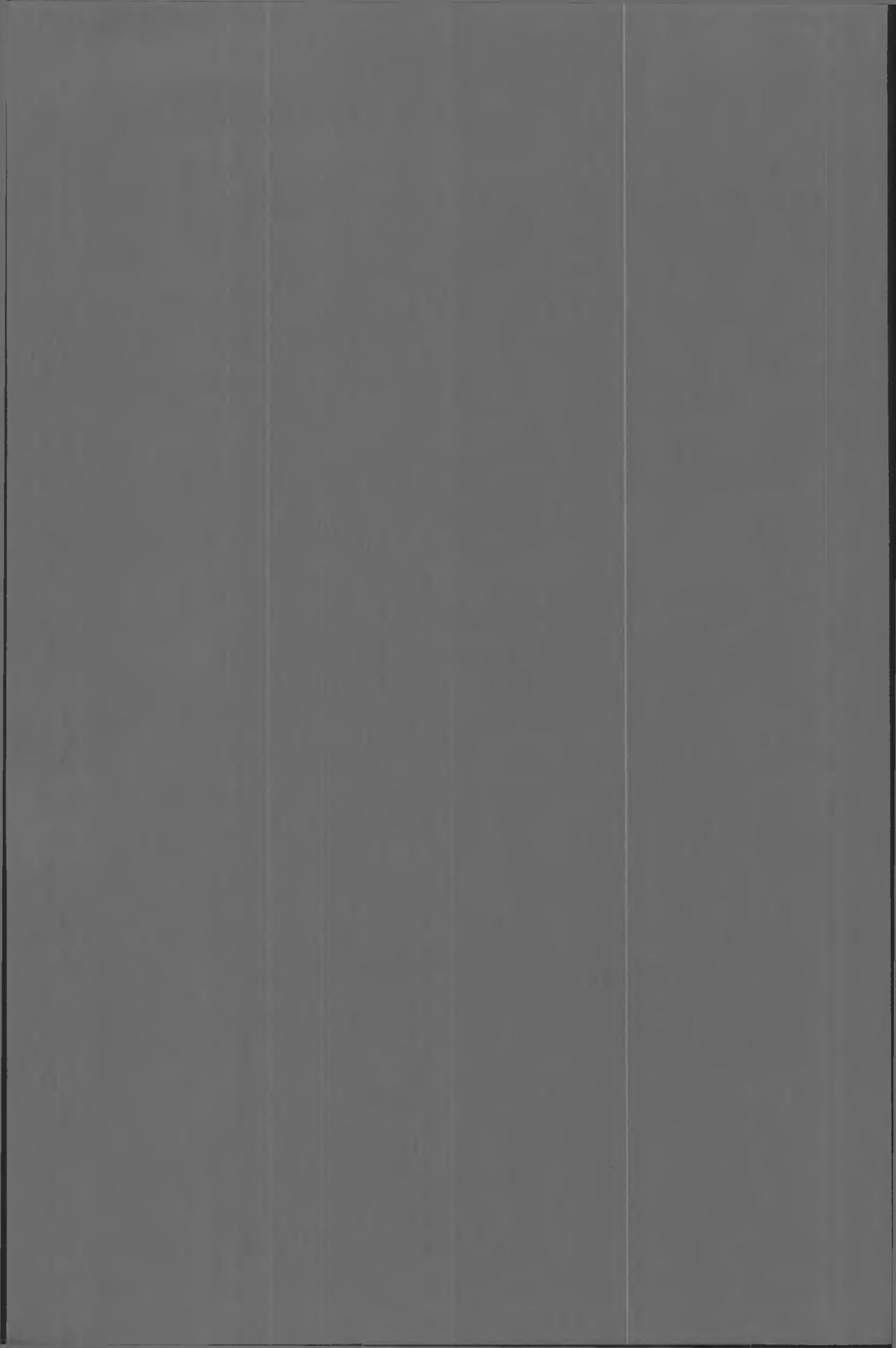


Cornell University
Announcements
College of Arts
and Sciences
1971-72



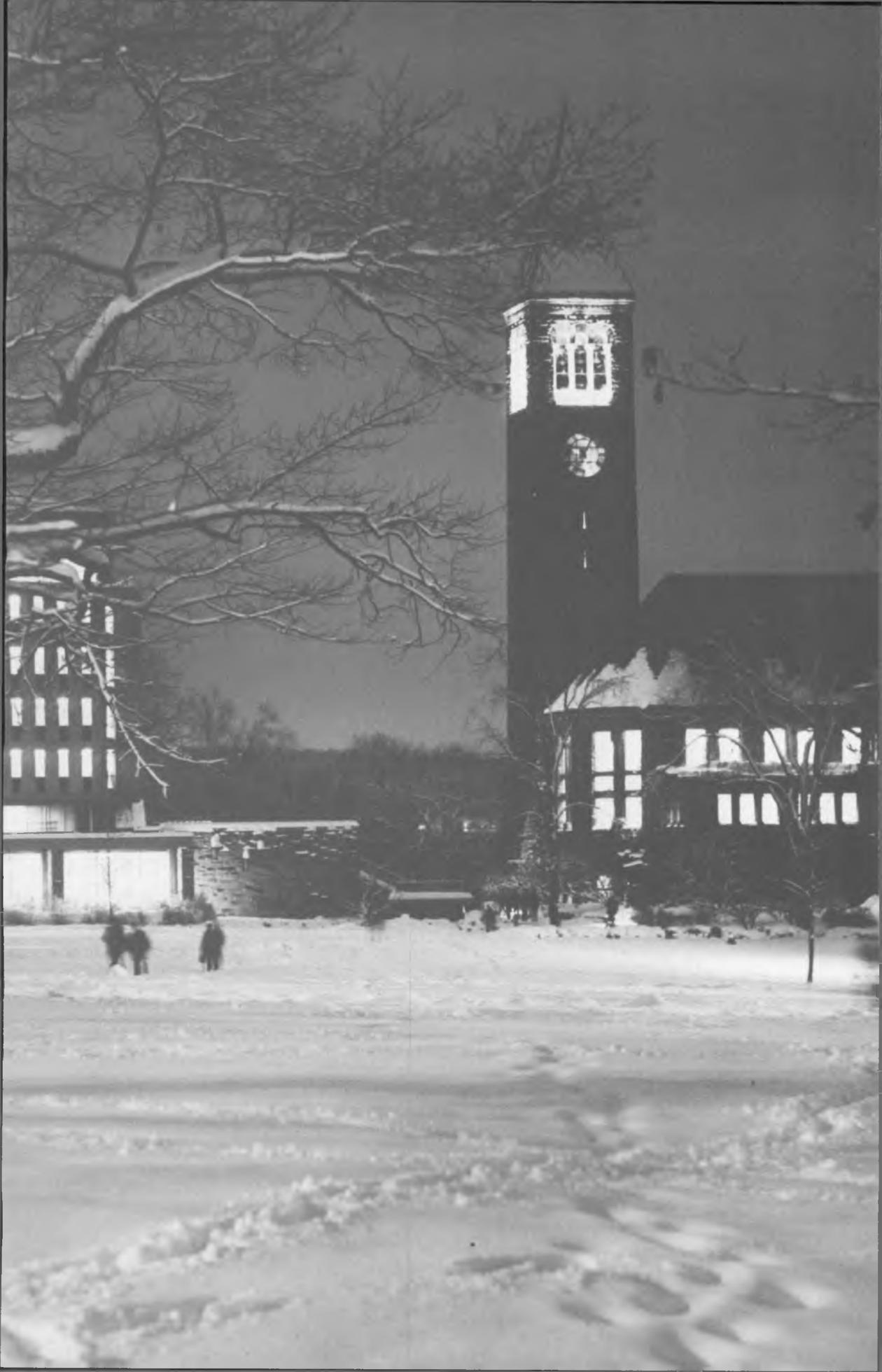
Cornell University

College of Arts and Sciences

1971-72

Cornell University Announcements

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The courses and curricula described in this *Announcement*, and the teaching personnel listed herein, are subject to change at any time by official action of Cornell University.

Cornell Academic Calendar

1971-72*

Registration, new and rejoining students	Thursday, September 2
Registration, continuing students	Friday, September 3
Fall term instruction begins, 7:30 a.m.	Monday, September 6
Thanksgiving recess:	
Instruction suspended, 1:10 p.m.	Wednesday, November 24
Instruction resumed, 7:30 a.m.	Monday, November 29
Fall term instruction ends, 1:10 p.m.	Saturday, December 11
Independent study period begins, 2:00 p.m.	Saturday, December 11
Final examinations begin	Thursday, December 16
Final examinations end	Thursday, December 23
Christmas recess and intersession	
Registration, new and rejoining students	Thursday, January 20
Registration, continuing students	Friday, January 21
Spring term instruction begins, 7:30 a.m.	Monday, January 24
Spring recess:	
Instruction suspended, 1:10 p.m.	Saturday, March 18
Instruction resumed, 7:30 a.m.	Monday, March 27
Spring term instruction ends, 1:10 p.m.	Saturday, May 6
Independent study period begins, 2:00 p.m.	Saturday, May 6
Final examinations begin	Monday, May 15
Final examinations end	Monday, May 22
Commencement Day	Friday, May 26

*The dates shown in the Academic Calendar are subject to change at any time by official action of Cornell University.

Important Dates

College of Arts and Sciences, 1971-72*

	<i>Fall Term</i>	<i>Spring Term</i>
Preregistration for fall term courses, 1971		April 5-16, 1971
Registration for new and rejoining students	September 2, 1971	January 20, 1972
Registration, continuing students	September 3	January 21
Instruction begins, 7:30 a.m.	September 6	January 24
Deadline for submitting Independent Major requests (first meeting)	September 13	January 31
Last day for changing or adding courses without fee	September 17	February 4
Modern Language Placement examinations	October 13	February 23
Deadline for submitting Independent Major requests (second meeting)	October 18	March 20
Last day for dropping courses	October 22	March 11
Preregistration for spring term courses, 1972	October 25-November 5	
Preregistration for fall term courses, 1972		March 27-April 7
Last day for requesting leave of absence for current term	October 27	March 29
Last day for requesting permission to graduate following current term	November 1	March 1
Last day for requesting withdrawal for current term	November 10	April 10
Deadline for requesting internal transfer to College of Arts and Sciences for next term	December 1	June 15
Last day for changing preregistration	December 3	April 21
Final examinations begin	December 16	May 15
Last day for submitting make-up grades for previous term incompletes	December 23	May 22
Final examinations end	December 23	May 22
Commencement Day	December 23	May 26

*Subject to change.



Cornell University

College of Arts and Sciences

The College of Arts and Sciences reflects the history and aims of the University itself. Purposeful and diverse, it is a liberal arts college, a university college, and a graduate school and research center.

The role of the liberal arts college is traditionally and properly a double one. It should further a student's understanding of himself and the world he lives in. It should prepare him, if he has the desire and the talent, for further, more specialized study. All of the College's students have both opportunity and obligation to work toward that understanding; and about two-thirds of its graduates go on to graduate school.

The College of Arts and Sciences, in its second role as a university college, is responsible for the education of all Cornell students in liberal subjects. This is a taxing commitment, but a valuable one because meeting it helps to create and preserve a single academic community. At the same time, this obligation is also a source of strength and diversity that is not available to the single and solely undergraduate college. A university college, able to draw upon the more highly specialized knowledge and facilities of its more professional fellow colleges, is able to unite liberal and practical studies.

The College is also, and this is its third role, a graduate school and research institute. Teaching and scholarship are not separable activities. Their vigorous and inventive association provides inestimable advantages for undergraduates: it attracts fine minds to the faculty and keeps them professionally alert and humanly responsive; it demands first-rate facilities; and it creates an atmosphere of discovery and excitement.

This mixed character and these several functions are surely the best way to meet the obligations that higher education in America has assumed. In an American university each student must somehow receive an education that enables him to understand the world and effectively employ his talents in it; each must discover who he is and what his special interests and abilities are; each must be enabled to develop his knowledge, his interests, and his abilities; each must be helped

to a sense of responsibility about himself and his work.

The College of Arts and Sciences thinks it can best meet these obligations by promoting diversity and permitting flexibility. For students this means freedom and continuity: freedom to experiment, to discover one's likes and talents, to change directions and correct mistakes; continuity so that experiment can take place without penalty, and with profit and excitement.

The Curriculum

The College's curriculum gives the student the opportunity for breadth, experiment, and discovery, especially during the first two years. A certain diversity is indeed urged upon him by the Distribution requirement itself. There is no guarantee that a student will receive a well-rounded liberal arts education by fulfilling the Distribution requirement, but it does encourage at least a minimum involvement in the areas with which any educated person should be acquainted. When the student explores a new subject matter he is, in effect, exploring his own latent interests and abilities. As he completes introductory courses the student lays the foundation for more advanced work or even for majoring in particular fields. During his fourth term (or earlier), as his interest comes to a focus, he chooses the subject in which he wishes to concentrate his study, aiming at depth and competence. The usual pattern is for him to devote roughly half the work of the last two years to his major program. Though certain core courses are usually prescribed in any major, there still remains a broad spectrum of choice which includes related courses in other subjects or even in other divisions of the University. Some departments offer two major programs: one, a program of intense and sophisticated preparation for postgraduate study; the other, a more general program for the person who wants a liberal education with some specific concentration, but whose interests are not professional. For special programs of study which are available, please see p. 21.

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Almost all departments have a full, demanding, and rewarding Honors program for those who have demonstrated particular ability during their first two years. Many departments have as part of their Honors programs (or in addition to them) specially directed courses and projects which permit students to pursue their own interests and talents.

The College periodically offers experimental courses that cut across subject lines, explore new notions, and test ideas arising from that complicated triangulation that must go on between teacher, student, and subject.

Admission

The College of Arts and Sciences attempts to select a freshman class whose members are individually able to take full advantage of the educational opportunities afforded by the College and the University. Because those opportunities are rich and diverse, no single criterion is employed. The College selects primarily for what Aristotle called the intellectual virtues, and it especially considers academic ability, intelligence and creativity, independence and maturity, and promise of mental growth. It also seeks a class with a wide range of other qualities and characteristics, and it honors those young men and women with highly developed special interests and talents. Furthermore, the College is making a real effort to identify and admit students whose schooling and family backgrounds indicate that the standard measures are a poor index of their abilities.

It is the policy of Cornell University to support actively the American ideal of equality of opportunity for all, and no student shall be denied admission or otherwise discriminated against because of color, creed, national origin, race, religion, or sex.

Entrance Requirements

An applicant must have completed a secondary school course giving satisfactory preparation for the work of the College. *Sixteen units of entrance credit are required: four years of English; three years of college-preparatory mathematics* (the increasing need for mathematics in the social, biological, and physical sciences makes it desirable for students interested in these areas to be prepared to take a calculus course upon entering the College; these students should have studied advanced algebra and trigonometry during their secondary school years); *and three years of one foreign language, ancient or modern.* (Foreign language preparation is particularly important in this College. A student who can offer only two years or less of a foreign language, but who has a school record of otherwise high quality, should not hesitate to apply; however, he should attach a letter to his application form explaining the deficiency.) The remaining units should be chosen from laboratory science, social studies, and further work in mathematics and foreign language. Whenever possible, these sixteen units should be

supplemented by courses in similar academic subjects. *Exceptions to these requirements may be granted when the applicant's record is unusually promising.* For example, students whose interests and academic and extracurricular achievements are in the fields of creative and performing arts should not hesitate to apply because they have not taken a standard academic curriculum. Demonstrated unusual strength in one area may offset weaknesses in another.

Each candidate for freshman admission is required to take the College Board Scholastic Aptitude Test and either the College Board Achievement Test in English Composition or the College Board Literature Test *no later than the January test date* during his senior year. He is encouraged, but not required, to take other Achievement Tests of his choice. He should request the College Entrance Examination Board to send the results to the Office of Admissions, Cornell University.

Although an Achievement Test in a foreign language is not required for admissions consideration, a candidate should, before entering Cornell, take the College Board Achievement Test in any language which he has had in high school and expects to continue in the College. Because the score on such a test is needed for placement in language courses, the test should be taken late in the senior year—in March, May, or even July. A candidate should also keep in mind the further language requirement which he must meet. If he will be entering with two or more years of some language which he wishes to use toward fulfilling this requirement (see page 15), he should take the Achievement Test in that language even though he does not plan to continue it in college. This score will determine whether in the tested language he has met part of the requirement for graduation.

Subject examination credit based on the results of the College Level Examination Program (CLEP) and the United States Armed Forces Institute (USAFI) will be determined by individual Cornell departments and awarded to enrolled degree candidates. General examination credit may be used to supplement subject examination credit. Results of any or all of the examinations may be used as evidence for admission. No more than sixty hours of advanced standing credit will be accepted on the basis of these or any other college work, or any combination thereof. No minimum scores have been established; each case will be considered individually by the Admissions Committee and the departments concerned.

Transfers

The College encourages transfer applications. A transfer applicant who has completed a semester or more of work in another institution of recognized collegiate rank will be expected to have had preparatory work equivalent to that prescribed for Cornell students. In addition, his progress in meeting the Distribution and language requirements will be examined carefully. Action on completed applications for transfer will be announced by June 1

and January 1. Transfer students should refer to the brochure *Transfer to Cornell University* for more complete instructions. (About twenty sophomore transfers are admitted for second term enrollment.)

A student seeking admission to the College of Arts and Sciences from some other undergraduate division of Cornell must first complete a year of successful study in that division.

Special Students

Each year a few Special Students are enrolled in the College. These students must take at least twelve credit hours per semester, and they are limited to two terms of residence. Under special circumstances, students may spend their senior year at Cornell while earning the degree of another institution. Special Students must have a compelling reason for studying at Cornell. They may not transfer to degree candidate status.

Early Admission

A few students request early admission after only three years of secondary school. Some of these students receive a high school diploma for completing all requirements in three years; others leave school lacking one or a few credits. The Admissions Committee looks most favorably on those students who have exhausted their secondary school offerings and who show the maturity to profit from entering college early. Those students who have the opportunity to take advanced, accelerated, or college-level courses during their fourth year in secondary school are usually encouraged to do so unless this action would inhibit the development of some other academic strength. Students applying for early admission are encouraged to write or to make an appointment for an on-campus interview to discuss their reasons and plans.

Application

Application forms may be obtained from the Office of Admissions, 247 Day Hall, and all communications concerning admission should be directed there. Freshman and transfer applications must be returned to the Office of Admissions by January 15 for students seeking fall term admission or by November 1 for transfer students seeking spring term admission. Special Students' applications must be submitted by December 1 for spring term admission and by July 1 for fall term consideration.

For information on other matters of general interest such as details about health services and requirements; housing and dining services; tuition, fees, and living expenses; applications for financial aid; and motor vehicle regulations, consult the *Announcement of General Information*. This *Announcement* and those of the other schools and colleges of Cornell University may be obtained by writing to Cornell University Announcements, Day Hall, Cornell University, Ithaca, New York 14850, or by inquiring at the administrative offices of the several colleges and schools.

Advanced Placement

Advanced placement and advanced placement credit may be achieved by an entering freshman in a variety of subjects and in a variety of ways. Advanced placement will be awarded whenever a student's record, or his examination scores, or both, indicate that he has earned it.

When his advanced placement credit totals fifteen or more hours, a student may wish to accelerate his graduation date one or two terms. It is not always wise to accelerate. Therefore, the student should consider his situation carefully and consult with his adviser. If he wishes to pursue the possibility of acceleration, the student should present a coherent plan of study to the Dean's Office, 142 Goldwin Smith Hall, for approval. For more information see *Acceleration*, p. 17.

Advanced placement credit is not normally used to reduce a term's program, but it may be used to make up a credit deficiency caused by illness or other necessary absence. Advanced placement credit may sometimes be used to satisfy some Distribution requirements. Essentially, advanced placement and advanced placement credit represent a saving of time; they open a number of possibilities in addition to acceleration. They may enable the student to broaden his education through a wider choice of elective courses. They may permit him to pursue his major more intensively and even to take graduate courses while an undergraduate. They may allow him at some point to lighten his formal course load in favor of informal or independent study.

Both advanced placement and advanced placement credit may be earned by high attainment on the College Board Advanced Placement Examinations in the following subjects: American history, biology, chemistry, European history, German literature, Latin, mathematics, Spanish literature, and physics. Also, advanced placement and advanced placement credit may be earned by high attainment on departmental examinations, given usually at entrance, in the following subjects: biology, chemistry, European history, mathematics, music, and physics.

In modern foreign languages, a student showing superior attainment on a College Board Language Achievement Test may be exempted from the three-hour requirement of advanced work after Qualification and receive three or six hours of advanced placement credit, thereby fulfilling his language requirement.

Advanced placement and credit in English may be earned by superior attainment in secondary school and on the following tests: College Board Scholastic Aptitude Test, College Board Advanced Placement Examination in English, and either the College Board English Composition or the College Board Literature Achievement Test.

Placement and credit on the basis of the College Board Advanced Placement Examinations will usually be determined during the summer, and the student will be notified at registration so that he may make appropriate changes in his program of study. For students unable to take the College Board Advanced Placement Examinations, course

10 Admission

examinations in some subjects will be offered at entrance (see the statements of the individual departments below). Freshmen desiring to take such examinations at the beginning of the fall term should be prepared to submit evidence of having completed courses conforming in substance and rigor with similar courses at the college level. Placement and credit will be determined as soon as practicable before course registration becomes final.

With a few exceptions the awarding of credit in a subject is not conditional upon a student's continuing his study of that subject at Cornell. Although the credit is in nearly all cases recommended by the faculty of the College of Arts and Sciences, it is recognized in any of the undergraduate divisions of the University.

Biological Sciences

Students may satisfy the Distribution requirement in biology with a score of 5 on the College Board Advanced Placement Examination in biology or with a superior performance on a special departmental examination given at entrance. Before taking the latter examination a student must consult with Professor W. T. Keeton (biology) and present evidence of particularly thorough training in the subject.

Prospective biological science majors (or other students planning to take advanced courses in this area) who achieve a score of 3 or 4 on the College Board Advanced Placement Examination in biology will be placed in a special honors section of Biological Sciences 101-102 and given work commensurate with their background. Students who receive a score of 5 will be given six hours of advanced placement credit in biology and will be allowed to enter sophomore level courses (e.g., genetics) during their freshman year.

Chemistry

The Department of Chemistry offers three two-term introductory sequences that satisfy prerequisites for further work in the Department—a six-hour sequence in general chemistry (Chemistry 103-104) a seven-hour sequence which includes qualitative analysis (Chemistry 107-108), and an eight-hour sequence which includes both qualitative and quantitative analysis (Chemistry 115-116). The college-level chemistry course offered by some secondary schools corresponds roughly to Chemistry 107-108. CBA and CHEMS are not considered sufficient preparation for advanced placement.

A freshman may qualify for advanced placement and seven hours of advanced placement credit for Chemistry 107-108 with a score of 5 on the Advanced Placement Examination in Chemistry or by passing a special examination available from the Department of Chemistry. Before taking the special examination, a student must consult with Professor E. S. Kostiner (chemistry). A score of 4 or 3 on the Advanced Placement Examination earns three hours of advanced placement credit for Chemistry 107 and advanced placement in Chemistry 108. However, students receiving ad-

vanced placement credit for Chemistry 107 who are interested in chemistry or a related science major should consider taking Chemistry 115-116 and should consult with Professor E. S. Kostiner or Professor R. R. Rye of the Department of Chemistry.

English

The Department of English will recommend six hours of advanced placement credit in English for qualified freshmen following their admission to Cornell and before they preregister for fall semester courses. All students receiving advanced placement credit are also offered advanced placement in a variety of intermediate courses in English and American literature. (The student will, of course, receive advanced placement credit whether or not he elects to enter such a course.) The recommendation of advanced placement credit and advanced placement will be determined by as many of the following items of evidence as are available: the student's secondary school grades, including those in an advanced placement (often also termed *honors*, *enriched*, etc.) course in English; his scores on the College Board Advanced Placement Examination in English and on either the College Board English Composition or the College Board Literature Achievement Test; and his scores on the other tests normally required for admission.

A student who has not taken an advanced placement course in English or the College Board Advanced Placement Examination will nevertheless be considered for advanced placement credit and advanced placement.

Advanced placement credit awarded in English may not be used to fulfill the Freshman Humanities requirement or the Humanities Distribution requirement.

History

The Department of History will recommend three hours of advanced placement credit for History 106 for those entering students who receive a score of 5 or 4 on the College Board Advanced Placement Examination in European History and complete History 105 with a grade of B- or above. Students in the College of Arts and Sciences who are recommended for credit may complete the Distribution requirement in history by taking History 105. Credit cannot be given for both semesters because the College Board Advanced Placement Examination does not include enough of the material covered in History 105.

The Department of History will recommend six hours of advanced placement credit for History 215-216 (Survey of American History) for those entering students who receive scores of 5 or 4 on the College Board Advanced Placement Examination in American History.

Upon application from suitably prepared students who did not take the Advanced Placement Examination of the College Entrance Examination Board but who have superior records in secondary school and for their first semester's work in history at Cornell, the Department will also administer special examinations in February,

covering the work of the second semester in the two courses numbered 106 and 216. Students who pass such an examination will receive advanced placement credit for that semester.

Both of these courses are significantly different from courses with similar titles in secondary school. They differ in subject matter, in the use of sources, and in their emphasis on the use of the historian's skills and outlook. Therefore the student who intends to major in history or in the humanities or social sciences should take History 105-106 or History 215-216 as a preparation for upperclass work. If he does so, he may receive credit for the course in addition to the advanced placement.

Languages

Since a usable command of a foreign language is considered an indispensable part of a liberal education, every student in the College of Arts and Sciences must achieve Proficiency in a single foreign language, or alternatively, a somewhat lower level of Qualification in two languages, either classical or modern.

A. Classical Languages. The Department of Classics offers courses in Latin for freshmen at three different levels—for those who have had three or four years, two years, or no previous training in Latin, Qualification in Latin is established by passing Latin 108. Proficiency is established for those placed in Latin 108 by the completion of one three-hour course beyond 108; for those placed in 201 by completing 201; those placed beyond 201 are considered to have completed the requirement. Placement in freshman Latin courses other than beginning Latin is determined by an examination administered by the Department of Classics approximately a week after the beginning of the fall term. Tentative placement is made on the basis of previous training: two units of entrance credit for Latin 108; three or four units of entrance credit for 201.

Entering freshmen who have passed the College Board Advanced Placement Examination in Latin with a grade of 3 or better will be permitted to register for Latin 205, will be given six hours of advanced placement credit, and will be considered to have satisfied the language requirement.

B. Modern Foreign Languages. Cornell offers two-semester intensive courses in the following languages: Burmese, Chinese, French, German, Hindi, Indonesian, Italian, Japanese, Portuguese, Russian, Sinhalese, Spanish, Telugu, Thai, and Vietnamese. Qualification in these languages is measured by examination and, for a student who begins work in a modern foreign language at Cornell, is normally attained after two intensive semester courses, amounting to twelve credit hours.

For any student at Cornell, placement in a modern foreign language which he has studied in secondary school is determined by his College Board Achievement Test. On this basis, a student may be declared "qualified" in a language at

entrance. Once a student in the College of Arts and Sciences has achieved Qualification in a language (whether at entrance or later), he may then fulfill the language requirement of the College in either of two ways: (1) he may complete three additional hours in conversation courses or literature courses in the language, or (2) he may achieve Qualification in a second foreign language.

Qualification upon entrance, or placement in a course intermediate between the elementary course and Qualification, does not constitute advanced placement. However, an entering student who shows superior attainment on the College Board Achievement Test may be eligible to receive three or even six hours of advanced placement credit for work in intermediate conversation and composition. If he is granted at least three hours of advanced placement credit he will have thereby satisfied the language requirement for graduation. Entering students who may be entitled to such exemption will be notified of the fact; they must then be interviewed by a designated member of the Division of Modern Languages. Neither exemption nor advanced placement credit is achieved without this interview.

It is felt that a student working in French, German, Italian, or Spanish literature needs the thorough grounding in the literary techniques and maturing of critical judgments for which the introductory courses in these literatures are designed. However, students who demonstrate possession of these abilities can be granted advanced placement and advanced placement credit on the basis of an interview with a designated member of the department concerned. For additional information about language placement and requirements, see p. 15.

C. Semitic Languages and Literatures. Students with at least three units of entrance credit in Hebrew may, upon examination by the Department or the presentation of equivalent evidence of competence (e.g., a grade of 90 or above on the Regents' examination), be admitted to Hebrew 204, satisfactory completion of which fulfills the language requirement of the College of Arts and Sciences for graduation.

Students with at least four units of entrance credit in Hebrew may be admitted to Hebrew 305 upon examination by the Department. Upon satisfactory completion of Hebrew 305, such a student may receive an additional three hours of advanced placement credit in Hebrew.

The language requirement of the College of Arts and Sciences can also be satisfied by the completion of Arabic 208. Advanced placement and advanced placement credit will be arranged for students who have had courses in literary Arabic in accredited institutions before coming to Cornell.

Mathematics

At all times a student at Cornell is urged to take the most advanced mathematics course for which he is prepared. If possible, a secondary school student should take one of the College Entrance

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Examination Board's two Advanced Placement Examinations in mathematics during his senior year. Students taking these examinations will automatically be offered advanced placement as follows.

Engineering students: A grade of 3 or higher on the AB examination, or of 2 or 3 on the BC examination, will result in the offer of four hours advanced placement credit and placement into Mathematics 192. A grade of 4 or 5 on the BC examination will result in the offer of eight hours advanced placement credit and placement into Mathematics 293.

All other students: A grade of 3 on the AB examination will result in the offer of three hours of advanced placement credit and placement into Mathematics 112. A grade of 4 or 5 on the AB examination will result in three hours of advanced placement credit and placement into Mathematics 122 or 112. A grade of 2 on the BC examination will result in three hours of advanced placement credit and placement into Mathematics 112. A grade of 3 on the BC examination will result in completion of the Mathematics Distribution requirement. Normally these students are placed in Mathematics 122 or 112. Exceptional students can place in Mathematics 221 or 213 (see below). Advanced placement credit for students in this category will be assigned appropriately. A grade of 4 or 5 on the BC examination will result in the offer of six hours of advanced placement credit and placement into Mathematics 221.

There will be a placement examination in mathematics offered at Cornell just before the beginning of classes in the fall. Students placed in 112 who wish to enter 122, or those with a grade of 3 on the BC examination who wish to take 221 or 213 (see below), must take this examination. Students who did not take either one of the College Board Advanced Placement Examinations and want advanced placement and advanced placement credit, or who did take one and received less advanced placement than they think they should have, *must* take this examination in the fall of their freshman year.

Students who have had the equivalent of at least one semester of analytic geometry and calculus are strongly urged to take a placement examination even if they feel their grasp of the material is uncertain; grades on these examinations do not become part of the student's record. The regular freshman calculus courses at Cornell do not differ substantially from calculus courses given in many high schools. Experience has shown that many students who have not taken the Cornell placement examination or the College Board Advanced Placement Examination discover later that they already know all of Mathematics 111 or 191 and want to change then. However, the Cornell placement examination is only offered once, at the beginning of the semester.

The following remarks do not apply to students taking the mathematics-for-engineers courses:

Although one year of mathematics is enough to satisfy the general Distribution requirement of the College of Arts and Sciences, students who are

likely to use mathematics in their further work will normally take three or four semesters of calculus and analytic geometry.

The higher level courses (122, 221, 222) should be elected by students of ability whose main interest lies in mathematics or physics. A student with a very firm grounding in the first semester of calculus who cannot omit 122 may, with the consent of the Department of Mathematics, take 122 and 221 simultaneously in the first semester of the freshman year. Thus, if 222 is taken in the second semester of the freshman year, the student will have completed the sophomore course by the end of the first year.

A special sophomore year Honors program consisting of Mathematics 221H-222H and Mathematics 411-412 has been set up for the very best students, including those who may wish to do upperclass honors work in mathematics. Enrollment is strictly limited and is based on evidence of outstanding ability in mathematics. Students wishing to enter this course should consult a representative of the Department. In particular, any student with a year or more of advanced placement credit who believes that he should take this course in his freshman year should see a member of the Department as soon as he arrives at the University.

Music

Prospective freshmen and transfer students wishing to apply for advanced placement in music should consult the chairman of the Department as early as possible, preferably concurrently with their applications for admission. Arrangements will then be made for a comprehensive examination in theory, administered by the Department of Music. Depending upon the results of this examination, the student's musical ability, and his background in music, a student may receive advanced placement credit for Music 151, 151-152, or, in exceptional cases, Music 251-252. These courses in basic theory are required for the major in music, and they are prerequisites for most of the advanced music courses.

Physics

Three different introductory physics courses are open to freshmen: Physics 101-102 (eight credit hours), 112 (four credit hours), and 207-208 (eight credit hours). Physics 101-102 has a prerequisite of three years of college-preparatory mathematics; and Physics 112 and 207-208 have an additional prerequisite of calculus or, for mathematically apt students in 207-208, concurrent registration in calculus. For Physics 112 and 207-208, a year of secondary school physics is a normal background but is not formally required. Physics 101-102 or 207-208 may be appropriately taken as a *terminal* physics course, but they are more significantly designed, especially 207-208 because of its mathematical level, to lead into other science courses or more advanced physics. (Another introductory course, Physics 201-202, is specifically for students beyond the freshman year who do not in-

tend to major in a science; this course is not designed to prepare the student for any more advanced science course.) Physics 112 is specifically for freshmen students in engineering or for those who plan to major in physics in the College of Arts and Sciences; this course is the first of a three-year sequence.

Entering freshmen who have scored well on the College Board Advanced Placement Examination in Physics are considered for advanced placement and advanced placement credit in regard to Physics 101-102, 112 or 207-208, or in regard to just Physics 101 or 207. There are two levels of this College Board examination—one with and one without calculus. The examination level will determine the appropriate physics course for consideration. Each September (and also in June for Summer Session students), the Department of Physics administers a special examination for suitably prepared students who did not have the opportunity to take the College Board Advanced Placement Examination. Suitable preparation consists of two years of secondary school physics, i.e., an "advanced placement" course of its equivalent. This departmental examination may be used in lieu of the College Board Examination to determine whether a student will be awarded advanced placement or advanced placement credit. It is not necessary for the student to continue the study of physics in order to qualify for this credit. In rare instances, a student who is not so recommended for advanced placement credit may be allowed (but is not advised) to take the next-in-sequence course.

Transfer Credit

A student admitted to the College of Arts and Sciences from another college of Cornell University, or from any other institution of collegiate rank, will receive credit toward the degree of Bachelor of Arts for the number of hours to which his record may, in the judgment of the faculty, entitle him. Ordinarily the total may not exceed sixty hours, and no more than fifteen hours may be in courses not commonly given by the College of Arts and Sciences. In order to obtain the degree of Bachelor of Arts, a student should have been in residence at least two years as a candidate for that degree in the College of Arts and Sciences and during those two years successfully completed at least sixty hours of courses, although exceptions may be granted in unusual cases. (See also Residence and Credit, p. 14.)

Advising

The Academic Advising Center, 137 Goldwin Smith Hall, will assign an adviser to each freshman. Advisers will meet with their advisees early in the fall term to review students' interests and class schedules. During the year, advisers and advisees will follow a schedule that seems convenient to them—personal conferences or group sessions with other students. Advisers will assist the student in his choice of studies, advise him

during the term regarding his work, introduce him to the academic life of the College, and provide help with personal problems and the choice of a career. However, all students are expected to show initiative in planning their programs and seeking advice, and to assume a large measure of responsibility for their progress in meeting requirements for the degree. Students may change advisers if they wish.

In following years, students may keep their freshman advisers, find new underclass advisers, or sign up with their intended major departments. The major adviser will guide the student in his selection of courses, counsel him on matters affecting his academic work, and supervise his progress toward the degree.

To supplement faculty advising and to act as a first stop for any sort of problem, the Academic Advising Center offers assistance. Matters such as leaves of absence should be discussed there. Also, the Center houses information about law, business, and education graduate programs.

Registration in Courses

During a designated period each term, a student will, with the aid of an adviser, prepare a program of studies for the following term. Preregistration dates for 1971-72 are listed below. A student who files a preregistration schedule after the allotted period for preregistration will be charged a \$10 fee.

April 5-16, 1971, for fall term, 1971

October 25-November 5, 1971, for spring term, 1972

March 27-April 7, 1972, for fall term, 1972

A student who does not preregister for a term, but wishes to continue in the College may, upon payment of the \$10 fee, submit a schedule within the first two weeks of that term. Any student who is not registered in courses within the first two weeks of a term will be withdrawn from the College.

Every student must register for at least twelve academic hours (exclusive of basic military training and physical education) each term. In order to maintain satisfactory progress toward the degree, a student's program should average fifteen hours per term. No student may register for more than eighteen or fewer than twelve hours without special permission. A student seeking such permission should consult a member of the Academic Advising Center.

Changes in preregistration will be permitted, without permission or fee, upon recommendation of the student's adviser according to the following schedule: prior to April 23 for the fall term, 1971; prior to December 3 for the spring term, 1972; during the first two weeks of instruction each term. After the first two weeks of instruction any change will be subject to a \$10 fee and must have the approval of the Academic Advising Cen-

14 Requirements for Graduation

ter. Except in unusual circumstances, students will not be allowed to add a course after the first three weeks of classes. After October 22 (for the fall term, 1971) and after March 11 (for the spring term, 1972) a course may be cancelled for medical reasons only.

Freshmen will learn about registration procedures in early July from the Academic Advising Center.

Requirements for Graduation

Residence

Candidates for the degree of Bachelor of Arts should be in residence during the last two terms preceding graduation, and must have been in residence for at least two years (and within those two years completed at least sixty hours) as a degree candidate in the College of Arts and Sciences. Neither advanced placement nor summer session, for the student who is accelerating, nor credit for work done *in absentia* may be used to reduce this requirement. Students normally spend eight terms in residence and may not exceed this length of time without the permission of the Committee on Academic Records. A student in good standing who leaves his degree in abeyance should not expect a request for reinstatement to be considered after five years.

Credit

For the degree of Bachelor of Arts, a candidate must have earned credit for at least 120 hours. A student may take as many out-of-College courses as he wishes, as long as he has successfully completed at least 100 hours in courses taught in the College of Arts and Sciences as the base of his degree.

There are certain courses taught outside the College which may be counted as part of the 100 hours. These include courses that are specified as meeting the requirements of the student's major program, and certain courses offered by the Africana Studies and Research Center. For information on specific courses, the student should consult the Dean's Office, 142 Goldwin Smith Hall.

