernism to the present: from Dario and Antonio Machado to Neruda and Miguel Hernandez.

Prerequisites: SPN 231, 232, or permission of the instructor.

Mr. Giordano

*Spring, 3 credits*



**DEPARTMENT  
OF SOCIOLOGY**

*Professors:* KURT LANG, HANAN C. SELVIN (*Chairman*)

*Associate Professor:* SIDNEY H. ARONSON

*Assistant Professors:* O. ANDREW COLLVER, NORMAN GOODMAN, JAMES R. HUDSON,  
NED H. POLSKY, DAVID N. SUDNOW

*Instructors:* M. HERBERT DANZGER, HARVEY A. FARBERMAN

**Requirements for the Major in Sociology**

In addition to the general University requirements for the Bachelor of Arts degree, the following courses are required for the major in Sociology:

*A. Study within the area of the major*

SOC 101 (*Contemporary Society*)

SOC 102 (*Introduction to Sociology*)

SOC 201 (*Research Methods in Sociology*)

SOC 202 (*Statistical Methods in Sociology*)

SOC 361 (*Historical Development of Contemporary Sociology*)

SOC 362 (*Sociology Today*)

At least fifteen additional credit hours in Sociology beyond the introductory Sociology 101-102 sequence.

*B. Courses in related areas*

At least six credit hours in related social science disciplines beyond the introductory 101-102 sequence to be chosen in consultation with the departmental advisor.

The department recommends that the language proficiency requirement be ordinarily met in French or German.

## COURSES IN SOCIOLOGY

### SOC 101. Contemporary Society

The basic characteristics of modern industrial society through selected readings dealing with such developments as population growth, urbanization, technological progress, and bureaucratic organization.

Staff

*Fall and Spring, 3 credits each semester*

### SOC 102. Introduction to Sociology

A systematic treatment of the basic concepts and central frames of reference used in sociological analysis.

Staff

*Fall and Spring, 3 credits each semester*

### SOC 161. Ethnic Group Relations

This course will take up theories of the formation, migrations, and conflicts of ethnic and minority groups; basic research on the phenomena of prejudice, discrimination, minority self-hatred and on the relations of ethnic group conflicts to nationalism and totalitarianism. Within this framework, the stress will be placed on recent American developments.

Prerequisite: SOC 102 or permission of instructor.

Mr. Danzger

*Spring, 3 credits*

### SOC 201. Research Methods in Sociology

An introduction to modern methods of social-cultural research, emphasizing the design, interpretation and critique of a wide variety of research procedures.

Prerequisite: SOC 102 or permission of instructor.

Mr. Selvin

*Fall and Spring, 3 credits each semester*

### SOC 202. Statistical Methods in Sociology

An introduction to the use and interpretation of statistical methods in sociological research. Consideration of the distinction between descriptive and inferential statistics and of the values and limitations of each with illustrations from actual studies.

Prerequisite: SOC 102 or permission of instructor.

Mr. Selvin

*Fall and Spring, 3 credits each semester*

### SOC 203. Social Stratification

Consideration of alternative theories of social stratification; patterns of differentiation in wealth, prestige, and power; the emergence of class, status, and power groups; the indicators and consequences of social class position; class consciousness, social mobility, power structures and elites.

Prerequisite: SOC 102 or permission of instructor.

Messrs. Danzger, Polsky

*Spring, 3 credits*

### SOC 204. Courtship, Marriage and the Family

An examination of the structure and functions of the family as a social institution. The problems of courtship, mate-selection and engagement, the processes of marital adjustment, the responsibilities and opportunities of parenthood, and family crises in contemporary American society.

Prerequisite: SOC 102 or permission of instructor.

Mr. Goodman

*Fall and Spring, 3 credits each semester*

**SOC 207. Social Problems**

This course explores the ways in which social definitions of social problems emerge and change. Stress will be placed upon the varying scope and intensity of social problems in shifting settings of economic scarcity and abundance, socio-cultural integration and disension. The topics include poverty and affluence, dilemmas in organization of education, population imbalances, generational conflict, homicide and suicide, racial and ethnic relations, structural and functional unemployment, prostitution and addiction.

Prerequisite: SOC 102 or permission of instructor.

Mr. Polsky

*Spring, 3 credits*

**SOC 209. Social Conflicts and Movements**

An examination of aggregate phenomena: basic elements in social movements and conflict; conformity and deviant behavior in mass society; "revolutionary" and "counter-revolutionary" programs and organizations. Historical and cross-cultural illustrations will be stressed.

Mr. Lang

*Fall, 3 credits*

**SOC 235. Sociology of Religion**

An examination of the ways in which socio-cultural processes are influencing and being influenced by the organizations and belief systems of the historic world religions and their denominational variants. Changing structures and functions of religious institutions in the present era of accelerated modernization; ecumenical tendencies; recent religious trends in the U.S. since World War II.

Prerequisite: SOC 102 or permission of instructor.

Mr. Danzger

*Fall, 3 credits*

**SOC 236. Technology, Industrialization, Social Change**

A comparative analysis of the interrelations between technological and social change, of technological and organizational preconditions of economic development, and of the social implications of automation in highly industrialized countries.

Mr. Aronson

*Fall, 3 credits*

**SOC 237. Deviance and Delinquency**

The course examines juvenile and adolescent vandalism, chronic truancy, theft, gang violence, sex offenses, drug use, and other forms of deviance in complex societies, as these relate to social structure and social change. Competing theories of delinquency causation and prevention are tested against historical and cross-cultural as well as contemporary American empirical data. Alternative research methods are considered in detail.

Prerequisite: SOC 102 or permission of instructor.

Mr. Polsky

*Fall, 3 credits*

**SOC 239. Sociology of Crime**

Crime in relation to social structure and social processes. Major emphasis is to be on the nature of crime, the significant features of crime causation, criminal life-styles and behavior systems (e.g.: organized crime, white-collar crime, sex offenses, and homicide); the effects of differential law enforcement and the existing and proposed methods of crime control.

Prerequisite: SOC 102 or permission of instructor.

Mr. Polsky

*Spring, 3 credits*

**SOC 241. Social Psychology: Sociological Perspectives**

This course focuses on the reciprocal influences among individual, social, and cultural

factors in human behavior. Among the themes to be explored are: the structure of personality, development of identity, motivation, communication processes, attitudes, conformity and deviance.

Prerequisite: SOC 102 and Psychology 101 or permission of instructor.

Messrs. Farberman, Goodman

*Fall, 3 credits*

### **SOC 251. Work and the Professions**

The world of work and the professions is examined with particular reference to inter-organizational conflict and accommodation.

Prerequisite: SOC 102 or permission of instructor.

Staff

*Fall, 3 credits*

### **SOC 254. Sociology of Law**

A sociological analysis of law as a form of social control with particular emphasis on the legal profession (bar and bench), the functioning of the court system, the bureaucratization of the legal process; comparisons of systems of civil and criminal justice, and the relation of law to social change.

Prerequisite: SOC 102 or permission of instructor.

Staff

*Spring, 3 credits*

### **SOC 256. Political Sociology**

Stress will be placed on current research and unresolved problems in the spheres of power, authority, and legitimacy.

Prerequisite: SOC 102 or permission of instructor.

Mr. Hudson

*Spring, 3 credits*

### **SOC 260. Comparative Social Structures and Institutions**

A systematic study, with a strong historical emphasis, of the central institutions and social formation of the principal complex societies. In particular, highly industrialized nations such as the United States, Great Britain, Germany, and the Soviet Union will be compared with one another and with the newly developing states in respect to patterns of institutional persistence and change, emerging status-role and value conflicts.

Prerequisite: SOC 102 or permission of instructor.

Staff

*3 credits*

### **SOC 262. Mass Communications**

Particular attention is directed to the sociological patterns affecting recruitment of personnel, organization of services, and public functions of mass communication facilities.

Prerequisite: SOC 102 or permission of instructor.

Mr. Lang

*Spring, 3 credits*

### **SOC 263. Collective Behavior**

Examination of major unstructured social phenomena (e.g., mob violence, panic, diffusion of fads and fashions, public opinion) as the outcome of collective problem-solving activity. The emphasis will be on a broad theoretical framework illustrated by case studies.

Prerequisite: SOC 102 or permission of instructor.

Mr. Lang

*Fall, 3 credits*

### **SOC 281. Sociology of Organizations**

This course will focus on structural features of organizational systems: chains of command, line-staff conflicts, organizational goals and performances, patternings of cooperation and

conflict, status symbols, legal guarantees and grievance procedures.

Prerequisite: SOC 102 or permission of instructor.

Messrs. Hudson, Collver

Fall, 3 credits

### **SOC 284. Social Roles and Role-Systems**

Following a review of the extensive current sociological research on role, the course will turn to alternate arrangements and functions of roles in historical, contemporary, and cross-cultural contexts.

Prerequisite: SOC 102 or permission of instructor.

Staff

Spring, 3 credits

### **SOC 287. Sociology of Education**

Stress will be placed on the following themes: the effects of social and cultural imperatives on the missions assumed by educational institutions; secondary schools and collegiate centers as social systems; the impact of the "knowledge revolution" on the changing definitions of educational facilities; social-cultural

patterns in the life-cycle of students and teachers; social class and ethnic factors in educational development.

Prerequisite: SOC 102 or permission of instructor.

Mr. Aronson

Fall and Spring, 3 credits each semester

### **SOC 358. War and Military Institutions**

A survey of "military sociology" with special attention to the role of violence in social affairs. Topics to be covered are military organization, civil-military relations, and mobilization for, and the conduct of, war under varying social conditions.