The College does not grant credit for all courses offered by the University. (For example, the College does not grant credit for typing, shorthand, and remedial reading and writing.) Although a student may take any of these courses, they will not be counted as part of the A.B. degree. Again, the Dean's Office can provide information about specific courses. Students are advised to check with that Office before calculating out-of-College courses towards the degree. Basic courses in military, naval, or air science or in physical education may not be counted toward the 120 hours. Students who matriculated in the College in 1968 or before may earn as many as 12 hours of credit in advanced military courses. These hours will be counted as part of the 20 hours allowed outside the College. Students who entered in 1969 or

after may not count any military science courses toward the 120 hours required for the Bachelor of Arts degree. However, military courses may be taken as electives, without credit, and used in satisfaction of requirements for officer's candidacy and for the awarding of army, navy, marine, or air force scholarships.

Advanced Placement and Transfer Credit

See pp. 9-13.

Summer Session Credit

Summer session study serves various purposes: contributing to a plan of acceleration; satisfying the prerequisite for a course given during the regular college year; gaining knowledge of some special subject matter; enlarging one's choice of electives; and exploring new interests. The College values and encourages these efforts. Cornell Summer Session courses, taken after Summer Session 1969 and approved by the appropriate departments of the College of Arts and Sciences, automatically appear on a student's permanent record card in the College as well as on his official University transcript.

The selection of summer courses should be discussed with and approved by the student's adviser. The summer session card showing courses to be taken and bearing the adviser's signature must be filed in the Dean's Office, 142 Goldwin Smith Hall. Credit toward graduation will be granted upon satisfactory completion of the course. (For further details, see Residence, above, and Acceleration, p. 17. A student taking non-Cornell summer session courses must petition for credit. The appropriate forms are available in the Dean's Office, and they must be completed and returned to that Office before a student enrolls for summer study. The use of summer session credit to complete a September degree is permitted only to students who have prior permission from the Committee on Academic Records or the Committee of Deans.

Summer courses may be taken before matriculation, but these should be limited to the usual college introductory courses and will be subject to approval by appropriate departments for advanced placement and advanced placement credit. If credit is sought for such courses, the student should have his transcript sent to the Academic Advising Center, 137 Goldwin Smith Hall, during the summer before he matriculates. The entering student who plans to graduate in less than four years is encouraged to enroll in summer school courses at Cornell in the summer before his freshman year. He should plan his program in consultation with the Advising Center.

Credit by Examination

See Admissions, p. 8, and Advanced Placement, pp. 9-13.

Other Requirements

A student may not use the same course to fulfill more than one College requirement, though a

course may be used both for fulfillment of a College requirement and for fulfillment of a major requirement, providing the major department agrees. Courses used to fulfill College requirements may be taken on an S/U basis.

A. Freshman Humanities

A student is required to complete in each term of his freshman year one of the courses specially designed to provide discussion in small classes and to emphasize writing. The two courses need not be in the same subject, but they must be designated as meeting this requirement. (For details see Freshman Humanities Program, p. 27.)

Note: This requirement is not the same as the Distribution requirement in the humanities. A course used in satisfying the Freshman Humanities requirement may not be used in satisfying the Distribution or the language requirement. Superior College Board Achievement and Advanced Placement Test results do not allow exemption from this requirement.

B. Foreign Language

The language requirement can be fulfilled in the following ways:

A. The student may attain Qualification in two languages. Qualification is a level of competence indicated by performance in a College Board Achievement Test (where the required score in a modern language, Latin, or Hebrew is 560), in a departmental placement examination, or in the appropriate foreign language course.

B. He may meet the requirement by attaining Qualification in one language if he has offered for admission three high school-level units of another language.

C. He may achieve Proficiency in one language by completing a three-hour course in that

language for which Qualification is a prerequisite, usually at the 200 level or above, unless the course is used to satisfy the Freshman Humanities requirement (see other exceptions in the ancient languages below); he may also achieve Proficiency by earning an equivalent amount of advanced placement credit. (See p. 11.)

A student may offer, either for Proficiency or for Qualification, a language neither learned nor taught at Cornell. In the case of a language not taught at Cornell, the student himself must arrange for a satisfactory test of his ability and see that the results become part of his record. An attempt will be made by the Academic Advising Center to assist a student in obtaining a suitable evaluation of his ability.

There are two paths available to the student who is not qualified in a *modern foreign language* when he enters Cornell. He may take a sequence of two six-hour courses (numbered 101 and 102) which emphasize conversation and the structure of the language. (In Spanish, courses 111-112 taught by the Department of Romance Studies, may be used instead of Spanish 101-102.) Alternatively, he may take a sequence of four three-hour courses (numbered 131-134) which emphasize reading comprehension. The student will be placed by examination, by preference, and by probable major into the course most likely to meet his needs. He may move from one of the six-hour courses into one of the three-hour courses. He may attain Qualification at the end of any one of the courses whenever he demonstrates sufficient competence in that language (usually in a departmental examination) or, failing this, when he passes the course numbered 102 or 134 in that language. To complete the requirement he may then (1) progress to a 200-level course not used to satisfy the Freshman Humanities or Distribution requirement, or (2) seek Qualification in a second language.

Language Qualification and Proficiency

Language	Qualification	Proficiency
Modern Language	pass course 102 or 134; or 560 score on CEEB exam; or satisfactory score on Division of Modern Languages exam	pass at least a 3-hour course at the 200-level or above; or have an equivalent amount of advanced placement credit
Greek	pass Greek 103	pass Greek 203
Latin	pass Latin 108; or 560 score on CEEB exam; or placement in a course higher than 108	if placed in 108, pass one 3-hour course beyond 108; or if placed in 201, pass 201; or placement higher than 201
Hebrew	pass Hebrew 203; or 560 score on CEEB exam; or 90 score on Regents' exam; or by departmental examination	pass any 3-hour course for which Qualification is a prerequisite, e.g., 204
Arabic	pass Arabic 207; or by examination	pass any 3-hour course beyond 207
Swahili	pass Swahili 134; or by examination	pass Swahili 201

16 Requirements for Graduation

Qualification in *Swahili* is achieved by completing the four-course sequence *Swahili 131-134* or by examination. The language requirement is satisfied by passing *Swahili 201*.

In the *ancient languages*, Qualification is achieved in Greek by passing Greek 103; in Hebrew by completing Hebrew 203, by achieving a 560 score on the College Board Achievement Test, by achieving a 90 score on the Regents' examination, or by departmental examination; in Arabic by completing Arabic 207 or by departmental examination. In Latin Qualification is attained by achieving a score of 560 on the College Board Achievement Test, by passing Latin 108, or by placement in a course higher than 108. (For information on placement in Latin see p. 11, or Classics in the Courses of Instruction section.)

Proficiency in Greek is achieved by completing Greek 203; in Hebrew by completing any three-hour course for which Qualification is a prerequisite (e.g., Hebrew 204); in Arabic by completing any three-hour course beyond 207 (e.g., Arabic 208). In Latin, students who are placed in 108 complete the requirement by passing one three-hour course beyond 108; those who are placed in 201 by passing 201; placement higher than 201 satisfies the College language requirement. Advanced placement in Greek and Latin is granted for evidence of achievement well beyond the level of Qualification. (For more information, see Classical Languages, p. 11.)

A native speaker of a language other than English in which there is a substantial literature or any student who has learned such a language may take a departmental placement examination and use that language to satisfy the requirement. All international students must fulfill the Freshman Humanities requirement (first taking English as a Second Language, if necessary) and the normal language requirement. If a student's native language does not have a substantial literature, the language requirement must be fulfilled by another foreign language which does have a substantial literature.

Since several departments demand completion of the language requirement as one of the prerequisites for acceptance into the major, a student should plan his language courses carefully and consult with the Academic Advising Center or his adviser, the department of his prospective major, and the department of the appropriate language.

A student wishing to continue a modern foreign language in which he has not taken a College Board Achievement Test must first take a placement examination given by the University Guidance and Testing Center, 375 Olin Hall. He may also take the examination if he feels that the College Board score is not an accurate indication of his ability. The examination is given during orientation week in September, at the end of every semester, and on October 13 and February 23 of the 1971-72 academic year.

C. Distribution

Each student must complete six hours of related course work in four of the seven groups listed

below, including one six-hour sequence in the physical or biological sciences, one in the social sciences or history, and one in the humanities or expressive arts. The fourth group may be six hours of related course work in mathematics or in a group not previously elected. A student may not use the same course to satisfy more than one requirement.

The policy of the College is to encourage students, where possible, to satisfy the Distribution requirement with advanced rather than basic courses, and to use the Distribution requirement as an opportunity to explore new areas at any time during their college careers. Most students tend to complete this requirement during their first two years, however, precisely because those are the years of exploration of various subjects, and because a basic course taken in satisfaction of that requirement will ordinarily qualify him for admission to a major in that field.

The faculty of the College has authorized the Dean's Office to waive one or two of the four distribution requirements for a student taking an equivalent number of courses in the Africana Studies and Research Center. One requirement may be waived automatically upon the student's written request; a second may be waived at the discretion of the Dean's Office upon petition by the student. The area of waiver is to be determined by the Dean's Office. Courses used to satisfy the Freshman Humanities requirement may not be counted in the "equivalent number of courses" in the Center, referred to above. The second waiver is to be granted only to those students who demonstrate a real burden of academic requirements by virtue of their taking a large concentration of work in the Center as well as a major in the Arts College, in effect, a double major. Africana Studies courses will not be used to waive the natural science requirement.

The specific courses which satisfy each of the seven categories of the Distribution requirement are listed below. This list is effective beginning with the class entering in 1971.

- 1. Mathematics.** Any six hours, or Computer Science 201 and Electrical Engineering 4110.
- 2. Physical Sciences.** *Astronomy:* 201-202. *Chemistry:* 103, or 107, or 115, and 104, or 108, or 116. *Geological Science:* 101-102. *Physics:* 101-102, 201-202, 207-208, 112-213 (or the first term of one sequence followed by the second term of any other).
- 3. Biological Sciences.** 101-102 and 101L-102L, or 107-108.
- 4. Social Sciences.** *Anthropology:* any two courses totaling six hours. *Economics:* 101-102. *Government:* two of the following: 101, 104, 203, 206 (in 1971-72, Center for International Studies 110 may be substituted for 104 or 206). *Linguistics:* 201-202, or 201 and any course for which 201 is a prerequisite. *Psychology:* any two courses totaling six hours (Human Development 115 and

Rural Education 110 may be counted). *Sociology*: any two courses totaling six hours.

5. History. Any year course, through 300-level courses.

6. Humanities. *Classics*: (a) any two courses in Greek or Latin beginning with 201 that form a reasonable sequence;* or (b) two of the following: Classical Civilization 119, 120, 121, 122, 319, 320; Comparative Literature 313-314, 323, 340, 400. *Comparative Literature*: any 200- or 300-level courses totaling at least six hours which form a sequence. *English*: any two courses except 203-204, 205-206, 305-306, 385-386, 387-388, 485-486, 488 and 489 or the combinations 251 and 255 or 252 and 256. Six-Year Ph.D. *Seminar in Literature*, HO, may be used as one of the courses. *Modern Foreign Literature*: (a) French: 201-202 or 201E-202E (222 may be substituted for any part of the normal 201-202 sequence);* (b) German: literature courses at the 200-level and above;* (c) Italian: 201-202;* (d) Russian: literature courses at the 200-level and above;* (e) Spanish: two of the following: 201, 311, 312.* *Philosophy*: any two courses except a combination of two introductory courses such as 100 and 101 or a combination of two courses in formal logic such as 212, 412, 413, and 419; Philosophy 100 may not be used if it was used to satisfy the Freshman Humanities requirement. *Semitic Literature*: any two courses at the 200-level or above.*

7. Expressive Arts. *English*: 203-204, 205-206, or 305-306. *History of Art*: any two courses at the 200- or 300-level. *Music*: any courses totaling six hours except Music 127; a maximum of three hours may be used in courses 331-338 and 441-444. *Theatre Arts*: any two three-hour courses or Physical Education 200-201.

D. The Major

Each student must satisfy the specified requirements of the major as listed by his major department. The major in a subject is defined as including not only the courses in that department but also the courses in related subjects offered in satisfaction of the major requirements.

E. Physical Education

During the first four terms of residence each student should complete the University requirement of four terms of work in physical education. The courses in physical education are described in publications which the Department of Physical Education makes available to students at registration.

Possible Excuses and Postponements for Physical Education. *Medical*: The Academic Advising Center must receive a letter of recommendation from the Gannett Clinic. The Clinic may recommend either a postponement or an excuse for the term. *Self-Help Employment*: A student working

twenty hours a week may apply to Financial Aid for an excuse for the current term. The student must also prove financial need in addition to working twenty or more hours a week. *Military Service*: The entire requirement is excused for veterans. *Age*: If a student is at least twenty-two years of age upon entering the College, he or she may be excused. *Married Women*: A married woman may request a permanent excuse.

Students should come to the Academic Advising Center regarding any possible excuse or postponement of this requirement.

F. Electives

Of the 120 required hours, each student must complete fifteen hours in courses not offered in satisfaction of requirements (A) through (E) above, and not given by the department supervising his major.

Petitioning. Students with unusual circumstances should consult a member of the Academic Advising Center, 137 Goldwin Smith Hall.

Acceleration

Most students spend eight terms of residence in the College before they graduate, but under special circumstances some are awarded the Bachelor of Arts degree at the end of six or seven terms. A student, for example, may have so much advanced placement credit that he enters Cornell with the equivalent of a term's study behind him, or may be sufficiently qualified to start taking a significant number of advanced courses while still an underclassman. A student who matriculates with fifteen hours or more of advanced placement credit may inquire at the Academic Advising Center early in his freshman year about the option of accelerating. If he wishes to accelerate, he may graduate in six or seven terms upon presentation of a satisfactory plan for early graduation.

An underclassman who does not have fifteen hours or more of advanced placement credit, but who wishes to graduate in fewer than eight terms and has a plan for acceleration that makes educational sense, should make an appointment to discuss his plan with one of the members of the Academic Advising Center as early in his academic career as possible. Finally, he must submit a petition requesting permission to accelerate.

An upperclassman who has planned his courses so that he can finish the College requirements and his major requirements ahead of his scheduled graduation date, and who has the support of his adviser and the chairman of his major department, may also petition to graduate early. Before submitting his petition for acceleration, he should make an appointment with one of the members of the Academic Advising Center. The deadline for submitting a request for acceleration is November 1 for the awarding of a January degree, and March 1 for the awarding of a June degree.

Each request to accelerate is reviewed by the appropriate College committee, which decides

*If not used to satisfy the language requirement.



whether or not acceleration is in the student's best academic interest. Coherent educational plans are viewed most favorably; the mere ability to complete requirements quickly is not sufficient. A petition to graduate early will not be approved unless a student has achieved and maintains a superior academic record, or unless the committees feel that the educational program proposed represents a coherent liberal arts education. The petition forms, available in the Academic Advising Center, list some of the criteria used by the committees.

A student who changes his mind after a request for acceleration has been approved, and decides not to graduate early, must so inform the Dean's Office, 142 Goldwin Smith Hall, in writing, by the last day of the examination period before his accelerated graduation date.

See the section Credit for Summer Session, p. 14.

Bachelor of Arts with Distinction

The degree of Bachelor of Arts with Distinction in all subjects will be conferred upon those students who, in addition to having completed the requirements for the degree of Bachelor of Arts, (1) have completed at least sixty credit hours while registered in regular session in the College of Arts and Sciences; (2) have received the grade of B- or better in at least three-fourths of the total number of hours taken while registered in this College; (3) have received the grade of A- or better in at least one-half of the total number of hours taken while registered in this College; (4) have received a grade below C- in no more than one course; (5) have received no failing grade.

Bachelor of Arts with Honors

The degree of Bachelor of Arts with honors will be conferred upon those students who, in addition to having completed the requirements for the degree of Bachelor of Arts, have satisfactorily completed the Honors program in their major subject and have been recommended for the degree by the department representing their major subject.

Honors programs are designed to free the exceptionally promising student for a substantial portion of his time from the ordinary requirements of academic courses in order that he may be able to broaden and deepen his understanding of the field of his special interest, to explore branches of his subject not represented in the regular curriculum, and to gain experience in original investigation. A candidate for the degree of Bachelor of Arts with honors is usually required to pass a comprehensive examination in his major subject or to submit a thesis or some other satisfactory evidence of capacity for independent work. He may receive the degree with honors at one of three levels: *cum laude*, *magna cum laude*, or *summa cum laude*. When performance does not justify a degree with honors, the student may

receive course credit toward the degree of Bachelor of Arts.

A student who, after admission to Honors, is found to be unsuited to Honors work, will revert to candidacy for the regular Bachelor of Arts degree.

Grades and Academic Standing

Only freshmen will receive midterm grades. Final grades for courses range in a descending order from A+ through D-, the lowest passing grade. F is a failing grade. No credit toward graduation will be given for a course in which a failing grade has been received, unless the course is repeated and a passing mark received.

Final grades A+, A, A- mean *excellent to very good*: comprehensive knowledge and understanding of subject matter, limited perception and/or originality; B+, B, B- mean *good*: moderately broad knowledge and understanding of subject matter, noticeable perception and/or originality; C+, C, C- mean *satisfactory*: reasonable knowledge and understanding of subject matter, some perception and/or originality; D+, D, D- mean *marginal*: minimum of knowledge and understanding of subject matter, limited perception and/or originality; F means *failing*: unacceptably low level of knowledge and understanding of subject matter, severely limited perception and/or originality.

Final grades of S or U may also be given in some courses. S means the student receives the credit specified for the course; U means no credit. Unlike the grades A+ through F, the grades S and U are not used in calculating a student's grade average. Students should consult individual instructors for their definitions of S and U. In certain courses, deemed by the College to require no greater precision of grading, all final grades will be S or U. Such a course may be counted towards the student's major, with the permission of his adviser and the chairman of his major department.

An undergraduate registered in the College, after consultation with his adviser, may elect to receive a grade of S or U instead of one of the letter grades (A+ to F) in one academic course a term provided that the course is not offered in satisfaction of his major and provided that the instructor is willing to assign such grades. A student may elect the S/U option in courses used to satisfy distribution and language requirements providing that other restrictions do not apply; e.g., a course used to satisfy the Distribution requirement may be counted towards one's major, and normally one may not elect S/U grades in a course required by the major.

A student may take *two* courses offered exclusively on an S/U basis by the College of Arts and Sciences, or *one* course offered exclusively on an S/U basis in this College and *one* S/U education course if it is required for the completion of the student's education program.

Furthermore, with the consent of his adviser and the instructor, a student may simultaneously

20 Leaves of Absence and Withdrawals

elect to receive a grade of S or U in *one* course, and take *one* course offered exclusively on an S/U basis by the College of Arts and Sciences or *one* exclusively S/U education course if it is required for the completion of the student's education program.

When a student *elects* to receive a grade of S or U in a course, he must file a permission card with the Scheduling Office, 134 Goldwin Smith Hall. Any changes in exercising this option will be governed by the regulations applying to changes of course. (See Registration in Courses, p. 13.)

An *incomplete* is not a satisfactory grade. It is used to indicate that a course has been left incomplete with respect to specific assignments which may include the final examination. The mark of *inc* will be assigned only in case of illness or prolonged absence beyond the control of the student, and only when the student has a substantial equity in a course. A student will have a substantial equity in a course when the remaining work can be completed without further registration in the course and when he has a passing grade for the completed portion. When a grade of *inc* is reported, the instructor will also indicate the reasons for it and the conditions for removing it. A mark of *inc* may be removed, with the consent of the dean, by meeting those conditions, by examination, or by whatever alternate methods the concerned department may direct. Unless a make-up grade is received in the Scheduling Office within one term (see p. 5 for specific date), an *inc* will revert to a grade of F.

A student will be considered in good academic standing for the term if he completes successfully at least twelve hours, and receives no more than one D and no grades of F or U. If his record falls below this level, he may be warned, placed on "final warning," suspended for a specific period of time (at least one year), or not allowed to register again in the College. Moreover, a student failing to make satisfactory overall progress in grades, or in hours (whether from failures or *incompletes*), or in the requirements of the College or the major may at any time be warned, placed on "final warning," suspended for a specific period of time (at least one year), or not allowed to register again in the College.

A student who desires readmission from suspension should submit his request, a letter outlining his activities since suspension, and letters of reference from teachers or supervisors to the Committee on Academic Records, 142 Goldwin Smith Hall.

A student will not be allowed to register for a fifth term in the College (or for the first term of his junior year) unless he has been accepted into a major program of a department. If he has not met all the prerequisites for acceptance by the major department concerned, the department may be willing to accept him on a provisional basis. He may remain in the status of a provisional major throughout his junior year, but he must have final acceptance into a major program before he may register for his senior year.

All requirements for the degree must be com-

pleted by the degree date. There will be no changes in a student's record after graduation except to correct clerical or administrative errors. Grades will remain unchanged; *incompletes* will not revert to F or U.

Dean's List

The requirements for the Dean's List are left to the discretion of the Dean, and may vary from term to term. The specific criteria for a given term, together with the list of students who have met those criteria, will be posted on the bulletin board opposite 142 Goldwin Smith at the end of that term. In general, the requirement is a 3.5 grade point average in a program of at least fourteen credit hours taken for letter grades (with correspondingly higher averages required if only twelve or thirteen hours are taken for letter grades), and the completion of all work before the end of the semester.

Leaves of Absence and Withdrawals

For reasons satisfactory to the dean and the faculty, a student in good standing may be given a leave of absence. If a student needs, because of financial, family, or health reasons, to leave the College but expects to return, he should apply for a leave of absence. However, a leave of absence for medical reasons is issued only on recommendation of the University Clinic. A leave of absence is not the same as permission for *in absentia* study, and no credit will normally be granted for work completed while a student is on leave, except in limited amounts to members of the armed services. If the Ithaca environment has contributed to the problems that have prompted him to take a leave of absence, the student is urged to leave the area and seek a beneficial change in his surroundings.

If a leave of absence is to take effect during the term in which the student is already registered, it must be requested by Wednesday, October 27, 1971, for the fall term, 1971, or by Wednesday, March 29, 1972, for the spring term, 1972. After these dates it will be granted only upon approval of the Committee on Academic Records or the Committee of Deans. A student may not take two consecutive leaves of absence. A leave is issued for an indefinite period not to exceed five years.

A withdrawal is a voluntary severance of the student's connection with the College. If a student wishes to withdraw during a term for which he is already registered, the withdrawal must be requested by Wednesday, November 10, 1971, for the fall term, 1971, or by Monday, April 10, 1972, for the spring term, 1972. It is assumed that a student on a withdrawal will not return to this College.

To request a leave of absence or withdrawal, a student must make an appointment with one of the members of the Academic Advising Center. Requests for readmission from a leave of absence

or a withdrawal must also be submitted through the Academic Advising Center.

***In Absentia* Study**

Under special circumstances, or for compelling academic reasons, students are permitted by the Committee on Academic Records to gain credit toward graduation by registering *in absentia* and studying at another institution. Most of the petitions approved by the Committee have been for study abroad during the junior year by students majoring in a foreign language and literature, although students have also been permitted to study at other institutions in the United States, if they are interested in areas which cannot be pursued at Cornell. The work done *in absentia* must be approved by the student's major department as well as the Committee on Academic Records, and programs for such work must be carefully planned in advance. A student must receive prior approval for study at another institution from the chairmen of all Cornell departments offering courses directly related to the work to be done *in absentia*.

In considering such petitions, the Committee on Academic Records is concerned whether the student is qualified for such work, and whether the quality of the program is such that the time spent *in absentia* is at least the equivalent of studying at Cornell.

A student considering *in absentia* study should make an appointment with one of the members of the Academic Advising Center to discuss his plans and obtain assistance in preparing his petition to the Committee on Academic Records. Requests for permission to study *in absentia* must be submitted to the Dean's Office by April 26, 1971, for fall term *in absentia* study, and by November 1, 1971, for spring term *in absentia* study.

Special Programs

The College Scholar Program

The College Scholar Program is primarily a College-wide Honors program designed to provide particularly able students with an educational experience that will most fully complement their interests and their talents. While it assumes no special categories and has no fixed prerequisites, the Program will probably appeal most to the student who wishes to combine a traditional major with an entirely different interest (such as mathematics and one of the performing arts) and to the student who wishes to combine different disciplines into one coherent plan of study (such as international relations or comparative literature).

There are about forty College Scholars in a class, chosen on the basis both of letters of recommendation and of the quality of their proposals. Each student works closely with his College Scholar adviser to set up his own educational plan. During their underclass years participants are relieved of all general College requirements, but they are expected and encouraged to broaden

their experience and to explore interests and abilities not already manifest before their arrival at Cornell. The general requirements might also be replaced by the beginnings of a thorough training in one area (such as French literature, philosophy, and history) or in one period (such as the Enlightenment).

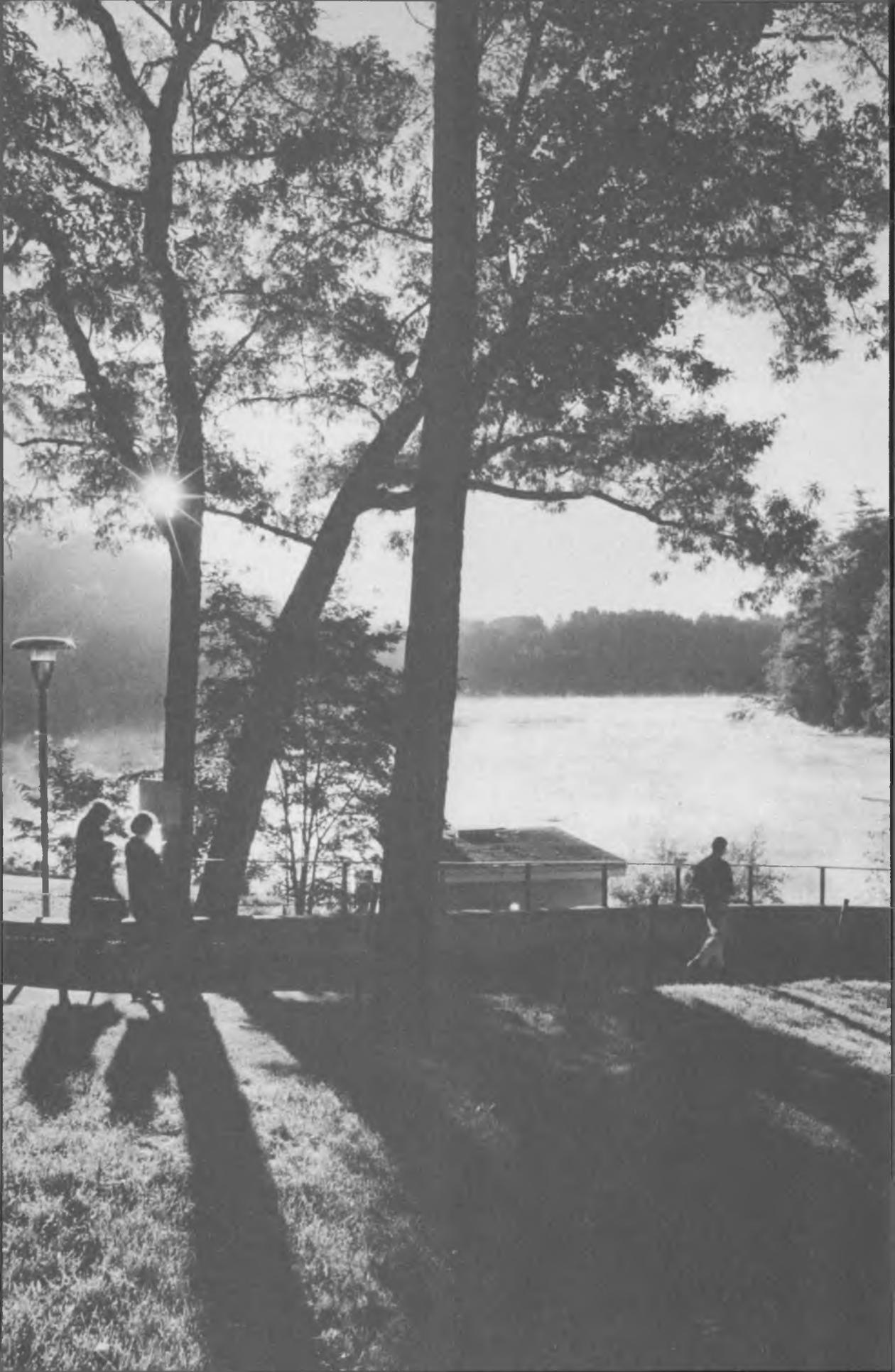
During their upperclass years some College Scholars will want to pursue a normal departmental major, which is already rich and diverse. Others will decide that their educational needs might best be served by departing from the traditional categories. Such students might well concentrate in one of the existing interdisciplinary programs such as American, Asian, or Latin American studies, Greek civilization, or comparative literature (these programs are described in detail in other sections of this *Announcement*). Still other students, in consultation with their advisers, will want to work out a plan which draws upon and unifies the resources of a number of departments. A major in area development would involve courses in economics, government, history, and social psychology; a major in history and literature would join studies in language and philosophy as well as history and literature; studying the history of art and doing one or more of the fine arts is a possible and sensible combination. Such freedom presupposes both scholarship and maturity, and the College Scholar is expected to develop a thoughtful plan of study and to pursue his work with distinction.

Courses of independent study designed to complement or amplify a particular program may be arranged with or through the student's adviser. Independent study will be granted by the adviser, primarily to upperclassmen, when there is no regular course available and it meets a clear curricular need. For an account of the courses see College Scholar Program at the end of the Courses of Instruction section.

Students are admitted into the Program in the spring term of their freshman year. Details of the Program and of the application procedure will be distributed in that term to all instructors in Freshman Humanities seminars, and an announcement will be made in the *Cornell Daily Sun*. Inquiries should be addressed to Dean Connor, director of the Program, in 159 Goldwin Smith Hall.

The Independent Majors Program

Students in the College are required to complete a course of study in a major field. The intent of this requirement is to ensure that each student has the experience of studying some subject matter in depth and of coming to grips with advanced problems. Most students have found one or another of the various departmental majors appropriate for their interests. However, the departmental structure of the College does not uniquely or exhaustively define legitimate areas of study. Some students may prefer to focus their attention on a topic that lies between or across the boundaries of existing departments. Such a student should have the opportunity to define



and design his own major field, with the guidance and direction of appropriate members of the faculty. The Independent Majors Program provides that opportunity and is open to all College students. The legislation by which the faculty set up the Independent Majors Program specifically excludes the approval of an Independent Major which is substantially the same as an established departmental major.

At whatever time a student feels that his plans are fairly settled and that the Independent Majors Program meets his needs (normally sometime during his sophomore year), he should submit a written application to 159 Goldwin Smith Hall. It should include:

1. A title which briefly describes the area of study (e.g., Latin American studies, international relations, history and literature); a rationale which identifies and describes the area as clearly as possible and gives some reason for pursuing it; and a tentative plan of study.

2. The endorsement of a member of the faculty of the College of Arts and Sciences expressing his willingness to act as the student's Independent Major adviser.

3. A copy of the student's permanent record card.

All completed applications will be referred to a board composed of three teachers from the appropriate division (the humanities, social sciences, natural sciences) of the College. Some applications may be referred to the whole board. The board will meet twice a semester, once at the beginning and once shortly before preregistration. The deadlines for completed applications are one week after the beginning of each term, and one week before the beginning of the preregistration period. The Board will consider the coherence of the program, its scholarly depth, and the student's preparation for it. A list of some criteria used for approval is available in 159 Goldwin Smith.

Once a program has been approved, the faculty adviser is responsible for it. He may sanction whatever changes seem appropriate within the purposes of the application. The "major" requirement for graduation will be met when the adviser certifies that the student has fulfilled the course of study agreed upon.

The Program in Greek Civilization

This is a program of studies in Greek civilization for a select group of freshmen and sophomores, whether they plan to concentrate in the sciences or in the humanities. Its purpose is to give unity to a student's introduction to the liberal arts as he gains some understanding of philosophy, history, government, science, literature, art, and philosophy. A considerable amount of substantive knowledge is unified by its common origin in Hellenic culture, and the student will be introduced to this world which forms the deepest foundations of Western civilization.

An integrated approach to a single culture through the various disciplines is an experiment

in liberal education. It is an experiment of a sort that needs to be renewed again and again in the humanities, since its goals—precise knowledge and broad horizons—are too easily separated. Ancient Greece is an ideal focus for such an approach. Everything we mean by "civilized" exists there in the highest quality and in manageable quantity—great poetry, art, philosophy, history, rhetoric, and science. A study of the important works can lead to an appreciation of each of these disciplines as it has been practiced at any time and in any place. For gaining perspective on our own society, remoteness in time is usually an advantage.

The Program is also an alternative to a professionalism which leaves students no occasion to raise the great questions of life in any systematic or scholarly way, a purpose for which many of the best students come to college in the first place. Because the combination of familiar and foreign elements in Greek thought is complicated, much of the teaching and learning will be through discussion. For that reason the Program is limited to ten students each year. Regular course meetings will be supplemented by occasional colloquia involving faculty and students. Participation in the Program leaves the student free to take at least two other courses each semester and so to satisfy all underclass requirements and to prepare for his major. A typical schedule for the first two years follows. (For a detailed account of the courses see Program in Greek Civilization at the end of the Courses of Instruction section.)

Freshman Year

<i>Fall</i>	<i>Spring</i>
Greek Language	Greek Language
Greek Philosophy	Greek History
Greek Literature in Translation	Elective
Elective	Elective
Elective	Elective

Sophomore Year

<i>Fall</i>	<i>Spring</i>
Greek Language	Greek Political Thought
Greek Archaeology	Greek Science
Elective	Greek Language
Elective	Elective
Elective	Elective

Faculty members in the Program will serve as academic advisers for its students. All ten members of the Program will receive scholarships based on need. For further information write to the Program in Greek Civilization, 159 Goldwin Smith Hall, Cornell University, Ithaca, New York 14850.

International Studies

Students who wish to focus on some aspect of international studies should be able to organize a program of courses that will fit their needs well. For example, in the College of Arts and Sciences there are courses in comparative government, international relations, international law and orga-

nization, international economics, and the economics of development; they are listed under anthropology, Asian studies, economics, government, history, and sociology. There are also courses in over twenty modern foreign languages. Cornell does not offer a degree in "international relations." The Department of Government does, however, offer a number of courses in international law and relations and it is possible at the graduate level to major in these subjects. Similarly, the Department of Economics provides a graduate major in international economics and development economics.

The College of Agriculture offers courses in the economics of agricultural development, international agriculture, and rural sociology. The Graduate School of Business and Public Administration offers courses in international development. The School of Industrial and Labor Relations offers courses in international and comparative labor relations.

The student seeking specialized foreign-area knowledge may focus on one of the following interdisciplinary area programs: Chinese studies, Latin American studies, and Southeast Asian studies. In addition, it is possible for the student to pursue an area interest in African studies, European studies, South Asian studies, or Soviet studies. The Law School offers courses in international and comparative law.

Freshmen and sophomores interested in an integrated introductory approach to international studies can take advantage of the Center for International Studies' new Interdisciplinary Undergraduate Program. Present plans provide for the participation of a total of eighty students. Students who enter the Program as freshmen will take one four-credit course each semester for two years. Sophomores will be admitted to the Program for one year to the extent that spaces are made available by discontinuing freshmen. There will be one general topic each semester. Students will be divided into four seminar groups of twenty each, and each seminar will be taught by a professor in a different discipline. A student will take a seminar with a different professor each semester so that by the time he has completed four semesters of the Program he will have examined four major problems from the vantage points of four different fields. Students may use the Program courses to satisfy the Freshman Humanities requirement and the social science segment of the Distribution requirement in the College of Arts and Sciences. A folder describing the Program in detail is available from the Center for International Studies, Rand Hall.

Please note that the student must do his major work in one of the relevant discipline fields of the humanities, social sciences, or certain natural sciences—it is in that major discipline field that he will receive his degree. Although Cornell offers an undergraduate major in Asian studies, it does not offer advanced degrees in area studies as such. Course work in area and functional programs is counted as one of the student's minor fields.

Preparation for Teaching

Teacher education at Cornell is under the supervision of the University Committee on Teacher Preparation. It is possible to satisfy the New York State requirement for provisional certification to teach English, social studies, or science while Teacher preparation programs in foreign languages and mathematics may also be available. A fifth year of study at the master's level is necessary to become permanently certified to teach in this state. Prospective teachers in one of these areas may enroll in a five-year program leading to permanent certification.

All students interested in attaining provisional certification for secondary school teaching will need to plan their programs very carefully and should inform their advisers of this interest as soon as possible, but not later than the end of the sophomore year. Questions may be directed to the appropriate faculty members or to advisers in the Academic Advising Center. Students desiring practice teaching experience must apply no later than the end of the first term of the junior year since the number of openings for student teaching is limited.

Premedical Students

Students who intend to prepare for the study of medicine or dentistry are urged to report once each semester to the office of the Premedical Advisory Committee, 118 Stimson Hall. This Committee has established standard procedures to facilitate the eventual preparation of letters of evaluation for applicants to medical and dental schools. The chairman of the Committee is available at the office during stated hours each week to provide counseling on academic and curricular problems related to premedical and pre dental studies. The Committee also maintains a library of medical school catalogs and other publications which may be consulted at its office.

Medical educators generally agree that in planning his college course a premedical student should not allow his interest in science to exclude studies in the humanities. They also agree that it would be unfortunate for the future of medicine if all premedical students followed the same course of studies or majored in the same subject. For these and other reasons there is no fixed premedical curriculum at Cornell; there is no "premedical major," and no single major program is viewed as more desirable than any other in preparation for the study of medicine. Certain minimum requirements for admission are, however, prescribed by all medical schools. The most substantial of these requirements is in chemistry, and it is therefore recommended that the premedical student include chemistry in his freshman course of study. Some premedical students choose to take two sciences in the freshman year, either chemistry and physics or chemistry and biology. Students who plan to pursue major studies in biological sciences will find it advantageous, though not absolutely necessary, to include biology in their freshman programs.

The Premedical Advisory Committee suggests that since almost all medical schools require English composition for admission, prospective medical school applicants should elect to satisfy the Freshman Humanities requirement with six hours of English, or plan subsequent course work in this subject.

Military Training

Programs leading to a commission are offered in military science, naval science, and aerospace studies (AFROTC). For information on credit granted toward the Bachelor of Arts degree for military science courses see the section Credit, p. 14. Full descriptions of the programs may be found in the *Announcement of Officer Education*.

Scholarships

The Office of Scholarships and Financial Aid, 109 Day Hall, administers scholarship funds available to students in the University. Some scholarships are open to any student in the University; others are open only to students in the College of Arts and Sciences. An entering student who wishes to apply for financial aid should complete the application form which accompanies the application for admission.

The following is a list of the scholarships available only to Students in the College of Arts and Sciences:

- The Dean's Scholarships
- The Spencer L. Adams Scholarships
- The Elisabeth Reamer Carson Scholarship Endowment
- The George C. Boldt Memorial Scholarships
- The Cornelis W. de Kiewiet Scholarship
- The Cornelia L. Hall Scholarship
- The Gertrude C. Hemingway Scholarship
- The Myrtle H. Miller Scholarship
- The Henry L. O'Brien Jr. Scholarship
- The Frederick A. Peek Scholarship Fund
- The Frederick A. Rice Scholarship Endowment
- The Winton G. Rossiter Scholarship

New York State Residents

New York State offers various types of financial assistance to qualified college students who are state residents. It is very important that students seeking such aid obtain full information and meet promptly each application deadline.

Scholar Incentive Program

Applications should be filed before July 1 for each academic year but will be accepted up to December 1. Applications for the spring semester only have an April deadline. Annual application is required.

Regents College Scholarships for Undergraduates

Candidates should seek directions from their high

school principal and/or guidance counselor.

Information on all of the above may be obtained by writing to the Regents Examination and Scholarship Center, New York State Education Department, Albany, New York 12224. Students seeking New York State guaranteed loans should apply to the New York State Higher Education Assistance Corporation, 159 Delaware Avenue, Delmar, New York 12054.

Scholarship Information

Any questions regarding scholarships, including scholarships offered by New York and other states, should be referred to the Office of Scholarships and Financial Aid.

The Libraries

Cornell has eighteen separate libraries—two of them central and sixteen of them special and departmental. The central library's total holdings of more than 3.5 million volumes place it among the ten largest university libraries in the country; about 175,000 volumes are added each year. The College is the principal beneficiary of the two main libraries, the Uris Undergraduate Library and the Olin Research Library, which face each other on the south side of the Arts Quadrangle.

The prime aim of the Uris Library is to bring students and books as closely together as possible. Accordingly, the bookstacks, save for essential reserve books in heavy demand, are open to all readers. The holdings are selective rather than comprehensive. In addition to a reference collection of 4,000 bibliographies, encyclopedias, handbooks, and dictionaries, and about 300 periodicals, Uris contains about 100,000 volumes for course reading or for general exploration and recreation. A suite of three listening rooms houses a large collection of records and tapes of poetry, drama, fiction, and other material in the spoken arts.

The John M. Olin Library is one of the country's major research libraries. The first floor and lower level contain the Reference and Circulation Departments, the Wason Collection (the most complete holdings of Asian material in the country), the Rare Book Department, the Collection of Regional History and University Archives, and the Department of Maps, Microtexts, and Newspapers. The union catalog of all libraries on the Ithaca campus and the bibliography collection are on the first floor, near the center of the building.

The second through the seventh floors contain bookstacks and offices. They are reserved primarily for faculty, staff, graduate, and honors students, but undergraduates can easily and quickly obtain or discharge books at the circulation desk.

As a means of acquainting new students with its facilities and services, the library arranges for freshmen to have a lecture-tour early in the fall term.



ARCHAEOLOGY

ARCHITECTURE

City Planning

YOU CAN WIN A SCHOLARSHIP
REVIEW
MARKETING
BIOLOGY
PHYSICS
ANALOGY QUESTIONS
MODERN BIOLOGY
G
YOU CAN WIN A SCHOLARSHIP
Federal Service ENTRANCE EXAMINATIONS
THE STUDENT'S GUIDE TO MILITARY SERVICE
LOVE, EASY SCHOLARSHIP GUIDE

Courses of Instruction

The Freshman Humanities Program

To replace its traditional freshman composition program, the University has recently inaugurated a series of small discussion and writing courses in the humanities which are jointly conducted by nine departments in the College of Arts and Sciences. The aim of the new program is two-fold: to offer the incoming student a wide variety of subjects from which to choose, and to provide him with the opportunity of relating his written assignments directly to the subject-areas which primarily interest him. The courses are uniform only in the sense that all of them require intensive practice in composition and that the enrollment in each section is limited to twenty students.

To satisfy the Freshman Humanities requirement, each student must elect any two (but no more than two) of the courses which are described below. Advanced placement credit may not be used to fulfill this requirement. Students are expected to enroll in one of these courses during the fall semester and in another during the spring semester of their first year of residence. Unless otherwise noted, each course will be offered both in the fall and the spring. Each course carries three hours of credit. A course used in satisfying the Freshman Humanities requirement may not be used in satisfying the Distribution or language requirement. Supplementary information about the program and specific instructions about registration procedures will be mailed separately to all incoming freshmen in July.

Because there are usually late changes in the offerings in the Freshman Program, or in texts and content descriptions, the courses below should be considered as illustrative rather than final. *Students should make choices only from revised course offerings circulated with the ballot in July and October.*

The Classics

Classics 119 Freshman Seminar in Greek Civilization. *Fall term. Miss Asmis.* A study of Athenian culture in the time of Socrates, with a reading of tragic plays by Aeschylus, Sophocles, and Euripides, comedies by Aristophanes, the historical writings of Herodotus and Thucydides, and excerpts from philosophers and educators of the fifth century B.C. Selections will be chosen to illustrate important revolutions in thought, notably the changes in attitude towards religion, education, and the law.

Classics 120 Freshman Seminar in Latin Literature. *Spring term. Mr. Moore.* Readings in translation of selected major works of Latin prose and poetry including Lucretius' *On the Nature of Things*; Virgil's *Eclogues*, *Georgics*, and *Aeneid*; excerpts from the histories of Tacitus; Petronius' *Satiricon*. Discussion and frequent essays.

Classics 121 Freshman Seminar in Greek Philosophy. *Fall term. Mr. Stokes.* A topic in Greek philosophy, probably "being." Several major works of the great philosophers will be studied in translation with special reference to the logic and metaphysics of the verb "to be" in Greek and English.

Classics 122 Freshman Seminar in Greek Mythology and Religion. *Spring term. Mr. Clinton.* "The Greeks and Their Gods." A seminar concerned with Greek myths and religion. Attention will be given to the relationship between myth and religion and to their form and meaning in literature, cults, and daily life. Reading will include works in translation of Homer, Aeschylus, Sophocles, Euripides, and Aristophanes, as well as some modern writings in which ancient Greek myths appear.

Comparative Literature

Comparative Literature 101 The Defense of Art in the Literary Work. *Either term. Credit three hours. M W F 9:05, 10:10. Staff.* The defense of art and the justification of the artist are among the most widespread themes of modern literature, but they are by no means issues only of this time. Plato's attack on the poets in the *Republic* already set the pattern for some of the defensive postures that poets, and artists in general, have had to assume throughout history. The aim of this course will be to examine a number of definitions of art, not only in explicit aesthetic writings but also as they are incorporated into literary works. The readings will consist of short theoretical writings, plays, stories (Mann's *Death in Venice*), and one novel (*Don Quixote*, Part I).

Comparative Literature 102 The Art of Narrative and the Unknown. *Either term. Credit three hours. M W F 10:10, 11:15. Staff.* Storytelling may be viewed as a process of progressive elucidation, whether of a specific problem, the nature of a character, or even of the reader's own relation to a work. The classic form of such narrative is the mystery story, but many literary works of a more complex nature incorporate the same principle, for example, Sophocles' *Oedipus the King*

and Dostoevsky's *Crime and Punishment*. In reading a selected group of plays, stories, and novels (including the two named here) we shall ask in each case how the structure of the story involves the reader in a discovery of the unknown.

Comparative Literature 103 Varieties of the Imagination in Literature. *Either term. Credit three hours. M W F 11:15, 12:20. Staff.* Discussion of a series of works (dramas and prose fiction) arranged along a sliding scale, starting from an extremely "realistic" work and moving gradually toward two forms of "irreality": the fantastic, grotesque, demonic, on the one hand, and romance, idealization, utopia, on the other. The questions to be asked will be: how does one define the world evoked in a work of literature and by what means does the author portray or project it. Works by Shakespeare, Swift, Tolstoy, Gogol, and others will be read.

English

English 131 Experience and Expression. Practice in the art of imaginative writing and attempts to explore the nature of that art. Students will write original works of poetry, fiction, plays, and the more personal kinds of exposition, and examine the language, rhetoric, and style of their own work as well as the work of established writers.

English 133 The Uses of the Past. This course attempts to find out how the individual views, assesses, and finally shapes his past. The focus is both personal—a study of varieties of autobiography—and public—an examination of how writers respond to their history and culture. The writing emphasizes the formation of an individual voice. It ranges from journal keeping and attempts at autobiography to a critical handling of the literary problems that such a study raises. Reading includes *The Personal Voice* (an anthology), Allen Ginsberg, St. Augustine, James Agee, Malcolm X, and Eldridge Cleaver.

English 135 Writing About Experience. Designed primarily to give the student practice in writing about his own experience, either in the present, here at Cornell, or in the past. Most of the class time will be given to the student's own work.

English 141 Bible and Ancient Authors. Informal discussion of selected books from the Old and New Testaments, considered both as literature and moral teaching. Some of the major cycles of classical and Norse mythology will also be studied.

English 145 American Literature and Values. A study of the ideals of self-reliance and success as embodied in prose works, both fiction and nonfiction, and drama by representative writers from Benjamin Franklin to Malcolm X. Analysis of individual works will include consideration of how conformity, alienation, and rebellion have constituted responses to each writer's environment—social, economic, and racial.

English 147 Humanism. Informal discussion of major works illustrative of the flowering of Renaissance humanism. Selected classical and modern works will be read as well, as a means of assessing the general value of the humanist conception of man's nature and potentiality and the humanist educational ideals.

English 149 The Search for Order. Literature and man's search for meaning in the Renaissance and twentieth century: social, moral, and scientific perspectives in major literary forms. Readings will include poems by Yeats, Stevens, Eliot. Shaw's *Caesar and Cleopatra*, *King Lear*, *Waiting for Godot*, *Gawain and*

the Green Knight, and Faulkner's *As I Lay Dying*.

English 151 Shakespeare and the Moderns. Intensive study of some four plays by Shakespeare and three works drawn from the drama and fiction of the nineteenth and twentieth centuries. The course seeks not merely to encourage familiarity with major works of Shakespeare and of recent authors but also to study the drama and novel as literary forms and to examine and compare the different attitudes and world views implicit in these works. Texts include such plays of Shakespeare as *Richard III* and *Henry IV*, *Hamlet*, *King Lear*, and *Antony and Cleopatra*; and modern works by such writers as Conrad, Joyce, Shaw, Beckett, O'Neill, and Mailer.

English 153 The Literature of Reason and Unreason. Intended as a comparison of major imaginative works of the eighteenth century and the modern period. Although no one theme dominates the course, special attention is given to the authors' attitudes towards man's rational potential. At present, reading includes *Candide*, *Billy Budd*, *Gulliver's Travels*, *Catcher in the Rye*, *The Stranger*, *Jonathan Wild*, *Secret Agent*, selected eighteenth-century plays, *Brave New World*, and *Portrait of the Artist as a Young Man*.

English 157 American Fiction and Culture. Study and informal discussion of nineteenth-century American novels which comment significantly on emerging patterns of American manners and morals. Hawthorne, James, Howells, and Twain are central, and various works of such figures as Charles Brockden Brown, Cooper, Harold Fredric, William DeForest, and Dreiser are often included at the option of the individual instructor.

English 159 Politics, Language, and Literature. A study of the language and rhetoric occasioned by political events, past and present. Writings of different kinds and intentions (from the *New York Times* to the works of Whitman, Yeats, Orwell, and Hemingway) will be read in an effort to discover what prose style can tell us about the author's motives and character. Written exercises in analysis, argument, autobiography.

English 163 Relationships and the Creative Process. A study of writing, emphasizing the writer's need to find analogies and other relationships in the seemingly disparate materials with which he works. Readings will include both poetry and fiction, as well as essays on the imagination and the creative process. There may be some creative writing assignments.

English 165 The African Experience, Black and White. A study of major novels of Africa, to explore fictive attitudes of black and white writers on race, environment, colonialism, postindependence, and, in the case of South Africa, the phenomenon of apartheid. Novels to be studied will be those of Graham Greene, Chinua Achebe, Amos Tutuola, Isak Dinesen, Alan Paton, Joyce Cary, William Conton, James Ngugi, Ferdinand Oyono, and Ezekiel Mphahlele.

English 237 The Reading of Fiction. See p. 68.

English 241 Introduction to Drama. See p. 68.

French

French 205 Critic and Visionary from Voltaire to Sartre. *Fall term. Credit three hours. M W F 11:15. Miss Colby.* The search for new solutions to old problems as presented in a variety of literary forms from the Age of Enlightenment to the present day. Readings in French; discussion and papers in English.

French 206 Literature: An Obsolete Concept? *Spring term. Credit three hours. M W F 10:10. Mrs.*

Parrish. A study of contemporary attitudes in France and America with a look at television and the cinema as purveyors of the word.

German

German 103 The Individual under Pressure. *Fall term. Credit three hours. Mr. Connor, Mrs. Ezergailis, and staff.* Readings and discussion of English translations of major German dramas dealing with the problems faced by man threatened by the constraints imposed by the traditional society around him. The texts studied will include works by Georg Büchner, Heinrich von Kleist, the Expressionists, Bertolt Brecht, Max Frisch, and others.

German 104 The Expanded Consciousness. *Spring term. Credit three hours. Mr. Connor, Mrs. Ezergailis, and staff.* Novels in English translation by half a dozen twentieth-century German authors ranging from Franz Kafka to Hermann Hesse to Günter Grass, dealing with man's attempts to enlarge his understanding of his own spiritual makeup, and the individual's relationship to the otherness of his fellow men.

Government

Government 101S American Government. Either term. A general introduction to American national government and politics.

Government 104S Comparative Government. Either term. A comparative study of major contemporary political movements and governmental institutions and processes. Developed industrial as well as some of the newly emerging countries will provide the materials for the discussion of key issues.

History

History 105-106 Introduction to Western Civilization. *Throughout the year. Credit three hours a term. M W F 11:15. Messrs. Bernstein, Provine, and staff.* For description see p. 81.

History 215-216 American History. *Throughout the year. Credit three hours a term. First term not prerequisite to the second. T Th S 9:05. Fall term, Messrs. Kammen, LaFeber, and staff. Spring term, Messrs. Silbey, Polenberg, and Staff.* For description see p. 79.

History of Art

History of Art 103 Freshman Seminar in Art History. Concentrating on man-made objects, ranging from letterheads to cities and including conventional categories of painting, sculpture, and architecture, this course is intended as an introduction to problems of perceiving the work of art and articulating the visual experience.

Students meet in groups of about twenty to discuss this large range, through reproductions, concrete objects, and accessible environments, in order to involve the participant in the analysis of the visual experience. Readings and a number of short papers will be assigned throughout the term, but emphasis is placed on classroom participation.

Conceived as a supplement, not a prerequisite, to art history, the course does not approach art in a conventional historical manner, but rather in terms of the information intrinsic to the object itself. Therefore, the course may be regarded as of general interest in fields other than art history, such as anthropology, psychology, and the like.

Philosophy

Philosophy 100 Freshman Seminar in Philosophy. Central topics in ethics, political philosophy, philosophy of religion, metaphysics, and other areas of philosophy are studied and discussed in sections of this course.

Romance Studies

See the heading "French," p. 95, and "Spanish" below.

Spanish

Spanish 205 Alienated Heroes in Hispanic Literature. *Fall term. Credit three hours. M W F 10:10. Mr. Gonzalez.* The *celestina*, the *picaro*, Don Quixote, Don Juan as first created in the Golden Age. The protagonist on the fringes of society in the context of his historical and artistic moment. Readings in English or Spanish; class conducted in English. Qualification in Spanish *not* required.

Spanish 206 The Modern Spanish Drama (in translation). *Spring term. Credit three hours. M W F 10:10. Mr. Kronik.* From the poetic theater of Lorca to the theater of protest of the sixties. Readings in English or Spanish; class conducted in English. Qualification in Spanish *not* required.

Russian Literature

Russian 104 Russian Literature. *Spring term. Mr. Gibian.* Reading of selected works of twentieth-century Russian literature in English translation and of some nineteenth-century classics (Dostoevsky, Tolstoy). The purpose of the seminar will be to give students an introduction to a few masterpieces of Russian literature (primarily short stories and a few novels) and then to proceed to concentrate on a particular theme—Russian literary treatments of the conflict between the old and the new (particularly in literature about the Soviet Revolution).

Some comparisons of Russian versions of the revolutionary and utopian themes (advocacy of radically different social organization, violent rejection of the existing order) with western European treatments.

201-202 Introduction to Russian Literature. *Throughout the year. Credit three hours a term. Prerequisite: Qualification in Russian (for definition of Qualification, see p. 15). M W F 10:10. Mr. Ripp.* Completion of this series is the prerequisite for all 300 and 400 courses where the reading is done in Russian. Open to freshmen as a Humanities Seminar.

Africana Studies

Certain courses offered by the Africana Studies and Research Center have been accepted by the Educational Policy Committee of the College of Arts and Sciences for inclusion in the 100 hours of Arts and Sciences courses required for the A.B. degree. A major in Africana Studies has also been approved by the faculty of the College.

Details regarding the major in Africana studies and regarding course offerings are available at the Africana Studies and Research Center, 310 Triphammer Road. See also Credit, p. 14, and Foreign Language, p. 15, under Requirements for Graduation.

Distribution Requirement

The faculty of the College has authorized the Dean's Office to waive one or two of the four Distribution

30 Anthropology

requirements for a student taking an equivalent number of courses in the Africana Studies and Research Center. For details, see p. 16.

American Studies

Mr. S. C. Strout, Jr., chairman.

The American Studies Committee seeks to encourage interdisciplinary work in the history and culture of America. At present it offers the choice of a major subject in American studies only to graduate students in English and history. Specific programs are arranged individually with the student's special committee. Undergraduate equivalents for those freed of major requirements can be arranged with a suitable adviser.

Anthropology

Mr. A. T. Kirsch, Chairman; Messrs. R. Ascher, D. R. DeGlopper, D. J. Greenwood, T. A. Gregor, L. W. Hazlehurst, C. F. Hockett, K. A. R. Kennedy, B. Lambert, W. W. Lambert, T. F. Lynch, M. E. Meeker, J. V. Murra, L. Sharp, J. T. Siegel, R. J. Smith, W. A. Stini, R. B. Thomas, Miss Judith M. Treistman, Mr. F. W. Young.

Two majors are offered by the Department: (1) a major in anthropology, and (2) a major in social relations.

Anthropology

For fulfillment of the major, students are required to have taken Anthropology 101 and 102 and an additional thirty-two hours chosen from courses given at the 300 level or above. Eight of these hours may be taken at a comparable level in related fields outside the Department and with the approval of the adviser. A minimum of eight hours in anthropology must be at the 400 level or above.

The student's developing interests may lead him to concentrate in the humanistic, social, or natural science aspects of anthropology, which as a broad field includes the subdivisions of archaeology, social anthropology, linguistics, psychological anthropology, and physical anthropology. The specific program of courses in the major and related subjects is designed by the student in consultation with his major adviser.

Attention of students is directed to the course offerings in archaeology, biological sciences, and linguistics, where subjects closely related to anthropology are treated.

Social Relations

The major in social relations is offered jointly by the Department of Anthropology and the Department of Sociology. The major provides the student with basic competence in cultural anthropology, social psychology, and sociology, while giving particular emphasis to the common methods of research in these disciplines. The student electing this major is expected to obtain a grasp of the common interests and evidence of these disciplines as well as knowledge of their unique insights in attempting to develop generalizations regarding man in society. The student's work is integrated in his senior year when he takes the Social Relations Seminar in which he is expected to interrelate aspects of the theory and data of the three disciplines.

Prerequisites to the Major

The candidate must apply to the Committee on Admission to the Social Relations Major, offering the following:

- a. Either Anthropology 101 or Sociology 101.
- b. Either Psychology 101 or Child Development 115 or Sociology 281.
- c. Industrial and Labor Relations 210 or the equivalent.

The Major

The major calls for a minimum of thirty-six hours of course work as follows:

- a. Three pairs or other combinations of related courses at the 300 level or above, to be selected in consultation with the major adviser. These six courses must include two from each of the following disciplines: anthropology, social psychology, sociology.
- b. At least one course in methods, to be selected from the following: anthropological methods, techniques of experimentation (psychology), methods in sociology, advanced psychological statistics, the philosophy of science or of social science, advanced statistics (such as Industrial and Labor Relations 311).
- c. At least one course in theory which is related to social relations.
- d. The senior seminar in social relations (Sociology 497 or Anthropology 495).

A list of courses that may be used to satisfy the requirements for the major in social relations is available from any major adviser.

Students seeking admission to the program in social relations should apply to the chairman of the Social Relations Committee, Mr. Robin M. Williams, Jr., Department of Sociology.

Human Biology

Human Biology is a program of study offered in the Department of Anthropology, Division of Biological Sciences, School of Nutrition, and the Veterinary College. The purpose of the program is the training of students in a broad variety of subjects within the area of human biology. Such subjects would include human evolution, ecology, genetics, behavior, anatomy, physiology, etc. To undergraduate students the program is offered as a *concentration*.

Application

All inquiries and correspondence relating to the concentration in Human Biology are handled in the offices of the Department of Anthropology. The applicant will be assigned to a biological anthropologist in the Department of Anthropology who will serve as his temporary adviser. With this member of the faculty, the undergraduate can discuss whether he wishes to pursue a concentration in Human Biology which would lead to the conferral of the Bachelor of Arts (Science) degree in *Anthropology*, or to the conferral of the same degree in the field of *Biological Sciences*. Should the student chose to work towards the degree in the latter field, then he will be referred to an adviser in the Division of the Biological Sciences. It is possible for an undergraduate registered in the Human Biology concentration to earn a degree in other closely allied fields such as psychology.

Requirements

The requirements for the concentration in Human Biology are designed to insure sufficient background in the physical sciences and mathematics to enable the student to pursue a wide range of interests in the area of modern biology. In the freshman year, two semesters of biology (Biological Sciences 101-101L and 102-102L), two semesters of general chemistry (Chemistry 107-108), and two semesters of calculus (Mathematics 111-112, 111-122 or 107-108) will normally be completed. One lecture course in organic chemistry and one organic chemistry laboratory

(Chemistry 353-355 or 355-356 and 357-358), a course in genetics (Biological Sciences 281), and a course in Biochemistry (Biological Sciences 431 or 531-532) are requirements which can be completed by the middle of the sophomore year. Two semesters of Physics (Physics 101-102 or 107-108) are required and should be completed early in the student's program.

Breadth requirements, designed to insure that the student in Human Biology is familiar with areas of biology outside his concentration, specify that each student must pass a course in two of the following categories. 1) Developmental Biology: Biological Sciences 347, 385. 2) Ecology and Evolution: Biological Sciences 361, 475. 3) Geology: Geological Sciences 101. 4) Microbiology: Biological Sciences 290A. 5) Morphology: Biological Sciences 311, 313, 316, 345. 6) Neurobiology and Behavior: Biological Sciences 320, 421. 7) Physical Sciences and Mathematics: Chemistry 236, 287, 289; Mathematics 213, 221; Statistics 510. 8) Physiology: Biological Sciences 242 or 340, 410, 414. 9) Taxonomy: Biological Sciences 273, 316, 371, 344; Entomology 212; Plant Pathology 309.

The concentration in Human Biology requires a total of 14 credit hours selected from the following: Anthropology 102, 221, 304, 372, 373, 374, 375, 471, 472 and Biological Sciences 273, 361 and 475 (Section of Ecology, Evolution and Systematics). Biological Science courses included in the concentration requirement may not simultaneously be used to fulfill the breadth requirement.

Facilities

Cornell has a modern physical anthropology laboratory with a collection of osteological and fossil cast materials. Facilities for serology, anthropometry, primate dissection, and work physiology studies are available. Calculators and a statistical and reference library are maintained in the laboratory as well as drafting and photographic equipment.

Special Programs

Specialized individual study programs are offered in Anthropology 497-498 (Topics in Anthropology), open to a limited number of juniors and seniors. Consent of the instructor is required.

The Department of Anthropology holds colloquia throughout the academic year. Faculty from Cornell and other universities participate in discussion of current research and problems in anthropology; students are encouraged to attend.

The Honors Program

Students majoring in anthropology who seek admission to the Department's Honors program should file application on a form obtainable in the Department office before preregistration in the fall term of their junior year. Those admitted to the program preregister in Anthropology 391 for the spring term of their junior year. The Honors Thesis is written under faculty supervision in Anthropology 492 in the fall or spring term of the student's senior year. Further details of the program can be obtained at the time of application.

Distribution Requirement

The Distribution requirement in social sciences can be met in anthropology by any two courses.

101 Introduction to Cultural Anthropology. *Either term. Credit three hours. Limited to freshmen and*

sophomores. Fall term: M W F 9:05, discussion sections to be arranged. Mr. Greenwood. Spring term: M W F 9:05, discussion sections to be arranged. Mr. Gregor. A comparative study of the organization of cultural behavior in systems of communications, technology, social relations, ritual, ideas, and sentiments; the relation of such systems to personal behavior and to continuity, change, and cultural transfer in history. Illustrative materials drawn largely from non-Western societies.

102 The Evolution of Man. *Spring term. Credit three hours. Anthropology 101 is not a prerequisite to Anthropology 102. M W F 9:05, discussion sections to be arranged. Mr. Stini. A survey of the processes and history of man's evolution. The mechanisms of evolutionary change and adaptation to the environment are examined from the standpoint of both archaeology and human biology. The presentation of material from both disciplines makes possible a documentation of the evidence of the progress of evolutionary change at both the organic and cultural levels. In addition, aspects of ongoing evolution in living populations are discussed with emphasis on the long-term interaction of biological and cultural factors.*

Introduction to Archaeology (Archaeology 200). *Spring term. Credit three hours. SIU grades only. Open to all students whether or not they elect the concentration. Enrollment limit: 170 students. T Th 1:25. Mr. Ascher with guest lecturers. A consideration of the essential methods and aims of archaeology. During the second half of the term, faculty from several departments, and students who have done archaeology, will discuss different aspects of the subject.*

Survey of Human Biology (Biological Sciences 210.)
Introduction to Art History: Beginnings of Civilization. (History of Art 210.)

216 The Study of Complex Societies. *Spring term. Credit three hours. M W F 1:25. Mr. DeGlopper. Anthropological approaches to the study of complex premodern or peasant societies. Major topics include the economic, social, and cultural life of peasants, and the nature of local systems and their integration with larger political and cultural units.*

218 Popular Cultural Anthropology: An Evaluation. *Spring term. Credit three hours. M W F 11:15. Mr. Greenwood. Through rapid popularization, anthropological ideas are said to have a considerable impact on our society, yet academic reviews of popular works (for example, Mead, Morris, Tiger, Montagu) are often negative. Through an examination of the content of "popular" works and comparison with "scientific" works on the same subjects, the course will determine whether the former faithfully represent the latter. If not, an attempt will be made to determine how scientific results are modified for popular consumption. If "popular" works adequately represent the field, then academic criticism can be termed unfair.*

221 The Biology of Man. *Fall term. Credit three hours. T Th S 10:10. Mr. Stini. A survey of important biological characteristics of the human species, with emphasis on human growth and development and the effects of environmental factors on the phenotypic expression of genetic traits. The interaction of various human populations with their environments, as seen in disease and nutritional stress, will be discussed with reference to case-study material.*

301 Social Anthropology. *Fall term. Credit four hours. Open to juniors and seniors who have not had Anthropology 101. M W F 10:10. Mr. DeGlopper.*

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Major topics in social and cultural anthropology, such as the comparative study of kinship and marriage, political and legal organization, ritual and symbolic systems, and cultural change, are examined in some detail. The definition of problems and the utility of various modes of explanation will be stressed.

302 Language and Culture. *Spring term. Credit four hours. M W F 10:10. Mr. Hockett.* A survey of the field of linguistics as a branch of anthropology.

303 Prehistoric Archaeology. *Spring term. Credit four hours. M W F 11:15. A study of Old World prehistory from the origins of culture in the Palaeolithic through the beginnings of civilization. Stress will be given the early African materials, the origins and diffusion of agriculture, and the prehistoric background of European and Asian civilizations.*

304 Physical Anthropology. *Spring term. Credit four hours. M W F 10:10. Mr. Thomas.* A survey of evolutionary and ecological principles employed in the study of man and nonhuman primates; primate behavior; human palaeontology; biological variation between human populations; population genetics; the human life cycle; and man's adaptation to the environment.

[305 Psychological Anthropology. *Fall term. Credit four hours. Not offered in 1971-72.]*

313 Cultural Change: Urban Anthropology. *Spring term. Credit four hours. M W F 2:30. Mr. Smith.* An examination of sociocultural structure and process in urban settings, with emphasis on the role of rural migrants, the relationship of urbanism to political and economic development, the role of voluntary associations, and the adjustment of family and kinship groups to urban life. Emphasis on Asian, African, and Latin American urban centers.

314 Applied Anthropology. *Spring term. Credit four hours. T Th 2:30. Mr. Sharp.* What anthropology knows or suspects about some general processes of cultural change; and the application of these insights to practical problems confronting planned programs of change, and particularly to projects involving the intervention in a foreign society of persons unused to working in exotic cultural idioms. Case studies are selected relevant to the interests not only of students in the humanities and social sciences but also of natural scientists concerned with modernization in various times and places and with the cultural transfer of techniques, conduct, ideologies, and sentiment systems.

322 Comparative Religious Systems. *Spring term. Credit four hours. T Th 1:25. Mr. Kirsch.* A survey of anthropological approaches to the study of myth, ritual, and world view taken as symbolic systems. The general characteristics of symbol systems, how they are perpetuated and elaborated, and their role in shaping social life will be explored. The social and psychological functions of myth and ritual in primitive and complex societies will be compared. An attempt will be made to discover what conditions are conducive to or inhibit radical symbolic transformations and what the implications of such changes might be.

323 Kinship and Social Organization. *Spring term. Credit four hours. T Th S 11:15. Mr. B. Lambert.* The development of kinship studies, analysis of the family, unilineal and bilateral systems of kinship and marriage. The study of kinship terminology. Kinship in small-scale and complex societies. Political, economic, and religious aspects of kinship organization.

326 Economic Anthropology. *Fall term. Credit four hours. M W F 11:15. Mr. Greenwood.* Data on economic system of primitive and peasant societies and problems in the conceptualization of these data will be reviewed in terms of the "substantive," "formal," and "adaptive" approaches to economic anthropology. Attention will be given to economic change.

329 Political Anthropology. *Spring term. Credit four hours. M W F 1:25. Mr. Meeker.* A study of political structures and political processes in primitive and peasant societies. The work of Evans-Pritchard, Leach, Barth, and others in analyzing nonbureaucratic political systems is reviewed. Recent studies of political processes and the theory of such processes, including factional theory, the use of game theory, and the notions of arena, contest, and prize are considered. Special attention is given to the problem of relating political analysis to other aspects of society such as social organization, kinship, and religion, and to the analysis of local politics in the context of a larger state. The concept of political culture is used as the basis of a critique of past work in the field.

[330 Ethnology of North America. *Spring term. Credit four hours. Not offered in 1971-72.]*

332 Ethnology of South America. *Fall term. Credit four hours. M W F 10:10. Mr. Gregor.* A descriptive survey and analysis of native cultures concentrating on a number of theoretical problems, including the nature of South American cultural history, the ecology of hunters and agriculturalists, the causes and consequences of aboriginal warfare, the nature of patterns of kinship and dual organization, and the structure of religion. Representative groups from all culture areas are considered, but primary attention is directed toward the South American lowlands.

333 Ethnology of the Andean Region. *Fall term. Credit four hours. M W F 9:05. Mr. Murra.* The ecological, archaeological, ethnohistoric, and contemporary ethnological record of the region. Cultural communities in Andean development and the Andean heritage as a resource for modernization.

334 Ethnology of Island Southeast Asia. *Spring term. Credit four hours. T Th 3:35. Mr. Siegel.* An attempt to understand the nature of the postcolonial societies of Indonesia, the Philippines, and Malaysia. Attention will be focused on social and political organization and forms of cultural expression with the aim of evaluating the adequacy of anthropological efforts to comprehend these cultures.

[335 Ethnology of Mainland Southeast Asia. *Fall term. Credit four hours. T Th 1:25. Mr. Kirsch. Not offered in 1971-72.]*

336 Ethnology of Oceania. *Fall term. Credit four hours. M W F 2:30. Mr. B. Lambert.* A survey of native cultures of Polynesia, Micronesia, Melanesia, and Australia, with emphasis on topics of general interest to social anthropologists. The settlement and prehistory of the area will also be discussed.

337 Ethnology of the Near East. *Fall term. Credit four hours. M W F 1:25. Mr. Meeker.* Basic aspects of Near Eastern society and culture will be reviewed, including religious sects, linguistic groups, ecology and land tenure systems, tribal and peasant social organization, and forms of political organization. In the second half of the course, more specialized problems which have received the attention of ethnographers will be examined. These include problems of kinship and marriage, the place of women, honor and shame, and lineage organization.

[338 Ethnology of Africa. *Spring term. Credit four hours. Not offered in 1971-72.]*

341 Culture and Society in South Asia. *Fall term. Credit four hours. T Th S 9:05. Mr. Hazlehurst.* A study of the mythological, legendary, and historical sources of South Asian civilization and their representation in social and cultural life.

[343 Traditional Chinese Society and Culture. *Fall term. Credit four hours. Not offered in 1971-72.]*

[344 Change and Persistence in Chinese Society. *Spring term. Credit four hours. Not offered in 1971-72.]*

345 Japanese Culture and Society. *Fall term. Credit four hours. M W F 2:30. Mr. Smith.* A survey of the social structure of Japan and a discussion of trends in urban and rural life during the past century. Attention will also be devoted to the historical development and present social context of the graphic arts, literature, music, and the drama.

[346 Ethnology of the United States. *Spring term. Credit four hours. Not offered in 1971-72.]*

363 Archaeology of Asia. *Fall term. Credit four hours. M W F 9:05. Miss Treistman.* A survey of the archaeology of Asia with emphasis on the origins of civilization in India, Southeast Asia, China, and Japan.

364 Archaeology of the Americas. *Fall term. Credit four hours. M W F 8:00. Mr. Lynch.* A study of the prehistoric cultures of the New World. Major topics of the term will include the entry of man, early adaptations to diverse environments, hunting and gathering peoples to the ethnographic present, and the beginnings of agriculture. North, South, and Middle America will receive approximately equal stress.

[365 Archaeology of the Americas. *Spring term. Credit four hours. Mr. Lynch. Not offered in 1971-72.]*

372 Human Biological Variation. *Spring term. Credit four hours. M W F 11:15. Mr. Stini.* A detailed analysis of the forces producing differences between human populations. Genetics, epidemiology, demography, and physiology all combine to produce the variety seen in divergent peoples. A critique of the concept of race as a taxonomic category is developed as evidence generated by a number of biological disciplines is synthesized.

[373 Physical Anthropology of the Living. *Fall term. Credit four hours. Not offered in 1971-72.]*

[374 Human Palaeontology. *Spring term. Credit four hours. Not offered in 1971-72.]*

375 Ecology and Human Biology. *Fall term. Credit four hours. M W F 9:05. Mr. Thomas.* A study of man's interaction with his physical, biological, and social environment. Principles of animal ecology and environmental physiology applicable to human populations will be examined, and methods employed in the study of human ecology will be evaluated.

391 Honors Seminar. *Spring term. Credit four hours. Open to majors in their junior year. Hours to be arranged. Staff.*

412 Contemporary Anthropological Theory. *Fall term. Credit four hours. Restricted to undergraduate majors and graduate students. Th 1:25-3:20. Mr. DeGlopper.* A seminar devoted to the reanalysis of classic ethnographies in the light of contemporary theory.

413 History of Anthropology in the United States. *Fall term. Credit four hours. T Th 11:15. Mr. Murra.* Anthropological inquiries in the U.S. will be traced from the days of L. H. Morgan, Major Powell, and Cushing, through the professionalization of the dis-

cipline in the 1890's until today. Institutional developments and the personalities influential at crucial moments of innovation will be emphasized, as well as theories. The specific features which distinguish U.S. anthropology from the French, Soviet, British, or central European varieties will be sought.

Pre-Columbian Art. (History of Art 415.)

418 Ethnohistory. *Spring term. Credit four hours. M W F 11:15. Mr. Murra.* The utilization in historical research of concepts derived from field anthropology such as status, lineages, rights-in-land, or ethnogenesis. Problems in evaluating native oral traditions and early European eyewitness reports, with emphasis on African, Middle American, and Andean regions.

Comparative Rural Societies (Rural Sociology 420, College of Agriculture). *Fall term. Credit four hours. M W F 11:15. Mr. Young.*

421 Comparative Social Systems. *Fall term. Credit four hours. M W F 10:10. Mr. Hazlehurst.* An examination of various anthropological approaches to the comparative study of society. Special attention is given to the conditions under which the theories of social and structural anthropology emerged and the implications of this for an understanding of the media (e.g., kinship, myth, social organization) used by anthropologists in the comparison and analysis of cultural and social life.

424 Myth, Ritual, and Symbol. *Fall term. Credit four hours. T Th 1:25. Not open to students who took Anthropology 322 in 1970. Mr. Siegel.* This course is concerned with the nature of consciousness of those peoples usually studied by anthropologists. The starting point is the analysis of ritual, especially rites of passage, and of conceptions of time. Topics such as myth, curing rites, and millenarianism will be considered in the light of various interpretations.

451 Archaeology and the Humanities. *Fall term. Credit four hours. Enrollment limit: 20 students. W 1:25-3:20. Mr. Ascher.* A seminar focused on the areas where the humanities and archaeology touch. Topics vary with the interests of the class, but they may be drawn from American studies, history, literature, the arts, linguistics, ethnology, and from certain branches of mathematics, economics, human ecology, and psychology. Excavations concerned with the recent U.S.A.—automobile graveyards, slave quarters, hobo camps—are described and discussed. There are readings on the decipherment of scripts, ocean voyages, mythical kingdoms, and the shapes of ancient cities. The use of cinema, photography, and sound in archaeological interpretations are explored. Laboratory or field work arranged where it is related to individual projects.

452 Archaeology and the Sciences. *Spring term. Credit four hours. Prerequisite: two years of a science, or mathematics, or engineering. Enrollment limit: 20 students. W 1:25-3:20. Mr. Ascher.* A seminar focused on recent and potential contributions of the sciences to archaeology. Topics vary with the interests of the class, but may include applications drawn from the biological, ecological, geological, material, or computer sciences, and from statistics and engineering. Attention is given to accomplishments in science and technology known from archaeological investigations (for example, Stonehenge). Readings include collaborative solutions to problems such as the global changes introduced with the emergence of agricultural communities. The design and construction of experimental structures for archaeology is considered. Laboratory or field work arranged where it is related to individual projects.

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[453 **Environment and Archaeology.** *Fall term. Credit four hours. Not offered in 1971-72.*]

466 **Technology.** *Spring term. Credit four hours, M W 2:30. Laboratory to be arranged. Miss Treistman.* A topical study of primitive arts and industries; the history of techniques, and the history of technological studies. Examples will be ethnological and archaeological.