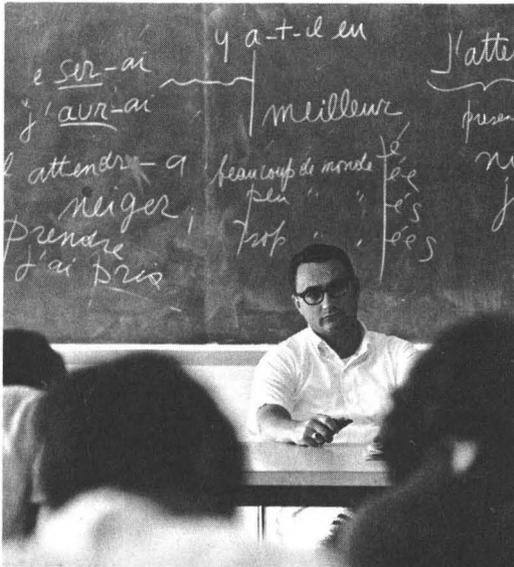
Prerequisites: SOC 102 and senior standing.

Mr. Lang

Fall, 3 credits

### **SOC 361. Historical Development of Contemporary Sociology**

A survey of the main currents in the development of theories and empirical investigation of society, culture, personality. The authors



studied include Adam Smith, Hegel, Saint-Simon, Comte, Feuerbach, Marx, Maine, Spencer, Burckhardt, Tylor, W. R. Smith, Toennies, Durkheim, Dilthey, Simmel, Pareto, Freud.

Prerequisite: SOC 102 or permission of instructor.

Mr. Aronson  
*Fall, 3 credits*

### **SOC 362. Sociology Today**

A review of the recent contemporary advances in research, theory, and method in the field of sociology, especially in Great Britain and the United States. The authors studied include W. G. Sumner, T. Veblen, W. F. Ogburn, C. H. Cooley, G. H. Mead, R. E. Park, R. Linton, T. Parsons, R. K. Merton, C. Wright Mills, G. Homans, E. Goffman, K. Davis and others.

Prerequisite: SOC 102 or permission of instructor.

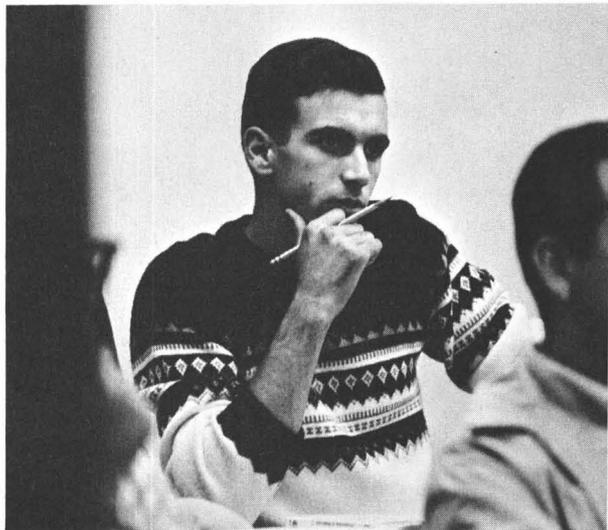
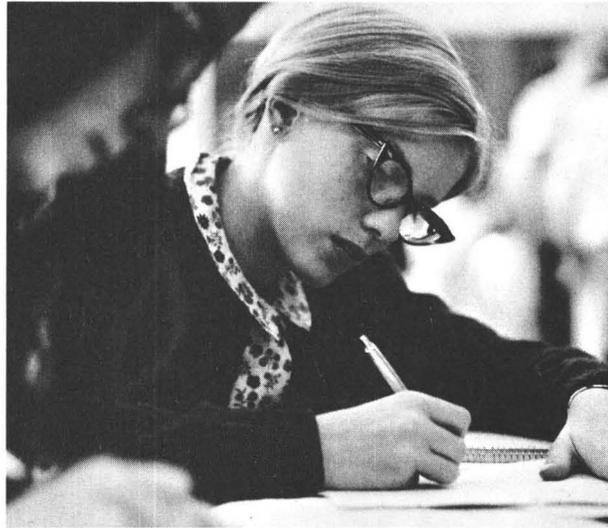
Messrs. Danzger, Farberman  
*Spring, 3 credits*

### **SOC 391, 392. Senior Seminar in Sociology**

Special projects and research papers each semester on a general topic chosen in terms of faculty and student interest.

Prerequisite: Permission of Department Chairman.

Staff  
*Fall and Spring, 3 credits each semester*



## DEPARTMENT OF THEATER ARTS

*Professor:* JOHN NEWFIELD (*Chairman*)

*Associate Professor:* MILTON B. HOWARTH

*Assistant Professors:* JOHN H. HERR, BOBBIE W. LAW

### Requirements for the Major in Drama and Theater

In addition to the general University requirements for the Bachelor of Arts degree, the following courses are required for the major in Drama and Theater:

#### A. *Study within the area of the major*

- |  |            |
|--|------------|
| 1. Theory (Theater 131, 132, 231, 331) | 12 credits |
| 2. History                             | 12 credits |
| 3. Techniques (Theater 232, 236)       | 6 credits  |

#### B. *Courses in related areas*

- |   |           |
|---|-----------|
| 1. Electives in Music and Art   | 6 credits |
| 2. Electives in English and/or foreign dramatic literature including a three-credit course in Shakespeare | 6 credits |

#### C. *Comprehensive Examination*

During the senior year all drama and theater majors must pass a departmental examination on certain aspects of the theory and history of drama and theater. The faculty will select a set list of books covering these fields.

#### D. *Departmental Requirements*

All drama and theater majors are required to participate in at least two University Theater productions in at least two different capacities.

## COURSES IN THEATER

### THR 131. The Nature of Drama

The fundamentals of dramaturgy: The elements of drama, dramatic composition, the elements of plot, characterization, dramatic language, and the relation of drama and audience.

Prerequisite: None.

Mrs. Law

*Fall, 3 credits*

### THR 132. Drama on Stage

A continuation of THR 131. General dramaturgical analyses derived from specific examples of significant drama. A reading of great plays from world drama in connection with available records of theatrical productions.

Prerequisite: THR 131, or permission of instructor.

Mrs. Law

*Spring, 3 credits*

### THR 133. Voice and Diction

An introductory course devoted to those elements of voice production and "diction" essential to an understanding of the crafts of acting and the oral interpretation of literature.

Prerequisite: None.

Mrs. Law

*Fall, 3 credits*

### THR 231. Theory and Methods of Acting

An introductory study of the psychology of acting. Approaches and practices in characterization: Sensibility, observation, the fundamentals of stage speech and movement, imagination, pantomime, and improvisation.

Prerequisite: THR 132, or permission of instructor.

Mr. Herr

*Fall and Spring, 3 credits each semester*

### THR 232. The Fundamentals of Technical Theater

A lecture-laboratory course in the planning, construction, and handling of stage scenery and properties. A survey of the modern methods of lighting various types of theatrical productions.

Prerequisite: THR 132, or permission of instructor.

Mr. Howarth

*Fall and Spring, 3 credits each semester*

### THR 233. World Drama I

A survey of the development of drama from the Classical through the Renaissance periods. Parallel developments in the drama of the Eastern civilizations are also taken into consideration.

Prerequisite: THR 132, or permission of instructor.

Mr. Newfield

*Fall, 3 credits*

### THR 234. World Drama II

A survey of the development of world drama from the 17th through the 19th centuries. (A continuation of THR 233.)

Prerequisite: THR 233, or permission of instructor.

Mr. Newfield

*Spring, 3 credits*

### THR 236. Stage Costume and Makeup

An introduction to the history and aesthetics of stage costumes and makeup. The fundamentals of costume design and the basic techniques of makeup.

Prerequisite: THR 231, or permission of instructor.

Mr. Howarth

*Spring, 3 credits*

**THR 330. Theory and Methods of Directing**

Both a historical and technical approach to the function of the director in the production of a play. The course includes practical considerations of play selection, the synthesizing of the several elements of a play in performance, planning settings, properties, stage movement, and the interpretative requisites of dramatic language for the actor.

Prerequisites: THR 231 and 232, or 236.

Mr. Newfield

*Spring, 3 credits*

**THR 331. Stage Design**

Perspective and mechanical drawing for the stage. Principles of designing for the theater, including color composition. These techniques are related to the aesthetics both of dramatic composition and the flexibility of modern staging.

Prerequisite: THR 232, or permission of instructor.

Mr. Howarth

*Fall, 3 credits*

**THR 333. The History of Theater I**

A historical survey of theater architecture, staging methods, scenic design, and styles of theatrical production from the Classical through the Baroque and Rococo periods with special emphasis on the social, religious, and cultural backgrounds.

Prerequisite: THR 233 or permission of instructor.

Mr. Newfield

*Fall, 3 credits*

**THR 334. The History of Theater II**

A historical survey of theater architecture, staging methods, scenic design, and styles of theatrical production in the 19th and 20th centuries with special emphasis on the social, religious, and cultural backgrounds.

Prerequisite: THR 333 or permission of instructor.

Mr. Newfield

*Spring, 3 credits*

**THR 335. Styles of Acting**

Intensive theory and practice in historical and in non-realistic modern drama.

Prerequisite: THR 231 or permission of instructor.

Mr. Herr

*Fall, 3 credits*

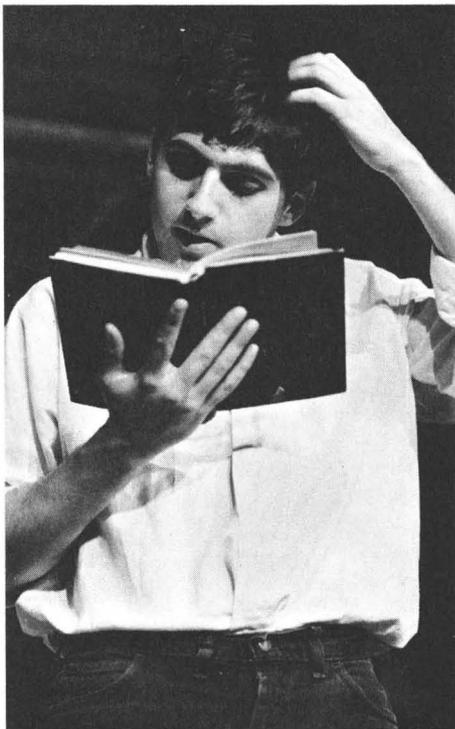
**THR 336. Projects in Stage Design**

Practice in stage design; analysis and expression of the play in scenic terms. Individual work.

Prerequisites: THR 331 and permission of instructor.

Mr. Howarth

*Spring, 3 credits*



**INTERDEPARTMENTAL COURSES IN WORLD LITERATURE****WL 296. Studies in the Epic**

Selected epics and other major narrative poems, such as the works of Homer, Virgil, Dante, Tasso, *Beowulf*, or the Norse sagas. The specific poems to be considered will be announced prior to each offering of the course.

*Spring, 3 credits*

**WL 346. The Modern European Drama**

A critical examination of the development of dramatic literature in Europe from Ibsen to Anouilh, including a comparative study of such movements as Naturalism, Neo-Romanticism, and Expressionism.

Mr. Flaxman

*Spring, 3 credits*

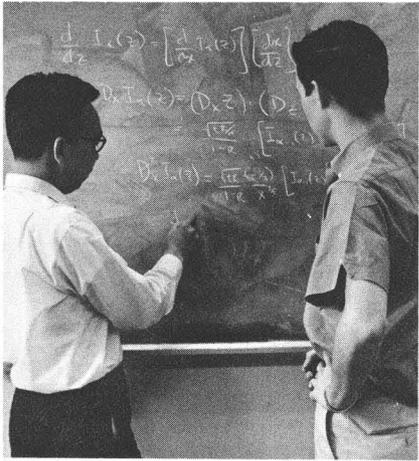
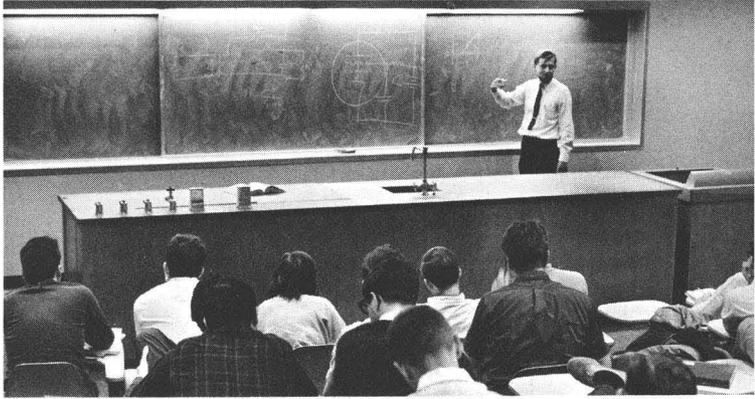
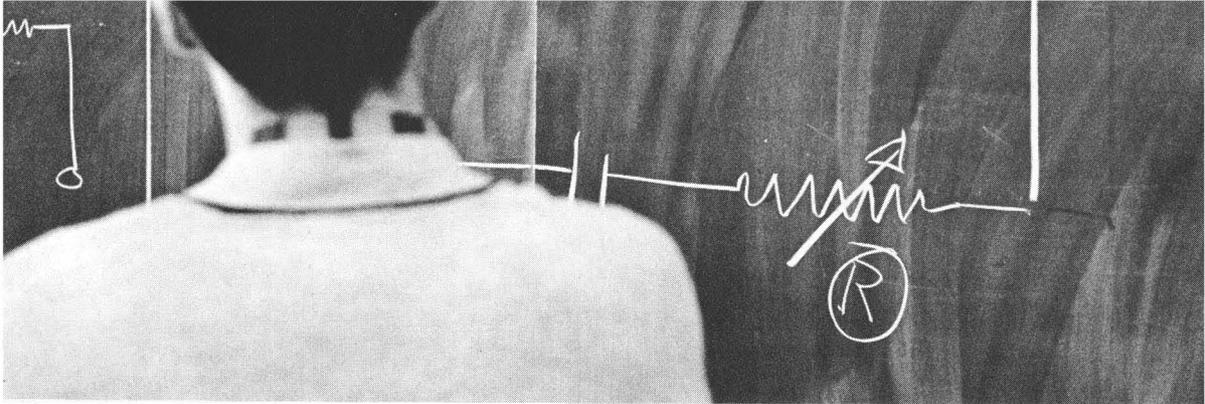
**WL 395. The European Novel**

Selected masterpieces of European fiction, such as the novels of Stendhal, Balzac, Dostoevsky, and Tolstoy.

Mr. Kazin

*Spring, 3 credits*





## COLLEGE OF ENGINEERING

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### Program in Engineering Science

The undergraduate program in engineering science consists of intensive study in the basic sciences of mathematics, physics and chemistry as well as comprehensive work in the engineering sciences of fluid mechanics, solid mechanics, thermodynamics, electrical theory, applied analysis and properties of matter. In addition, the curriculum embraces broad training in the humanities, social sciences, and communications.

Traditional engineering departments are not represented at the State University at Stony Brook since engineering science is concerned with areas of knowledge which are fundamental to all of the conventional engineering fields and by its nature seeks to avoid overtraining in existing engineering techniques and applications. A degree of specialization in particular engineering areas is provided in the senior year through elective courses and senior projects.

Engineering experiences in the last decade have indicated that engineers today must have a new depth and breadth of scientific knowledge to cope with the problems of a rapidly changing technology. The undergraduate engineering program is designed to provide this fundamental scientific background and to develop engineers who can creatively translate the knowledge of basic science into engineering results.

Programs of graduate work with specialization in the various Engineering Departments are offered. (For further information see the *Graduate School Bulletin*.)

## Requirements for the Bachelor of Engineering Degree

A student will be recommended by the Faculty for the degree upon completion of the requirements listed in sections 1, 2, and 3 below.

1. Required courses: Credit for, or exemption from, each of the following is required of all candidates:

<i>Chemistry</i> 101, 102, 106	8 credits
<i>English</i> 101, 102	6 credits
<i>Humanities</i>	6 credits
<i>Mathematics</i> 102, 103, 155, 156	12 credits
<i>Physics</i> 101, 102, 151	12 credits
<i>Social Science</i>	6 credits
<i>Physical Education</i>	2 semesters

(Courses in Physical Education are to be completed after the Freshman Year.)

2. Elective requirements:

**Non-Technical Elective:** a course in the areas of the humanities, (except foreign language skill courses), and the social sciences. 6 credits are normally required in the sophomore year.

**Technical Elective:**

a) an Engineering departmental elective course.

b) an Engineering first-year graduate course open to undergraduates. A student wishing to take an Engineering graduate course must have a cumulative grade-point average of 3.00 or better, and the approval of the instructor. He should apply to the departmental office for information on the graduate courses currently open to undergraduates.

c) a course from the physical sciences, biological sciences, and mathematics approved by individual petition to the Curriculum Committee of the College of Engineering. The petition should include a statement of the reason why the student cannot avail himself of an Open Elective to take the course.

6 credits are normally required in the senior year.

Open Elective: any course offered by the University for credit, at any level. 6 credits are normally required in the senior year. With the approval of his academic advisor, a student may substitute the 7th-semester Open Elective for the 4th-semester Non-Technical Elective. In this case the Non-Technical elective must be taken in the 7th semester.

3. Concentration requirement: Every student must meet the requirements of a program of concentration in Engineering Science approved by the Curriculum Committee of the College of Engineering.
4. Unless an alternate program is approved by the College of Engineering Curriculum Committee, every student admitted without advanced standing is required during the freshman year to register for:
  - ESG* 100, 101
  - English* 101, 102
  - Two semesters of Humanities
  - Mathematics* 102, 103
  - Physics* 101, 102
  - Two semesters of Social Science

Courses to meet the Humanities requirement are to be chosen from the following:

*Humanities* 103, 104, 105, 106, 113, 114, 115, 116, 121, 122, 123.

There is no prescribed sequence nor prerequisite for any of the Humanities courses.

Courses to meet the Social Science requirement are to be chosen from the following:

*Anthropology* 101, 102

*Economics* 101, 102

*History* 101, 102

*Political Science* 101, 102

*Psychology* 101, and any Psychology course for which the prerequisites have been fulfilled.

*Sociology* 101, 102

5. Exemptions: On the recommendation of the Chairman of the appropriate Department, a student is exempted without credit from any of the course requirements specified in sections 1 or 4 above.

## Undergraduate Sequence

### First Year

<i>1st Semester</i>	<i>Credits</i>	<i>2nd Semester</i>	<i>Credits</i>
ESG 100		ESG 101	
Principles of Engineering I..	1	Principles of Engineering II..	1
English 101 .....	3	English 102 .....	3
Humanities .....	3	Humanities .....	3
Mathematics 102 .....	3	Mathematics 103 .....	3
Physics 101 .....	4	Physics 102 .....	4
Social Science .....	3	Social Science .....	3
	17		17

### Second Year

<i>1st Semester</i>	<i>Credits</i>	<i>2nd Semester</i>	<i>Credits</i>
†ESG 151		ESG 161	
Graphic Arts .....	3	Mechanics I .....	3
Chemistry 101 .....	4	†ESG 162	
Mathematics 155 .....	3	Introduction to Digital	
Physics 151 .....	4	Computers .....	3
Elective (Non-Technical) ....	3	Chemistry 102 .....	3
	17	Chemistry 106 .....	1
		Mathematics 156 .....	3
		*Elective (Non-Technical) ...	3
			16

\*May be reversed with permission of advisor.