[471 **Physical Anthropology Laboratory.** *Fall term. Credit four hours. Not offered in 1971-72.*]

472 **Physical Anthropology Laboratory.** *Spring term. Credit four hours. T Th 10:10-12:05. Mr. Thomas.* Contemporary human physiological and morphological variation, blood group serology, anthropometry, and statistical analysis of discrete and continuous traits are treated with emphasis on laboratory and field methodology. Techniques suitable for comparative growth studies and assessment of the nutritional status of populations are demonstrated and discussed.

492 **Honors Thesis.** *Either term. Credit four hours. Prerequisite: Anthropology 391. Hours to be arranged. Staff.*

495 **Social Relations Seminar (Also Sociology 497).** *Spring term. Credit four hours. Open only to seniors majoring in social relations. Hours to be arranged.*

497-498 **Topics in Anthropology.** *Throughout the year. Credit to be arranged. Prerequisite: consent of instructor. Hours to be arranged. Staff.*

Graduate Seminars

The following seminars are for graduate students but are open to qualified seniors by consent of the instructor, unless otherwise indicated. Those seminars with announced special topics may be repeated.

For complete descriptions of courses numbered 500 or above see the *Announcement of the Graduate School: Social Sciences*. If the course is not included there, consult the Graduate Field Representative.

[502 **The Design of Field Research.** *Spring term. Credit four hours. Not offered in 1971-72.*]

503 **Human Biology and Cultural Behavior.** *Fall term. Credit four hours. T 3:35-5:30. Mr. Stini.*

507-508 **Special Problems in Anthropology.** *Either term. Credit and hours to be arranged. Staff.*

512 **History of Anthropological Thought.** *Fall term. Credit four hours. W 3:35-5:30. Mr. Kirsch.*

513 **Contemporary Anthropological Theory.** *Fall term. Credit four hours. Th 3:35-5:30. Mr. Meeker.*

[514 **Applied Anthropology.** *Spring term. Credit four hours. M 1:25-3:20. Mr. Sharp. Not offered in 1971-72.*]

Cross-Cultural Research Methods (Rural Sociology 516, College of Agriculture). *Spring term. Credit four hours. T Th 10:10. Mr. Young.*

517 **Conceptual Systems in Anthropology.** *Fall term. Credit four hours. T 1:25-3:20. Mr. B. Lambert.*

518 **Cultural Processes: Role "Theory" and Cultural Change.** *Fall term. Credit four hours. Th 1:25-3:20. Mr. Sharp.*

[523 **Social Systems: The Anthropology of Face-to-Face Interaction.** *Fall term. Credit four hours. Not offered in 1971-72.*]

526 **Problems in Economic Anthropology.** *Spring term. Credit four hours. W 1:25-3:20. Mr. Greenwood.*

528 **Political Anthropology: Historiography of Non-Western Peoples.** *Spring term. Credit four hours. Th*

9:05-11:00. Mr. Siegel.

[530 **North America.** *Spring term. Credit four hours. Not offered in 1971-72.*]

[531 **Middle America.** *Fall term. Credit four hours. Not offered in 1971-72.*]

532 **Tribal Peoples of Lowland South America.** *Spring term. Credit four hours. Th 3:35-5:30. Mr. Gregor.*

534-535 **Southeast Asia: Readings in Special Problems.** *Either term. Credit and hours to be arranged. Messrs. Kirsch, Sharp, and Siegel.*

537 **Islamic Sects and Religious Movements.** *Spring term. Credit four hours. Th 3:35-5:30. Mr. Meeker.*

540 **South Asia.** *Spring term. Credit four hours. M 3:35-5:30. Mr. Hazlehurst.*

541-542 **South Asia: Readings in Special Problems.** *Either term. Credit and hours to be arranged. Mr. Hazlehurst.*

543 **China.** *Spring term. Credit four hours. Th 1:25-3:20. Mr. DeGlopper.*

[545 **Japan.** *Fall term. Credit four hours. Not offered in 1971-72.*]

548 **Comparative Studies in Complex Societies: Agrarian Civilizations.** *Spring term. Credit four hours. F 1:25-3:20. Mr. Hazlehurst.*

[563 **Problems in Asian Archaeology.** *Spring term. Credit four hours. Not offered in 1971-72.*]

564 **Problems in Archaeology: Europe.** *Fall term. Credit four hours. Th 3:35-5:30. Mr. Lynch.*

[565 **Archaeology: Agriculture and Civilization.** *Fall term. Credit four hours. Prerequisite: Anthropology 364. Not offered in 1971-72.*]

[573 **Human Adaptation.** *Fall term. Credit four hours. Not offered in 1971-72.*]

[575 **Physical Anthropology: History and Theory.** *Spring term. Credit four hours. Not offered in 1971-72.*]

[576 **Physical Anthropology: Problems, Methods, and Theory.** *Spring term. Credit four hours. Not offered in 1971-72.*]

[578 **Palaeoanthropology: South Asia.** *Spring term. Credit four hours. Not offered in 1971-72.*]

598-599 **The Teaching of Anthropology.** *Throughout the year. May only be taken in sequence. Credit two hours. Hours to be arranged. Staff.*

601-602 **Field Research.** *Throughout the year. Either or both terms. Credit to be arranged. Staff.*

Archaeology

Archaeology is taught in several departments within the University. Any undergraduate, regardless of his major, may elect a *concentration* in archaeology. The provisions of the concentration are:

(a) Completion of Introduction to Archaeology with a grade of S.

(b) Completion of at least four additional courses in archaeology chosen from the offerings of two or more departments.

(c) Participation in an archaeological excavation either at a summer field school or at a research excavation approved in advance by the concentration adviser. This provision may be waived at the discretion of the adviser.

A student should select an adviser. Concentration advisers follow: R. Ascher (anthropology), A. L. Bloom

(geological sciences), J. E. Coleman (classics), S. W. Jacobs (architecture), T. F. Lynch (anthropology), S. J. O'Connor (history of art), G. W. Olson (soil science), I. Rabinowitz (Biblical and Hebrew studies), Miss Judith M. Treistman (anthropology), F. O. Waage (history of art), J. F. Scott (history of art).

200 Introduction to Archaeology. *Spring term. Credit three hours. S-U grades only. Open to all students whether or not they elect the concentration. Enrollment limit: 170 students. T Th 1:25. Mr. Ascher with guest lecturers.* A consideration of the essential methods and aims of archaeology. During the second half of the term, faculty from several departments and students who have done archaeological work will discuss different aspects of the subject.

300 Individual Study in Archaeology and Related Fields. *Fall term. Credit to be arranged. Prerequisite: Archaeology 200 and consent of the instructor. Hours to be arranged. Concentration advisers.* Topics of particular interest to the student pursued by him with the guidance of a faculty member.

Introduction to Classical Art and Archaeology. (Classics 220 and History of Art 220).

Introduction to Art History: Beginnings of Civilization (History of Art 210).

Ancient History (History 301-302).

Prehistoric Archaeology (Anthropology 303).

Prehistoric Art (History of Art 313).

Aegean Art and Archaeology (Classics 319).

Art and Archaeology of Classical Greece (Classics 320).

[Greek Sculpture (Classics 431 and History of Art 431). Not offered in 1971-72.]

Arts of the Roman Empire (History of Art 432).

Archaeology of Asia (Anthropology 363).

Archaeology of the Americas (Anthropology 364).

Pre-Columbian Art (History of Art 315).

[Numismatics (History of Art 521). Not offered in 1971-72.]

Ceramics (History of Art 523).

[The Ancient Near East (Architecture 430, College of Architecture, Art, and Planning). Not offered in 1971-72.]

[The Classical World (Architecture 431, College of Architecture, Art, and Planning). Not offered in 1971-72.]

Archaeology and the Humanities (Anthropology 451).

Archaeology and the Sciences (Anthropology 452).

[Environment and Archaeology (Anthropology 453). Not offered in 1971-72.]

Introduction to Architectural Aspects of Archaeological Fieldwork (Architecture 460, College of Architecture, Art, and Planning).

Design and Conservation (Architecture 465; Planning 746, College of Architecture, Art, and Planning).

Documentation for Preservation Planning (Architecture 466; Planning 645, College of Architecture, Art, and Planning).

Traditional Arts in Southeast Asia (History of Art 488).

Asian Studies

Mr. O. W. Wolters, Chairman; Messrs. B. R. O'G. Anderson, K. Biggerstaff, N. C. Bodman, H. R. Capener, N. R. Chen, D. DeGlopper, A. T. Dotson, J. M. Echols, J. W. Gair, F. H. Golay, A. B. Griswold, D. G. E. Hall, L. W. Hazlehurst, M. Hugo-Brunt, R. B. Jones, Jr., Mrs. Eleanor Jordan, Messrs. G. McT. Kahin, G. B. Kelley, K. A. R. Kennedy, T. C. Liu, J. McCoy, T. L. Mei, J. W. Mellor, D. Mozingo, S. J. O'Connor, C. A. Peterson, R. M. Quinn, H. Shadick, L. Sharp, J. T. Siegel, R. J. Smith, F. C. Teiwes, Mrs. Etsuko Terasaki, Miss Judith Treistman, Messrs. J. U. Wolff, K. M. Wong, D. K. Wyatt, M. W. Young.

The applicant for admission to the major in Asian Studies must have completed at least one course selected from among those listed under the Department of Asian Studies and must be recommended by the instructor in charge of that course. He must have received a minimum grade of C in this and in all other courses taken in the Department.

The candidate for the A.B. degree with a major in Asian Studies is required to complete two courses at the 200 level in one of the Asian languages offered at Cornell. The major consists of at least thirty additional hours (which may include further language work), selected by the student in consultation with his adviser from among the courses listed under the Department of Asian Studies numbered 300 and above. Majors normally concentrate their work in at least one of the disciplines and in one of the following areas: China, Japan, South Asia, Southeast Asia. The student may also be encouraged to consider the possibility of a double major combining Asian Studies with one of the disciplines.

The Honors Program

The candidate for Honors must maintain a cumulative average of B in courses in the humanities and social sciences. He must also maintain an average of B in courses in the Department. The Honors candidate should take at least one of the seminars selected from those listed below in consultation with his adviser. The student may, with the approval of his adviser, substitute for this last requirement an advanced course in which he completes a considerable body of independent work.

The Honors candidate will also take Asian Studies 402 in which he writes his senior essay. He may also enroll in Asian Studies 401 in his senior year but this course is not required of him. At the end of his junior year, the student should consult with the professor with whom he plans to write his paper.

Asia, General

Economics of Agricultural Development (Agricultural Economics 464, College of Agriculture).

World Food Economics (Agricultural Economics 560, College of Agriculture).

Communication in the Developing Nations (Communication Arts 524, College of Agriculture).

Applications of Sociology to Development Programs (Rural Sociology 528, College of Agriculture).

Prehistoric Archaeology (Anthropology 303).

Archaeology of Asia (Anthropology 363).

[Problems in Asian Archaeology (Anthropology 563). Not offered in 1971-72.]

Architecture and Planning in the Orient (Architecture 435, College of Architecture, Art, and Planning).

The United States in the World Economy (Economics 364).

Politics and Modernization (Government 338).

[Political Role of the Military (Government 349). *Not offered in 1971-72.*]

Comparative Revolutions (Government 350).

The United States and Asia (Government 377).

Introduction to Asian Civilizations: Origins to 1600 (History 205).

Introduction to Asian Civilizations: From 1600 (History 206).

Introduction to Art History: Asian Traditions (History of Art 280).

[Comparative Genres in East-West Art (History of Art 380). *Not offered in 1971-72.*]

[Buddhist Art in Asia (History of Art 381). *Not offered in 1971-72.*]

Studies in Indian and Southeast Asian Art (History of Art 386).

[Ceramic Art of Asia (History of Art 482). *Not offered in 1971-72.*]

401 Asian Studies Honors Course. *Fall term. Credit four hours. Staff.* Intended for seniors who have been admitted to the Honors program. Supervised reading and research on the problem selected for Honors work.

402 Asian Studies Honors: Senior Essay. *Either term. Credit four hours. Prerequisite: admission to the Honors program.* The student, under faculty direction, will prepare an Honors essay.

403-404 Asian Studies Supervised Reading. *Either or both terms. Credit to be arranged. Prerequisite: consent of the instructor.* Open to majors and other qualified students; provides the opportunity to read intensively under the direction of a member of the staff.

For complete descriptions of courses numbered 500 or above see the *Announcement of the Graduate School: Social Sciences*. If the course is not included there, consult the Graduate Field Representative.

591-592 Seminar: Field Research. *Throughout the year. Staff.*

China

Area Courses

[Traditional Chinese Society and Culture (Anthropology 343). *Not offered in 1971-72.*]

[Change and Persistence in Chinese Society (Anthropology 344). *Not offered in 1971-72.*]

China (Anthropology 543).

Chinese Historical and Philosophical Literature (Comparative Literature 371).

Chinese Imaginative Literature (Comparative Literature 372).

Twentieth Century Chinese Literature (Comparative Literature 373).

Introduction to the Economy of China (Economics 369).

The Economy of China (Economics 676).

Chinese Government and Politics (Government 347).

The Foreign Policy of China (Government 478).

Supervised Readings (Government 499).

History of Chinese Civilization Prior to the Nineteenth Century (History 393).

History of Chinese Civilization: Nineteenth and Twentieth Centuries (History 394).

The Medieval Chinese World (History 492).

Supervised Reading (History 511-512).

Chinese Historiography and Source Materials (History 591).

Modernization of China (History 593-594).

Seminar in Medieval Chinese History (History 691-692).

Seminar in Modern Chinese History (History 693-694).

Art of China (History of Art 383).

[Chinese Painting (History of Art 385). *Not offered in 1971-72.*]

[Problems in Chinese Art (History of Art 584). *Not offered in 1971-72.*]

[Studies in Chinese Painting (History of Art 586). *Not offered in 1971-72.*]

Sino-Tibetan Linguistics (Linguistics 582).

Law in Traditional Chinese Society (Society for the Humanities Seminar 413).

Law and Society in Imperial China (Society for the Humanities Seminar 414).

Other courses dealing extensively with China are Anthropology 363, 563; Government 349, 350, 377; History of Art 280, 380, 381, 580; Architecture 435 (Planning 704) (College of Architecture, Art, and Planning).

Language Courses

Basic Course (Chinese 101-102).

Cantonese Basic Course (Chinese 101C-102C).

Elementary Hokkien (Chinese 131H-132H).

Intermediate Chinese I (Chinese 201-202).

Intermediate Cantonese (Chinese 201C-202C).

Chinese Conversation (Chinese 203-204).

Introduction to Classical Chinese (Chinese 213-214).

Intermediate Chinese II (Chinese 301).

Intermediate Chinese III (Chinese 302).

Chinese Historical and Philosophical Texts (Chinese 313).

Classical Chinese Poetry (Chinese 314).

History of the Chinese Language (Chinese 401-402).

Linguistic Structure of Chinese: Phonology and Morphology (Chinese 403).

Linguistic Structure of Chinese: Syntax (Chinese 404).

Chinese Dialects (Chinese 405).

Advanced Readings in Modern Chinese (Chinese 411-412).

Classical Chinese Prose (Chinese 414).

Classical Poetic Drama (Chinese 417).

Readings in the Traditional Novel (Chinese 420).

Directed Reading (Chinese 421-422).

Introduction to Literary Research (Chinese 501).

Chinese Dialect Seminar (Chinese 507).

Advanced Readings in Classical Chinese (Chinese 521-522).

Seminar in Chinese Literature (Chinese 571).

Japan

Area Courses

[Japan (Anthropology 545). *Not offered in 1971-72.*]

[Japanese Literature Before 1603 (Comparative Literature 375). *Not offered in 1971-72.*]

Japanese Literature from 1603 to the Present (Comparative Literature 376).

Art of Japan (History of Art 384).

Masters of Japanese Prints (History of Art 481).

Other courses dealing extensively with Japan are Anthropology 363, 563; Government 349, 377; History of Art 280, 380, 381, 580; Architecture 435 (Planning 704) (College of Architecture, Art, and Planning).

Language Courses

Basic Course. (Japanese 101-102).

Elementary Reading (Japanese 201-202).

Intermediate Conversation (Japanese 203-204).

Intermediate Reading (Japanese 301-302).

Introduction to Literary Japanese (Japanese 305-306).

Advanced Reading (Japanese 401-402).

Linguistic Structure of Japanese (Japanese 404).

Intermediate Literary Japanese (Japanese 405-406).

Directed Readings (Japanese 421-422).

Japanese Reading for Students of Chinese (Japanese 431-432).

South Asia

Area Courses

Culture and Society in South Asia (Anthropology 341).

Seminar: South Asia (Anthropology 540).

South Asia: Readings in Special Problems (Anthropology 541-542).

[Palaeoanthropology: South Asia (Anthropology 578). *Not offered in 1971-72.*]

[History of Hindi (Hindi 401). *Not offered in 1971-72.*]

Seminar in Hindi Linguistics (Hindi 600).

India as a Linguistic Area (Linguistics 331).

Indo-Aryan Structures (Linguistics 432).

Dravidian Structures (Linguistics 436).

[Comparative Indo-European Linguistics (Linguistics 521-522). *Not offered in 1971-72.*]

Elementary Pali (Linguistics 530).

Elementary Sanskrit (Linguistics 531-532).

[Comparative Indo-Aryan (Linguistics 534) *Not offered in 1971-72.*]

[Comparative Dravidian (Linguistics 536). *Not offered in 1971-72.*]

Seminar (Linguistics 600).

Directed Research (Linguistics 615-616).

Other courses dealing extensively with South Asia are Anthropology 363, 563; Economics 371; Government 338 and 377; History of Art 280, 380, 381, 482, 580; Agricultural Economics 464, 667; Rural Sociology 528 (College of Agriculture).

Language Courses

Basic Course (Hindi 101-102).

Hindi Reading (Hindi 201-202).

Hindi Composition and Conversation (Hindi 203-204).

Readings in Hindi Literature (Hindi 301-302).

Advanced Composition and Conversation (Hindi 303-304).

Advanced Hindi Readings (Hindi 305-306).

Basic Course (Sinhalese 101-102).

Sinhalese Reading (Sinhalese 201-202).

Basic Course (Tamil 101-102).

Basic Course (Teiugu 101-102).

Telugu Reading (Teiugu 201-202).

Basic Course (Urdu 101-102).

Urdu Reading (Urdu 201-202).

Southeast Asia

Area Courses

Comparative Religious Systems (Anthropology 322).

Ethnology of Island Southeast Asia (Anthropology 334).

[Ethnology of Mainland Southeast Asia (Anthropology 335). *Not offered in 1971-72.*]

Myth, Ritual, and Symbol (Anthropology 424).

Political Anthropology: Historiography of Non-Western Peoples (Anthropology 528).

Southeast Asia: Readings in Special Problems (Anthropology 534-535).

Southeast Asian Literature (Comparative Literature 379).

[Economic Policy and Development in Southeast Asia (Economics 365). *Not offered in 1971-72.*]

[Seminar in the Economics of Development (Economics 671-672). *Not offered in 1971-72.*]

Economic Growth in Southeast Asia (Economics 678).

[Government and Politics of Southeast Asia (Government 344). *Not offered in 1971-72.*]

International Relations of Southeast Asia (Government 376).

Honors Tutorials (Government 493).

Honors Thesis (Government 494).

Southeast Asian History to the Fourteenth Century (History 495).

Southeast Asian History from the Fifteenth Century (History 496).

[Southeast Asia in the Nineteenth Century (History 497). *Not offered in 1971-72.*]

Supervised Readings (History 511-512).

Historiography of Southeast Asia (History 588-589).

Seminar in Southeast Asian History (History 695-696).

38 Astronomy

Traditional Arts in Southeast Asia (History of Art 488).

Field Methods and Linguistic Typology (Linguistics 507-508).

Old Javanese (Linguistics 537-538).

Seminar in Southeast Asian Languages (Linguistics 571-572).

Malayo-Polynesian Linguistics (Linguistics 573-574).

Thai Dialectology (Linguistics 577).

Comparative Thai (Linguistics 578).

Thai-Burmese Linguistics (Linguistics 579).

[Contrastive Vietnamese and Chinese Grammar (Linguistics 583). *Not offered in 1971-72.*]

Sociology of Southeast Asia (Sociology 561).

501-502 Southeast Asia. *Throughout the year. Credit four hours. Hours to be arranged. Fall term (Cambodia). Mr. Lancaster; spring term (Singapore and Malaysia). Mr. MacDougall.*

676 Southeast Asian Research Training Seminar. *Either term. Credit four hours. Hours to be arranged. Staff.*

Other courses dealing extensively with Southeast Asia are Anthropology 363, 563; Communication Arts 524 (College of Agriculture); Economics 371; Government 338, 349, 350, 377; History of Art 280, 380, 381, 482, 580; Rural Sociology 528 (College of Agriculture); Architecture 435 (Planning 704) (College of Architecture, Art, and Planning).

Language Courses

Basic Course (Burmese 101-102).

Burmese Reading (Burmese 201-202).

Burmese Composition and Conversation (Burmese 203-204).

Advanced Burmese Reading (Burmese 301-302).

Basic Course (Cebuano [Bisayan] 101-102).

Basic Course (Indonesian 101-102).

Indonesia Reading (Indonesian 201-202).

Indonesian Composition and Conversation (Indonesian 203-204).

Readings in Indonesian and Malay (Indonesian 301-302).

Advanced Indonesian Conversation and Composition (Indonesian 303-304).

Advanced Readings in Indonesian and Malay Literature (Indonesian 305-306).

Linguistic Structure of Indonesian (Indonesian 403).

Elementary Javanese (Javanese 131-132).

Intermediate Javanese (Javanese 133-134).

Basic Course (Tagalog 101-102).

Tagalog Reading (Tagalog 201-202).

Linguistic Structure of Tagalog (Tagalog 403).

Basic Course (Thai 101-102).

Thai Reading (Thai 201-202).

Thai Composition and Conversation (Thai 203-204).

Advanced Thai (Thai 301-302).

Thai Literature (Thai 305-306).

Directed Individual Study (Thai 405-406).

Basic Course (Vietnamese 101-102).

Vietnamese Reading (Vietnamese 201-202).

Vietnamese Composition and Conversation (Vietnamese 203-204).

Advanced Vietnamese (Vietnamese 301-302).

Vietnamese Literature (Vietnamese 305-306).

Directed Individual Study (Vietnamese 405-406).

Astronomy

Undergraduates interested in graduate work in astronomy should major in either physics or mathematics, and take astronomy courses as electives. Graduate students must register with the instructor in charge of the desired course on regular registration days at the beginning of each term.

Distribution Requirement

The Distribution requirement in physical sciences is met in Astronomy 201-202.

201 Introduction to Astronomy and Space Science. *Fall term. Credit four hours. Lectures, M W F 9:05. Laboratory, M T Th or F 2-4:25. Mr. O'Leary.* Fundamentals of astronomy and space science with emphasis on methods of observation and the solar system. Astronomical instruments, including optical and radio telescopes, rocket and spacecraft sensors. The nature of the sun, moon, planets, and other objects of the solar system. Elements of celestial mechanics. The environment of the earth. Night observation at Fuertes Observatory. Intended as an introduction for those interested in careers in astronomy and as a survey for students from other fields.

202 Introduction to Astronomy and Space Science. *Spring term. Credit four hours. Astronomy 201 is not prerequisite to Astronomy 202. M W F 9:05. Laboratory, M T Th or F 2-4:25. Mr. Houck.* Fundamentals of astronomy and space science with emphasis on the objects outside the solar system. Basic stellar types and their physics. Pulsars. Interstellar matter. Galaxies, quasars, and basic cosmology. Night observation at Fuertes Observatory. Intended as an introduction for those interested in careers in astronomy and as a survey for students from other fields.

332 Elements of Astrophysics. *Spring term. Credit three hours. Prerequisites: calculus and a course in modern physics. M W F 11:15. Mr. Terzian.* Physical laws of radiation. Size, mass, and age of stars, galaxies, and the Universe; stellar evolution and the formation of heavy chemical elements; interstellar matter and star formation. Pulsars and quasars. An introduction to cosmology. This course is of particular value to students in fields related to astronomy and space science.

340 Special Topics in Astronomy. *Either term. Credit two to four hours. Prerequisite: consent of the instructor. Staff.* Instruction in selected topics for qualified students according to their needs and preparation. Observational techniques and instrumentation. Binary stars, orbital computation, coordinate measurement, photometry, and spectroscopy. Special attention to the problems of science teachers.

431 Introduction to Astrophysics and Space Science. *Fall term. Credit three hours. Prerequisites: Physics 225, 226, and 303 or the equivalent. M W F 10:10. Mr. Harwit.* Dynamics of planetary and stellar systems. Stellar structure and evolution. Binary, variable, and peculiar stars. Nuclear synthesis in stars. Stellar at-

ospheres. Abundance of the chemical elements. This course is intended for advanced undergraduate and new graduate students who intend to pursue careers in astronomy and space science.

432 Introduction to Astrophysics and Space Science. *Spring term. Credit three hours. Prerequisite: Astronomy 431 or consent of the instructor. M W F 10:10. Mr. Harwit.* Interstellar dust and gas. Evolution of the Stromgren sphere. Star formation. Interstellar magnetic fields, cosmic rays and radio emission. Interplanetary gas and dust. Comets, meteorites, and micrometeorites. This course is intended for advanced undergraduate and new graduate students who intend to pursue careers in astronomy and space science.

For complete descriptions of the following graduate courses see the *Announcement of the Graduate School: Physical Sciences*. If the course is not included there, consult the Graduate Field Representative.

509 Gravitational Theory.

510 Cosmology and Evolution.

520 Radio Astronomy I.

521 Radio Astronomy II.

530 Nuclear Astrophysics.

540 Advanced Study and Research.

560 Theory of Stellar Structure and Evolution.

570 Physics of the Planets.

633 Infrared Astronomy.

650 Interstellar Matter.

671 Special Problems in Planetary Astronomy.

Biological Sciences

Mr. R. D. O'Brien, Director; Mr. C. R. Granger, Assistant for Academic Affairs; Messrs. M. Alexander, H. W. Ambrose, J. M. Anderson, H. P. Banks, J. P. Barlow, D. M. Bates, A. A. Bensadoun, C. O. Berg, A. W. Blackler, J. W. Bradbury, W. L. Brown, P. J. Bruns, P. F. Brussard, T. J. Cade, J. M. Calvo, J. M. Camhi, R. R. Capranica, L. E. Carmichael, R. T. Clausen, R. K. Clayton, L. C. Cole, C. L. Comar, Miss Louise J. Daniel, Messrs. P. J. Davies, E. A. Delwiche, W. C. Dilger, W. J. Dress, S. J. Edelstein, T. Eisner, S. T. Emlen, H. L. Everett, P. P. Feeny, Mrs. June M. Fessenden-Raden, Messrs. G. R. Fink, R. N. Foote, E. L. Gasteiger, J. L. Gaylor, Mrs. A. Jane Gibson, Messrs. Q. H. Gibson, P. W. Gilbert, J. H. Gillespie, R. M. Grossfeld, R. J. Guillory, R. L. Hallberg, B. P. Halpern, G. G. Hammes, W. Hansel, L. A. Heppel, G. P. Hess, P. C. Hinkle, H. C. Howland, J. W. Hudson, J. W. Ingram, A. T. Jagendorf, W. T. Keeton, Miss Elizabeth B. Keller, Messrs. J. M. Kingsbury, G. A. Knaysi, R. P. Korf, D. A. Lancaster, E. R. Lemon, E. H. Lenneberg, S. L. Leonard, G. E. Likens, R. E. MacDonald, R. J. MacIntyre, P. L. Marks, R. E. McCarty, W. N. McFarland, D. B. McCormick, R. L. Millar, L. N. Miller, J. K. Moffat, H. E. Moore, H. B. Naylor, A. L. Neal, W. L. Nelson, J. D. Novak, D. J. Paolillo, D. Pimentel, T. R. Podleski, F. H. Pough, E. Racker, E. C. Raney, D. S. Robson, R. B. Root, F. Rosenblatt, Mrs. Miriam M. Salpeter, Messrs. G. Schatz, H. A. Scheraga, H. W. Seeley, Jr., L. I. Slobin, R. Spanswick, A. M. Srb, F. C. Steward, H. T. Stinson, E. L. Stone, D. N. Tapper, J. F. Thompson, B. V. Travis, C. H. Uhl, L. D. Uhler, P. J. VanDenmark, A. van Tienhoven, W. J. Visek, B. Wallace, J. W. Wells, D. C. Wharton, J. H. Whitlock, R. H. Whittaker, H. H. Williams, D. B. Wilson, W. A. Wimsatt, L. D. Wright, R. Wu, S. A. Zahler, D. B. Zilversmit, R. E. Zollinhofer.

Students will be provisionally accepted in the biological sciences specialization as established by the Division of Biological Sciences during their sophomore year; application should be made to the Division of Biological Sciences office. Final admission to the specialization will require completion of (1) a year of biology (Biological Sciences 101-102 and 101L-102L; 101-102, if taken before 1971-72; or 103-104. Advanced Placement may be allowed at the student's choice, on receipt of a score of 5 in the Princeton Advanced Placement Test); (2) a year of general chemistry (preferably Chemistry 107-108); and (3) a year of calculus (Mathematics 111-112, 111-122, or 107-108). Whenever possible, the student should include the above three subjects in his freshman schedule and complete organic chemistry and genetics in the sophomore year. A student is not encouraged to undertake a specialization in biological sciences unless his performance in the above courses gives evidence of capacity to do satisfactory work at a more advanced level.

In addition to the introductory courses in chemistry, biological sciences, and mathematics, each specializing student must complete the following: (1) Chemistry 353-355 (or 355 and 357-358, or 353-301, or 357-358-301); (2) a year of physics (Physics 101-102 or 207-208); (3) Biological Sciences 281 (Genetics); (4) Biological Sciences 431 (Biochemistry); (5) the breadth requirement outlined below; (6) one of the concentration areas outlined below; and (7) a minimum of six hours of college credit in a foreign language. It is recommended that the language requirement be met with French, German, Japanese, or Russian (other languages may be substituted only with special permission). Qualification in a foreign language, as defined by the College of Arts and Sciences, meets the Division's language requirement. *Students anticipating a concentration in biochemistry should contact an adviser in biochemistry as soon as possible after provisional admission to the major.*

The breadth requirement is designed to insure that each major student becomes familiar with a minimum number of different aspects of modern biology. In fulfillment of this requirement, each student must pass one of the listed courses in two of the following eight categories: (1) *Neurobiology and Behavior*: Biological Sciences 320, 421; Psychology 201, 323; (2) *Developmental Biology*: Biological Sciences 347; 386; (3) *Ecology and Evolution*: Biological Sciences 361, 475; (4) *Microbiology*: Biological Sciences 290A; (5) *Morphology*: Biological Sciences 273, 313, 316, 345; (6) *Physical Science and Mathematics*: Chemistry 236, 287, or 389; Geological Sciences 101; Mathematics 213 or 221; Statistics 510; (7) *Physiology*: 242 or 340, 410, 414; (8) *Taxon-oriented courses*: Biological Sciences 316, 371, 344; Entomology 212; Plant Pathology 309.

The concentration requirement is designed to help the student achieve depth in some area of biology of his own choosing. It permits maximum flexibility, while insuring that the selection of advanced courses will form a coherent and meaningful unit. The student should seek the advice of his adviser in selecting the courses he will take in fulfillment of both the breadth and concentration requirements. The possible concentration areas are:

(1) *Animal Physiology and Anatomy*: Twelve hours, usually selected from Biological Sciences 273, 313, 316, 386, 410, 410A, 412, 414, 419, or 512; Animal Science 427-428; Poultry Science 425, 520; Veterinary Medicine 924.

(2) *Neurobiology and Behavior*: Biological Sciences 320, at least one semester of 620, and eleven hours, including a second course in neurobiology, to be selected in consultation with the adviser.

40 Biological Sciences

(3) *Biochemistry*: The student must fulfill the organic chemistry requirement by taking Chemistry 355, 356, 357, 358. Chemistry 236 must be taken under the breadth requirement unless Chemistry 116 was taken. In addition, the student should take Chemistry 287-288 (or 389-390) and Biological Sciences 433 or 434.

(4) *Botany*: Biological Sciences 242 or 340, 345, 347 and 371 (two of these may be selected under the breadth requirement).

(5) *Ecology and Evolution*: At least fourteen hours, selected in consultation with an adviser. A course in introductory ecology, a course in systematics, and a course in physiology must be included.

(6) *Genetics and Development*: Nine hours, usually selected from the following: Biological Sciences 280, 347A, 347B, 386, 440, 441, 475, 480, 484, 488, 495A, 495B, 584A, 584B; Statistics 510; Plant Breeding 505, Plant Breeding 515.

(7) *Microbiology*: 290A and B, which may be selected under the breadth requirement, plus three courses in microbiology of which at least one must be selected from among the following: 391B, 394, 490B, 459B or Veterinary Medicine 340. This requirement may not itself satisfy the requirements for certification by the American Academy of Microbiology.

Students who, for good reason, wish to undertake a course of studies not covered by these seven concentration areas may petition for permission to do so.

Students interested in teaching biology in secondary schools may specialize in biological sciences for the A.B. degree and then complete the requirements for the M.A.T. (Master of Arts in Teaching) degree during a fifth year in the Graduate Field of Education. The fifth year includes one semester of graduate study in the sciences, a summer of preparation for teaching, and one semester of internship in a secondary school. Stipends and fellowship support are available to selected candidates in the fifth year. Students interested in the five-year program leading to secondary school teaching are urged to consult their adviser and an adviser in the Department of Education during their freshman year.

The Honors Program

The Honors program offers a student an opportunity to do independent work under the supervision of a member of the faculty. This entails independent laboratory work on a project in addition to writing a thesis. A candidate for this program must have at least a 3.0 cumulative average, although the committee will entertain petitions for special cases. He must also obtain a sponsor in a biology-oriented basic or applied science within the University. An Honors candidate will ordinarily enroll for credit in a research course under the direction of the faculty member acting as his Honors supervisor. No more than four credit hours of research courses can be used for completion of the requirements in the area of concentration. Recommendation to the faculty that a candidate graduate with Honors will be the responsibility of the Honors Program Committee. Students interested should consult their adviser for further details, preferably during the first term of the junior year.

Registration for the Honors program can be no later than the first term of the senior year. The final report of the student's work must be in the hands of the Committee not later than the first day of the study period prior to the week of final examinations.

Distribution Requirement

The Distribution requirement in biological sciences is satisfied by Biological Sciences 101-102 and 101L-

102L or 107-108. A student may qualify for advanced standing credit and/or placement in biological science by superior performance on the Advanced Placement Examination in biology or on a special placement examination to be given at entrance to students who present evidence of particularly thorough training in the subject.

General Courses

101-102 Biological Science. *Throughout the year. Credit two hours a term. Must be taken concurrently with 101L and 102L. Biological Sciences 101 is prerequisite to Biological Sciences 102, unless special permission is obtained from the instructor. 101-102 cannot be taken for credit after 107-108. Lectures, M W F 8 or 10:10. Two preliminary examinations will be given each term at 7:30 p.m. Messrs. Keeton, Ambrose, Zollinoffer, and assistants.* Designed both for students who intend to specialize in biological sciences and for those specializing in other subjects, such as the social sciences or humanities, who want to obtain a thorough knowledge of biology as part of their general education. Plant and animal materials are considered together rather than in separate units. The fall semester covers cellular biology, the biochemistry of metabolism physiology and anatomy, and behavior. The spring semester includes genetics, developmental biology, evolutionary theory, the biology of populations and communities, the origin of life, and evolutionary patterns in the plant and animal kingdoms. Each topic considered in the light of modern evolutionary theory.

101L-102L Biological Science, Laboratory. *Throughout the year. Credit two hours a term. Must be taken concurrently with Biological Sciences 101-102. This course will consist of one three-hour laboratory each week and a weekly lecture section for discussions, special lectures, etc. Fall term: Laboratory, M T W or Th 1:30-4:25, or T Th or F 10:10-1, or S 9:05-11:55, or M T or W 7:30-10:20 p.m. Fall term: The general concepts of biology will be covered, with particular emphasis on socially relevant topics. Optional areas of approach will be levels of organization, evolution, contemporary perspectives, and natural history. Spring term: A continuation of the laboratory approaches in 101L. In addition, laboratory sections will be offered that approach biology from several diverse viewpoints drawn from the following options: botany; plant physiology; environmental physiology; molecular biology; morphology; zoology; neurobiology and behavior; population biology; and ecology (plant, marine, and animal).*

106 Interactive Computing for Students of Biological Sciences. *Spring term. Credit one hour. Lectures every other week, T 1:30. Mr. Howland.* An introduction to computing using the interactive language FOCAL with a discussion of other algebraic computing languages such as BASIC and elementary FORTRAN. Students will be issued tickets for five hours of computing time at the Division of Biological Sciences Interactive Computing Facility. Applications to problems in the biological sciences will be emphasized.

107-108 Biology for Non-Majors. *Throughout the year. Credit three hours a term. Limited to 500 students. Biological Sciences 107 is prerequisite to Biological Sciences 108, unless special permission is obtained from the instructor. 107-108 may not be taken for credit after 101-102. Lectures, M W F 9:05 or 11:15. Conferences, M T W Th or F 2:00-4:15. Students do not preregister for the conferences; assignments will be made at the end of the first week of the semester. Preliminary examinations will be held at 7:30 p.m. on October 25 and December 6; and on March 8 and*

April 26. No lectures will be given on these examination days. Mr. Blackler. This course sequence may not be used as an introductory course for the major in Biological Science. Students who are uncertain of their choice of major should register in Biological Sciences 101-102. Note that Biological Sciences 107-108 may not always be a satisfactory prerequisite to second- and third-level courses in Biological Science.

This course offers students who plan not to major in Biological Science the opportunity of taking a broad introductory course in modern biology without the necessity of performing detailed and formal laboratory study. Nevertheless, it is neither a course in social biology nor an attempt to popularize biology, but addresses itself to biological principles and phenomena with academic rigor. The content is designed to appeal to anyone who seeks a comprehensive knowledge of biology as part of his general education. Living things of all kinds are used as examples in a biological inventory which includes cellular life, life chemistry, heredity, evolution, and reproduction, as well as coverage of ecology, behavior, and the special case of man.

The conference sessions enable small groups of students to meet with the instructor and his assistants, and will be used for discussions, demonstrations, and laboratory projects. Each student must attend a conference on alternate weeks.

201-202 Biology and Society. *Throughout the year. Credit two hours a term. S/U grades only. Lectures, M 8:15 p.m. One hour discussion section to be arranged. Staff and invited speakers.* A series of public lectures dealing with a variety of topics concerning man as an individual, man as a member of society, and man as a member of the community of life on earth. The lectures are open to students and nonstudent members of the Cornell community as well as to other Ithaca-area residents.

Students enrolling for credit are requested to attend and participate in one of the weekly discussion groups. The purpose is to permit students to explore lecture material or related topics in depth.