†May be taken in either 1st or 2nd semester.

**Third Year**

<i>1st Semester</i>	<i>Credits</i>	<i>2nd Semester</i>	<i>Credits</i>
ESG 221 Applied Analysis I ..	3	ESG 222 Applied Analysis II .	3
ESG 251 Electrical Sciences I ..	3	ESG 252 Electrical Sciences II .	3
ESG 232 Materials Sciences I ..	3	ESG 233 Materials Sciences II .	3
ESG 263 Mechanics II .....	3	ESG 264 Mechanics III .....	3
ESG 201 Thermodynamics I ..	3	ESG 212	
ESG 211		Engineering Laboratory II ...	4
Engineering Laboratory I ...	2		<hr/>
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	17		

**Fourth Year**

<i>1st Semester</i>	<i>Credits</i>	<i>2nd Semester</i>	<i>Credits</i>
ESG 334 Materials Sciences III.	3	ESG 323 Applied Analysis III .	3
ESG 302 Thermodynamics II .	3	ESG 353 Electrical Sciences III.	3
ESG 305		ESG 341	
Heat and Mass Transfer ....	3	Engineering Design II .....	5
ESG 340 Engineering Design I.	1	Elective (Technical) .....	3
Elective (Technical) .....	3	Elective (Open) .....	3
*Elective (Open) .....	3		<hr/>
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	16		

**Courses of Instruction**

Course designations are abbreviated according to the following scheme:

- ESG: Required Undergraduate Courses
- ESA: Courses offered by the Department of Applied Analysis
- ESE: Courses offered by the Department of Electrical Sciences
- ESM: Courses offered by the Department of Materials Sciences
- ESC: Courses offered by the Department of Mechanics

\*May be reversed with permission of advisor.

The numbering of courses will indicate the year in which they are normally taken:

100–150: freshman courses  
151–199: sophomore courses  
201–299: junior courses

301–399: senior courses  
501–699: graduate courses

## REQUIRED UNDERGRADUATE COURSES

### ESG 100, 101. Principles of Engineering I, II

The purpose of this course is to acquaint the freshman engineering student with the type of problem that is encountered in modern engineering practice. Meetings will be devoted to classroom sessions concerning typical engineering problems, as well as lectures by the engineering faculty and outside lecturers from industry. Finally, every student will be required to prepare a brief essay on some general engineering topic.

*Fall and Spring, 1 credit each semester*

### ESG 151. Graphic Arts

A broad introduction to the principles of graphic art. Attention is paid to the perspective and projection problems connected with architectural and mechanical subjects, to rendering techniques, to drawing in mixed media, and to the achievement of speed and accuracy. Class work covers free-hand drawing and sketching through finished drawing using mechanical drafting tools and lettering. At each stage the student studies and discusses the work of such artists as Uccello, Da Vinci, Dürer, Fulton and Morse.

Six laboratory hours.

Prerequisite: None.

*Fall and Spring, 3 credits each semester*

### ESG 161. Mechanics I: 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 and Lagrange's formulation of the equations of motion.

Prerequisite: Physics 151.

Corequisite: Mathematics 156.

*Spring, 3 credits*

### ESG 162. Introduction to Digital Computers

An introduction to concepts of problem solving on a digital computer with emphasis on analyzing the problem, determining the solution process and coding the problem for solution on the digital computer. A problem oriented language (FORTRAN) serves as the communication medium. Fundamental concepts of computer logic are also introduced, with emphasis on computer organization, number representation, arithmetic operations, and the fundamental postulates of Boolean algebra.

Two lecture hours, one laboratory hour.

Prerequisites: Sophomore standing and Mathematics 102, 103.

*Fall and Spring, 3 credits each semester*

**ESG 201. Thermodynamics I**

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, multi-component systems, and power cycles and engines are considered.

Prerequisites: Mathematics 156, Physics 151, Chemistry 102, 106.

*Fall, 3 credits*

**ESG 211. Engineering Laboratory I: 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 212. Engineering Laboratory II: Engineering Experimentation**

The study of electronic instrumentation in scientific research is continued. Additional considerations are: establishing the experimental environment, introduction to and uses of dimensional analysis, pure empiricism and its uses, details of methods of experimental analysis, including experimental planning, data analysis and interpretation of results, selected experimental examples and problems which supplement the lectures. Individual projects are encouraged.

Prerequisite: Engineering Laboratory I.

*Spring, 4 credits*

**ESG 221. Applied Analysis I**

Analogues; modeling and normalization techniques; characteristic value problems with the

use of matrices; transient analysis; Fourier series and Fourier transform; review of one-sided Laplace transform with use of tables for transform inversion; transforms of operations; solutions of linear differential equations and of simultaneous equations of this type; applications to various physical lumped systems. The probability concept; sample spaces; distribution functions and density functions; random variables; expectation; variance; correlation.

Prerequisites: Mathematics 155, 156.

*Fall, 3 credits*

**ESG 222. Applied Analysis II**

Formulation and classification of basic partial differential equations; the Laplace operator in generalized orthogonal coordinate systems; Laplace's equation. Poisson's equation, heat equation, and wave equation in  $x$ ,  $y$ ,  $z$  and  $t$ ; telegrapher's equation in  $x$  and  $t$ . Boundary-value and initial-value problems; separation of variables; Sturm-Liouville problem; divergence theorem; Green's function. Use of Fourier series, Fourier transforms, and Laplace transform. Consideration of Bessel functions (first and second kind), Legendre polynomials, and Mathieu functions. Review of complex numbers, functions of a complex variable, limits, continuity, differentiability, analytic functions, Cauchy-Riemann harmonic functions, Cauchy's integral formula, Cauchy's integral theorem, Taylor's series, singularities, residues.

Prerequisite: Applied Analysis I.

*Spring, 3 credits*

**ESG 232. Materials Sciences I: The Structure of Materials**

The electronic structure of the atom, and its relationship to the binding forces in molecules and crystals is reviewed. Atom packing and crystal structures are studied, followed by a description of the nature and properties of imperfections in crystals. The general features of non-crystalline structures are considered, including glasses, polymers, and gels. Attention is next given to the structure of heterogeneous solids. Phase equilibrium in multi-component systems, and structures resulting from phase transformations are studied. The

basic principles of structural control of alloys, ceramics, and polymers by thermomechanical treatment are described. The essential features of composite materials are elucidated.

Prerequisites: Chemistry 101, 102.

*Fall, 3 credits*

**ESG 233. Materials Sciences II: Electrical and Magnetic Properties of Materials**

This course is designed primarily as an introduction to the modern theory of the electrical and magnetic properties of matter. Some of the topics discussed include the free electron theory of metals, the band theory of solids (Brillouin Zone theory and applications), the conductivity of metals, the physics of semiconductors, p-n junction theory, photoelectric, thermoelectric, magnetic and dielectric properties of matter.

Prerequisites: Physics 151, Materials Sciences I.

*Spring, 3 credits*

**ESG 251, 252. Electrical Sciences I, II**

These two courses together comprise a unified introduction to passive and active lumped circuit theory. Basic circuit concepts, theorems, and methods of analysis are developed first in terms of simple resistive circuits with d.c. excitation, then extended to encompass complex impedance and steady state response to single frequency excitation, then further extended to encompass periodic and transient excitation and response, and finally to encompass simple circuits containing ideal active and/or non-linear elements. Physical phenomena giving rise to the internal behavior of various solid state, vacuum and gas filled devices are discussed. Particular emphasis is given to the manner in which such internal behavior gives rise to externally observable terminal behavior, of how the terminal behavior may be approximated by combinations of ideal circuit elements, and of the practical procedures to be followed for analysis and design when the ideal model approximations are inadequate. Specific types of circuits such as filters, rectifiers, amplifiers and pulse circuits are singled out for illustrative examples.

Prerequisites: Mathematics 156, Physics 102.

Corequisite: Applied Analysis I.

*Fall and Spring, 3 credits each semester*

**ESG 263. Mechanics II: Mechanics of Solids**

An introduction to the mechanics of deformable solids used in engineering structures. Topics include: three-dimensional and two-dimensional descriptions of stress; principal stresses; coordinate transformations using Cartesian tensors; displacements and strain; elastic stress-strain-temperature relations; stress equations of motion; equations of elasticity; 2-D compatibility equation; beam deformations due to bending and axial forces; statically indeterminate beams; elastic instability; introduction to viscoelastic and plastic behavior of solids.

Prerequisite: Mechanics I.

Corequisite: Applied Analysis I.

*Fall, 3 credits*

**ESG 264. Mechanics III: Mechanics of Fluids**

An introduction to the mechanics of fluids. Topics include: a review of Cartesian tensors and the description of stress; kinematic matters pertinent to fluid phenomena; the Euler equations with applications including statics and potential theory; constitutive equations; equations of motion of a Newtonian fluid, with applications.

Prerequisites: Mechanics II, Applied Analysis I.

Corequisite: Applied Analysis II.

*Spring, 3 credits*

**ESG 302. Thermodynamics II**

The formalism developed in Thermodynamics I is applied to the open system, equilibrium and the grand potential function, chemically reactive systems, cycles, and an introduction to the thermodynamics of irreversible processes.

Prerequisite: Thermodynamics I.

*Fall, 3 credits*

**ESG 305. Heat and Mass Transfer**

The fundamental laws of momentum, heat and mass transfer are discussed, and the corresponding transport coefficients are examined for gases using elementary kinetic theory. Principles of steady-state and transient heat conduction in solids are investigated. The analyses of laminar and turbulent boundary layer flows are treated, as well as condensation and boiling phenomena. Thermal radiation, including the analogy between molecular and photon transport, is discussed. Radiation heat transfer between surfaces is treated, as well as the derivation and application of the radiation flux equation for absorbing-emitting media.

Prerequisite: Mechanics III.

Corequisite: Thermodynamics II.

*Fall, 3 credits*

**ESG 323. Applied Analysis III: Numerical Methods**

Arithmetic of approximation; round-off error; significant figures. Polynomial approximation; interpolation and finite differences; least squares, orthogonal sets, Fourier-Bessel coefficients, Legendre polynomials, Fourier series; Tchebycheff approximation. Numerical solution of linear and non-linear systems of algebraic equations. Numerical differentiation. Numerical integration. Numerical solution of ordinary differential equations. Numerical solution of partial differential equations (Laplace's two-dimensional equation only). The use of these techniques in solving linear and non-linear differential equations. Use of the computer in applying these numerical techniques.

Prerequisite: Applied Analysis II.

*Spring, 3 credits*

**ESG 334. Materials Sciences III: Phase Transformation and the Mechanical Properties of Materials**

This course builds on the concepts presented in Materials Sciences I. Mechanisms of diffusion and phase transformations in solids and their relation to structure are studied. Oxida-

tion and corrosion phenomena and the principles of oxidation and corrosion resistant materials are delineated. Attention is next turned to the mechanical properties of materials, considering the elasticity of crystals; anelasticity, plasticity, and dislocation theory; cohesive strength and fracture processes in solids. Strengthening mechanisms in solids are then studied with application to metals, ceramics, and polymers.

Prerequisite: Materials Sciences I.

*Fall, 3 credits*

**ESG 340. 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.

*Fall, 1 credit*

**ESG 341. Engineering Design II**

Student groups carry out the detailed design of the senior projects chosen during the first semester. The finished report must be presented and defended before a faculty committee.

*Spring, 5 credits*

**ESG 353. Electrical Sciences III: Electromagnetic Theory**

The fundamentals of electromagnetic theory. The topics include: elements of vector analysis, Maxwell's equations, relation between lumped circuit and field concepts, quasi-static fields, interaction of fields with material media, motion of charged particles influenced by an electromagnetic field, relativistic transformations of field quantities, plane waves and radiation.

Prerequisites: Physics 151, Applied Analysis II.

*Spring, 3 credits*

## DEPARTMENT OF APPLIED ANALYSIS

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*Assistant Professor:* ROY D. JOSEPH

### DEPARTMENTAL ELECTIVES

#### **ESA 316. Special Functions of Applied Analysis**

A study of the more common higher mathematical functions which are required for the analytical solution of engineering and scientific problems. The Bessel, Legendre, hypergeometric and Mathieu functions are among those to be considered. Topics include: orthogonal sets of functions, recursion formulas, series solution of linear differential equations, Fourier-Bessel expansions, asymptotic expansions, functional equations, application to boundary-value and initial-value problems.

Prerequisite: Applied Analysis II.

*3 credits*

#### **ESA 320. Introduction to Applied Probability Theory**

Elements of combinatorial analysis. Random variables and expectations. Laws of large numbers. The central limit theorem and its applications. Recurrent events and Markov chains. Applications to information theory, methods of coding, queueing problems, theory of games, problems of strategy, decision-making, etc.

Prerequisite: Applied Analysis I.

*3 credits*

#### **ESA 321. Introduction to Statistics**

Basic statistical concepts. Probability. Distribution functions and moment generating functions. Frequency distributions. Central limit theorem. Sampling. Regression and correlation. Analysis of variance. Testing of hypotheses. Applications to interpretation of engineering and industrial data by means of statistical methods, curve fitting, methods of quality control and preparation and use of control charts, reliability, various experimental designs, estimation of response relationships, determination of optimum conditions.

Prerequisite: Applied Analysis I.

*3 credits*

#### **ESA 330. Linear Programming**

Formulation of linear programming models. The Simplex Method and its variations. The Duality Theorem. Sensitivity analysis. Solution of practical problems in blending, transportation, etc. with the help of computer.

Prerequisites: Introduction to Digital Computers, Applied Analysis I.

*3 credits*

**ESA 335. Computer Organization and Programming**

Logical basis of computer structure, machine representation of number and characters, flow of control, instruction codes, arithmetic and logical operations, indexing and indirect addressing, input-output, subroutines, linkages, macros, interpretive and assembly systems, pushdown stacks, and recent advances in computer organization. Several computer projects to illustrate basic concepts will be incorporated.

Prerequisite: Introduction to Digital Computers.

*3 credits*

**ESA 340. Scientific Applications of Computers**

This course is intended to prepare physicists, chemists, biologists, engineers, and other potential experimentalists to make use of digital computer systems in applications beyond straightforward computation. Topics covered include: mathematical introduction, representation of information in a digital computer, digital computer organization and logic, computer storage, control and I-O devices, on-line data acquisition systems, information display devices, image scanning and processing systems, very large read-only memories and information retrieval. Specific problems in physics, chemistry, engineering and biology will be discussed and analyzed.

Prerequisite: Introduction to Digital Computers, or permission of instructor.

*3 credits*



## DEPARTMENT OF ELECTRICAL SCIENCES

*Professor:* SHELDON S. L. CHANG (*Chairman*)

*Associate Professors:* PETER M. DOLLARD, RICHARD B. KIEBURTZ, VELIO A. MAR-  
SOCCI, DAVID R. SMITH

*Assistant Professors:* CHI-TSONG CHEN, HANG-SHENG TUAN

*Instructor:* PATRICK E. BARRY

### DEPARTMENTAL ELECTIVES

#### **ESE 310. Modern Circuit Theory**

Matrix representation of circuits. Applications to filters and transmission lines and coaxial cables. Introduction of controlled sources to represent active elements. The concepts of linearity and reciprocity. Network theorems. Stability of active circuits. Transient response. Non-linear and time varying circuits. State variable representation.

Prerequisite: Electrical Sciences I.

*3 credits*

#### **ESE 315. Introduction to Feedback Control Theory**

The study of automatic control theory is initiated in this course. Primarily concerned with the analysis of linear feedback systems, the course deals with the transient response and stability of such systems. The techniques employed are the transfer function method and various methods of graphical analysis such as Nyquist diagrams, Bode plots and root locus procedure. The synthesis of feedback control systems is covered in an introductory manner.

Prerequisites: Thermodynamics I, Electrical Sciences I and II, Mechanics I.

*3 credits*

#### **ESE 316. Digital Devices and Circuits**

Survey of active switching devices, circuit models, large signal amplification, simple logic circuits, design of regenerative circuits, survey of storage devices, circuit systems of logic and design problems of circuit interconnection. Laboratory on construction and testing of simple circuits in latter half of semester.

Prerequisite: Electrical Sciences II.

*3 credits*

#### **ESE 317. Digital Logic and Systems**

The binary-numbers system and simple codes. Switching algebra and its relation to logic and the algebra of sets. Analysis and synthesis of combinational networks, including partially specified functions, multiple outputs, symmetric functions and functional decomposition. Analysis and synthesis of sequential networks, including pulsed and d.c. operation, minimization, state assignment and elimination of races and hazards. Systems of logic, including counters, analog-digital converters, arithmetic units, feedback shift registers and code generators.

*3 credits*

**ESE 320. Electromagnetic Waves and Antennas**

Fundamentals of wave propagation and antenna theory, and applications to communications systems, radar, and radio astronomy. Some of the topics included are: radio waves in the ionosphere, guided wave propagation, transmission lines and waveguides, basic antenna theory, low-noise antennas, introduction to statistical electromagnetic theory, data-processing antenna arrays, radio astronomy antennas.

*3 credits*

**ESE 330. Electronic Devices and Circuits**

An introduction to semiconductor electronics leading to the characterization of various passive and active devices. Theory of the p-n junction, the operation of the transistor, microelectronic structures; the characterization of diodes and transistors in terms of equivalent circuits, applications of the devices in active networks, biasing and stabilization, linear amplifiers, switching characteristics of the transistor.

Prerequisite: Electrical Sciences II.

*3 credits*



## DEPARTMENT OF MATERIALS SCIENCES

*Professors:* SUMNER N. LEVINE (*Chairman*), LESLIE L. SEIGLE

*Associate Professors:* JOSEPH JACH, FRANKLIN F. Y. WANG

*Assistant Professors:* ADISHWAR L. JAIN, RICHARD W. SIEGEL

### DEPARTMENTAL ELECTIVES

#### **ESM 325. Diffraction Techniques and the 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 is also included to illustrate the methods.

Prerequisite: Materials Sciences I.

*3 credits*

#### **ESM 327. Semiconductor Theory and Technology**

A detailed discussion of the preparation and properties of semiconductors. The theory of thermal and electrical transport is developed in detail and applied to semiconductor electronic devices and thermoelectric devices. The photoelectric and Hall effects are then discussed and applied to measurement technique as well as to devices.

Prerequisite: Materials Sciences II.

*3 credits*

#### **ESM 328. Nuclear Technology and Materials**

This course covers broadly the field of nuclear engineering and emphasizes the principles which form the basis of today's knowledge of nuclear materials. The course covers such topics as radioactivity, fission, reactor theory and materials, radiation effects and shielding, industrial applications of nuclear energy and the general use of radiation.

*3 credits*

#### **ESM 329. Biomedical Engineering**

This course provides a systematic and basic development of the engineering principles applicable to medicine and biological systems. The subject matter will be developed 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 will be provided to bioastronautics, artificial organs, environmental control, man-machine systems, and the simulation of biological systems.