Because the number of students who can be accommodated in Biological Sciences 201-202 is dependent upon an unpredictable and variable number of volunteer faculty members from the many colleges and schools on the Cornell campus, preregistration in this course is not permitted. Registration will be accepted on the Tuesday and Wednesday following the first Monday lecture with preference given to upperclassmen.

301 Laboratory Methods in Biology. *Either term. Credit three hours. Prerequisites: 101-102 and 101L-102L or equivalent. Limited to juniors, seniors, and graduate students, 20 students per section. Lecture-laboratory, T or F 10:10-12:35. Additional periods by appointment. Mr. Uhler.* For students who intend to teach or follow some phase of biology as a profession. Subjects covered: collection, preservation, and storage of materials; the preparation of bird and mammal study skins; injection of circulatory systems with latex; clearing and staining of small vertebrates; and the preparation and staining of squashes, smears, whole mounts, and sections.

401 Teaching Biology. *Either term. Credit four hours. S/U grades only. Enrollment limited. Prerequisite: consent of the instructor. Hours to be arranged. Mr. Zollinhofer.* Discussions of recent developments in the teaching of biology, and participation in teaching elementary biology at the college level.

405 Optics in Biology. *Fall term. Credit two hours. Enrollment limited to 20. Prerequisites: Chemistry 104 or 108, Math 108 or 111, and Physics 102 or 208, or*

consent of the instructor. M 1:25-3:20. Mr. Clayton. Lectures, problems, demonstrations, and laboratory experience in applications of optics to biology. Topics will include geometrical optics as applied to illumination systems, methods for studying biological effects of light, and analytical uses of optical absorption and fluorescence.

409 Research in Biology. *Either term. Credit and hours to be arranged. Undergraduates must attach to their preregistration material, written permission from the staff member who will supervise the work and assign the grade. Staff.* Practice in planning, conducting, and reporting independent laboratory and/or library research programs.

For complete descriptions of courses numbered 500 or above see the *Announcement of the Graduate School: Biological Sciences*. If the course is not included there, consult the Graduate Field Representative.

600 Seminar: Current Topics in Modern Biology. *Either term. Credit one hour per topic (two topics per term). Prerequisite: a 3.0 grade average (or better) or recommendation. Interested students should attend an organizational meeting. The date of this meeting and the topics to be covered will be issued in the preregistration supplement to this bulletin. Do not register for the course before attending the meeting.*

602 Seminar for M.S.T. Degree Candidates. *Spring term. Credit one hour. Hours to be arranged. Mr. Uhler.* Discussion and evaluation of new approaches to biological instruction.

Animal Physiology and Anatomy

210 Human Physiology. *Spring term. Credit three hours. No credit for majors in biological sciences. Prerequisite: Chemistry 103 or equivalent; students must at least have taken high school courses in biology and chemistry. Lectures, M W F 8. Messrs. Kennedy, Stini, and Thomas.* Basic concepts of human anatomy and physiology will be presented to provide the groundwork for the understanding of the functioning of the human body in health and disease. Emphasis will be placed on the relationship of human physiology to problems of public health and contemporary living. The individual systems, such as cardiovascular, gastrointestinal, neurological, endocrine, renal, etc., will be discussed singly and in correlation with each other. Guest lecturers will be invited as appropriate.

313 Histology: The Biology of the Tissues. *Fall term. Credit four hours. Prerequisite: a two-semester introductory biology sequence; comparative anatomy and organic chemistry or biochemistry desirable. Lectures, T Th 11:15. Laboratory, T Th 8-9:55, or 2:30-4:25. Mr. Wimsatt.* A general course dealing with the biology of the tissues to provide the student with a basis for understanding the microscopic and fine structural organization of vertebrates and the methods of analytic morphology at the cell and tissue levels. The dynamic interrelations of structure, chemical composition, and function in cells and tissues are stressed.

316 Invertebrate Zoology. *Spring term. Credit four hours. Prerequisite: at least one year of biological science or permission of instructor. Two lectures and two laboratories per week. Lectures, W F 11:15. Laboratory, W F 2:00-4:25. Mr. Anderson and assistant.* Lectures on selected topics in the development, structure, function, and interrelations of invertebrate animals, with particular attention to phylogenetic aspects. Intensive laboratory work in representative invertebrates, utilizing living or fresh specimens wherever possible.

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Each student will be expected to do a significant amount of independent library work, and a term paper may be required.

410 General Animal Physiology, Lectures. *Spring term. Credit three hours. Prerequisites: one year of biology and one year of physics; courses in chemistry, organic chemistry, and biochemistry desirable. Lectures, M W F 10:10. Mr. Howland.* The principles of animal physiology are developed through consideration of the functioning of cells, tissues, and organs. Specific topics discussed include respiration, metabolism, circulation, excretion, chemical integration, muscle contraction, nerve action, and sensory reception. A quantitative, systems-theoretical approach is emphasized.

410A General Animal Physiology Laboratory. *Spring term. Credit two hours. Biological Sciences 410 or equivalent must be taken concurrently. Lecture, W 2. Laboratory, T 8-11 or M T Th or F 1:25-4:25. Mr. Howland.* Students are introduced to basic techniques utilized in the study of the physiology of animal tissues. Experiments cover topics dealing with respiration, properties of muscle, circulation, activity of nerves, and osmotic phenomena.

[412 Special Histology: The Biology of the Organs. *Spring term. Credit four hours. Given in alternate years. Enrollment limited to 18 students. Prerequisite: Biological Sciences 313, or consent of instructor. Lectures, W F 9:05. Laboratory, W F 2-4:25. Mr. Wimsatt. Not offered in 1971-72.]* A continuation of course 313. The microscopic and ultrastructural organization of the principal vertebrate organ systems are studied in relation to their development, functional interaction, and special physiological roles. Biological Sciences 313 and 412 present the fundamental aspects of the microscopic and submicroscopic organization of the vertebrate body from a physiological perspective. The organization of the course involves student participation in lecture-seminars, and the prosecution of independent project work supplementary to the regular work of the laboratory. The latter enables the students to gain practical experience with histological and histochemical preparative techniques.

414 Mammalian Physiology. *Spring term. Credit six hours. Registration by permission. Prerequisite: a year of biological sciences; courses in biochemistry, histology, and gross anatomy desirable. Lectures, M W F 8. Discussion, S 10:10. Laboratory, M or W 1:25. Messrs. Gasteiger, Hansel, Visek (in charge), and Bensadoun.* A general course in mammalian physiology including circulation, respiration, digestion, metabolism, renal function, endocrinology, and the nervous system.

419 Research in Animal Physiology and Anatomy. *Either term. Credit and hours to be arranged. Undergraduates must attach to their preregistration material written permission from the staff member who will supervise the work and assign the grade. Staff. Practice in planning, conducting, and reporting independent laboratory and/or library research programs.*

For complete descriptions of courses numbered 500 or above see the *Announcement of the Graduate School: Biological Sciences*. If the course is not included there, consult the Graduate Field Representative.

[512 Comparative Physiology. *Spring term, odd-numbered years only. Credit two hours. Prerequisites: 410 or 414 and biochemistry or the equivalent. T Th 9:05. Messrs. McFarland and Pough. Not offered 1971-72.]*

[512A Comparative Physiology Laboratory. *Spring term, odd-numbered years only. Credit two hours.*

Limited to 10 students. Prerequisites: concurrent enrollment in 512 and consent of instructors. T Th 1:25-4:25. Messrs. McFarland and Pough. Not offered 1971-72.]

Animal Embryology (Biological Sciences 386).

Comparative Physiology of Reproduction of Vertebrates (Poultry Science 425, College of Agriculture).

Developmental Anatomy and Histology (Veterinary Anatomy 507, Veterinary College).

Elements of Physical Biology (Veterinary Medicine 920, Veterinary College).

Fundamentals of Endocrinology (Animal Science 427-428, College of Agriculture).

General Photobiology (Biological Sciences 547).

Neuroanatomy (Veterinary Anatomy 505, Veterinary College).

Optics in Biology (Biological Sciences 405).

Insect Morphology and Histology (Entomology 322, College of Agriculture).

Sensory Function (Biological Sciences 427, 427A).

Vertebrate Morphology (Veterinary Medicine 900, Veterinary College).

Vision (Biological Sciences 425).

Neurobiology and Behavior

320 Neurobiology and Behavior. *Spring term. Credit three hours. Limited to juniors, seniors, and graduate students. Prerequisites: Biological Sciences 101-102 or equivalent. Lectures, T Th S 12:20. Messrs. Eisner (in charge), O'Brien, van Tienhoven, Emlen, and Halpern.* Evolution of behavior, cueing of behavior, social and nonsocial behavior, neuroanatomy, neurophysiology, neurochemistry, neural networks, memory.

323 Physiological Psychology (Also Psychology 323). *Fall term. Credit three hours. Prerequisites: Biological Sciences 101-102 or equivalent; Chemistry 103-104 or its equivalent; and Psychology 201 or a 300-level laboratory course in psychology. Lectures, T Th 9:05. Mr. Halpern.* Selective examination of neural, endocrine, and biochemical functions related to emotion, memory, learning, perception, hunger, and thirst.

323A Physiological Psychology Laboratory (Also Psychology 323A). *Fall term. Credit three hours. Prerequisites: concurrent registration in 323; also Biological Sciences 320, Psychology 201A, and consent of the instructor. Discussion, M 7:30-9 p.m. Laboratory, T 1:25-5. Mr. Halpern.* Experiments will be done on physiological aspects of conditioning in vertebrates and invertebrates, memory, interactions between hormones and behavior, and effects of brain lesions on perceptual and alimentary behavior. A final original experiment will be planned and carried out.

324 Animal Social Behavior. *Spring term. Credit four hours. Limited to 20 undergraduates. Prerequisite: Biological Sciences 101-102 or equivalent. Not open to students who have already taken Biological Sciences 523. M F 11:15-1:10. Mr. Bradbury.* An introductory, but intensive examination of social evolution in animals. Topics range from social integration in bees to origins of human societies. Students are expected to prepare and present individual topics and participate actively in discussions.

325 Fine Structure of the Nervous System. *Fall term. Credit two hours. Prerequisites: Biological Sciences 101-102 or equivalent; and 320 (the latter may be*

waived by permission of the instructor). Lectures, T Th 11:15. Mrs. Salpeter. A course on the cellular organization of the nervous system. Special emphasis on development, functional relationships, and ultrastructure.

326 Excitable Membranes. Spring term. Credit two hours. Prerequisite: Biological Sciences 325 or permission of the instructor. Lectures, T Th 9:05. Mr. Podleski. Lectures will examine in detail the biophysical and biochemical properties of the excitable membranes of nerve cells and muscle. Emphasis will be placed on the quantitative analysis and the possible molecular mechanisms underlying these properties. When possible the subject will be discussed in terms of the fundamental problem of the structure and function of biological membranes. Among the topics to be studied are the following: the origin of bioelectric potentials, excitability, synaptic transmission, the specificity of neural membranes and possible mechanisms for plasticity.

328 Behavioral Maturation (Also Psychology 328). Spring term. Credit four hours. Prerequisite: familiarity with psychological theories of learning and development and one year of college biology. W F 12:20. Mr. Lenneberg. Emergence of behavior will be studied in the light of developmental biology, including behavior genetics, neuroembryology and morphogenesis, physical maturation of the brain, transformation and allometry as well as retarding influences from the environment.

421 Comparative Vertebrate Ethology. Fall term. Credit three hours. Prerequisites: Biological Sciences 101-102 or equivalent; Biological Sciences 320; and permission of the instructor. Lectures, T Th 9:05. Laboratory, to be arranged. Mr. Dilger. A survey of the methods and principles of vertebrate ethology for students specializing in this field or for those in other branches of zoology wishing to broaden their knowledge of animal behavior. Emphasis is placed on the causation, function, biological significance, and evolution of species-typical behavior. The laboratories are designed to give first-hand knowledge of the material covered in lectures.

423 Animal Communication. Fall term. Credit four hours. Enrollment limited to 32 students. Prerequisites: Biological Sciences 320 and Physics 207-208. Lectures, T Th 10:10. Laboratory, T or Th 1:25-4:25. Messrs. Capranica and Bradbury. The course will emphasize the functional aspects of biological signals, their physical properties, and the physiological mechanisms underlying their generation and reception. Lectures will examine in detail selected biological communication problems from each of the known sensory modalities. Discussion will cover signal analysis, transmission properties, and the limitation of each type of communication. Laboratories will include behavioral observations under both field and captive conditions, and individual experience with the techniques of signal recording and analysis.

420 Brain and Behavior (Also Psychology 424). Spring term. Credit four hours. Prerequisites: familiarity with theories of perception, memory and physiological psychology; or permission of the instructor. M 1:25-4. Mr. Lenneberg. A theoretical introduction to human neurology for psychologists. This survey of clinical symptoms and their etiology is designed to enable students to make use of disease for research purposes.

425 Vision. Fall term. Credit two hours. Prerequisites: Chemistry 104 or 108, Math 108 or 111, Physics 102 and 208, or consent of the instructor. Lectures T Th 10:10. Mr. Clayton. A study of the mechanism

of seeing, embracing biochemical, biophysical, and physiological approaches to the subject.

427 Sensory Function (Also Psychology 427). Fall term. Credit three hours. Prerequisite: course 320 or the equivalent. Lectures, M W F 11:15. Discussion period to be arranged. Messrs. Tapper and Halpern. Sensory receptors and the central nervous system transformation of afferent activity will be considered in relation to human and animal psychophysical data and to the adaptive significance of behavior. The receptors will be examined in terms of anatomy, biochemistry, biophysics of transduction, and the central nervous system control of peripheral input. Information and signal detection theories will be applied.

427A Laboratory in Sensory Function (Also Psychology 427A). Fall term. Credit two hours. Prerequisites: Biological Sciences 427 and consent of the instructors. Hours to be arranged. Organizational meeting 4:30 on the first Monday of the term. Messrs. Tapper and Halpern.

428 Neurochemistry. Spring term. Credit three hours. Prerequisites: an introductory course in biochemistry or consent of the instructor. Students should meet with the instructor prior to or during registration. Lectures, W F 10:10. Discussion, M 10:10. Mr. Grossfeld. Special features of the composition and metabolism of neural tissue will be discussed. The identification of synaptic transmitters in the nervous system, including their specific localization, biosynthesis and metabolism, release, inactivation, and action on post-synaptic receptors will be considered in detail. Chemical aspects of vision and of neuronal development and maturation will also be described.

429 Research in Neurobiology and Behavior. Either term. Credit and hours to be arranged. Undergraduates must attach to their preregistration material written permission from the staff member who will supervise the work and assign the grade. Staff. Practice in planning, conducting, and reporting independent laboratory and/or library research programs.

For complete descriptions of courses numbered 500 or above see the *Announcement of the Graduate School: Biological Sciences*. If the course is not included there, consult the Graduate Field Representative.

522 Brain Mechanisms and Models. Spring term. Credit four hours. Prerequisites: calculus, introductory biology or psychology, and consent of the instructor; Biological Sciences 325 and 326 are strongly recommended, and acquaintance with modern algebra and probability theory is desirable. Lecture, M W 7:30-9 p.m. Mr. Rosenblatt. Deals with mechanisms underlying the higher functions of the central nervous system, particularly perception, learning, and memory. Includes topics of coding and representation of information in the brain, analysis of sensory data, and mathematical and computer models for perceptual processes; adaptive mechanisms, memory and learning, including physiological and biochemical basis of memory, perceptions, and other models and approaches to language and thinking.

523 Ecological Aspects of Animal Behavior. Fall term. Credit four hours. Prerequisites: Biological Sciences 320 and 361, and permission of instructor. Lectures, T Th 11:15. Discussions, T Th 12:20. Messrs. Emlen and Ambrose.

524 Behavioral Neurophysiology. Spring term. Credit three hours. Prerequisite: course 320 or equivalent. Lectures, T Th S 9:05. Mr. Camhi.

524A Behavioral Neurophysiological Laboratory. Spring term. Credit two hours. Enrollment limited to

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15 students. Course 524 must be taken concurrently. Time to be announced. Mr. Camhi.

[525 Functional Organization of the Nervous System. Fall term. Credit six hours. Given in alternate years. Prerequisites: two years of biological science, Biological Sciences 320 or equivalent. Courses in biochemistry, physics, and neural anatomy are desirable. Lectures M W F 10:10. Laboratory W 1:25. Mr. Gasteiger. Not offered in 1971-72.]

526 Bioelectric Systems. Spring term. Credit three hours. Prerequisites: Biological Sciences 423, 427, or 524; or Physics 360; or Electrical Engineering 440L; and permission of instructor. Lectures, M W 9:05. Discussion and demonstrations, Th 2. Messrs. Capranica and Kim.

620 Seminar in Neurobiology and Behavior. Either term. Credit one hour. S/U grades optional. Hours to be arranged. Organizational meeting, first Monday of semester, 8 p.m. Staff.

622 Seminar in Ecological Animal Behavior. Spring term. Credit one hour. Open to qualified graduate and undergraduate students who have taken courses in animal behavior and ecology, and who have secured permission of the instructor. Hours to be arranged. Mr. Ambrose.

629 Advanced Topics in Neurobiology and Behavior. Either term. A seminar course for graduate students and selected undergraduates. Topics, credit, and hours to be arranged. Staff and students.

Optics in Biology (Biological Sciences 405).

Biochemistry

131 Introductory General Biochemistry. Fall term. Credit five hours. A terminal course primarily for nonscience undergraduates. Lectures, M T W Th 11:15. Recitation, Th 2-4:25. Mr. Neal. Lectures, demonstrations, and recitations dealing with selected fundamental principles of general, organic and biochemistry with emphasis on biochemistry.

132 Orientation Lectures in Biochemistry. Spring term. No credit. For freshman and sophomore students. Eight lectures or discussion sessions given in February and March covering interesting areas of biochemistry. W 7:30 p.m. Mr. Racker and staff.

231 Introductory Biochemistry. Fall term. Credit three hours. Prerequisite: Chemistry 104 or 108, or the equivalent. May not be taken for credit by students who have completed a more advanced course in this section. Lectures, T Th F 12:20. Mr. Williams. A brief survey of organic chemistry as related to biological compounds and a discussion of selected biochemical topics and reactions associated with the metabolism of animals, plants, and microorganisms. Especially designed as a general course for four-year students in agriculture.

431 Principles of Biochemistry, Lectures. Either term. Credit four hours a term. Prerequisite: Chemistry 353-355 or the equivalent. Fall term lectures, M T Th S 8. Miss Daniel. Spring term lectures, M W F S 10:10. Mr. Edelstein. A basic course dealing with the chemistry of biological substances and their transformations in living organisms.

433 Principles of Biochemistry, Laboratory. Fall term. Credit three hours. Prerequisite: quantitative analysis or permission of the instructor. Biological Sciences 431 may be taken concurrently. Laboratory, M W 2-4:25. Discussion period, M 1:25. Mr. Neal. Laboratory practice with biochemical substances and

experiments designed to illustrate basic biochemical principles and techniques. This laboratory is designed primarily for students who have not had previous biochemical laboratory training.

434 Biochemistry, Laboratory. Spring term. Credit three hours. Primarily for advanced undergraduates intending to enter graduate school and for graduate students. Prerequisites: quantitative analysis, Biological Sciences 431, and permission of the instructor. Laboratory, T or Th 10:10-4:25. Discussion, to be arranged. Mrs. Fessenden-Raden. Laboratory practice with biochemical substances and experiments designed to introduce the student to techniques used in biochemical research, such as enzyme purification and characterization, kinetic analyses, use of radioisotopes and chromatography.

435-436 Undergraduate Biochemistry Seminar. Throughout the year. Credit one hour. Juniors and seniors only. Enrollment limited. Prerequisite, 431 or consent of instructor. Fall term: Photosynthesis. First meeting M 4 p.m. September 13. Mr. McCarty. Spring term: Nucleic Acids. First meeting T 7:30 p.m. February 1. Mr. Heppel. A group of selected papers from the literature will be critically evaluated during six or seven two-hour meetings. A term paper will probably be required.

439 Research in Biochemistry. Either term. Credit hours to be arranged. For undergraduate students concentrating in biochemistry. Prerequisite: adequate ability and training for the work proposed. Undergraduates must attach to their preregistration material written permission from the staff member who will supervise the work and assign the grade. Mr. Gaylor and staff. Special work in any branch of biochemistry on problems under investigation by the staff of the section.

For complete descriptions of courses numbered 500 or above see the *Announcement of the Graduate School: Biological Sciences*. If the course is not included there, consult the Graduate Field Representative.

530 Biochemistry of the Vitamins. Spring term. Credit two hours. Given in alternate years. Prerequisites: Chemistry 353-355 and Biological Sciences 431 or their equivalent. Lecture, T Th 10:10. Miss Daniel.

531-532 Intermediate Biochemistry, Lectures. Throughout the year. Credit four hours a term. Prerequisites: Chemistry 358, Biological Sciences 431 or consent of the instructor; physical chemistry desirable. Lectures, M W F S 9:05. Mr. Wilson and staff.

533 Intermediate Biochemistry Laboratory. Fall term. Credit three hours. Prerequisites: Chemistry 287-288 or 389-390; and Biological Sciences 531 (may be taken concurrently). Laboratory, T or Th 9:05-4:25. One discussion period to be arranged. First meeting for both sections will be held on the first Tuesday at 9:05. Messrs. Nelson, Wharton, and McCarty.

536 Advanced Biochemical Methods, Laboratory. Spring term. Credit two hours. Limited to graduate majors in biochemistry. Prerequisite: Biological Sciences 533. Hours to be arranged. Miss Keller and Mr. Wu.

631-632 Research Seminar in Biochemistry. Throughout the year. Credit one hour. S-U grades only. May be repeated for credit. Required of all graduate students (except first-year students) majoring in biochemistry. M 8-9:30 p.m. Mr. Racker.

633-638 Advanced Biochemistry. Throughout the year. Lectures and seminars on specialized topics,

three topics per term. Credit one hour per topic. Prerequisite: Biological Sciences 532 or consent of instructor. May be repeated for credit.

633 Structure of Biological Membranes. Fall term. First 4.5 weeks of term. T Th 9:05. Mr. Zilversmit.

635 Structure and Function of Mitochondrial and Chloroplast Membranes. Fall term. Middle 4.5 weeks of term. T Th 9:05. Mr. Racker.

637 Biogenesis of Membranes. Fall term. Last 4.5 weeks of term. T Th 9:05. Mr. Schatz.

634 Regulatory Aspects of Photosynthesis. Spring term. First 4.5 weeks of term. T Th 9:05. Mr. McCarty.

636 Regulatory Aspects of Respiration. Spring term. Middle 4.5 weeks of term. T Th 9:05. Mr. Wharton.

638 Regulatory Aspects of Muscle Contraction. Spring term, Last 4.5 weeks of term. T Th 9:05. Mr. Guillory.

639 Biochemistry Seminar. Throughout the year. No credit. F 4:15. Staff.

Botany

146 Plant Biology. Spring term. Credit three hours. Lectures, T Th 9:05. Laboratory, M T or W 1:25–4:25. Mr. Banks. Introductory botany for those who plan to specialize in some aspect of the plant sciences and designed to introduce several major plant groups not covered in Biological Sciences 101–102, and intended to acquaint students with the genetic bases of evolutionary change. Evolutionary principles will emerge from the study of certain groups in which both fossil and living material is available. Emphasis in laboratory is placed on the development of skills in handling plant materials, including plant identification.

242 Plant Physiology. Spring term. Credit five hours. Primarily for undergraduates in the agricultural sciences. Prerequisites: Biological Sciences 101–102 and 101L–102L or equivalent and introductory chemistry. Lectures, T Th S 10:10. Conference, M T W or Th 12:20–1:10. Laboratory, M T W or Th 1:25–4:25. The laboratory is the same as for Biological Sciences 340. Messrs. Davies and Spanswick. Plant physiology as applied to plants growing in communities. Examples will deal with crop plants or higher plants where possible, though not exclusively. Topics will include cell structure and function; soil-plant-water relations; water uptake, transport, and transpiration; irrigation of crops; sugar transport; mineral nutrition of crops; respiration and photosynthesis; light relations in crops; growth and development—hormones, flowering, fruiting, dormancy, and abscission; chemical control of plant growth.

340 Plant Physiology. Spring term. Credit three hours. Primarily for undergraduates or graduate students without background in plant physiology. Prerequisites: Biological Sciences 101–102 and 101L–102L or equivalent and organic chemistry. Must be taken concurrently with Biological Sciences 342 except by permission of the instructor. Lectures, T Th S 10:10. Mr. Jagendorf. The behavior, growth, transport processes, and environmental response of plants. Topics will include membrane properties, solute and water transport, function of osmotic forces; mineral and organic nutrition; stress resistance; growth and hormonal action; metabolism including photosynthesis and respiration; responses to gravity, light, photoperiod, and temperature.

342 Plant Physiology Laboratory. Spring term. Credit two hours. Must be taken concurrently with

Biological Sciences 340. Conference and laboratory must be on the same day. Conference M T W or Th 12:20–1:10. Laboratory, M T W or Th 1:25–4:25. Mr. Spanswick.

344 Phycology. Spring term. Credit four hours. Lectures, M W F 10:10. Laboratory, M or F 2–4:25. Mr. Kingsbury. An introduction to freshwater and marine algae including consideration of their ecology as members of the plankton and benthos and their importance to man. The laboratory, utilizing field material and cultures from an extensive living collection, is designed to illustrate lecture topics, provide familiarity with algae in the field, and introduce the student to techniques used in isolating, culturing, and studying algae in the laboratory.

345 Plant Anatomy. Fall term. Credit four hours. Prerequisites: Biological Sciences 101–102 or equivalent and preregistration with instructor in charge. Lectures, T Th 8. Laboratory, T Th 10:10–12:35 or M W 2–4:25. Mr. Paolillo.

347 Cytology. Fall term. Credit four hours. Prerequisite: Biological Sciences 101–102 or equivalent; Biological Sciences 281 recommended. Lectures, M W 9:05. Laboratory, M W or T Th 10:10–12:35. Mr. Uhl. A study primarily of the structure of cells and their components and the relation of these to function and to heredity. Special attention is given to chromosomes. Both plant and animal materials are used.

347A Cytology, Lectures. Fall term. Credit two hours. Prerequisite: Biological Sciences 101–102 or equivalent; Biological Sciences 281 recommended. M W 9:05. Mr. Uhl. Lecture part only of Biological Sciences 347.

347B Cytology, Laboratory. Fall term. Credit two hours. Prerequisite: 347A (may be taken concurrently). M W or T Th 10:10–12:35. Laboratory part of Biological Sciences 347.

349 Plants and Man. Fall term. Credit three hours. Lectures and discussions, M W F 9:05. Mr. Bates. A consideration of the role of plants in the human environment and in the evolution of civilizations. Intended for students in all colleges. Emphasis is on ethnobotanical considerations and on historical to present-day utilization of plants in nutrition, housing, clothing, medicine, religion, and the arts.

[440 Cytogenetics. Spring term. Credit three hours. Given in alternate years. Prerequisites: Biological Sciences 347 and 281 or the equivalent. Lectures, M W 9:05. Laboratory, M or W 10:10–12:35. Mr. Uhl. Not offered in 1971–72.]

441 Plant Growth and Development. Fall term. Credit three hours. Given in alternate years. Prerequisites: Biological Sciences 242, 340, or 345, or the equivalent, or permission of instructor. Lectures M W F, hours to be arranged. Messrs. Paolillo and Davies. An advanced course dealing with changes during growth and development of plants and their control; morphological and anatomical changes in apices; tissue differentiation; organ formation; embryo development; nucleic acid and protein synthesis: gene regulation; hormones—their action, mode of action, and interaction; the influence of light in development; flowering, fruiting, dormancy and abscission; reactions to stress.

[444 Comparative and Developmental Morphology of the Embryophyta. Spring term. Credit four hours. Given in alternate years. Prerequisites: Biological Sciences 345 and consent of the instructor. Lectures, T Th 8. Laboratory, T Th 2–4:25. Mr. Paolillo. Not offered in 1971–72.] The life histories of bryophytes, vascular cryptogams, and seed plants are explored

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for their developmental attributes and for their bearing on concepts of evolution and group relationships. The course content is presented so that an awareness of the integration between morphology and other disciplines in biology can be developed.

448 Paleobotany. *Spring term. Description to be announced. Hours to be arranged. Mr. Banks.*

449 Research in Botany. *Either term. Credit and hours to be arranged. Undergraduates must attach to their preregistration material written permission from the staff member who will supervise the work and assign the grade. Staff. Students engaged in special problems or making special studies may register in this course. They must satisfy the instructor under whom the work is taken that their preparation warrants their choice of problem.*

For complete descriptions of courses numbered 500 or above see the *Announcement of the Graduate School: Biological Sciences*. If the course is not included there, consult the Graduate Field Representative.

543 Plant Physiology, Advanced Laboratory Techniques. *Fall term. Credit four hours. Primarily for graduate students doing work in plant physiology, but open to others if space permits. Prerequisites: organic chemistry, biochemistry, Biological Sciences 242 or 340, or the equivalent. Preregistration recommended. Laboratory, T or W 8-5. Recitation, M 4:30-5:30. Staff.*

[545 Photosynthesis. *Fall term. Credit three hours. Given in alternate years. Prerequisites: Chemistry 104 or 108, Math 108 or 111, and Physics 102 or 208, or consent of the instructor. Lectures, M 1:25, T Th 10:10. Mr. Clayton. Not offered in 1971-72.]*

[547 General Photobiology. *Fall term. Credit three hours. Open to undergraduate students. Prerequisites: same as for Biological Sciences 545. Lectures, M 1:25, T Th 10:10. Mr. Clayton. Not offered in 1971-72.]*

548 Plant Physiology: Aspects of Metabolism. *Spring term. Credit three hours. Given in alternate years. Prerequisites: Biological Sciences 242, 340, and 431; and Chemistry 353, or the equivalent. Lectures, M W F 9:05. Messrs. Jagendorf, Thompson, McCarty, and staff.*

[549 Plant Physiology: Transport of Solutes and Water. *Fall term. Credit three hours. Given in alternate years. Prerequisite: Biological Sciences 340 or equivalent. Lectures, M W F 10:10. Messrs. Miller and Spanswick. Not offered in 1971-72.]*

641 Perspectives in Plant Physiology: Advanced Lecture Series. *Fall term. Credit two hours. Primarily intended for graduate students, but open to qualified undergraduates. M W F 10:10. Mr. Steward.*

643 Plant Physiology Seminar. *Either term. No credit. Required of graduate students taking work in plant physiology. F 11:15. Staff.*

645 Current Topics in Plant Physiology. *Either term. Credit two hours. May be repeated for credit. Hours to be arranged. Staff.*

647 Special Topics in Plant Taxonomy. *Either term. Credit one hour. Prerequisite: permission to register. Lecture and discussion hours to be arranged. Messrs. Moore, Dress, Bates, and Ingram.*

Evolution and Taxonomy of Vascular Plants (Biological Sciences 371).

Evolution and Ecology of Vascular Plants (Biological Sciences 464).

Seminar in Evolution and Ecology of Vascular Plants (Biological Sciences 663).

Plant Ecology (Biological Sciences 463).

Advanced Mycology (Plant Pathology 569, 579, 589, College of Agriculture).

Current Topics in Mycology (Plant Pathology 649, College of Agriculture).

Comparative Morphology of Fungi (Plant Pathology 309, College of Agriculture).

Optics in Biology (Biological Sciences 405).

Ecology, Evolution, and Systematics

273 The Vertebrates. *Fall term. Credit five hours. Laboratory enrollment limited to 20 per section. Prerequisites: Biological Sciences 101-102 or equivalent. Lectures, T Th 10:10. Laboratory, M W 1:25-5; T Th 1:25-5; M 7-10 p.m., F 1:25-5; T Th 7-10 p.m. Messrs. McFarland and Pough. An introduction to the evolution, classification, comparative anatomy, life history, and behavior of vertebrate animals. Laboratory dissection, experimentation, and demonstration are concerned with structure, classification, systematics, biology of species, and studies of selected aspects of vertebrate life. Midterm examination will be given in the evening. Time to be announced.*

361 General Ecology. *Either term. Credit three hours. Not open to freshmen. Prerequisite: Biological Sciences 101-102 or equivalent. Lectures, T Th 9:05. Discussion, W or Th 1:25, 2:30, or 3:35. Mr. Root. Principles concerning the interactions between organisms and their environment. Influence of competition, social behavior, predation, and other factors of population size and dispersion. Role of energy flow and mineral cycling in determining the structure and productivity of ecosystems. Succession and classification of natural communities. Influence of climate and past events on the diversity and stability of communities in different regions of the world. Interspecific competition and the niche concept. Chemical interactions between organisms. Application of ecological principles to human problems. Modern evolutionary theory will be stressed throughout and attention given to conflicting ecological hypotheses.*

363 Laboratory and Field Methods in Population Biology. *Fall term. Credit two hours. Enrollment limited. Prerequisite: permission of instructor. Laboratory, T Th 2-4:25, plus some Saturday field trips. Mr. Brussard. A laboratory and field course to follow course 361 for students who intend to concentrate in the area of population biology. It will give students a first-hand contact with techniques designed to produce an understanding of the function and structure of aggregates of organisms.*

364 Introduction to Marine Science. *Credit four hours. Prerequisite: a full year of college biology. Postrequisite: University of New Hampshire, Marine Science 774. A special course offered on Star Island, off Portsmouth, New Hampshire, June 1972. Messrs. Anderson, Gilbert, Hewitt, and Kingsbury (in charge), Barlow, Bloom, Eipper, Likens, and guest lecturers. Living material and habitats are emphasized in introducing students to the major disciplines of marine biology and in rounding out the students' knowledge of these topics as presented at inland locations. Shipboard demonstrations are conducted of oceanographic tools and techniques, and the North Atlantic fisheries are examined with the participation of commercial trawlers and fishermen from the Gloucester fleet and the Bureau of Commercial Fisheries. This course constitutes half of a four-week summer program in introductory marine science offered cooperatively by Cornell University and the University of New Hamp-*

shire. For more details, see the *Announcement of the Summer Session*, or consult Mr. Kingsbury.

371 Taxonomy of Vascular Plants. *Fall term. Credit four hours. Prerequisite: Biological Sciences 281 or permission to register. Lectures and discussions, T Th 9:05. Laboratory, T Th 2-4:25. Mr. Clausen.* An introduction to the evolution and classification of vascular plants, with attention to principles, methods of identification, and literature. In the first part of the term, trips are held in laboratory periods.

460 Marine Ecology. *Spring term. Credit three hours. Enrollment limited. Given in alternate years. Prerequisites: Biological Sciences 361, 461, organic chemistry, and permission of the instructor. Lectures, M W F 10:10. Mr. Barlow.* A consideration of the oceanographic aspects of the marine environment. For graduate students and advanced undergraduates. Lectures and seminars, with demonstrations and field trips to be arranged.

461 Oceanography. *Fall term. Credit three hours. Prerequisites: Biological Sciences 361 or consent of instructor. Lectures, T Th 10:10. Additional lectures, Th 12:20 alternating with laboratory, M T or Th 2-4:30. Mr. Barlow.* An introduction to general oceanography, designed to present a general description of the physical aspects of the oceans as a background for further studies in marine science. Laboratory, which will meet for about half the term, will be devoted to field demonstrations of equipment, analysis of some typical oceanographic observations, and work with simple models.

462 Limnology. *Spring term. Credit four hours. Prerequisite: Biological Sciences 361 or permission of instructor. Lecture, M W F 9. Laboratory, F 1:25-4:25 or S 9-12. Mr. Likens.* A study of the interaction of biological communities and their aquatic environment. Lectures deal with the physical, chemical, and biological dynamics of freshwater ecosystems. Laboratories devoted to both field studies and experiments on model ecosystems.

462A Limnology, Lectures. *Spring term. Credit three hours. Prerequisite: Biological Sciences 361 or permission of instructor. Lecture, M W F 9. Mr. Likens.* The lecture portion of Biological Sciences 462.

463 Plant Ecology. *Fall term. Credit four hours. Prerequisite: two advanced-level courses in biology or consent of instructor. Lectures, M W F 10:10. Laboratory and field trips, T or F 2-5. Mr. Miller.* Principles of plant-environment interactions in relation to the distribution, structure, and functioning of plant communities. These principles will be illustrated by analysis in the field of representative plant communities and their environments, and by conducting experiments in the laboratory with plants grown under controlled environmental conditions.

464 Evolution and Ecology of Vascular Plants. *Spring term. Credit four hours. Prerequisite: Biological Sciences 371 or permission to register. Lectures and discussions, T Th 9:05. Laboratory, T Th 2-4:25. Mr. Clausen.* A study of the variation, evolution, and ecological distribution of vascular plants. Laboratory periods in the later part of the term are devoted to study of natural populations in the field.

466 Chemical Ecology (Also Chemistry 470). *Spring term. Credit two hours. Given in alternate years. Primarily for seniors and graduate students. Prerequisites: Chemistry 353 or 357-358; and Biological Sciences 101-102 or equivalent; or permission of instructor. Lectures, M F 12:20. Messrs. Alexander, Eisner, Meinwald, Whittaker, and Feeny (in charge).* Ecological and evolutionary significance of chemical

interactions of organisms. Summary of key processes in regulation of natural populations. Survey of major classes of natural products with emphasis on appropriate analytical techniques. Chemical adaptations for reproduction, defense, habitat selection, dispersal, feeding efficiency and competition in animals, plants and microorganisms. Choice of adaptive strategy in relation to energy flow. Practical applications of chemical ecology.

468 Biology of Fishes. *Spring term. Credit two hours. Prerequisite: introductory biology, or Biological Sciences 273, or the equivalent. Lectures, M W 9:05. Mr. Raney.* An introduction to the study of fishes; their structure, classification, evolution, distribution, ecology, physiology, and behavior. Laboratory studies on structure, identification, classification, and nomenclature. Field studies of local species.

[470 Ichthyology. *Spring term. Credit two hours. Prerequisite: Biological Sciences 468 or consent of the instructor. Lectures, M W 9:05. Mr. Raney. Given in alternate years. Not offered 1971-72.]*

471 Mammalogy, Lectures. *Spring term. Credit three hours. Prerequisites: Biological Sciences 101-102 or equivalent and Biological Sciences 273. Lectures, T Th S 10:10. Messrs. Hudson and Richmond.* Lectures on the evolution, classification, distribution, and adaptations, both physiological and morphological, of mammals.

471A Mammalogy, Laboratory. *Spring term. Credit one hour. Prerequisite: concurrent enrollment in Biological Sciences 471. Laboratory, F 1:25-4:25. Messrs. Hudson and Richmond.* Laboratory and field work on ecology, behavior, physiology, and the taxonomy of recent mammals, with emphasis on the North American fauna.