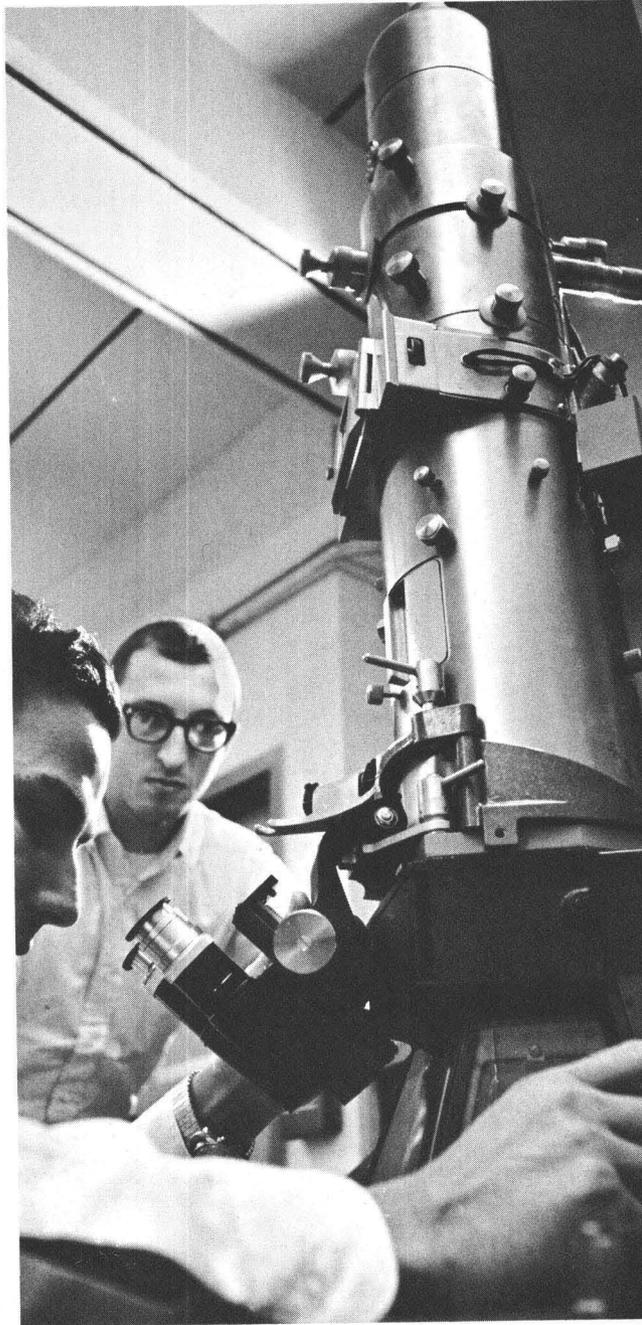
*3 credits*

**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 to be 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, commercial polymer production and processing.

Prerequisite: Materials Sciences I.

*3 credits*



## DEPARTMENT OF MECHANICS

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*Lecturer:* JOSEPH J. SHEPPARD

*Instructors:* PHILLIP MIGHDOLL, JOSEPH T. PEARSON, JR.

### DEPARTMENTAL ELECTIVES

#### ESC 321. Combustion Gasdynamics

Fundamentals of gasdynamics and chemical kinetics. Rankine-Hugoniot relations. Laminar and turbulent diffusion flames. Combustion in nozzle flow. Ignition, quenching and flammability limits. Combustion in boundary layer flow.

Prerequisite: Mechanics III.

3 credits

#### ESC 342. Introduction to Experimental Stress Analysis

Elementary theory of elasticity, electrical and mechanical strain gauges, introduction to photoelasticity, and moire method. Brittle coating and analog methods. Application of different methods to the study of static and dynamic problems.

Prerequisite: Mechanics II.

3 credits

#### ESC 366. Thermal Sciences & Fluid Mechanics Laboratory

Advanced projects in heat transfer, thermodynamics or fluid mechanics to be selected individually by the student or in collaboration with a staff member. The project will be carried out by individuals or small groups under staff supervision.

Nine laboratory hours by arrangement.

3 credits

#### ESC 375. Viscous Fluids

Constitutive equations of a viscous fluid, the stokesian fluid in simple shear and the Navier-Stokes equations. Exact solutions. Low Reynolds number behavior, lubrication theory and flow through porous media. Singular perturbation theory and applications. Asymptotic behavior at large Reynolds numbers including boundary layers, jets and wakes. Unsteady mo-

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\*On leave, academic year 1967-68.

tions including the elements of laminar instability theory.

Prerequisite: Mechanics III.

*3 credits*

### **ESC 381. Statics and Dynamics of Structures**

An introduction to the static and dynamic analysis of beams, plates and shells under mechanical and thermal loadings. Consideration is given to elastic, plastic and creep behavior. Topics covered include the determination of static buckling loads and the prediction of fatigue life.

Prerequisite: Mechanics II.

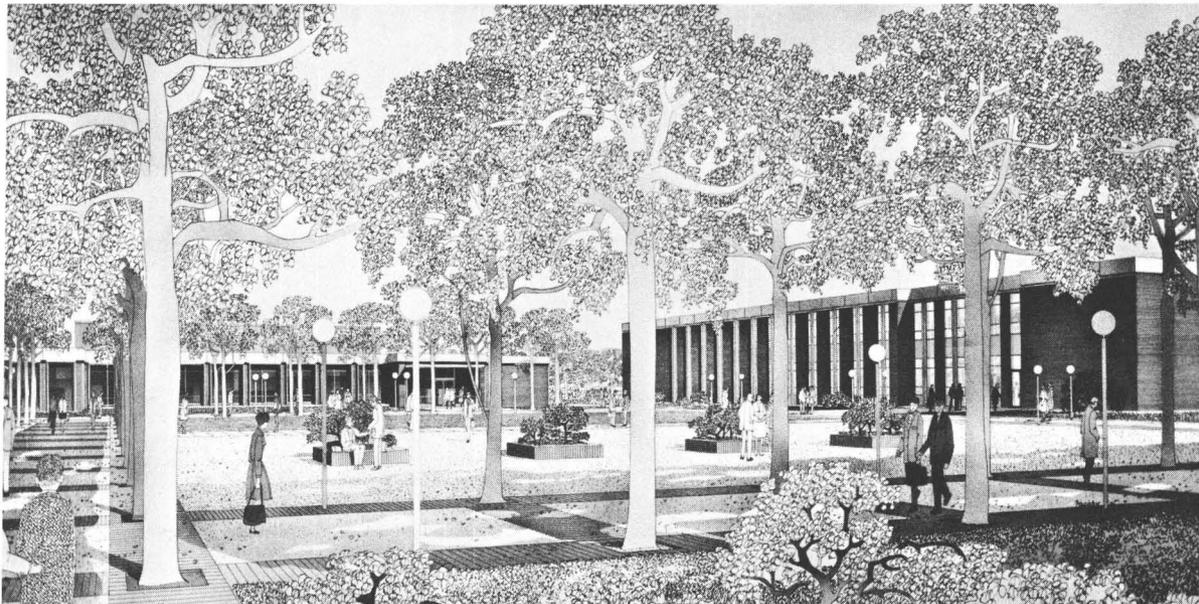
*3 credits*

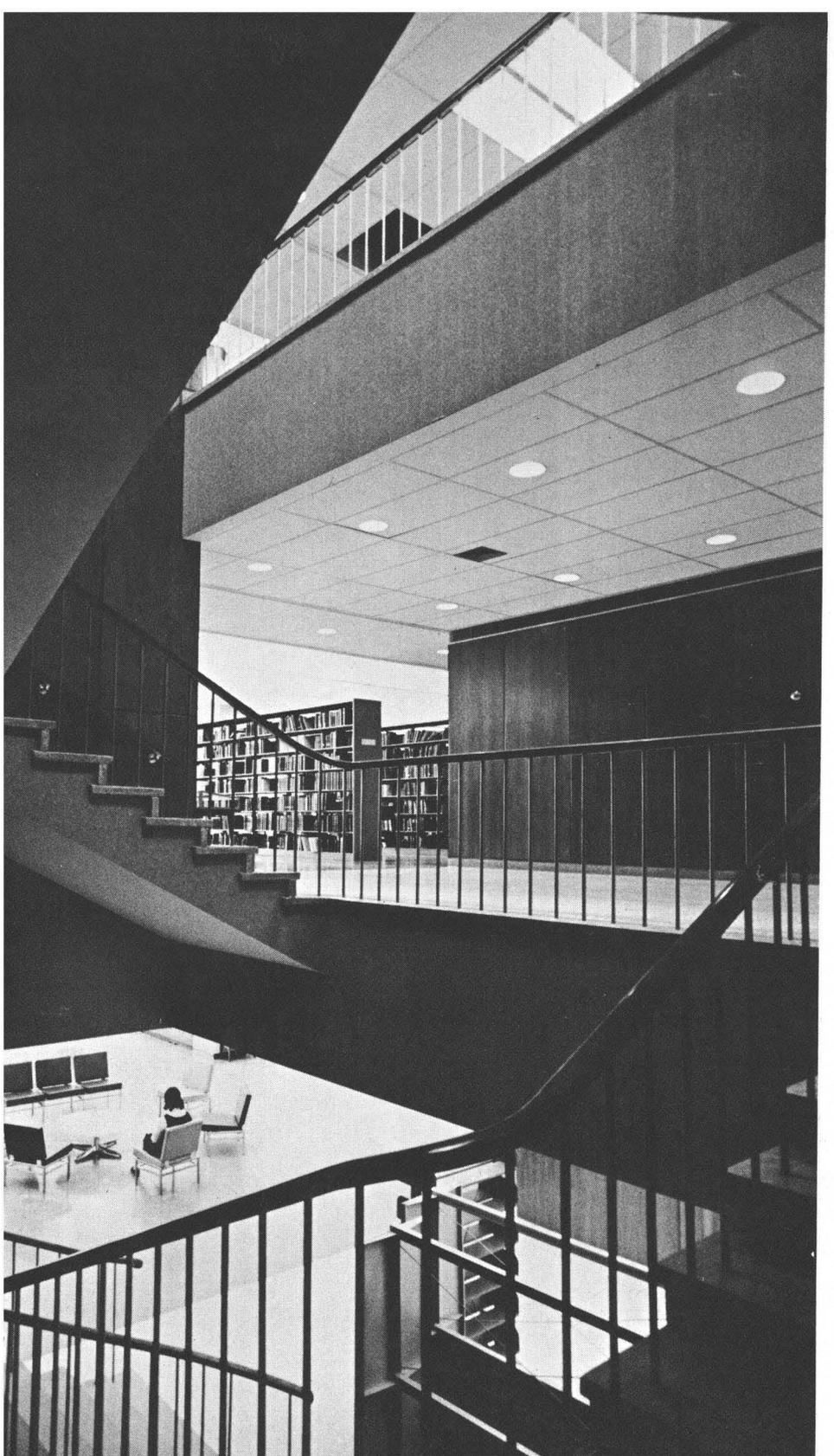
### **ESC 399. Kinetic Theory of Gases**

Kinetic theory and its basic applications (and limitations) to steady state phenomena in gases. Specific application to transfer processes.

*3 credits*

*Rendering of new Engineering-Computing Center quadrangle.*





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versity of Chicago; Ph.D., University of  
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*Assistant Professor of Mathematics*  
B.A., Reed College; M.A., Ph.D., Univer-  
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## NANDOR L. BALAZS

*Professor of Physics*  
M.A., Scientific University of Budapest;  
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## WILLIAM BARCUS

*Professor of Mathematics*  
S.B., Massachusetts Institute of Technol-  
ogy; Ph.D., Oxford University

## SAMUEL BARON

*Assistant Professor of Music*  
B.S., Juilliard School of Music; Pupil of  
Georges Barrere and Arthur Lora

**PATRICK E. BARRY***Instructor in Engineering*B.E.S., M.S., State University of New York  
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ing*
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*Personnel Administrator*
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*Programmer Analyst and Lecturer, Com-  
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*Assistant Quadrangle Director*

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*Assistant Cataloger*

~~JENNIFER TULEY, A.B., M.L.S.~~  
*Assistant Reference Librarian*

LOUIS VINSON, A.B., M.S.  
*Assistant to Director of Libraries and  
Archivist*

PHYLLIS WILENSKY, B.A.  
*Assistant to Dean of Students*

~~LEE H. WILLIAMS, JR., A.B., M.S.~~  
*Assistant Director of Libraries, Technical  
Services*

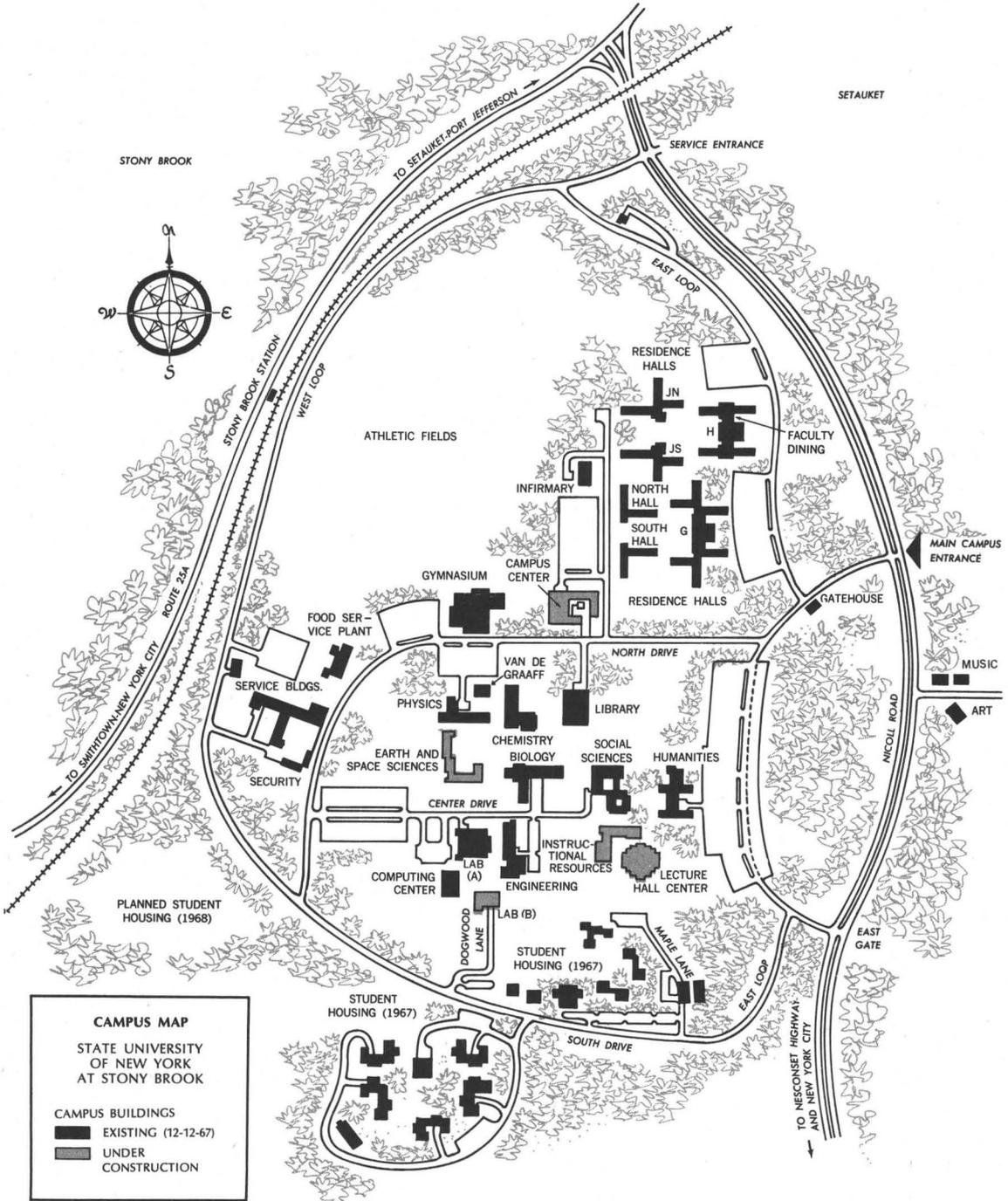
ROSEMARIE B. WIRTH, B.A., M.E.  
*Programmer Analyst, Computing Center*

WARREN C. YOUNG, A.B., M.L.S.  
*Associate Cataloger*

STONY BROOK



SETAUKET



PLANNED STUDENT HOUSING (1968)

**CAMPUS MAP**

STATE UNIVERSITY OF NEW YORK AT STONY BROOK

**CAMPUS BUILDINGS**

-  EXISTING (12-12-67)
-  UNDER CONSTRUCTION

STUDENT HOUSING (1967)

SOUTH DRIVE

EAST LOOP

EAST GATE

TO NESCONSET HIGHWAY AND NEW YORK CITY

NICOLL ROAD

MAIN CAMPUS ENTRANCE

MUSIC

ART

SERVICE ENTRANCE

EAST LOOP

RESIDENCE HALLS

JN

H

JS

NORTH HALL

SOUTH HALL

G

RESIDENCE HALLS

GATEHOUSE

NORTH DRIVE

LIBRARY

HUMANITIES

LECTURE HALL CENTER

INSTRUC-TIONAL RESOURCES

ENGINEERING

LAB (A)

LAB (B)

STUDENT HOUSING (1967)

MARIE LANE

DOGWOOD LANE

COMPUTING CENTER

SECURITY

SERVICE BLDGS.