472 Ornithology. *Spring term. Credit four hours. Prerequisites: Biological Sciences 373 or equivalent work in vertebrate biology and permission of instructor. Lectures, T Th 11:15. Laboratory, W 2-4:30 and S 8-11. Mr. Cade or Mr. Lancaster.* Lectures cover various aspects of the biology of birds, including anatomy, physiology, classification, evolution, migration and orientation, behavior, ecology, and distribution. Laboratory will include studies of external and internal morphology, pterylosis, molts and plumages, skin identification of birds of New York, and families of birds of the world. Several demonstration periods will emphasize hybridization, evolution, adaptive radiation, mimicry, and geographic variation. Field work includes identification of birds and familiarization of some techniques used in field research.

474 Herpetology, Lectures. *Spring term. Credit two hours. Given in alternate years. Prerequisites: Biological Sciences 273 or equivalent work in vertebrate biology, and permission of the instructor. Lectures, T Th 10:10. Mr. Pough.* Lectures on the evolution, classification, distribution, and adaptations of reptiles and amphibians. Emphasis on ecology, behavior and environmental physiology.

474A Herpetology, Laboratory. *Spring term. Credit two hours. Limited to 12 students. Prerequisite: concurrent enrollment in 474. T Th 1:25-4:25. Mr. Pough.* Laboratory and field work on systematics, ecology, behavior, and physiology of amphibians and reptiles. In the second half of the semester the class may be divided into several groups which will concentrate on different projects.

475 Evolutionary Theory. *Fall term. Credit four hours. Prerequisite: Biological Sciences 281; a course with some taxonomic content in botany or zoology is desirable, or else some experience with making and*

48 Genetics and Development

maintaining a personal collection of some plant or animal group. Lectures, T Th 11:15. Discussion, Th 12:20. Mr. W. L. Brown. Lectures and class discussions on organic evolution, with primary emphasis on the mechanisms of speciation and adaptation. The course begins with a few lectures on taxonomic methodology.

479 Research in Ecology, Evolution, and Systematics. *Either term. Credit and hours to be arranged. Undergraduates must attach to their preregistration material written permission from the staff member who will supervise the work and assign the grade. Staff. Practice in planning, conducting, and reporting independent laboratory and/or library research programs.*

For complete descriptions of courses numbered 500 or above see the *Announcement of the Graduate School: Biological Sciences*. If the course is not included there, consult the Graduate Field Representative.

561 Quantitative Ecology. *Fall term. Credit four hours. Prerequisites: one year of biology and permission of instructor. Organic chemistry and some college mathematics are desirable. Lectures, T Th S 11:15. Laboratory, W 1:25-4:25. Mr. Cole.*

564 Advanced Plant Ecology. *Spring term. Credit two or four hours. Prerequisite: Biological Sciences 463; one course each in plant physiology and soils is strongly recommended. Meetings, M W F 11:15. Messrs. Whittaker and Miller.*

565 Special Topics in Limnology. *Fall term. Credit one hour. Primarily for graduate students. Prerequisite: consent of instructor. Hours to be arranged. Mr. Likens.*

571 Special Topics in Higher Vertebrates. *Fall term. Credit two hours. Enrollment limited. Prerequisites: advanced courses in vertebrate biology and permission of instructors. Hours to be arranged. Messrs. Cade and Hudson.*

[573 Special Topics in Lower Vertebrates. *Fall term, even-numbered years only. Credit two hours. Enrollment limited. Prerequisite: consent of instructor. For advanced students in biological sciences. Hours and topics to be arranged. Messrs. McFarland and Pough. Not offered 1971-72.]*

661 Seminar in Population and Community Ecology. *Fall term. Credit one hour. Course restricted to graduate students. Prerequisite: permission of instructor. Lecture, M 7:30 p.m. This course may be repeated for credit. Messrs. Root, Brussard, and Levin.*

663 Seminar in Evolution and Ecology of Vascular Plants. *Fall term. Credit one hour. Prerequisites: Biological Sciences 464 and Statistics 510 and 511 or equivalent, or permission of instructor. Lecture and discussion, M 11:15. Mr. Clausen.*

665 Environmental Physiology. *Fall term. Credit three hours. Lectures, M W 9:05-10:35. Messrs. McFarland and Miller.*

666 Population Ecology. *Spring term. Credit three hours. Prerequisites: graduate standing with some background in calculus, statistics, ecology, and evolutionary theory plus consent of instructor. Lectures and discussions, M W 9:05-10:35. Messrs. Cole and Brussard.*

[667 Community Ecology. *Fall term. Credit three hours. Prerequisite: Biological Sciences 666 or permission of instructor. Lectures, M W 9:05-10:35. Messrs. Whittaker, Barlow, and Marks. Not offered in 1971-72.]*

The structure and dynamics of natural communities; patterning and sampling problems, species-diversity,

gradient relations, succession, and classification. Comparative aspects of terrestrial, marine, and freshwater communities will be stressed.

[668 Ecosystems. *Spring term. Credit three hours. Prerequisite: Biological Sciences 667 or permission of instructor. Lectures, M W 9:05-10:35. Messrs. Whittaker and Likens. Not offered in 1971-72.]*

669 Current Topics in Plant Ecology. *Either term. Credit two hours. May be repeated for credit. Hours to be arranged. Mr. Miller.*

Insect Biology (Entomology 212, College of Agriculture).

Invertebrate Zoology (Biological Sciences 316).

Advanced Soil Microbiology (Agronomy 506, College of Agriculture).

Soil Microbiology Lectures (Agronomy 306, College of Agriculture).

Soil Microbiology Laboratory (Agronomy 307, College of Agriculture).

Microbial Ecology (Biological Sciences 492).

Aquatic Plants (Agronomy 431, College of Agriculture).

Phycology (Biological Sciences 344).

Aquatic Entomology and Limnology (Entomology 471, College of Agriculture).

Introductory Insect Taxonomy (Entomology 331, College of Agriculture).

Advanced Insect Taxonomy (Entomology 531, 532, 533, 534, College of Agriculture).

Introductory Parasitology (Entomology 351, College of Agriculture).

Advanced Parasitology (Entomology 551, College of Agriculture).

Ecological Aspects of Animal Behavior (Biological Sciences 523).

Genetics and Development

280 Human Genetics. *Spring term. Credit three hours. Prerequisite: Biological Sciences 101-102 or equivalent. Students who have taken Biological Sciences 281 may register only with the permission of the instructor. Lectures, M W 10:10. Discussion, F 10:10. Mr. Srb. An introduction to biological heredity through consideration of the genetics of man. Advances in the science of genetics are having a profound effect on man's understanding of himself and on his potential for influencing his present and future well-being. The course is intended primarily to contribute to the student's general education in these matters and, although certain aspects of genetics will be considered with some rigor, the course is not designed to serve as a prerequisite to advanced courses in genetics.*

281 Genetics. *Either term. Credit four hours. Prerequisite: Biological Sciences 101-102 or equivalent. Students who have taken Biological Sciences 280 may register only with the permission of the instructor. Lectures, M W F 8. Laboratory, M T W Th or F 2:30-4:25, or T Th or S 8-9:55. Students do not preregister for laboratory sections; laboratory assignments will be made at the end of the first lecture period. Messrs. Bruns, Fink, MacIntyre, and assistants. A general study of the fundamental principles of genetics in eucaryotes, procaryotes, and viruses. Discussions of gene transmission, gene action and interaction, gene linkage and recombination, gene structure, gene and chromosome*

mutations, genetic aspects of differentiation, genes in population, breeding systems, extrachromosomal inheritance. Animals, plants, and micro-organisms are used in the laboratory, which also includes an independent study of inheritance in *Drosophila*.

386 Animal Embryology. *Spring term. Credit four hours. Prerequisite: Biological Sciences 281. Lectures, M W F 9:05. Laboratory, M W or F 2-4:25. Mr. Wimsatt.* An introductory course in general animal embryology with major emphasis directed to vertebrates. The lectures cover the physiological, genetical, and morphological bases of early development. The laboratories have a strong anatomical theme.

[480 Population Genetics. *Spring term. Credit three hours. Prerequisite: Biological Sciences 281 or the equivalent. Lectures, T Th 11:15. Mr. Wallace. Given in alternate years. Not offered in 1971-72.]*

484 Molecular Evolution. *Spring term. Credit three hours. Given in alternate years. Prerequisites: Biological Sciences 281 and organic chemistry. Lectures, T Th 11:15. Mr. MacIntyre.* An analysis of evolutionary changes in proteins and nucleic acids and gene-enzyme variability in natural populations. The role of natural selection in effecting these changes and maintaining genetic variation at the molecular level will be critically examined. Theories on the evolution of the genetic code and the construction of phylogenetic trees from biochemical data will be discussed.

488 Genetics of Lower Eucaryotes. *Spring term. Credit three hours. Prerequisites: Biological Sciences 281 and a course in organic chemistry. Lectures, M W 9:05. Messrs. Srb, Bruns, and Fink.* Genetic aspects of the biology of a few eucaryotic microorganisms, primarily yeast, neurospora, and ciliated protozoa, with emphasis on the use of these organisms as experimental tools. Major topics to be covered include gene action, control mechanisms, cytoplasmic genetic systems, recombination and conversion, morphogenetic systems, and evolutionary aspects of physiological systems. Extensive appropriate reading in the original literature of genetics is a primary component of the course.

489 Research in Genetics and Development. *Either term. Credit and hours to be arranged. Undergraduates must attach to their preregistration material written permission from the staff member who will supervise the work and assign the grade. Staff. Practice in planning, conducting, and reporting independent laboratory and/or library research programs.*

For complete descriptions of courses numbered 500 or above see the *Announcement of the Graduate School: Biological Sciences*. If the course is not included there, consult the Graduate Field Representative.

680 Current Topics in Genetics. *Throughout the year. Credit two hours. Open to graduate students, with preference given to majors in the field of genetics; undergraduates by permission only. No auditors. Enrollment limited to 20 students. Hours to be arranged. Staff.*

Cytology (Biological Sciences 347A and 347B).

Cytogenetics (Biological Sciences 440).

Cytochemistry and Cytophotometry (Poultry Science 430, College of Agriculture).

Microbial Genetics (Biological Sciences 495A and 495B).

Physiological Genetics of Crop Plants (Plant Breeding 505, College of Agriculture).

Plant Growth and Development (Biological Sciences 441).

Microbiology

290A General Microbiology, Lectures. *Either term. Credit three hours. Prerequisites: Biological Sciences 101-102 or equivalent and Chemistry 104 or 108 or the equivalent. It is recommended that 290B be taken concurrently. Lectures, M W F 11:15. Fall term, Mr. Seeley. Spring term, Mr. VanDemark.* A study of the basic principles and relationships in the field of microbiology, with fundamentals necessary to further work in the subject. The course offering in the spring term will provide special emphasis on the application of microbiology in home economics and agriculture.

290B General Microbiology, Laboratory. *Either term. Credit two hours. M W 2-4:25; T Th 8-11 or 2-4:25. Fall term, Mr. Seeley. Spring term, Mr. VanDemark.* A study of the basic principles and techniques of laboratory practice of microbiology.

391A Natural Selection in the Bacteria. *Fall term. Credit three hours. Prerequisites: Biological Sciences 290 and 431 or consent of instructor. Biological Sciences 431 may be taken concurrently. Lectures, M W F 9:05. Mr. MacDonald.* A study of the comparative physiological and ecological relationships among bacteria and some related organisms. A number of groups of bacteria will be discussed in detail as well as factors which influence their ability to survive in nature. Parasitism, autotrophy, and evolution will be among the major topics discussed.

391B Bacterial Ecology, Laboratory. *Fall term. Credit three hours. Enrollment limited to 15. Prerequisites: concurrent registration in 391A and consent of instructor. Lecture, M 1:25. Discussion, F 1:25. Laboratories to be arranged. Mr. MacDonald.* Techniques for the isolation, cultivation, and detailed study of selected groups of organisms. Some of the more standard techniques of physiological study will be introduced. Emphasis will be placed on independent work.

393 Applied and Industrial Microbiology. *Fall term. Credit three hours. Given in alternate years. Prerequisite: Biological Sciences 290 or equivalent. Lectures, T Th S 11:15. Messrs. Delwiche, Dondero, and VanDemark.* A survey of the microbiology of industrial fermentations, water, and waste decomposition.

394 Food Microbiology. *Spring term. Credit four hours. Prerequisite: Biological Sciences 290A, 290B. Graduate students must have permission of the instructor. Lectures, M W 12:20. Laboratory, M W 2-4:25. Mr. Naylor.* The major families of microorganisms of importance in foods are studied systematically with emphasis on the role played by these organisms in food preservation, food fermentations, and public health. The laboratory work includes practice in the use of general and special methods for microbiological testing and control of food products as well as practice in the isolation and characterization of organisms found in foods.

490A Microbial Physiology Lectures. *Spring term. Credit three hours. Prerequisite: 391A or permission of instructor. Lectures, T Th S 10:10. Primarily for microbiology majors intending to enter graduate school and for graduate students. Mrs. Gibson.* A study of the organization of physiological processes in microorganisms, including a study of structure, energy-yielding mechanisms, macromolecular biosyntheses, and growth and regulation.

490B Microbial Physiology Laboratory. *Spring term. Credit three hours. Enrollment is limited and prefer-*

ence will be given to students obtaining a grade of B- or better in Biological Sciences 391B. Prerequisites: coregistration in 490A and permission of instructor. Laboratory, F 9:05-4:25. One discussion period to be arranged. Mrs. Gibson. Experiments on material covered in 490A will be used to introduce modern research techniques for the study of growth and physiological activities.

[492 Microbial Ecology. Spring term. Credit two hours. Prerequisite: an elementary course in some facet of microbiology. M W 8. Mr. Alexander. Given in alternate years. Not offered in 1971-72.]

495A Microbial Genetics, Lectures. Fall term. Credit two hours. Prerequisites: Biological Sciences 281 and 290A, or permission of the instructor. For upperclassmen and graduate students. Lecture, W 7:30-9:25 p.m. Mr. Zahler. Genetics of bacteria and their viruses with emphasis on the mechanisms of genetic phenomena.

495B Microbial Genetics, Laboratory. Fall term. Credit three hours. Prerequisite or parallel: Biological Sciences 495A. Permission of the instructor is required. Primarily for upperclassmen. Laboratory, T 1:25-4:25, and other hours to be arranged. Mr. Zahler. Problem solving in bacterial genetics.

496 Selected Topics in Microbial Metabolism. Spring term. Credit two hours. Prerequisites: beginning courses in general microbiology, biochemistry, and organic chemistry. Course intended for upperclassmen and graduate students. Lectures, M W 11:15. Mr. Delwiche. Selected topics pertaining to the energy metabolism, oxidative and fermentative abilities, and biosynthetic capacities of microorganisms. Where possible and appropriate the subject matter deals with the various microbial forms in a comparative sense.

498 Virology. Spring term. Credit three hours. Given in alternate years. Prerequisites: Biological Sciences 290A and 281 or permission of the instructor. Lectures, T Th S 11:15. Messrs. Naylor, Ross, and Carmichael. A study of the basic physical, chemical, and biological properties of plant, animal, and bacterial viruses.

499 Research in Microbiology. Either term. Credit and hours to be arranged. Undergraduates must attach to their preregistration material written permission from the staff member who will supervise the work and assign the grade. This course cannot be used to fulfill the concentration requirement. Staff.

For complete descriptions of courses numbered 500 or above see the Announcement of the Graduate School: Biological Sciences. If the course is not included there, consult the Graduate Field Representative.

590 Methods in Advanced Bacteriology. Either term. Credit to be arranged. Limited enrollment. Prerequisite: permission of instructor. Primarily for graduate students in microbiology. Hours to be arranged. Staff.

596 Molecular Immunology. Spring term. Credit two hours. For advanced undergraduates and graduate students. Prerequisite: Biological Sciences 531 or permission of the instructor. W 7:30-9:25 p.m. Mr. Slobin.

691 Graduate Seminar in Microbiology. Either term. Credit one hour. Required of all graduate students majoring in microbiology. Hours to be arranged. Staff.

699 Microbiology Seminar. Either term. No credit. Required of graduate students majoring in microbiology and open to all who are interested. Th 4:15. Staff.

Soil Microbiology (Agronomy 306, College of Agriculture).

Advanced Soil Microbiology (Agronomy 506, College of Agriculture).

Serology (Microbiology 941, Veterinary College).

Immunochemistry (Microbiology 944, Veterinary College).

Animal Virology (Microbiology 945, Veterinary College).

Chemistry

Mr. G. G. Hammes, Chairman; Messrs. A. C. Albrecht, S. H. Bauer, C. A. Brown, J. M. Burlitch, W. D. Cooke, V. du Vigneaud, E. L. Elson, R. C. Fay, M. E. Fisher, G. A. Fisk, J. H. Freed, M. J. Goldstein, R. Hoffmann, R. E. Hughes, E. S. Kostiner, F. A. Long, G. M. Loudon, F. W. McLafferty, J. Meinwald, W. T. Miller, G. H. Morrison, H. Muxfeldt, R. A. Plane, R. F. Porter, R. R. Rye, H. A. Scheraga, F. R. Scholer, M. F. Semmelhack, M. J. Sienko, D. A. Usher, B. Widom, C. F. Wilcox.

Chemistry Major

A major in chemistry permits considerable flexibility in the detailed planning of a course program. The required courses can be completed in three years, leaving the senior year open for advanced and independent work in all areas of chemistry: physical, organic, inorganic, analytical, theoretical, bioorganic, biophysical. A major in chemistry can also provide the necessary basis for significant work in related areas such as molecular biology, chemical physics, geochemistry, chemical engineering, solid state physics, and medicine.

The courses are arranged as a progression with some courses (including mathematics and physics) prerequisite to those which are more advanced. During the first year the student should normally register for general chemistry (preferably but not necessarily Chemistry 115), mathematics, a Freshman Humanities course, a foreign language if necessary or, in some instances, physics. Although Chemistry 115-116 is preferred, students may begin their programs with Chemistry 107-108 or Chemistry 103-104-108. Chemistry 115-116 is a limited enrollment course for those students with excellent preparation; students who are uncertain as to their preparation should consult the instructor. In the second year the student should complete calculus, take physics and organic chemistry, Experimental Chemistry I and II, and complete a course in Distribution (see p. 16). Physical Chemistry I and II and Experimental Chemistry III should be completed in the third year along with courses in Distribution if necessary. Advanced work in chemistry and related subjects could be pursued in the fourth year and, to some extent, in the earlier years as well. The opportunity for independent research is also available. All students with questions about details of a major program are encouraged to consult with the chairman of the Department of Chemistry or his representative. Entering students exceptionally well prepared in chemistry may receive advanced placement credit for Chemistry 107-108 and proceed to a more advanced program.

Prerequisites to admission to a major in chemistry are (1) Chemistry 115-116, or 107-108, or 103-104, 108; (2) Physics 207; and (3) Mathematics 111. A student is not encouraged to undertake a major in chemistry unless he has passed those prerequisite courses at a good level of proficiency.

As a minimum the following additional courses must then be completed for a major in chemistry: (1) Chemistry 301, 302, 303, 357-358, 389-390; (2) Mathematics 112, 213; (3) Physics 208. This sequence is a core program in chemistry. It is anticipated that the student will, through elective courses, extend it substantially

in whatever direction suits his own needs and interests. It is particularly important that those going on to do graduate work in chemistry recognize that these requirements are minimal (indeed, they do not in themselves meet the standards recommended by the American Chemical Society for professional training), and such students are strongly urged to supplement their programs, where possible, with Chemistry 410, 411, 468, 481, and German (or Russian). Even students not planning graduate work in chemistry should consider advanced work in physics and mathematics, courses in the biological sciences, and advanced work in chemistry, as possible extensions of the basic program.

The Honors Program

The Honors program in chemistry offers superior students an opportunity to study independently in seminars and to gain additional experience by engaging in research during the senior year. It is particularly recommended to those who plan graduate work in chemistry. Prospective candidates for Honors should complete the introductory organic chemistry and physical chemistry sequences by the end of the junior year. However, failure to have completed those courses in the junior year does not in itself disqualify a student from the Honors program. Completion of the program at a high level of performance leads to the degree of Bachelor of Arts with Honors in chemistry. The requirements for admission to the Honors program are a cumulative average grade of at least B- and permission of the Department. Prospective candidates for Honors should discuss their plans with their advisers by March 1 of their junior year. Candidates for Honors must show outstanding performance in one of the following: 421, 433, 461, 477; and, in addition, 498.

Distribution Requirement

The Distribution requirement in physical sciences is satisfied in chemistry by Chemistry 103, 107, or 115 and 104, 108, or 116.

Students and members of the teaching staff are required to wear safety glasses or approved eye-protective devices in all chemistry laboratories. Those who fail to cooperate with the safety program may be asked to leave the laboratories.

General identification of the courses listed below is as follows:

Inorganic: 410, 421, 505-506, 515, 516.

Analytical: 236, 339, 433, 525, 527, 528.

Organic: 353, 355, 357-358, 457, 461, 465-466, 565, 566, 570, 572, 574.

Physical and Theoretical: 287-288, 289-290, 389-390, 392, 477, 481, 578, 586, 589, 593, 594, 596, 598.

Bioorganic and Biophysical: 468, 572, 577, 582, 586.

Experimental Chemistry: 301, 302, 303, 404, 405.

103-104 Introduction to Chemistry. *Throughout the year. Credit three hours a term. Enrollment limited. Recommended for students who have not had high school chemistry and for those desiring a less mathematical course than Chemistry 107-108. Chemistry 103 is prerequisite to Chemistry 104. Lectures, M W 11:15 or 12:20. Laboratory, T or Th 8-11, F 10:10-1:10, M W or F 1:25-4:25. Preliminary examinations may be held in the evening. Fall term, Mr. Widom and assistants. Spring term, Mr. Semmelhack and assistants. An introduction to chemistry with emphasis on the important principles and facts of inorganic and organic chemistry.*

107-108 General Chemistry. *Throughout the year. Credit: fall term, three hours; spring term, four hours.*

Enrollment limited. Recommended for those students who will take further courses in chemistry. Prerequisite: high school chemistry; 107 is prerequisite to 108. Preliminary examinations will be held in the evening. Lectures, T Th 9:05, 10:10 or 12:20. Laboratory, T Th or F 8-11; M T W Th or F 1:25-4:25. Spring term, one additional recitation hour to be arranged. Fall term. Messrs. Kostiner and Scholer and assistants. Fall term preliminary examinations will be held at 7:30 p.m. on October 7 and November 11. Spring term, Mr. Sienko and assistants. The important chemical principles and facts are covered, with considerable attention given to the quantitative aspects and to the techniques that are important for further work in chemistry. Second-term laboratory includes a systematic study of qualitative analysis.

Note: Entering students exceptionally well prepared in chemistry may receive advanced placement credit for Chemistry 107-108 by demonstrating competence in the Advanced Placement Examination of the College Entrance Examination Board, or in the departmental examination given at Ithaca on the Saturday before classes start in the fall. (See page 10.)

115-116 General Chemistry and Inorganic Qualitative Analysis. *Throughout the year. Credit: fall term, four hours; spring term, five hours. Enrollment limited to 120. Recommended for students who intend to specialize in chemistry or in closely related fields. Prerequisite: high school chemistry and physics at a grade of 90 or higher; Chemistry 115 prerequisite to 116. Coregistration in a calculus course at the level of Mathematics 111 or 191 and/or high school calculus required. Calculus will be used in the course. Preliminary examinations may be held in the evening. Fall term: lectures, M W F 12:20; one laboratory period, T or Th 10:10-1:10, or T W Th or F 1:25-4:25. Spring term: lectures, M W 12:20. When announced in advance, quizzes, extra lectures, or recitations will be F 12:20. Two laboratory periods: M T 1:25-4:25, T Th 10:10-1:10; W F 8-11; W F 1:25-4:25, Th 1:25-4:25 and S 8-11. Fall term, Mr. Rye and assistants. Spring term, Mr. Fay and assistants. An intensive, systematic study of the laws and concepts of chemistry, with considerable emphasis on mathematical aspects. Laboratory work will cover both qualitative and quantitative analysis.*

236 Introductory Quantitative Analysis. *Spring term. Credit four hours. Enrollment limited. Prerequisite: Chemistry 108 or advanced placement in chemistry. Preliminary examinations may be held in the evening. Lectures, T Th 12:20. Laboratory, M W or T Th 1:25-4:25; or F 1:25-4:25 and S 8-11, if warranted by sufficient registration. A study of the fundamental principles of quantitative chemistry. Laboratory experiments are designed to illustrate basic principles and practice of quantitative procedures.*

287-288 Introductory Physical Chemistry. *Throughout the year. Credit three hours a term. Prerequisites: Chemistry 108 or 116 and Mathematics 111-112 or consent of the instructor. Chemistry 287 is prerequisite to 288. Lectures, W F 9:05; occasional lectures, M 9:05. Recitation, M W or F 1:25. Examinations may be given M 9:05 or evenings. Fall term, Mr. Elson and assistants. Spring term, Mr. Hughes and assistants. A systematic treatment of the fundamental principles of physical chemistry.*

289-290 Introductory Physical Chemistry Laboratory. *Throughout the year. Credit two hours a term. Chemistry 289 is prerequisite to 290. Coregistration in Chemistry 287-288 required. Laboratory lecture, S 9:05. Laboratory, M T or W Th 1:25-4:25 or, if warranted by sufficient registration, F 1:25-4:25 and S 10-1. First*

hours of laboratory on M W or F devoted to Chemistry 287 recitation. Fall term, Mr. Albrecht and assistants. Spring term, Mr. Rye and assistants. The development of needed skills in the experimental aspects concerned with the fundamental principles of physical chemistry.

301 Experimental Chemistry I. Fall term. Credit four hours. Prerequisite or parallel: Chemistry 353 or Chemistry 357-358. Preliminary examinations may be held in the evening. Lectures, M Th 7:30 p.m. Two laboratory periods, M W 1:25-4:25; T Th 8-11; T Th 1:25-4:25; F 1:25-4:25 and S 8-11. Mr. Wilcox and selected faculty. An introduction to synthesis and the separation and handling of materials including applications of many types of chromatography; simple and fractional distillation; crystallization; extraction; etc.

302 Experimental Chemistry II. Spring term. Credit four hours. Prerequisite: Chemistry 301. Preliminary examinations may be held in the evening. Lectures, M Th 7:30 p.m. Two laboratory periods, M W 1:25-4:25; T Th 8-11; T Th 1:25-4:25; F 1:25-4:25 and S 8-11. Selected faculty. A survey of the various aspects of qualitative and quantitative analysis of both inorganic and organic compounds including optical spectroscopy; NMR; mass spectroscopy; statistical analysis of data and electrochemical methods.

[303 Experimental Chemistry III. Fall term. Credit four hours. Prerequisite: Chemistry 302 and Chemistry 389. Coregistration in Chemistry 389 is acceptable. Preliminary examinations may be held in the evening. Lectures, M Th 7:30 p.m. Two laboratory periods, M W 1:25-4:25; T Th 8-11; T Th 1:25-4:25; F 1:25-4:25 and S 8-11. Selected faculty. Not offered 1971-72. Will be offered 1972-73 and thereafter.] An introduction to the techniques of vacuum line construction and operation; the principles and assembly of electronic measuring devices; optics and the determination of structure by x-ray diffraction.

339 Analytical Chemistry. Fall term. Credit four hours. Required of candidates for the degree of A.B. with a major in chemistry. Prerequisite: Chemistry 356. Lectures, M W F 9:05. Laboratory, M T W Th or F 1:25-4:25; or S 9:05-12:05. Mr. McLafferty. Not offered after 1971. Examination of modern analytical chemistry. Laboratory work includes utilization of emission spectroscopy, polarography, spectrophotometry, and nuclear magnetic resonance spectroscopy.

353 Elementary Organic Chemistry. Either term. Credit four hours. Primarily for students in the pre-medical and biological curricula. Prerequisite: Chemistry 104 at a grade of C or better, or 108, or 116. Parallel registration in Chemistry 301 or 355 is recommended. Preliminary examinations may be held in the evening. Lectures, M W F S 10:10. Fall term, Mr. Semmelhack. Spring term, Mr. Muxfeldt. A study of the occurrence and properties of organic molecules and the mechanisms of organic reactions, including brief introduction to the organic chemistry of biological systems.

The student should determine the entrance requirements for the particular medical school he wishes to enter. Students may obtain six hours credit by taking Chemistry 353-355, or eight hours credit from 301-353.

355 Elementary Organic Laboratory. Spring term. Credit two hours. Prerequisite or parallel: Chemistry 353 or 357. Enrollment is limited; a registrant who does not appear at the first meeting of his section will forfeit his registration. Preliminary examinations may be held in the evening. Discussion-laboratory, M W 1:25-4:25; T Th 8-11; T Th 1:25-4:25. Mr. Loudon and assistants. An introduction to various laboratory tech-

niques for the separation, purification, and analysis of organic compounds as these are applied to problems of natural products, of reaction kinetics, and of organic synthesis.

357-358 Introductory Organic Chemistry. Throughout the year. Credit three hours a term. Required of candidates for the degree of B.Ch.E. and A.B. with a major in chemistry. Prerequisite: Chemistry 108, or 116, or advanced placement in chemistry. Chemistry 357 is prerequisite to Chemistry 358. Parallel registration in Chemistry 301, 302, or 355 recommended. Preliminary examinations may be held in the evening. Lectures, M W F 9:05. Fall term, Mr. Meinwald. Spring term, Mr. Meinwald. A systematic study of the more important classes of carbon compounds, reactions of their functional groups, methods of synthesis, relations, and uses.

389-390 Physical Chemistry I and II. Throughout the year. Credit four hours a term. Required of candidates for the degree of A.B. with a major in chemistry who are encouraged to coregister in Chemistry 303. Prerequisites: Mathematics 213 or 221, Physics 208, Chemistry 108 or 116, or consent of the instructor. Chemistry 389 is prerequisite to 390. Lectures, M W F 10:10. Examinations and make-up lectures, Th 7:30 p.m. Fall term, Mr. Fisher and assistants. Spring term, Mr. Porter and assistants. A study of the more fundamental principles of physical chemistry from the standpoint of the laws of quantum mechanics, thermodynamics, and statistical mechanics.

392 Physical Chemistry Laboratory. Spring term. Credit four hours. Prerequisite: Chemistry 389-390 or coregistration. Laboratory lecture, Th. 12:20. Laboratory, M T 1:25-4:25 or W F 1:25-4:25. Mr. Bauer and assistants. Not offered after 1972. Experiments illustrating laboratory techniques as well as experiments in classical and modern physical chemistry.

[404 Advanced Instrumental and Physical Chemistry Laboratory. Spring term. Credit four hours. Prerequisite: Chemistry 303. Hours to be arranged. Mr. Fisk and assistants. Not offered in 1971-72. Offered 1972-73 and thereafter.] Applications of modern experimental techniques in a variety of fields. Advanced techniques for modern structure determination; applications of on-line computing; cryogenic measurements; kinetic studies; activation analysis.

[405 Techniques of Modern Synthetic Chemistry. Spring term. Replaces Chemistry 411. Credit four hours. Laboratory hours to be arranged on a flexible schedule. Enrollment may be limited. Not offered 1971-72. Offered 1972-73 and thereafter.] The syntheses of complex organic and inorganic molecules will be carried out with emphasis on the following techniques: vacuum line, high pressure, high temperature solid state, inert atmosphere, non-aqueous solvents, radioactive labelling, photochemical and electrochemical methods.

410 Inorganic Chemistry. Spring term. Credit four hours. Prerequisite: Chemistry 390 or consent of the instructor. Lectures, M W F 9:05. Lectures and assigned readings with emphasis on the application of thermodynamic, kinetic, and structural considerations to inorganic systems.

411 Inorganic Chemistry Laboratory. Fall term. Credit four hours. Prerequisite: Chemistry 389, or coregistration, or consent of the instructor. Enrollment may be limited. Hours to be arranged. Mr. Burlitch. The syntheses of complex organic and inorganic molecules will be carried out with emphasis on the following techniques: vacuum line, high pressure, high temperature solid state, inert atmosphere, non-aqueous

solvents, radioactive labelling, photochemical and electrochemical methods. Not offered after 1972. Will be replaced by Chemistry 405.

421 Introduction to Inorganic Research. *Either term. Credit two or four hours. Prerequisites: Chemistry 389-390, 392 or 287-288, 289-290 at an average of B- or better and consent of the instructor. Hours to be arranged. Selected faculty.* Informal advanced laboratory and library work, planned individually in consultation with a staff member, involving the preparation and characterization of inorganic substances. A written report is required.

433 Introduction to Analytical Research. *Either term. Credit two or four hours. Prerequisites: Chemistry 390, 392 with an average of B- or better or consent of the instructor. Hours to be arranged. Selected faculty.* Informal research in the field of analytical chemistry involving both laboratory and library work.

[457 Advanced Organic-Analytical Laboratory. *Spring term. Credit four hours. Primarily for seniors and graduate students in chemistry. Prerequisites: Chemistry 358 and Chemistry 339, or Chemistry 525, or consent of the instructor. Discussion, T Th 8. Laboratory, three of the following periods: T Th 8-11, M T W Th F 1:25-4:25, S 10:10-1:10. Not offered in 1971-72.]*

461 Introduction to Organic Research. *Either term. Credit two to four hours. For undergraduates; enrollment limited to those having a record of B- or better in prerequisite courses. Primarily for seniors and graduate students as preparation for advanced and independent work. Prerequisite: Chemistry 457 or consent of the instructor. Laboratory and weekly discussion meeting. Hours to be arranged. Selected faculty.*

465 Advanced Organic Chemistry. *Fall term. Credit four hours. Primarily for graduate students and upper-class undergraduates. Prerequisites: Chemistry 353 or 358 and Chemistry 390 or consent of the instructor. Lectures, M W F 12:20. Examinations and make-up lectures, W 7:30 p.m. Mr. Goldstein.* A survey of the simplest organic reactions within the framework of a mechanistic approach. The principal aim is to provide the student with the skills and background needed to predict the reactivity patterns and stereochemical preferences of new molecules in a variety of experimental environments. Qualitative applications of statistical thermodynamics and molecular orbital theory will be illustrated by readings from the current research literature.

466 Synthetic Organic Chemistry. *Spring term. Credit four hours. Primarily for graduate students and upperclass undergraduates. Prerequisite: Chemistry 465 or consent of the instructor. Lectures, T Th 12:20 and a third hour to be arranged. Modern techniques of synthesis; applications of organic reaction mechanisms to the problems encountered in rational multi-step syntheses, with particular emphasis on newer developments.*

468 Chemical Aspects of Biological Processes. *Fall term. Credit four hours. Primarily for graduate students. Prerequisites: Chemistry 358, and 389-390 or 287-288 or their equivalents. Lectures M W F 10:10. Make-up lectures Th 7:30 p.m. Mr. Scheraga.* Chemical properties of compounds of biological importance, bioenergetics, enzymes, metabolic pathways, biosynthesis of nucleic acids and proteins. This course forms the chemical basis for the graduate program in molecular biology.

470 Chemical Ecology (Also Biological Sciences 466). *Spring term. Credit two hours. Given in alter-*

nate years. Primarily for seniors and graduate students. Prerequisites: Chemistry 353 or 357-358, Biological Sciences 101-102 and 101L-102L or equivalent, or consent of instructor. Lectures, M F 12:20. Messrs. Alexander, Eisner, Feeny, Meinwald, and Whittaker. Ecological and evolutionary significance of chemical interactions between organisms. Summary of key processes in regulation of natural populations. Survey of major classes of natural products with emphasis on appropriate analytical techniques. Chemical adaptations for reproduction, defense, habitat selection, dispersal, feeding efficiency, and competition in animals, plants, and microorganisms. Choice of adaptive strategy in relation to energy flow. Practical applications of chemical ecology.

477 Introduction to Research in Physical Chemistry. *Either term. Credit two to four hours. Prerequisite: Chemistry 390 at an average of B- or better and consent of the instructor. Hours to be arranged. Selected faculty.* Informal advanced laboratory and library work in physical chemistry, planned individually in consultation with a staff member.

481 Physical Chemistry III. *Fall term. Credit four hours. Prerequisites: Chemistry 288 or 390, Mathematics 213, and Physics 208. Lectures, M W F 9:05. Mr. Hammes.* A discussion of advanced topics in physical chemistry, including an introduction to the principles of quantum theory and statistical mechanics, atomic and molecular spectra, and elementary valence theory.

498 Honors Seminar and Research. *Spring term. Credit four hours. Prerequisite: admission to the Honors program. Seminar, W 2:30. Laboratory hours to be arranged. Mr. Miller.* The seminar will be an informal presentation and discussion of selected topics in which all members participate. Individual research will be on advanced problems in chemistry under the guidance of a staff member. A written report on the research results is required.

For complete descriptions of courses numbered 500 or above see the *Announcement of the Graduate School: Physical Sciences*. If the course is not included there, consult the Graduate Field Representative.

505-506 Advanced Inorganic Chemistry. *Throughout the year. Credit four hours a term. Open to seniors and graduate students. Prerequisite: Chemistry 389-390 or consent of the instructor. Chemistry 505 is prerequisite to 506. Lectures, M W F 11:15. Fall term, Mr. Fay. Spring term, Mr. Scholer.*

515-516 Selected Topics in Advanced Inorganic Chemistry. *Throughout the year. Credit two hours a term. S-U grades only. Prerequisite: Chemistry 390. First term not prerequisite to the second. Lectures, T Th 12:20. Fall term, Mr. Hoard. Spring term, Mr. Hoffmann.*

525 Advanced Analytical Chemistry I. *Fall term. Credit four hours. Open to undergraduates with consent of the instructor. Prerequisite: Chemistry 288 or 390. Lectures, M W F 8. Examinations will be held T 7:30 p.m. Mr. Cooke.*

[527 Advanced Analytical Chemistry II. *Spring term. Credit three hours. Primarily for graduate students. Prerequisite: Chemistry 288 or 390. Lectures, T Th 9:05. Given in alternate years. Not offered 1971-72.]*

528 Advanced Analytical Chemistry III. *Spring term. Credit three hours. Given in alternate years. Primarily for graduate students. Prerequisite: Chemistry 288 or 390. Lectures, T Th 9:05. Mr. McLafferty.*

565 Physical Organic Chemistry. *Spring term. Credit four hours. Primarily for graduate students. Prerequisite:*

54 The Classics

site: Chemistry 465 or consent of the instructor. Lectures, M W F 12:20. Examinations and make-up lectures, W 7:30 p.m. Mr. Goldstein.

566 Physical Organic Chemistry. Spring term. Credit three hours. Primarily for graduate students. Prerequisite: Chemistry 565 or consent of the instructor. Lectures, T Th 12:20.

570 Selected Topics in Organic Chemistry. Fall term. Credit three hours. Primarily for graduate students. Prerequisites: Chemistry 465-466 or consent of the instructor. Lectures, T Th 12:20. Mr. Muxfeldt.

572 Enzyme Catalysis. Spring term. Credit four hours. Primarily for graduate students in chemistry and biochemistry. Prerequisites: Chemistry 357-358 or the equivalent and a course in general biochemistry. Lectures, M W F 11:15. Mr. Loudon.