FOOD SER-VICE PLANT

GYMNASIUM

CAMPUS CENTER

INFIRMARY

CHEMISTRY

BIOLOGY

SOCIAL SCIENCES

EARTH AND SPACE SCIENCES

PHYSICS

VAN DE GRAAFF

SECURITY

ATHLETIC FIELDS

WEST LOOP

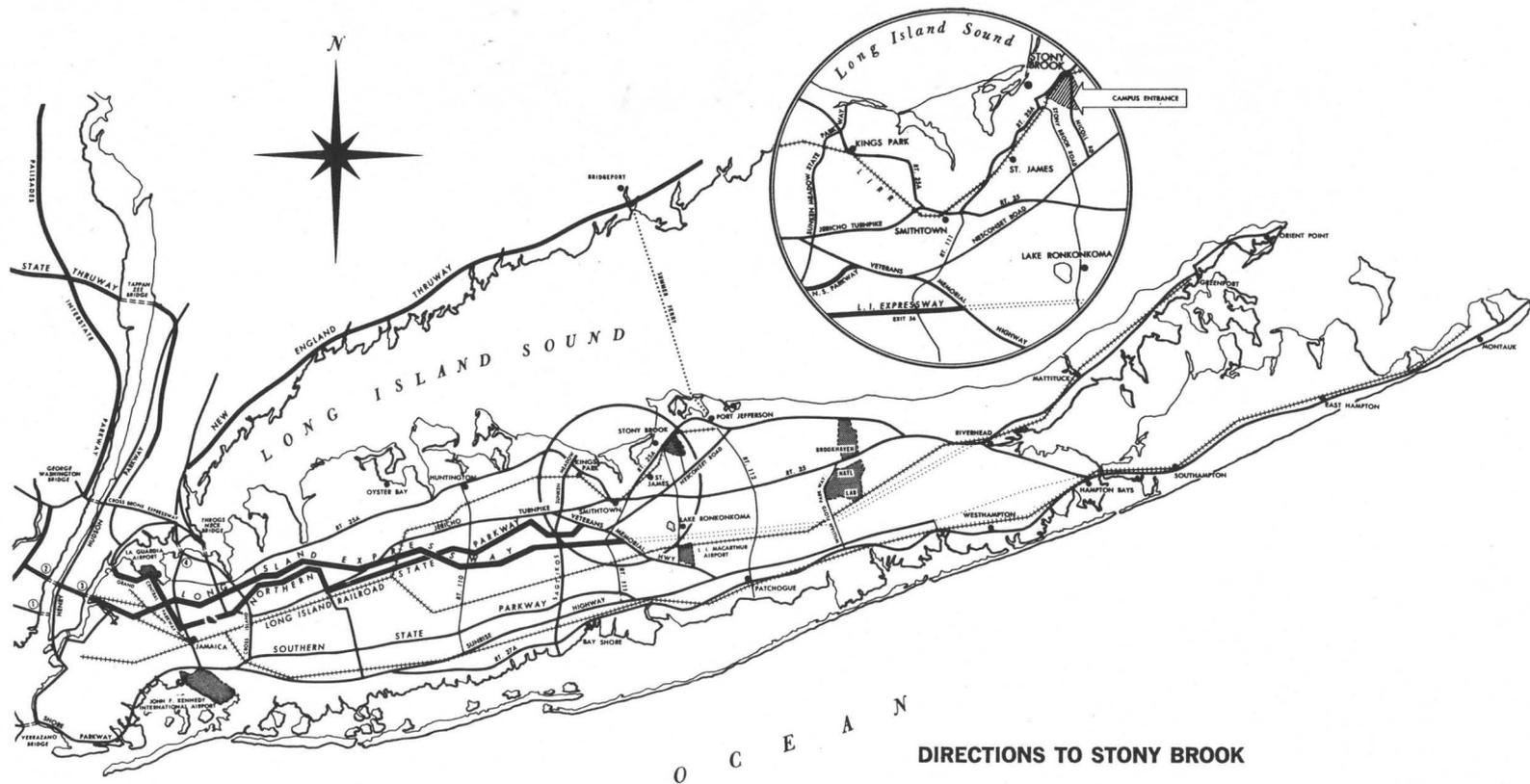
STONY BROOK STATION

TO SETAUKET-PORT JEFFERSON

TO SWITCHTOWN-NEW YORK CITY

ROUTE 25A

TO NESCONSET HIGHWAY AND NEW YORK CITY

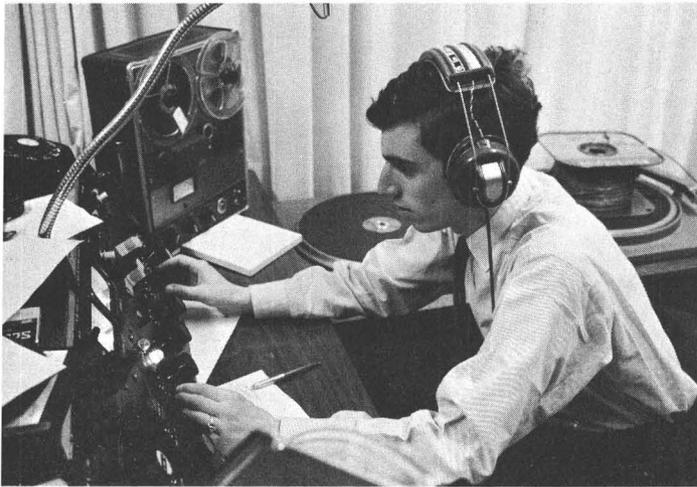


### DIRECTIONS TO STONY BROOK

**By automobile from west:** Long Island Expressway to Exit 56. Left on Route 111 two miles to Nesconset-Port Jefferson Road (Smithtown By-pass). Right six miles to Nicoll Road. Left two miles to campus entrance.

**By automobile from east:** Nesconset Road or Route 25A to Nicoll Road. Right or left, respectively, to campus entrance.

**By Long Island Railroad:** Take Port Jefferson line from Pennsylvania Station (Manhattan) or Flatbush Avenue Station (Brooklyn). Change at Jamaica for remainder of trip to Stony Brook Station.



**STATE UNIVERSITY OF NEW YORK**

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The State University of New York, established by the State Legislature in 1948, comprises 65 colleges and centers. At present, 57 conduct classes: four University Centers, two Medical Centers, ten Colleges of Arts and Science, seven Specialized Colleges, six two-year Agricultural and Technical Colleges and 28 locally-sponsored, two-year Community Colleges.

Three additional Colleges of Arts and Science have been authorized. Two four-year campuses, in Nassau and Westchester Counties, were established by the University's Trustees in the Spring of 1965 and are now in the early planning stages. The third campus will be upper-divisional (junior-senior years) in concept and will be located in the Utica-Rome-Herkimer Area. Master's level programs will be offered at all three campuses.

The Trustees also have approved establishment of five additional community colleges in Clinton, Essex-Franklin, Genesee, Herkimer and Ontario Counties.

State University further comprises the Ranger School, a division of the College of Forestry which offers a 43-week technical forestry program at Wanakena, and the Center for International Studies and World Affairs located at Oyster Bay.

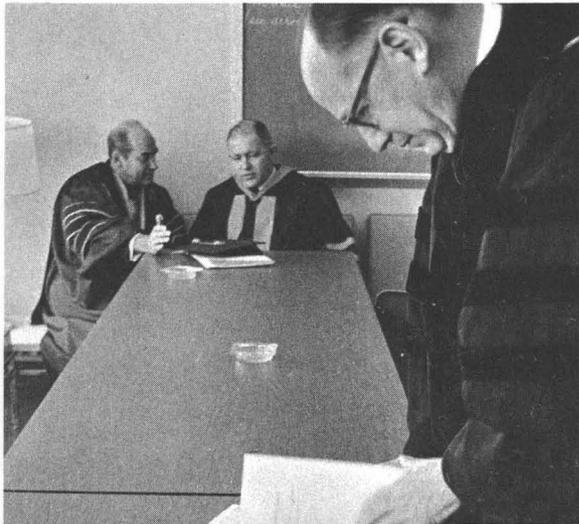
The University offers four-year programs in many fields, including agriculture, business administration, ceramics, dentistry, engineering, forestry, home economics, industrial and labor relations, law, liberal arts and sciences, maritime service, medicine, nursing, pharmacy, professional museum work, public administration, social work, teacher education and veterinary medicine.

Its two-year programs include nursing and liberal arts transfer programs and a wide variety of technical courses in such areas as agriculture, business, and the industrial and medical technologies.

Graduate study at the doctoral level is offered by the University at 12 of its campuses, and graduate work at the master's level at 24 campuses. The University is continuing to broaden and expand over-all opportunities for advanced degree study.

Governed by a Board of Trustees appointed by the Governor, State University of New York comprises all State-supported institutions of higher education, with the exception of the four-year colleges of City University of New York. Each college and center of State University is locally administered. Although separated geographically, all are united in the purpose to improve and extend opportunities for youth to continue their education beyond high school.

The State University motto is: "Let Each Become All He Is Capable of Being."



*Chancellor Gould (left),  
President Toll and  
Mr. Phalen, Chairman of  
the Board of Trustees.*

# STATE UNIVERSITY OF NEW YORK

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Office of the Chancellor, 8 Thurlow Terrace, Albany, N. Y. 12201

## UNIVERSITY CENTERS

State University at Albany  
State University at Binghamton

State University at Buffalo  
State University at Stony Brook

## MEDICAL CENTERS

Downstate Medical Center at Brooklyn (New York City)  
Upstate Medical Center at Syracuse

## COLLEGES OF ARTS AND SCIENCE

College at Brockport  
College at Buffalo  
College at Cortland  
College at Fredonia  
College at Geneseo

College at New Paltz  
College at Oneonta  
College at Oswego  
College at Plattsburgh  
College at Potsdam

(Three additional Colleges of Arts and Science are under development. Two four-year campuses, in Westchester and Nassau Counties, are in early planning. A third, upper-divisional in nature, has been proposed for the Utica-Rome-Herkimer Area.)

## SPECIALIZED COLLEGES

College of Forestry at Syracuse University  
Maritime College at Fort Schuyler (Bronx)  
College of Ceramics at Alfred University  
College of Agriculture at Cornell University  
College of Home Economics at Cornell University  
School of Industrial and Labor Relations at Cornell University

## AGRICULTURAL AND TECHNICAL COLLEGES (Two-year)

Agricultural and Technical Colleges at:

Alfred	Delhi
Canton	Farmingdale
Cobleskill	Morrisville

## COMMUNITY COLLEGES

(Locally-sponsored two-year colleges under the program of State University)

Adirondack Community College at Hudson Falls  
Auburn Community College at Auburn  
Borough of Manhattan Community College at New York City  
Bronx Community College at New York City  
Broome Technical Community College at Binghamton  
Corning Community College at Corning  
Dutchess Community College at Poughkeepsie  
Erie County Technical Institute at Buffalo  
Fashion Institute of Technology at New York City  
Fulton-Montgomery Community College at Johnstown  
Hudson Valley Community College at Troy  
Jamestown Community College at Jamestown  
Jefferson Community College at Watertown  
Kingsborough Community College at Brooklyn  
Mohawk Valley Community College at Utica  
Monroe Community College at Rochester  
Nassau Community College at Garden City  
New York City Community College of Applied Arts and Sciences at Brooklyn  
Niagara County Community College at Niagara Falls  
Onondaga Community College at Syracuse  
Orange County Community College at Middletown  
Queensborough Community College at New York City  
Rockland Community College at Suffern  
Staten Island Community College at New York City  
Suffolk County Community College at Selden  
Sullivan County Community College at South Fallsburg  
Ulster County Community College at Kingston  
Westchester Community College at Valhalla

(Five additional community colleges, to be located in Clinton, Essex-Franklin, Genesee, Herkimer and Ontario Counties, have been approved by the Board of Trustees.)