[574 Chemistry of Natural Products. Fall term. Credit three hours. Primarily for graduate students. Prerequisites: Chemistry 457 and 465-466. Lectures, T Th 12:20 and discussion, M 4:30. Not offered in 1971-72.]

577 Chemistry of Nucleic Acids. Spring term. Credit four hours. S-U grades only. Offered in alternate years. Primarily for graduate students. Prerequisites: Chemistry 358 and 390. Lectures, M W F 8. Mr. Elson.

578 Thermodynamics. Spring term. Credit four hours. Primarily for graduate students. Prerequisite: Chemistry 288 or 390. Lectures, T Th S 10:10, and a discussion period to be arranged. Mr. Fisk.

580 Principles of Chemical Kinetics. Fall term. Credit four hours. Prerequisites: Chemistry 481 and 578 or consent of the instructor. Lectures, M W F 9:05. Mr. Bauer.

582 Special Topics in Molecular Biology. Fall term. No credit. Primarily for graduate students. Prerequisite: Chemistry 468 or consent of the instructor. Lectures, T Th 11:15.

[586 Physical Chemistry of Proteins. Spring term. Credit four hours. Primarily for graduate students. Prerequisite: Chemistry 288 or 390. Lectures, M W F 8:00, S 11:15, occasional lectures, W 7:30 p.m. Offered in alternate years. Not offered in 1971-72.]

[589 X-Ray Crystallography. Fall term. Credit four hours. Prerequisite, Physics 322 or consent of the instructor. M W F 12:20. Given in alternate years. Not offered in 1971-72.]

593 Quantum Mechanics I. Fall term. Credit four hours. Prerequisites: Chemistry 481 and coregistration in Mathematics 421 and Physics 431 or equivalents, or consent of the instructor. Lectures, T Th S 9:05. Mr. Freed.

594 Quantum Mechanics II. Spring term. Credit four hours. Prerequisites: Chemistry 593 or the equivalent and coregistration in Physics 432 and Mathematics 422, or the consent of the instructor. Lectures, M W F 10:10. Mr. Albrecht.

596 Statistical Mechanics. Spring term. Credit four hours. Primarily for graduate students. Prerequisite: Chemistry 593 or the equivalent. Lectures M W F 9:05. Mr. Widom.

[598 Selected Topics in Physical Chemistry. Spring term. Credit four hours. Lectures, T Th S 9:05. Not offered 1971-72.]

600 General Chemistry Seminar. Throughout the year. No credit. Required of all graduate students except those majoring in organic or bioorganic chemistry. Open to qualified juniors and seniors. Th 4:40.

601-602 Introductory Graduate Seminar in Analytical, Inorganic, and Physical Chemistry. Throughout the year. No credit. Required of all first-year graduate students majoring in analytical, inorganic, physical, and theoretical chemistry, and molecular biology. Hours to be arranged. Mr. Hughes.

650-651 Seminar in Organic Chemistry. Throughout the year. No credit. Required of all graduate students majoring in organic chemistry. Open to qualified juniors and seniors. T 8:15 p.m. Mr. Gurowitz.

700 Baker Lectures. Either term. No credit. T Th 11:15. Spring term, Mr. Szwarc.

The Classics

Mr. G. M. Kirkwood, Chairman; Miss Elizabeth Asmiz; Messrs. K. C. Clinton, J. E. Coleman, J. Hutton, G.M. Messing, P. Moore, P. Pucci, L. Reynolds, E. W. Spofford, M. C. Stokes.

Classics

Those whose major study is in the Classics must complete twenty-four hours of advanced courses in Greek and Latin (courses numbered above 201) and fifteen hours, selected after conference with the adviser, in related subjects. Related subjects for this purpose are all courses listed below under the headings "Classical Linguistics" and "Classical Civilization" or in ancient philosophy and selected courses in comparative literature, linguistics, modern foreign languages and literatures, and Semitic languages and literatures.

Classical Civilization

Those whose major study is in Classical civilization must complete (a) eighteen hours in Latin or Greek; (b) twenty hours selected from the courses listed below under the heading "Classical Civilization"; and (c) twelve hours in related subjects. Related subjects for this purpose may be any courses in the humanities but selected in conference with the adviser so as to form a coherent and significant experience in the relation between antiquity and subsequent periods in the Western tradition; related subjects may include courses listed under "Classical Civilization" which have not been used to satisfy requirement (b).

Study Abroad

Cornell is a joint participant with a number of universities in the Intercollegiate Center for Classical Studies in Rome, where Classics majors are able to do a term or more of work, with regular Cornell credit, in Latin, Greek, classical art and archaeology, ancient history, and Italian. Class work is interspersed and coordinated with field trips. Detailed information on the Center is available in the Department office.

The Honors Program

Candidates for the degree of Bachelor of Arts with Honors in Classics or Bachelor of Arts with Honors in Classical Civilization must fulfill the requirements of the appropriate major study, as prescribed in the foregoing paragraphs, and must also complete successfully the special Honors courses 370, 371, and 372. Credit for Honors courses may be included in the hours required for the major study. Students who wish to become candidates for Honors and who have a cumulative average of B- or better should consult some member of the Department before preregistering for the second term of the junior year.

Greek Civilization

See p. 23 and the Program in Greek Civilization at the end of the Courses of Instruction section.

Distribution Requirement

The Distribution requirement in the Humanities is satisfied in Classics by (a) any two courses in Greek or in Latin beginning with 201 that form a reasonable sequence; but no course may be used for this requirement if it has been used for the language requirement; (b) two of the following: Classical Civilization 119, 120, 121, 122 (unless used for the Freshman Humanities requirement), 220, 319, 320; Comparative Literature 313, 314, 323, 340, 400.

Greek

101 Greek for Beginners. *Either term. Credit three hours. M W F 12:20 or 1:25. Fall term, Miss Asmis, Mr. Spofford. Spring term, Mr. Stokes.* Introduction to Attic Greek. Designed to enable the student to read the ancient authors as soon as possible.

103 Attic Greek. *Either term. Credit three hours. Prerequisite: Greek 101. M W F 12:20. Fall term, Mr. Pucci. Spring term, Mr. Coleman.* Continuation of Greek 101, and readings in Plato.

201 Attic Authors: Plato, Apology; Euripides, Medea. *Fall term. Credit three hours. Prerequisite: Greek 103. T Th S 10:10. Mr. Kirkwood.* Attention is given both to the exact understanding of the Greek texts and to relevant broad literary and historical questions.

203 Homer. *Spring term. Credit three hours. Prerequisite: Greek 103. T Th S 10:10. Mr. Clinton.* Readings in Homeric epic and consideration of such literary problems as the authorship, unity, and style of the epics and their relation to oral and literary epic.

209-210 Greek Composition. *Throughout the year. Credit two hours a term. Prerequisite: Greek 103 or the equivalent. W 2:30 and a second hour to be arranged. Fall term, Mr. Hutton. Spring term, Miss Asmis.* An exercise course to provide review and further study of the forms and, more especially, the syntax of ancient Greek. Recommended as a companion course to Greek 201 and 203. The second meeting is devoted entirely to exercise in reading passages of Greek at sight.

301 Greek Historians. *Fall term. Credit four hours. Prerequisite: Greek 203. T Th S 10:10. Mr. Clinton.* Selections from Herodotus and Thucydides.

302 Greek Tragedy. *Spring term. Credit four or five hours. An extra meeting once a week for an additional credit hour will be used for related reading in translation. Prerequisite: Greek 203 or the equivalent. T Th S 10:10. Mr. Spofford.* Aeschylus, *Prometheus Bound*; Sophocles, *Oedipus at Colonus*.

[305 Aristophanes and Attic Prose. *Fall term. Credit four hours. Prerequisite: Greek 203. Not offered in 1971-72.]*

[306 Greek Melic, Elegiac, and Bucolic Poetry. *Spring term. Credit four hours. Prerequisite: Greek 203 or the equivalent. Not offered in 1971-72.]*

401-402 Independent Study. *For qualified majors.*

409-410 Advanced Greek Composition. *Throughout the year. Credit two hours a term. Prerequisite: Greek 209-210 or the equivalent. Th 12:20 and a second hour to be arranged. Fall term, Mr. Stokes. Spring term, Mr. Pucci.*

442 Greek Philosophy. *Spring term. Credit four*

hours. Prerequisite: two terms of Greek at the 300 level. T Th S 11:15. Mr. Stokes. Topic for 1972 to be announced.

For complete descriptions of graduate courses see the *Announcement of the Graduate School: Humanities*.

501-502 Independent Study for Graduate Students.

Seminars for Graduate Students

571 The Hellenistic Epigram. *Fall term. Credit four hours. Th 3:35-5:30. Mr. Hutton.*

572 Pindar. *Spring term. Credit four hours. Th 3:35-5:30. Mr. Kirkwood.*

[111 Modern Greek. *Spring term. Credit three hours. Not offered in 1971-72.]*

Latin

Final placement in freshman Latin courses, other than beginning Latin, is determined by an examination administered by the Department of Classics in the first week of the fall term. Tentative placement is made on the basis of the previous training listed below as prerequisite for each course and of College Board Achievement Test scores.

105 Latin for Beginners. *Fall term. Credit three hours. M W F 1:25. Mr. Moore.* An introductory course in the essentials of the Latin language, designed for rapid progress toward reading the principal Latin authors.

106 Elementary Latin. *Spring term. Credit three hours. Prerequisite, 105 or placement by departmental examination. M W F 1:25. Continues the work of Latin 105, followed by readings from various authors.*

108 Freshman Course: Selections from Cicero. *Fall term. Credit three hours. Prerequisite: Latin 106 or two units of entrance Latin. M W F 9:05.* Begins with a comprehensive but rapid review of the fundamentals of Latin. Selections from Cicero or Virgil will be read.

201 Catullus and Horace. *Fall term. Credit three hours. Prerequisite: Latin 108 or three or (preferably) four units of entrance Latin. M W F 9:05 or 11:15. Mr. Clinton and Mr. Spofford.* Reading consists of selections from the lyric poetry of Catullus and Horace.

202 Roman Life. *Spring term. Credit three hours. Prerequisite: Latin 108 or 201. M W F 11:15. Mr. Moore.* Selections from the *Satyricon* of Petronius, the letters of Pliny the Younger, and the epigrams of Martial.

205 Roman Comedy. *Fall term. Credit three hours. Prerequisite: Latin 202 or the equivalent; open to freshmen by Advanced Placement Examination or by exceptionally high standing in the Departmental placement examination. M W F 10:10. Mr. Kirkwood.* Plautus and Terence; at least one comedy of each playwright.

206 Roman Didactic Poetry. *Spring term. Credit three hours. Prerequisite: Latin 205. M W F 10:10. Miss Asmis.* Selections from Lucretius' *De Rerum Natura* and Virgil's *Georgics*.

221-222 Latin Composition. *Throughout the year. Credit two hours a term. Prerequisite: Latin 202 or consent of the instructor. F 2:30 and a second hour to be arranged. Fall term, Mr. Clinton. Spring term, staff.* An exercise course to provide review and further study of the forms and, more especially, the syntax of Latin. Recommended as a companion course to Latin 205-206. The second meeting is devoted entirely to exercise in reading passages of Latin at sight.

[315 Roman Satire: Horace and Juvenal. *Fall term. Credit four hours. Prerequisite: Latin 206. Not offered in 1971-72.]*

56 Comparative Literature

[316 Roman Epic: Virgil and Lucan. *Spring term. Credit four hours. Prerequisite: Latin 315 or the equivalent. Not offered in 1971-72.]*

317 Roman Historiography: Livy, Tacitus, Sallust. *Fall term. Credit four hours. Prerequisite: Latin 206. M W F 11:15. Mr. Moore.*

318 Augustan Poetry. *Spring term. Credit four hours. Prerequisite: Latin 317 or the equivalent. M W F 11:15. Mr. Spofford. Horace's Epistles, Ars Poetica; Virgil's Aeneid VI.*

367-368 Medieval Latin Literature. *Throughout the year. Credit four hours a term. Prerequisite: three years of high school Latin or consent of the instructor. Hours to be arranged. Fall term, Mr. Wetherbee. Spring term, Mr. Messing.*

431-432 Latin Composition: Advanced Course. *Throughout the year. Credit two hours a term. For undergraduates who have completed Latin 221-222 and for graduate students. T 12:20 and a second hour to be arranged. Fall term, Mr. Reynolds. Spring term, Mr. Moore.*

451-452 Independent Study. *For qualified majors.*

For complete descriptions of graduate courses see the *Announcement of the Graduate School: Humanities.*

551-552 Independent Study for Graduate Students.

Seminars for Graduate Students

579 Seneca. *Fall term. Credit four hours. T 3:35-5:30. Mr. Reynolds.*

580 Seminar. *Spring term. Credit four hours. T 3:35-5:30. Mr. Pucci. Topic to be announced.*

Honors Courses

370 Honors Course. *Spring term. Credit four hours. To be taken in the junior year. Mr. Pucci. A program of readings and conferences centered on an author or a topic chosen in accordance with the special interests of the students and instructor.*

371 Honors Course. *Fall term. Credit four hours. To be taken in the senior year. Mr. Hutton. Continuation of 370, with change of author or topic.*

372 Honors Course: Senior Essay. *Spring term. Credit four hours. For students who have successfully completed Classics 371. Topics must be approved by the Honors adviser at the end of the first term of the senior year. Mr. Spofford.*

Classical Linguistics

Comparative Indo-European Linguistics (Linguistics 521-522).

423 Vulgar Latin. *Spring term. Credit four hours. Prerequisite: consent of the instructor. Hours to be arranged. Mr. Messing.*

Classical Civilization

For descriptions of the freshman seminars, see Freshman Humanities Program, p. 27.

119 Freshman Seminar in Greek Literature. *Fall term. Credit three hours. Miss Asmis.*

120 Freshman Seminar in Latin Literature. *Spring term. Credit three hours. Mr. Moore.*

121 Freshman Seminar in Greek Philosophy. *Fall term. Credit three hours. Mr. Stokes.*

122 Freshman Seminar in Greek Mythology and Religion. *Spring term. Credit three hours. Mr. Clinton.*

Introduction to Archaeology (Archaeology 200).

Greek Philosophy (Program in Greek Civilization 214).

220 Introduction to Classical Art and Archaeology (Also History of Art 220). *Fall term. Credit three hours. M W F 10:10. Mr. Coleman. Introduction to the artistic achievements of the Greeks and Romans as revealed in architecture, sculpture, and painting (including painted pottery). Within a framework of broad chronological divisions a limited number of specific works of art which can be considered representative will be studied from a variety of approaches.*

319 Aegean Art and Archaeology. *Fall term. Credit four hours. No prerequisite. M W F 2:30. Mr. Coleman. Early civilizations of the Aegean from the Neolithic period to the end of the Bronze Age (ca. 1100 B.C.) with special emphasis on the Minoans and Mycenaeans.*

320 Art and Archaeology of Classical Greece. *Spring term. Credit four hours. Prerequisite: Classical Civilization 220 or consent of instructor. M W F 10:10. Mr. Coleman. Study of selected arts and monuments of ancient Greece from the end of the Bronze Age (ca. 1100 B.C.) until the end of the Hellenistic period (31 B.C.) with special focus on Athens in the Fifth Century B.C.*

431 Greek Sculpture (Also History of Art 431). *Spring term. Credit four hours. Prerequisite: Classical Civilization 220 or consent of instructor. M W F 2:30. Mr. Coleman. Study of ancient Greek sculptural techniques and achievements in marble and bronze. Detailed examination of a selection of works to illustrate sculptural development.*

Classics of Greek Literature (Comparative Literature 313).

Latin Literature in Translation (Comparative Literature 314).

Foundations of Western Thought (Comparative Literature 323).

Humanism and the Renaissance (Comparative Literature 340).

Greek and Roman Drama (Comparative Literature 400).

Seminar in Latin Paleography (History 639-640).

511-512 Independent Study for Graduate Students.

Comparative Literature

Messrs. M. H. Abrams, B. B. Adams, H. D. Albright, Miss Elizabeth Asmis, Messrs. G-P. Biasin, E. A. Blackall, Miss Maria Calderón, Mr. A. Caputi, Miss Patricia Carden, Messrs. M. A. Carlson, C. M. Carmichael, H. W. Chalsma, C. T. Chow, Miss Alice Colby, Mrs. Lucy Collings, Messrs. D. Connor, J. B. Dallett, H. Deinert, H. Dieckmann, J. M. Echols, D. D. Eddy, S. B. Elledge, Mrs. Inta Ezergailis, Messrs. A. Gelley, G. Gibian, S. Gilman, P. A. Gottschalk, D. I. Grossvogel, N. Hertz, T. D. Hill, W. W. Holdheim, J. Hutton, A. L. Ivry, H. P. Kahn, Mrs. Carol Kaske, Messrs. R. E. Kaske, G. M. Kirkwood, W. J. Kennedy, E. P. Morris, D. Patterson, P. Pucci, I. Rabinowitz, F. Reichmann, E. Rosenberg, H. E. Shadick, Mrs. Sandra Siegel, Messrs. E. W. Spofford, B. O. States, M. C. Stokes, Mrs. Etsuko Terasaki, Mr. W. Wetherbee III.

The Department of Comparative Literature offers no undergraduate major program. Certain of its courses may, however, be counted toward the major requirements of other departments, at their option. For information consult the English, Classics, French, Russian, and German sections in this *Announcement.*

For information about related courses consult the offerings in Classics, English, German, Romance studies, Russian, Semitic studies, Asian studies, history, philosophy, the fine arts, music, and theatre arts.

Distribution Requirement

The distribution requirement in the humanities may be satisfied by any of the 200- or 300-level courses in literature which form a sequence.

101 The Defense of Art in the Literary Work. *Credit three hours.* For description, see Freshman Humanities Program, p. 27.

102 The Art of Narrative and the Unknown. *Credit three hours.* For description, see Freshman Humanities Program, p. 27.

103. Varieties of the Imagination in Literature. *Credit three hours.* For description, see Freshman Humanities Program, p. 28.

Freshman Seminar in Greek Literature (Classics 119).

Freshman Seminar in Latin Literature (Classics 120).

201-202 The Reshaping of Tradition in European Literature. *Throughout the year. Credit three hours a term. Each section limited to 20 students. M W F 9:05, 10:10, 11:15. Mr. Kennedy and staff.* Study and discussion of the telling and the retelling of landmark motifs in selected great books of the Western tradition. First semester: comparison of ancient and modern, e.g., Aeschylus, *Oresteia*—Sartre, *The Flies*; Homer, *Odyssey*—Joyce, *Ulysses*. Second semester: comparison of medieval, Renaissance and modern, e.g., Dante, *Inferno*—T. S. Eliot, *Waste Land*; Molière, *Don Juan*—Camus, *Myth of Sisyphus*.

207-208 Russian Literature. *Throughout the year. Credit three hours a term. Enrollment limited to 60 students. First term or the consent of the instructor prerequisite to the second. M W F 12:20. Miss Carden.* Readings in English translation. Fall term: Pushkin, Gogol, Turgenev, and Goncharov. Spring term: Dostoevsky, Tolstoy, Chekhov, Babel, and Pasternak.

212 The European Epic. *Spring term. Credit three hours. M W F 11:15. Mr. Kennedy.* Close study of the artistic values and cultural significance of the *Iliad*, the *Aeneid*, *The Divine Comedy*, and *Paradise Lost*, with some attention to Medieval national epics, e.g., *The Song of Roland*. Lectures and discussion.

215 The Writer, His Work, and the World. *Fall term. Credit three hours. Especially recommended for freshmen; open to all students. M W F 10:10. Mr. Gilman and Mr. Chalsma.* An introduction to the means by which the literary work can be read. Selections from modern writers such as Tolkien, Kafka, Borges, Lorca, Joyce, Eliot, and Asimov. The emphasis of this course will be on learning how to view the literary work as a cohesive structure.

Classics of Jewish and Islamic Thought (Semitics 209).

The Literature of the New Testament (Semitics 210).

301 The Literature of the Old Testament. *Spring term. Credit four hours. M W F 9:05. Mr. Rabinowitz.* Readings, in translation, from books of the Old Testament composed during the preexilic period of Israel's history (to ca. 520 B.C.). The various genres of classical Hebrew literature and the ancient Israelite ideas and institutions essential to comprehension of the texts will be studied.

303 Literary Studies in Christian Origins. *Fall term. Credit four hours. M W F 10:10. Mr. Carmichael.* The first century Palestinian and Hellenistic Jewish back-

ground to the main ideas in New Testament literature. Readings, in translation, will concentrate on the Gospels. Additional text: *The Jewish Passover Haggadah*.

304 The Rational Tradition in Judaism. *Spring term. Credit four hours. M W F 1:25. Mr. Ivry.* An analysis of the various attempts made within Judaism to establish a creative order in the universe and in man's personal relationships. Jewish responses to historical and contemporary expressions of irrational behavior and bias will be examined, and cultural developments, both religious and secular, will be charted. Readings in English translation from the *Talmud*, Judah Halevi, Maimonides, Theodore Herzl, Hermann Cohen, Franz Rosenzweig, Martin Buber, and others.

308 The Dead Sea Scrolls in Their Literary and Historical Context (Also Semitics 308). *Spring term. Credit four hours. M W F 9:05. Mr. Rabinowitz.* Old Testament Books of the Greek Period, the Apocrypha, and the Qumran (Dead Sea) Scrolls. The course is designed to introduce students to the thought of the Jewish culture (c. 330 B.C. to 63 B.C.) which produced both modern Judaism and Christianity. All readings in translation.

[309 Modern Hebrew Literature (Also Semitics 309). *Fall term. Credit four hours. M W F 2:30. Mr. Patterson. Not offered in 1971-72.]*

313 Classics of Greek Literature. *Fall term. Credit four hours. Mr. Pucci.* Topic for 1971: The Individual and Society.

314 Latin Literature in Translation. *Spring term. Credit four hours. M W F 11:15. Miss Asmis.* Epicurean and Stoic philosophy in Latin literature. A study of Lucretius' interpretation of Epicurean doctrine in his poem *On The Nature of Things*, with a discussion of Cicero's and Seneca's philosophical essays. The influence of Epicurean and Stoic ethics in Roman literary composition, particularly Roman satire, will also be examined.

323 Foundations of Western Thought. *Fall term. Credit four hours. M W F 10:10. Mr. Stokes.* Introduction to the attitudes, concepts, and methods that characterized intellectual movements in ancient Greece, with special emphasis on the fifth and fourth centuries B.C. Selected writings of Greek poets, historians, philosophers, and scientists will be read in English translation.

325-326 World Drama. *Throughout the year. Credit four hours a term. M W F 10:10. Fall term, Mr. Carlson; spring term, Mr. States.* An introduction to representative types and forms of drama, designed to increase appreciation of the drama as literature and of the theatre as an art form and social institution. Fall term: readings from Greece, Rome, the Middle Ages, the Renaissance, and the seventeenth century. Spring term: readings from the Restoration to contemporary drama.

329-330 The Literature of Europe in the Modern Period. *Throughout the year. Credit four hours a term. First term not prerequisite to the second. M W F 10:10. Mr. Gottschalk.* Fall term: reading of such representative authors as Chaucer, Erasmus, More, Rabelais, Cellini, Machiavelli, Montaigne, Marlowe, Shakespeare, and Pascal. Emphasis will be on such topics as the emergence of modern attitudes toward the individual, love, and social institutions. Spring term: reading of such representative novelists as Fielding, Goethe, Stendhal, Dostoevsky, and Sartre; and such representative dramatists as Byron, Ibsen, Chekhov, Shaw, and Ionesco. Emphasis will be on literary technique and the evolution, from the Romantic period, of modern attitudes toward individualism.

333-334 Medieval Literature. *Throughout the year. Credit four a term. Fall term: M W F 12:20. Mr. Hill. Spring term: M W 2:30-3:45, Miss Calderón.* Fall term: analysis and interpretation of great medieval literary works in translation. Though readings will vary somewhat from year to year, a typical program would be *Beowulf*; *Chanson de Roland*; *Njála*; *Parzival*; *Gottfried's Tristan*, and/or *Sir Gowain and the Green Knight*; *Pearl*; *Piers Plowman*. Spring term: Dante in translation.

340 Humanism and the Renaissance. *Spring term. Credit four hours. M W F 10:10. Mr. Hutton.* Readings in translation from Petrarch, Erasmus, Ariosto, Rabelais, Tasso, Montaigne, and others, designed to bring out typical ideas and attitudes of the Renaissance period. Attention will be given to such topics as fifteenth-century humanism, neo-Latin literature, Ciceronianism, Renaissance Platonism, theories of poetry, the influence of the Counter-Reformation.

[347 European Drama 1660-1800. *Fall term. Credit four hours. M W F 1:25. Prerequisite: reading knowledge of either French or German. Mr. Carlson. Not offered in 1971-72.]*

351-352 The Modern European Novel. *Throughout the year. Credit four hours a term. M W F 12:20. Fall term, Mr. McConkey; spring term, Mr. Gelley.* A survey of the European novel studied in historical sequence but with particular attention to the variety of forms of the genre. The first semester will treat works from the Renaissance through the early nineteenth century, and the second semester will come up to the present. The reading list will vary from year to year. A typical list of authors would be: fall term, Cervantes, Mme de Lafayette, Sterne, Diderot, Laclos, Goethe, Hoffmann; spring term, Gogol, Balzac, Flaubert, Eliot, Dostoevsky, Proust, Mann, Grass.

367 The Russian Novel. *Fall term. Credit four hours. T Th 9:05 and one hour to be arranged. Mr. Gibian.* Works by Turgenev, Dostoevsky, Tolstoy, and others.

368 Soviet Literature. *Spring term. Credit four hours. T Th 9:05 and one hour to be arranged. Mr. Gibian.* An introduction to selected works of Russian literature, from 1917 to date, examined as works of art and as social and historical documents.

371 Chinese Historical and Philosophical Literature. *Fall term. Credit four hours. M W F 10:10.* Readings in English translation of Confucian, Taoist, and Buddhist works.

372 Chinese Imaginative Literature. *Spring term. Credit four hours. M W F 10:10.* Readings in English translation of poetry, classical prose, fiction, and drama.

373 Twentieth-Century Chinese Literature. *Fall term. Credit four hours. M W F 9:05.* A study of the modern vernacular literature that has reflected and promoted political, social, and cultural change in China.

[375 Japanese Literature before 1603. *Fall term. Credit four hours. M W F 11:15. Mrs. Terasaki. Not offered in 1971-72.]*

376 Japanese Literature from 1603 to the Present. *Spring term. Credit four hours. M W F 11:15. Mrs. Terasaki.* Readings in English translation. Popular novels, puppet and Kabuki plays, and haiku of the Tokugawa period (1603-1867); Meiji and later Western-influenced novels and poetry.

379 Southeast Asian Literature. *Fall term. Credit four hours. T 2:30-4:25. Mr. Echols.* Readings in English translation. A survey of the literatures of Southeast Asia with special attention to several masterpieces.

Varieties of the French Film (French 399).

The Dead Sea Scrolls in Their Literary and Historical Context (Semitics 308).

400 Greek and Roman Drama. *Spring term. Credit four hours. M W F 11:15. Mr. Kirkwood.* A study, by lecture and discussion, of the evolution of forms and themes in ancient tragedy and comedy as exemplified by representative plays, read in translation, of Aeschylus, Sophocles, Euripides, Aristophanes, Menander, Plautus, Terence, and Seneca. Consideration is given also to the origins of tragedy and comedy and to the ancient theatre. Main emphasis is on tragedy, with some attention to the influence of Greek tragedy and Seneca on later European tragedy.

402 Allegory and Symbolism. *Fall term. Credit four hours. M W F 10:10. Mrs. Kaske.* Definitions and models drawn from the *Divine Comedy* will be related to a reading of works ranging from classical to modern: the myths of Plato, the *Romance of the Rose*, mystical lyrics of St. John of the Cross, selections from *The Faerie Queene*, and *Faust Part II*.

404 Medieval Arthurian Literature. *Spring term. Credit four hours. T Th S 10:10. Mr. Wetherbee.* A survey of Arthurian literature from the twelfth to the fifteenth century. Special attention will be given to the relations of the English and French Arthurian traditions. Reading will include selections from the *Mabinogion*, the Didot *Perceval*, the Middle English alliterative *Morte Arthure*, *Sir Gawain and the Green Knight*, and works of Marie de France, Chrétien de Troyes, Chaucer, and Sir Thomas Malory.

[408 Ancient and Renaissance Literary Criticism. *Spring term. Credit four hours. M W F 9:05. Mr. Hathaway. Not offered in 1971-72.]*

[413 Modern Italian Literature. *Fall term. Credit four hours. M 2:30-4:25. Mr. Biasin. Not offered in 1971-72.]*

416 Myth and Literature. *Spring term. Credit four hours. Enrollment limited to upperclassmen and graduate students. M W F 1:25. Mrs. Siegel.* Readings in mythology, literature and criticism of the nineteenth and twentieth centuries. Emphasis will be on Yeats and Stevens.

[421 Nature and Norms in Renaissance and Baroque Literature. *Fall term. Credit four hours. M 12-2. Mr. Kennedy. Not offered in 1971-72.]*

423 From Petrarchism to Baroque. *Fall term. Credit four hours. M W F 1:25. Mr. Kennedy.* Close study of the lyric poetry of Petrarch; of his Renaissance emulators, e.g., Tasso, Du Bellay, and the Elizabethan sonneteers; and finally of the Baroque poets who reshaped Petrarchan forms, e.g., Donne, Saint Amant, Gryphius.

[424 Italy and the Transalpine Renaissance. *Spring term. Credit four hours. Mr. Kennedy. Not offered in 1971-72.]*

[440 Autobiography as a Literary Form. *Spring term. Credit four hours. Mr. Holdheim. Not offered in 1971-72.]*

442 Modern Dramatists. *Fall term. Credit four hours. M W F 1:25. Mr. Pedersen.* Topic for 1971: Ibsen and Strindberg.

450 The History of the Book. *Spring term. Credit four hours. Enrollment limited to 15 students. Prerequisite: consent of the instructors. M 7-9 p.m. Messrs. Eddy, P. Kahn, and Reichmann.* Morphology of letters (calligraphy and type). Abbreviations and their cultural significance. Printing and its terminology. The book trade. Texts and their transmission. The book as a physical object. The impact of the book on social and economic changes. The book as a work of art.

455-456 Independent Study. *Credit four hours. Hours to be arranged. Staff.*

460 Utopias and Imaginary Voyages from the Renaissance to the Enlightenment. *Spring term. Credit four hours. M W F 11:15. Mr. Dallett.* Paradisiacal, utopian, and satiric visions of human society and human solitude, with emphasis on European letters (principally fiction) between More and Voltaire (including works by Shakespeare, Bacon, Campanella, Joseph Hall, Francis Godwin, Cyrano de Bergerac, Fénelon, Marvell, Comenius, Defoe, Swift, and Holberg). Some consideration will be given to basic typological questions such as the relations between the utopia, the arcadia, the imaginary voyage, and satire; to mythic components like the island, the forest, the city, and other worlds; to recurrent themes like the scientific transformation and the educational stabilization of society. The historical impact of science on literature in the seventeenth and eighteenth centuries will also be examined in certain of its aspects.

469 Dostoevsky, Mann, and Gide. *Fall term. Credit four hours. M W 2:30-4. Mr. Holdheim.* The development of the novel form and of certain important themes, as illustrated in some of the chief works of these three representative authors. *Notes from Underground, The Brothers Karamazov, The Magic Mountain, Death in Venice, and The Counterfeiters* will be discussed.

470 Three Novelists: Stendhal, Dickens and Mann. *Spring term. Credit four hours. M 2:30-4:25. Mr. Rosenberg.* The realistic tradition in European fiction to 1910. A discussion of six or seven major European novels, including types of the historical novel, the family chronicle, and the *Bildungsroman*. Readings will include *The Charterhouse of Parma, Bleak House, Great Expectations, Buddenbrooks*, and Mann's major novellas.

472 Origins of the Avant-Garde. *Spring term. Credit four hours. Enrollment limited to 30 students. Prerequisite: consent of the instructor. M W F 2:30. Miss Carden.* An introduction to the early avant-garde period. Discussion of such general topics as the changed attitude towards language, the role of an avant-garde criticism, the synthesis of the arts. Study of representative works by European artists and writers. Special attention will be given to the role of Russian artists in the avant-garde movement. The course will be run as an expanded seminar and the range of topics will be adjusted to suit class interests.

480 The Late Eighteenth Century. *Spring term. Credit four hours. M W 10:10-12:05. Mr. Hertz.* Readings in texts written between 1750 and 1800 in England and France, including poems (Blake and Smart), philosophical prose (Hume and Rousseau), autobiography (Boswell and Rousseau), and fiction (Richardson and Laclos). A reading knowledge of French is required.

Modern Dramatists: Bertolt Brecht (German 411).

Old Norse Sagas in English Translation (German 404).

For complete descriptions of courses numbered 500 or above see the *Announcement of the Graduate School: Humanities*. If a course is not included there, consult the Graduate Field Representative.

501-502 Topics in Modern Literature. *Throughout the year. Credit four hours a term. Primarily for graduate students in Comparative Literature. Prerequisite: reading knowledge of French or German. Fall term: W 1:25-3:20, Mr. Gelley. Spring term: Th 2:30-4:25, Mr. Holdheim.*

512 Poetic Traditions of the Renaissance. *Spring term. Credit four hours. Prerequisite: reading knowl-*

edge of French or Italian. W 1:25-3:20. Mr. Kennedy. Focuses on the Renaissance attempt to forge new verse forms appropriate to traditional genres—epic, lyric, dramatic. Emphasis will be on Ariosto, Ronsard, and Shakespeare.

514 Modern Parody. *Spring term. Credit four hours. T 2:30-4:25. Mr. Pedersen.* A study of the forms and functions of parody in modern literature exemplified by T. S. Eliot (*The Waste Land, The Cocktail Party*), Beckett (*Fin de Partie et al.*), Ionesco (*La Cantatrice Chauve*), Borges (*Labyrinths, the Aleph*), Nabokov (*Lolita or Pale Fire*), and Barth (*Lost in the Funhouse*). The theoretical framework for these works will be developed on the basis of the literary theories of the Russian formalists, Eliot, Frye, and Bakhtin. Reading knowledge of French is required.

639-640 Special Topics in Medieval Studies. *Throughout the year. Credit four hours. Hours to be arranged. Staff.*

Computer Science

Mr. G. Salton, chairman; Messrs. K. M. Brown, R. L. Constable, R. W. Conway, J. E. Dennis, Jr., D. Gries, J. Hartmanis, J. E. Hopcroft, E. Horowitz, W. L. Maxwell, J. Moré, H. L. Morgan, C. Pottle, A. C. Shaw, R. A. Wagner, R. J. Walker, T. Wilcox, J. H. Williams.

At Cornell, computer science is concerned with fundamental knowledge in automata, computability, and programming languages and systems programming, as well as with subjects such as numerical analysis and information processing which underlie broad areas of computer applications. Because of the wide implications of research in the field, the Department of Computer Science is organized as an intercollege department in the College of Arts and Sciences and the College of Engineering.

Even though there is as yet no formal undergraduate major in computer science, the Department offers a comprehensive set of undergraduate and graduate courses from which students can select the appropriate sequences to fit their major interests or to major in computer science through the Independent Majors Program.

Undergraduates who have no previous computer experience and who desire an introduction to computers and their application should take 201. Course 202 is a foundation course in computers and programming and leads to more advanced systems courses. While some programming experience is a prerequisite to 202, the Department is prepared to correct deficiencies in this area at the beginning of the term. Course 401 is similar to 202 but is intended for upperclass and graduate students and treats a broader range of material. Course 311 is an introductory programming course in a higher level language, such as FORTRAN IV or PL/I.

Students who intend to have a strong minor in computer science should take the following courses: 202, 203 and/or 385, 222, 411 and/or 409. An Independent Majors Program in computer science should include: 202, 203, 222, 385, 409, 411 and possibly one of the sequences 412-413, 421-422 or 485-486, which concentrate, respectively, on programming languages and systems, numerical analysis, and theory of computation.

The students at Cornell are urged to take as many computer science courses as possible to acquaint themselves with this new science and prepare themselves to use it in their fields of study. Members of the Department are available to discuss with students the appropriate courses for their levels of ability and interest.

201 Survey of Computer Science. *Fall term. Credit three hours. M W F 9:05.* Introduction to the structure and use of the modern computer. Intended to be an overview of the material, and emphasis is on non-numeric computer applications, such as information retrieval, language processing, and artificial intelligence. A limited introduction to programming in a problem-oriented language is included.

202 Computers and Programming. *Either term. Credit three hours. Prerequisite: some programming experience in an algebraic language. M W 9:05 or T Th 10:10. Laboratory, M T W Th or F 2:30-4:25.* Intended as a foundations course in computer programming and machine organization. Algorithms and their relation to computers and programs. A procedure-oriented language: specification of syntax and semantics, data types and structure, statement types, program structure. Machine organization: components, representation of data, storage addressing, instructions, interpretation cycle, interrupts. Assembly language programming: format and basic instructions, the assembly process, loops and indexing, data types, sub-routines, macros. Programming and debugging problems on a computer are an essential part of this course.

203 Discrete Structures. *Fall term. Credit three hours. Prerequisite: 201 or 202, M W F 1:25.* Fundamental mathematical concepts relevant to computer science. Set algebra, mappings, relations, partial ordering, equivalence relations, congruences. Operations on a set, groups, semigroups, rings and lattices, isomorphism and homomorphism, applications to automata and formal languages. Boolean algebra, applications to switching theory and decision tables. Directed and undirected graphs, subgraphs, chains, circuits, paths, cycles, graph isomorphism, application to syntactic analysis, and computer program analysis.

222 An Introduction to Numerical Analysis. *Spring term. Credit three hours. Prerequisites: Grade of B or better in Mathematics 122, and Computer Science 202 or 311 or consent of the instructor. M W F 10:10.* The course will provide a leisurely paced yet rigorous introduction to a subfield of numerical analysis. The lectures are intended to provide motivation for the study of the chosen topic rather than merely survey the known results in that area. Examples of possible topics are: approximation theory, solutions of ill-conditioned linear problems, numerical solutions of differential equations, quadrature theory, roots of nonlinear equations.

311 Introduction to Computer Programming. *Either term. Credit two hours. T Th 11:15.* Notations for describing algorithms, analysis of computational problems. Applications of the (FORTRAN IV, PL/I) programming language to solve simple numerical and non-numerical problems using a digital computer.

385 Introduction to Automata Theory. *Spring term. Credit three hours. Prerequisite: 203 or Mathematics 222 or 294. M W F 10:10.* Models of abstract computing devices. Finite automata and regular expressions and sets. Input-output experiments, nondeterministic machines, parallel and sequential realizations, and algebraic structure theory. Pushdown automata and context-free languages. Closure properties and decision problems. Turing machines and recursively enumerable sets. Universal Turing machines, the halting problem, decidability.

401 Introduction to Computer Systems and Organization. *Either term. Credit four hours. Prerequisite: Mathematics 221 or 293 or consent of the instructor. T Th 11:15. Laboratory, M T W Th or F 2:30-4:25.* Characteristics and structure of digital computers as

hardware units. Representation of data complement arithmetic, floating point; addressing of data, index registers, indirect and base-plus-displacement addressing. Codes for error detection and corrections. Introduction to computer microstructure, gates, flip-flops, adders. System supplied programs, loaders, assemblers, interpreters, and compilers. Storage and peripheral hardware and their characteristics, the input-output channel, interrupts. Characteristics of operating systems.

This course is not primarily designed to teach programming, although several programs will be assigned, at least one of which is to be in machine language. Previous programming experience is helpful, but not required. The course is primarily designed for upperclassmen and graduate students who want to know more about computers than programming. Students should be warned that in using 401 as a prerequisite to further course work in the information processing area of computer science, they will be somewhat deficient in assembly-language programming experience.

404 Advanced Computer Programming. *Spring term. Credit four hours. Prerequisite: 202 or 401 or consent of the instructor. T Th 1:25, F 2:30.* Intended for students who wish to learn computer programming for eventual use in professional systems programming or advanced applications. To develop this ability, the basic logical and physical structure of digital computers is considered, and the applicability and limitations of this structure are studied through many examples and exercises. The approach, therefore, is not a theoretical one, but rather an engineering one, in which techniques are emphasized. The students are expected to participate in a large systems programming design and implementation effort.

409 Data Structures. *Fall term. Credit four hours. Prerequisite: 202 or 401 or the equivalent. T Th 9:05, W 2:30.* Data structures, relations between data elements, and operations upon data structures. Bits, bytes, fields, arrays, stacks, trees, graphs, lists, strings, records, files, and other forms of data structures. Primitive operations accessing techniques, and storage management techniques appropriate to each class of data structures. Sorting and searching techniques, symbol table structures. Data structures in programming languages, retrieval systems, and data management systems. Formal specification of classes of information structures.

411 Programming Languages. *Fall term. Credit four hours. Prerequisite: 202 or 401 or consent of the instructor. M W F 1:25.* An introduction to the structure of programming languages. Specification of syntax and semantics. Properties of algorithmic, list processing, string manipulation, and simulation languages: basic data types and structures, operations on data, statement types, and program structure. Macrolanguages and their implementation. Run-time representation of programs and data. Storage management techniques.

412 Translator Writing. *Spring term. Credit four hours. Prerequisite: 411 or consent of the instructor. M W F 1:25.* Discussion of the models and techniques used in the design and implementation of assemblers, interpreters, and compilers. Topics include lexical analysis in translators, compilation of arithmetic expressions and simple statements, specification of syntax, algorithms for syntactic analysis, code generation and optimization techniques, bootstrapping methods, compiler-compiler systems.

413 Systems Programming and Operating Systems. *Fall term. Credit four hours. Prerequisite: 409 or consent of the instructor. M W F 1:25.* The organization and software components of modern operating systems.

Batch processing systems: loaders, input-output methods. Cooperating sequential processes: parallel programming, synchronization techniques. Introduction to multiprogrammed systems: the "process" model, virtual machines. Storage management: relocation, protection, allocation. Procedure and data sharing. Process scheduling and control. General resource management. File systems: logical and physical organization, protection. Case studies. Additional topics such as systems simulation, job control languages, and micro-programming. Projects involving the design and implementation of systems modules.

415 Machine Organization. *Spring term. Credit four hours. Prerequisite: 202, 401, or consent of the instructor. M W F 2:30.* The design and functional organization of digital computers. Boolean algebra, elements of logical design, and computer components. Counters, shift registers, half and full adders, design of arithmetic units. Memory components, accessing and retrieval techniques, addressing structures, realization of indexing, and indirect addressing. Control unit structure, instruction decoding, synchronous and asynchronous control. Input-output channels, buffering, auxiliary memory structure, interrupt structures. Overall system organization, reliability, system diagnostics, system simulation.

416 Operations Research Models for Computer and Programming Systems. *Spring term. Credit four hours. Prerequisites: 411 and a course in probability (e.g., Mathematics 371 or Engineering 9460), or consent of the instructor. T Th 10:10, occasionally W 2:30.* Modeling and analysis of computer hardware and software systems. Some applications of the theories and techniques of operations research to problems arising in computer systems design and programming. Operating systems design: resource allocation and scheduling. Queuing models for time-sharing and multiprogramming systems. Reliability of computer systems and computer networks. Statistical techniques for measuring systems performance. Simulation of hardware and software; systems balancing. Applications of stochastic processes and inventory theory, e.g., file organization and management, models of computer center operation. Mathematical programming techniques applied to hardware configuration selection. Students will be expected to program and analyze a model which can be applied to a problem of hardware or software design.

420 Computer Applications of Numerical Analysis. *Fall term. Credit four hours. Prerequisites: Mathematics 222 or 294 and Computer Science 311 or equivalent programming experience. M W F 10:10.* Modern computational algorithms for the numerical solution of a variety of applied mathematics problems are presented, and students solve current representative problems by programming each of these algorithms to be run on the computer. Topics include numerical algorithms for the solution of linear systems; finding determinants, inverses, eigenvalues and eigenvectors of matrices; solution of a single polynomial or transcendental equation in one unknown; solution of systems of nonlinear equations; acceleration of convergence; Lagrangian interpolation and least squares approximation for functions given by a discrete data set; differentiation and integration; solution of ordinary differential equations: initial value problems for systems of nonlinear first order differential equations, two-point boundary value problems; partial differential equations: finite difference grid technique for the solution of the Poisson equation. Computer Science graduate students are urged to take 421-422.

421-422 Numerical Analysis. *Throughout the year. Credit four hours a term. Prerequisite, Mathematics 412*

or 416 or 422 or consent of the instructor. M W F 9:05. Laboratory, one hour per week to be arranged. A mathematical analysis of numerical methods from the areas of solution of linear systems of equations, matrix inversion, eigenvalue and eigenvector determination, nonlinear equations, polynomial approximation, interpolation, differentiation, integration, ordinary and partial differential equations. Practical experience will be gained in the laboratory.

435 Information Organization and Retrieval. *Spring term. Credit four hours. Prerequisite: 401 or the equivalent. T Th 9:05, occasionally, W 2:30.* Covers all aspects of automatic language processing on digital computers, with emphasis on applications to information retrieval. Analysis of information content by statistical, syntactic, and logical methods. Dictionary techniques. Automatic retrieval systems, question-answering systems. Evaluation of retrieval effectiveness.

441 Mathematical Symbol Manipulation. *Spring term. Credit four hours. Prerequisites: 409 and some knowledge of discrete mathematics, e.g., 203, 485 or Mathematics 431. To be arranged.* This course deals with arithmetic and algebraic algorithms and their implementation in a generalized computer system. The emphasis will be on symbolic rather than numeric techniques for solutions to the problems. For each algorithm computing times will be derived and analyzed. Among the topics to be covered will be infinite precision integer arithmetic, modular arithmetic, operations on multivariate polynomials and rational functions, such as symbolic integration and exact factorization over several fields, and exact solution of linear systems.

485 Theory of Automata I. *Fall term. Credit four hours. Prerequisites: 203 and 401, or Mathematics 222 and some programming experience, or consent of instructor. M W F 11:15.* Automata theory is the study of abstract models of computation, both computing devices and algorithmic languages; their classification, structure and computational power. Topics include finite state automata, regular expressions, decompositions of finite automata, Turing machines, random access machines and their abstract programming languages, halting problems, undecidability, universality, and Church's thesis.

486 Theory of Automata II. *Spring term. Credit four hours. Prerequisite: 485 or consent of the instructor. M W F 11:15.* Topics include context-free and context-sensitive languages and their relation to push-down and linearly bounded automata. Quantitative aspects of Turing machine computations: time- and memory-bounded computations with applications to language processing and classification of other automata and computations. Axiomatic theory of computational complexity.

487 Formal Languages. *Fall term. Credit four hours. Prerequisite: 486 or consent of the instructor. M W F 2:30.* A study of formal languages, their processing, and processors. Topics include regular, context-free and context-sensitive languages: their recognition, parsing, algebraic properties, decision problems, recognition devices, and applications to computer and natural languages.

488 Theory of Effective Computability. *Spring term. Credit four hours. Prerequisites: 401, 485, Mathematics 481 or consent of the instructor. T Th 10:10.* Notion of an effective process; Church's Thesis, and constructive mathematics; abstract models of computation, Turing machines; random access machines; algorithmic unsolvability; halting problems; equivalence problems; relative computability; Post's problem; degrees of

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unsolvability; the Kleene arithmetic hierarchy; productive, creative, and immune sets; computational complexity and subrecursive hierarchies.

For complete descriptions of courses numbered 500 or above see the *Announcement of the Graduate School: Physical Sciences*. If a course is not included there, consult the Graduate Field Representative.

517 Picture Processing. *Spring term. Credit four hours. Prerequisite: 411 or consent of the instructor. T Th 10:10.*

521 Solutions of Nonlinear Equations and Nonlinear Optimization Problems. *Spring Term. Credit four hours. Prerequisite: 422 or consent of the instructor. M W F 10:10.*

523 Numerical Solution of Ordinary Differential Equations and Integral Equations. *Fall term. Credit four hours. Prerequisite: 422 or consent of the instructor. M W F 10:10.*

525 Numerical Solution of Partial Differential Equations. *Spring term. Credit four hours. Prerequisite: 523 or consent of the instructor. M W F 10:10.*

[527 Introduction to Approximation Theory. *Fall term. Credit four hours. Prerequisite: 422 or consent of the instructor. M W F 10:10. Not offered in 1971-72.]*

587 Computational Complexity. *Fall term. Credit four hours. Prerequisite: 486 or 488 or consent of the instructor. T Th 9:05.*

590 Special Investigations in Computer Science. *Either term. Prerequisite: consent of the registration officer of the department. Hours to be arranged.*

591 Computer Science Graduate Seminar. *Either term. Credit one hour. Primarily for graduate students. Th 4:30-6. Staff, visitors, and students.*

611 Seminar in Programming. *Either term. Credit four hours. Prerequisite: 411 or consent of the instructor.*

621 Seminar in Numerical Analysis. *Either term. Credit four hours. Prerequisite: consent of the instructor.*

635 Seminar in Information Organization and Retrieval. *Fall term. Credit four hours. Prerequisite: 435.*

681 Seminar in Automata Theory. *Either term. Credit four hours. Prerequisite: 486 or consent of the instructor.*

Digital Systems Simulation (Industrial Engineering 9580, College of Engineering).

Data Processing Systems (Industrial Engineering 9382, College of Engineering).

Switching Systems I (Electrical Engineering 4487, College of Engineering).

Switching Systems II (Electrical Engineering 4488, College of Engineering).

Economics

Mr. T. C. Liu, Chairman; Messrs. G. P. Adams, Jr., G. W. Bickel, E. A. Blackstone, E. T. Burton, III, W. V. Bussmann, N. R. Chen, M. G. Clark, T. E. Davis, D. F. Dowd, W. D. Evans, H. Fleisig, W. Galenson, F. H. Golay, G. H. Hildebrand, P. M. Hohenberg, J. G. B. Hutchins, A. E. Kahn, R. W. Kilpatrick, J. H. Levin, P. Miovic, L. J. Mirman, D. C. Mueller, G. J. Staller, S. C. Tsiang, J. Vanek, H. Y. Wan, Jr.

Students wishing to major in economics must have completed Economics 101-102 or its equivalent with an average of C or better. Students who have completed only one semester of the introductory course may be accepted as provisional majors provided their grade was at least C. Prospective majors should report to the Department of Economics office.

The requirements for a major are: (1) Economics 311 and 312; (2) twenty hours of other economics courses listed by the Department of Economics in this *Announcement*, except that, with the permission of the major adviser, two other economics courses outside the College of Arts and Sciences may be used in fulfillment of this requirement; and (3) three courses above the introductory level in subjects related to economics, selected with the approval of the major adviser from the offerings of the Departments of Anthropology, Asian Studies, Government, History, Mathematics, Philosophy, Psychology, and Sociology, and of the Center for International Studies.

In addition to the courses required for the major, many students will find it valuable to take introductory accounting (Business and Public Administration 112S) and statistics (the diverse possibilities include Agricultural Economics 310, Industrial and Labor Relations 210, Industrial Engineering 9170 and 9360-9370, and Mathematics 370 and 371-472-473). Mathematics courses are not needed for an undergraduate major. However, students planning graduate work in economics are strongly advised to take mathematics at least through calculus and linear algebra.

The Honors Program

Candidates for the degree of Bachelor of Arts with Honors in Economics will enroll in the Honors seminars 390, 391, and 392. Honors candidates are expected to complete thirty-two hours of advanced courses in economics, including the Honors seminars and all courses required of majors.

Students seeking admission to the Honors program should consult their advisers and the professor in charge of the program not later than pre-registration period in the fall of their junior year. Application will not normally be considered from students whose cumulative average is less than B- in both their general studies and their economics courses.

A comprehensive Honors examination, both written and oral, will be given to Honors candidates at the end of their senior year. Honors candidates may be exempted from final examinations in their other economics courses at the end of their senior year.

The Honors seminars 390 and 391 may be taken, with permission, by students not in the Honors program. Courses required of majors.

Distribution Requirement

The Distribution requirement in social sciences is satisfied in economics by Economics 101-102.

Introductory Courses

101 Modern Economic Society. *Either term. Credit three hours. Large lectures, plus two additional discussion sections (scheduled throughout the week), or independent sections each of which meets three times a week with the same instructor. Fall term: Large lectures M W 9:05, T Th 9:05, 11:15. Messrs. Bussmann, Fleisig, Galenson and assistants. Independent sections M W F 8:00, 9:05, 10:10, 11:15, 12:20. Spring term: Large lecture T Th 9:05. Mr. Staller and assistants. Independent sections—none. Centers on the determinants of aggregate economic activity. The main areas studied are the monetary and banking systems, the*

composition and fluctuations of national income, and the major conditions of economic growth, all as influenced by monetary, fiscal, and other policies.

102 Modern Economic Society. *Either term. Credit three hours. Large lectures, plus two additional discussion sections (scheduled throughout the week), or independent sections each of which meets three times a week with the same instructor. Fall term: Large lecture M W 9:05. Mr. Adams and assistants. Independent sections—none. Spring term: Large lectures M W 9:05, 11:15, T Th 11:15. Messrs. Bussmann, Hildebrand, Hohenberg and assistants. Independent sections M W F 8:00, 9:05, 10:10, 11:15, 12:20.* A survey of the existing economic order, with particular emphasis on the salient characteristics of the modern American economy. Concentration is on explaining and evaluating the operation of the price system as it regulates production, distribution, and consumption, and as it is, in turn, modified and influenced by private organization and government policy.

Advanced Undergraduate Courses

General

301 Economics of Market Failure. *Fall term. Credit four hours. Prerequisite: Economics 102. T Th 10:10 and third session to be arranged. Messrs. Hohenberg and Mueller.* A study of the general situations in which the price system fails to achieve an optimal allocation of goods and services. The main kinds of market failures examined include externalities, joint supply, and public goods. A number of specific kinds of market failures will be examined in detail. These may include pollution, education, conservation, congestion, population, and others at the discretion of the professor and students.

302 The Impact and Control of Technological Change. *Spring term. Credit three or four hours depending on projects. M 7:30 p.m. Visiting speakers. Sections to be arranged. Mr. Mueller and Mrs. Nelkin.* The course examines social, environmental, and economic implications of technological change in the United States in the context of possible policies and strategies of control. Several specific cases will be considered in detail followed by a broader investigation of the problems of a modern technological society. Alternative political-economic solutions will be explored. The course is interdisciplinary and relies on weekly guest speakers. Students will participate in a research project to develop a case study.

311 Intermediate Microeconomic Theory. *Either term. Credit four hours. Required of all students majoring in economics. Prerequisite: 101-102 or consent of the instructor. Fall term: M W F 9:05, 10:10, T Th S 11:15. Messrs. Chen, Mirman, and Staff. Spring term: T Th S 11:15. Mr. Wan.* Analysis of the pricing processes in a private enterprise economy under varying competitive conditions, their role in the allocation of resources, and the functional distribution of national income.

312 Intermediate Macroeconomic Theory. *Either term. Credit four hours. Required of all students majoring in economics. Prerequisite: Economics 101-102 or consent of the instructor. Fall term: M W F 11:15. Mr. Staller. Spring term: M W F 9:05, 11:15, T Th S 10:10. Messrs. Burton, Chen, and Staff.* An introduction to the theory of national income determination and economic growth in alternative models of the national economy; the interaction and relation of aspects of these models of empirical aggregate economic analysis.

313 Dissenting Traditions in Economics and Protest Movements. *Spring term. Credit four hours. M W F 11:15. Mr. Dowd.* A heavy reading course, with papers rather than final examination, which combines lectures with seminar-type discussion. Main emphasis of the course is on *Marxian analysis* and on *Institutionalism*, drawing both on classic formulations and on contemporary interpretations. Topics examined theoretically include (1) fundamental elements of Marxian thought, especially the concepts of economic surplus and social conflict as the primary focus for analysis; (2) the concept of socio-economic institutions and systems, especially the nature of property and the role of property institutions within the economic system; (3) the nature and functions of ideology in social change; and (4) the interpretation of individual behavior within social structures, with attention to the psychological models assumed in economic analysis. Some attention may also be given to utopian and other non-Marxian socialist thinking, to Schumpeter's and Polanyi's historical analyses, to some strains of American Populist thought, and to Catholic Social Gospel economic doctrines.

315 History of Economic Thought. *Fall term. Credit four hours. W 2:30-4:20. Mr. Adams.* A survey of the development of economic ideas from the early modern period to the twentieth century. Extensive readings from the Mercantilists, Smith, Ricardo, Mill, and Marshall, with class discussion of these writers.

317 Intermediate Mathematical Economics I. *Fall term. Credit four hours. Prerequisite: Economics 101-102 or the equivalent. M W 1:25-2:40. Mr. Evans.* Discussion of economic subjects will include: economic models; static or equilibrium analysis; comparative-static analysis; optimization of objective functions subject to constraints; production functions. Mathematical topics discussed will include: functional dependence; set theory; linear models and matrix algebra; derivatives and differentiation; partial derivatives; differentials; tests for extreme values; maxima and minima subjects to constraints; homogeneous functions. No prior acquaintance with these mathematical topics is required.

318 Intermediate Mathematical Economics II. *Spring term. Credit four hours. Prerequisite: Economics 317 or a course in the differential calculus. M W 1:25-2:40. Mr. Evans.* Economic subjects discussed will include: Domar and Solow growth models; the Domar debt model; cobweb models; the Samuelson multiplier-accelerator model; dynamic input models; linear programming models and their duals. Mathematical topics discussed will include: integration; differential equations; simultaneous equation models; linear programming; game theory.

319-320 Quantitative Methods. *Throughout the year. Credit four hours a term. Prerequisite: good control of micro- and macroeconomic theory and some very elementary knowledge of calculus, linear algebra, and probability; or consent of the instructor. Fall term: T Th 12:20-2:15. Mr. Miovic. Spring term: T Th 12:20-2:15. Mr. Miovic.* The application of quantitative analysis to the testing of economic theories, largely at the macroeconomic level. This framework will provide a basis for study and evaluation of cross-section and time-series data, methodology and theory of economic measurement, statistical techniques, empirical studies and economic forecasting.

Economic History

321 Economic History of Ancient Medieval Europe. *Fall term. Credit four hours. Given in alternate years. Open to upperclassmen with some background in economics or history, or with consent of the instructor.*

M W F 10:10. Mr. Dowd. An examination and analysis of significant processes and relationships in the economic development of Europe in the ancient and medieval periods. Attention will be given to reciprocal relationships between the social and political context and the behavior of the economy over time.

322 Economic History of Modern Europe. *Spring term. Credit four hours. Prerequisite: same as for 321. M W F 10:10. Mr. Hohenberg.* An analysis of economic change in Europe, with emphasis on the period since the mid-eighteenth century.

323 American Economic History. *Fall term. Credit four hours. Prerequisite: Economics 101-102, or consent of the instructor. T Th 1:25-2:40. Mr. Fleisig.* The course will concentrate on three lines of investigation: the use of economic and statistical analysis as an aid in answering historical questions, the use of historical experience in determining the validity of aspects of economic theory, and the extent to which historical economic experience is useful in resolving current economic problems. Problems selected from the period 1800-1914 will be discussed.

324 American Economic History. *Spring term. Credit four hours. Prerequisite: same as for 323. T Th 1:25-2:40. Mr. Fleisig.* Continuation of 323. Problems selected from the period 1914-1939 will be discussed.

325 Economic History of Latin America. *Fall term. Credit four hours. Open to upperclassmen with some background in economics or history, or with the consent of the instructor. M W F 10:10. Mr. Davis.* A survey emphasizing the processes and problems of economic growth and the evolution of economic institutions.

[327 The Environment of Economic Activity in Post-war Europe. *Fall term. Credit four hours. Prerequisite: Economics 101-102 or the equivalent. Mr. Hohenberg. Not offered in 1971-72.]*

329 Economic History of Early Modern Europe. *Spring term. Credit four hours. Prerequisite: open to upperclassmen with some background in economics or history, or with consent of the instructor. M W F 10:10. Mr. Dowd.* An examination and analysis of the major processes of economic and social change in the post-Medieval, preindustrial period.

Economic and Business History (Business and Public Administration 375). *Fall term. Credit three hours. Limited to seniors who have completed 101-102. M W F 9:05. Mr. Hutchins.* A study of the evolution of economic organization and of the role of the business firm therein. Although some attention is given to earlier times, the primary emphasis is on the period since 1750. The analysis of the development of business organization, administration, and policy proceeds in part by means of historical case studies. Attention is paid to the relations between business policies and the rise and fall of firms and industries, and to the interactions of business and public policies. The primary focus is on the United States, but European origins and developments are included when significant.

Money, Banking, and Public Finance

331 Money and Credit. *Fall term. Credit four hours. Prerequisite: Economics 101-102. T Th S 9:05. Staff.* A systematic treatment of the determinants of the money supply and the volume of credit. Economic analysis of credit markets and financial institutions in the United States.

335 Public Finance: Resource Allocation. *Fall term. Credit four hours. Prerequisite: Economics 101-102. M W F 11:15. Mr. Blackstone.* Analysis of the role of

government in allocating resources through taxes and expenditures. Criteria for evaluation will be developed and applied to specific policies. Attention will focus on the federal government.

338 Macroeconomic Policy. *Spring term. Credit four hours. Prerequisite: Economics 312. T Th S 9:05. Mr. Kilpatrick.* A study of the use of fiscal and monetary policies for achieving full employment, price level stability, and appropriate economic growth.

Labor Economics

Economics of Wages and Employment (Industrial and Labor Relations 241). *Either term. Credit three hours. Prerequisite: Economics 101-102 or equivalent. Fall term: M W F 11:15. Mr. Raimon. Spring term: M W F 10:10, 11:15, 2:30. Messrs. Douty, Hildebrand, Perl, and Raimon.* An introduction to the characteristics of the labor market and to analysis of wage and employment problems. Among topics studied are the composition of the labor force, job-seeking and employment practices, methods of wage determinations, theories of wages and employment, economic effects of unions, the nature and causes of unemployment, and programs to combat joblessness and poverty.

Organization, Performance, and Control of Industry

351 Industrial Organization. *Fall term. Credit four hours. Prerequisite: Economics 101-102. M W F 9:05. Mr. Blackstone.* An analysis of the prevalence and effectiveness of competition in the American economy centering on the structure, conduct, and performance of American industry. Structural characteristics to be discussed include concentration, economies of scale, product differentiation, and barriers to entry. Among the numerous aspects of business behavior to be examined will be merger decisions, pricing, advertising, and technological innovation policies. A number of case studies of American industries and firms will be read, and emphasis will be placed on relating the theories of monopoly, oligopoly, and competition to the histories of specific firms and industries.

352 Public Regulation of Business. *Spring term. Credit four hours. Prerequisite: Economics 351 or consent of the instructor. M W F 9:05. Mr. Blackstone.* A continuation of Economics 351, concentrating mainly on public policies of enforcing, supplementing, or replacing competition, with specific studies of selected industries and recent legal cases.

[354 Economics of Regulation. *Spring term. Credit four hours. Mr. Kahn. Not offered in 1971-72.]*

Transportation: Rates and Regulations (Business and Public Administration 575). *Fall term. Credit three hours. Limited to seniors who have taken Economics 101-102 or the equivalent. M W F 10:10. Mr. Hutchins.* A study of American transportation focused on economic organization, public policy, and the rate-making process. The emphasis is on the theory and practice of rate making in an environment complicated by fixed, joint, and common costs, by competition among differing modes of transport, and by complex patterns of regulation.

Transportation: Organization, Administration, and Public Policies (Business and Public Administration 576). *Spring term. Credit three hours. Limited to seniors who have completed Economics 101-102. M W F 10:10. Mr. Hutchins.* A continuation of B&PA 575 dealing with problems of organization, administration, and public policy in the various segments of transportation: merchant shipping, air transport, motor carrier transport, domestic water transport and railroad reorganization. Cases are used to bring out some of the problems.

International and Comparative Economics

361 International Trade Theory and Policy. *Fall term. Credit four hours. Prerequisite: Economics 101-102 or consent of the instructor. M W F 11:15. Mr. Levin.* Survey of the principles that have served as guides in the formulation of international trade and commercial policies. The evolution of the theory of international trade, principles and practices of commercial policy, problems of regional integration and customs unions, and institutions and practices of state trading will be emphasized.

362 International Monetary Theory and Policy. *Spring term. Credit four hours. Prerequisite: Economics 101-102 or consent of the instructor. M W F 11:15. Mr. Levin.* Survey of the principles that have served as guides in the formulation of international financial policies. The evolution of the theory of balance of payments adjustment, international monetary standards, the nature of conflicts arising out of the relationship between domestic economic policies and external economic relations, international capital movements, economic aid, international monetary institutions, and proposals for international monetary reforms will be emphasized.

364 The United States in the World Economy. *Fall term. Credit four hours. Prerequisite: Economics 101-102 or consent of instructor. M W F 9:05. Mr. Golay.* Analysis of international economic problems confronting the United States. Emphasis is given to the interaction of domestic goals and policies and external economic equilibrium and to the economic constraints upon American foreign policy. Analysis of the United States balance of payments and examination of the commercial, exchange rate, foreign investment, and economic aid policies of this country.

[365 Economic Policy and Development in Southeast Asia. *Spring term. Credit four hours. Prerequisite: consent of the instructor. Mr. Golay. Not offered in 1971-72.]*

367 Comparative Economic Systems: Soviet Union and Europe. *Fall term. Credit four hours. Prerequisites: Economics 101-102 and Industrial and Labor Relations 445 or consent of the instructor. M W F 9:05. Mr. Staller.* Discussion of the rationality and feasibility of economic planning (von Mises, Hayek, Lange). Examination of the various approaches to planning, including discussion of the planning techniques in France, Yugoslavia, and the Soviet Union (with emphasis on the last country). Comparison of economic performance of various free and planned economies. Consideration of economic competition between the free and the planned systems.

368 Contemporary Brazil (Also Sociology 368). *Spring term. Credit four hours. Prerequisite: two courses in the social science. M W 1:25-3:20. Messrs. Davis and Kahl.* A study of the style of development in economy, polity, and society followed by contemporary Brazil, along with an analysis of the contradictions that led to the military coup of 1964 and its aftermath; some comparisons with other Latin American countries will be made. Assigned readings will be in English.

369 Introduction to the Economy of China. *Fall term. Credit four hours. Prerequisite: consent of the instructor. M W F 11:15. Mr. Chen.* A survey of modern Chinese economic development with special emphasis on the policies, performance, and problems of the mainland economy since 1949.

Comparative Economic Systems: Soviet Russia (Industrial and Labor Relations 445). *Spring term. Credit*

four hours. Prerequisite: Economics 101-102 or consent of the instructor. T Th 2:00-3:30. Mr. Clark. A comparative analysis of the principles, structure, and performance of the economy of Soviet Russia. Special attention will be devoted to industry and labor, and to the international impact of Soviet economic development.

Economic Growth and Development

[371 Economic Development and Sociopolitical Modernization. *Fall term. Credit four hours. Prerequisite: Economics 101-102 or consent of the instructor. Not offered in 1971-72.]*

372 Processes of Economic Growth and Development. *Spring term. Credit four hours. Prerequisite: Economics 101-102 or consent of the instructor. Hours to be arranged. Mr. Davis.* A consideration of various contributions by economists and others to an understanding of how societies undergo economic growth and institutional change. Developing countries are the main focus of attention. Some possibilities of combining elements from economics and other fields to form a broad approach to economic development are explored.

[375 Economics of Poverty. *Spring term. Credit four hours. Not offered in 1971-72.]*

[376 Sociopolitical Modernization and Economic Development. *Spring term. Credit four hours. Not offered in 1971-72.]*

382 Economics of Workers' Management in Yugoslavia. *Spring term. Credit four hours. Prerequisite: Economics 311-312 or consent of the instructor. T Th 2:30-4:30. Mr. Miovic.* This course examines the worker-managed economy of Yugoslavia. The organization and theoretical and practical implications of worker management will be studied in detail. Special attention will be given to the outcome of the decision-making process at the firm level of such a system, the consistency of these outcomes with the national plans, and the policies used to implement them.

Honors Program

390 Honors Seminar. *Spring term. Credit four hours. Required of all juniors who plan to be candidates for Honors, and open to any qualified student who may be interested with no obligation to continue with 391. W 2:30. Mr. Adams.* Selected readings from books which have been significant in the development of economics.

391 Honors Seminar. *Fall term. Credit four hours. Required of all seniors who are candidates for Honors, and open to any qualified student who may be interested with no obligation to continue with 392. M 2:30. Mr. Adams.* Continuation of Economics 390.

392 Honors Seminar. *Spring term. Credit four hours. Required of all seniors who are candidates for Honors. M 2:30. Mr. Adams.* Continuation of 391 with the writing of an Honors thesis and preparation for the comprehensive Honors examination.

399 Readings in Economics. *Throughout the year. Variable credit. Any member of the Department.*

Graduate Courses and Seminars

For complete descriptions of courses numbered 500 or above see the *Announcement of the Graduate School: Social Sciences*. If a course is not included there, consult the Graduate Field Representative.

- 509 **The Theory of Household and the Firm.** *Fall term. Credit four hours. M W F 11:15. Mr. Burton.*
- 510 **The Theory of Markets and General Equilibrium.** *Spring term. Credit four hours. M W F 10:10. Mr. Mirman.*
- 511 **Microeconomic Theory.** *Fall term. Credit four hours. M W F 9:05. Mr. Burton.*
- 512 **Macroeconomic Theory.** *Spring term. Credit four hours. M W F 11:15. Staff.*
- 513 **Macroeconomic Theory: Static Income Determination.** *Fall term. Credit four hours. T Th S 11:15. Mr. Kilpatrick.*
- 514 **Macroeconomic Theory: Dynamic Models, Growth, and Inflation.** *Spring term. Credit four hours. T Th S 9:05. Mr. Wan.*
- 517-518 **Intermediate Mathematical Economics.** *Throughout the year. Credit four hours. M W 1:25-2:40. Mr. Evans.*
- 519-520 **Quantitative Methods.** *Throughout the year. Credit four hours. T Th 12:20-2:15. Mr. Miovic.*
- 521-522 **European Economic History.** *Throughout the year. Credit four hours. Fall term: M W F 10:10. Mr. Dowd. Spring term: M W F 10:10. Mr. Hohenberg.*
- 523-524 **American Economic History.** *Throughout the year. Credit four hours. T Th 1:25-2:40. Mr. Fleisig.*
- 525 **Economic History of Latin America.** *Fall term. Credit four hours. M W F 10:10. Mr. Davis.*
- [527 **The Environment of Economic Activity in Post-war Europe (Also Business and Public Administration 635).** *Fall term. Credit four hours. Mr. Hohenberg. Not offered in 1971-72.*]
- 529 **Economic History of Early Modern Europe.** *Spring term. Credit four hours. M W F 10:10. Mr. Dowd.*
- 551 **Industrial Organization.** *Fall term. Credit four hours. M W F 9:05. Mr. Blackstone.*
- 552 **Public Regulation of Business.** *Spring term. Credit four hours. M W F 9:05. Mr. Blackstone.*
- 561-562 **International Economic Theory and Policy.** *Throughout the year. Credit four hours. M W F 11:15. Mr. Levin.*
- 565 **Economic Problems of Latin America.** *Spring term. Credit four hours. Hours to be arranged. Mr. Davis.*
- [571 **Economic Development and Sociopolitical Modernization.** *Fall term. Credit four hours. Not offered in 1971-72.*]
- 572 **Processes of Economic Growth and Development.** *Spring term. Credit four hours. Hours to be arranged. Mr. Davis.*
- [575 **Economics of Poverty.** *Spring term. Credit four hours. Not offered in 1971-72.*]
- [576 **Sociopolitical Modernization and Economic Development.** *Spring term. Credit four hours. Not offered in 1971-72.*]
- 582 **Economics of Workers' Management in Yugoslavia.** *Spring term. Credit four hours. Th 2:30-4:30. Mr. Miovic.*
- 611 **Advanced Microeconomic Theory.** *Fall term. Credit four hours. Hours to be arranged. Mr. Wan.*
- 612 **Advanced Macroeconomic Theory.** *Fall term. Credit four hours. Hours to be arranged. Mr. Tsiang.*
- 613 **History of Economic Thought.** *Fall term. Credit four hours. W 2:30-4:20. Mr. Adams.*
- 617-618 **Mathematical Economics.** *Throughout the year. Credit four hours. Hours to be arranged. Mr. Mirman.*
- 619-620 **Econometrics.** *Throughout the year. Credit four hours. Hours to be arranged. Mr. Bussmann.*
- 619A-620A **Workshop in Econometrics.** *Throughout the year. Credit four hours. Hours to be arranged. Mr. Liu.*
- 621-622 **Seminar in Economic History.** *Throughout the year. Credit four hours. Hours to be arranged. Fall term: Mr. Dowd. Spring term: Mr. Hohenberg.*
- [623-624 **American Economic History.** *Throughout the year. Credit four hours. Mr. Fleisig. Not offered in 1971-72.*]
- 631-632 **Monetary Theory and Policy.** *Throughout the year. Credit four hours. Hours to be arranged. Mr. Tsiang.*
- 635-636 **Public Finance: Resource Allocation and Fiscal Policy.** *Throughout the year. Credit four hours. Hours to be arranged. Mr. Kilpatrick.*
- 641-642 **Labor Economics.** *Throughout the year. Credit four hours. M 4:00-6:00. Messrs. Galenson and Hildebrand.*
- 651-652 **Industrial Organization and Regulation.** *Throughout the year. Credit four hours. Hours to be arranged. Fall term: Mr. Mueller. Spring term: Mr. Blackstone.*
- 661-662 **International Economics: Pure Theory and Policy.** *Throughout the year. Credit four hours. Hours to be arranged. Fall term: Mr. Levin. Spring term: Mr. Tsiang.*
- [663-664 **International Economics: Balance of Payments and International Finance.** *Not offered in 1971-72.*]
- 666 **Special Topics in International Finance.** *Spring term. Credit four hours. Hours to be arranged. Mr. Levin.*
- [671-672 **Economics of Development.** *Throughout the year. Credit four hours. Not offered in 1971-72.*]
- [673 **Theory and Practice of Decentralized Socialist Systems.** *Fall term. Credit four hours. Prerequisite: Economics 311-312 or consent of the instructor. Hours to be arranged. Mr. Vanek. Not offered in 1971-72.*]
- 674 **Economic Planning.** *Spring term. Credit four hours. Hours to be arranged. Mr. Staller.*
- 675 **Growth and Development.** *Spring term. Credit four hours. Hours to be arranged. Mr. Burton.*
- 676 **The Economy of China.** *Spring term. Credit four hours. Hours to be arranged. Mr. Chen.*
- [677 **Topics in Economic Growth and Development.** *Not offered in 1971-72.*]
- 678 **Economic Growth in Southeast Asia.** *Spring term. Credit four hours. Hours to be arranged. Mr. Golay.*
- [679 **Theory of Economic Development.** *Not offered in 1971-72.*]
- [681 **Economics of Participation and Labor-Managed Systems: Theory.** *Not offered in 1971-72.*]

[682 Economics of Participation and Labor-Managed Systems: Economic Policy and Planning. *Not offered in 1971-72.*]

English

Mr. B. B. Adams, Chairman; Messrs. M. H. Abrams, A. R. Ammons, Miss Judith H. Anderson, Messrs. D. N. Archibald, J. P. Bishop, Mrs. Jean Blackall, Messrs. J. D. Boyd, M. R. Brownell, S. Budick, A. Caputi, M. J. Colacurcio, D. D. Eddy, R. H. Elias, S. B. Elledge, A. V. Ettin, R. T. Farrell, E. G. Fogel, P. A. Gottschalk, B. L. Hathaway, G. H. Healey, N. H. Hertz, T. D. Hill, R. D. Hume, C. K. Jorstad, R. E. Kaske, M. W. Kaufman, H. Kaye, C. S. Levy, P. L. Marcus, J. H. Matlack, W. P. Matthews, D. E. McCall, J. R. McConkey, H. S. McMillin, Mrs. Dorothy Mermin, Messrs. F. E. Mineka, A. M. Mizener, Miss Susan Morgan, Messrs. D. Novarr, A. R. Parker, S. M. Parrish, S. Redding, E. Rosenberg, Miss Joanna Russ, Messrs. D. R. Schwarz, Mrs. Sandra Siegel, Messrs. W. J. Slatoff, B. O. States, S. C. Strout, W. Wetherbee.

Students who plan to major in English should secure from the Department's office, 245 Goldwin Smith, a brochure containing suggestions for prospective majors. All students who are candidates for the major in English and all who are considering the possibility of a major in English will be assigned, if they wish, to a major adviser in the second term of the freshman year. Such students should apply to the chairman of the Department in the ten-day period before registration. Early assignment to a major adviser commits neither the student nor the Department. A student is a provisional major until he has completed six hours of study in a foreign language (preferably in literature) in courses for which Qualification is a prerequisite and either English 251-252 or English 250 and 350. The foreign language courses must be completed before the senior year. English 251-252 should be completed by the end of the sophomore year; English 250 should be taken in the sophomore year, and English 350 in the junior year after a student has completed at least two English courses at the 200 level or higher. Applicants for the regular major must have achieved grades of at least C in all courses in English during the first two years.

Majors take a minimum of eight courses in English, or in other subjects approved for the major, numbered 300 or higher, but students who elect to satisfy the prerequisite to the major with English 250 and 350 may not count English 350 as one of these eight. English 488 and 489 may not be used in satisfaction of the major.

The Department of English does not require specific upperclass courses, but it advises students to select courses in both the older and the more recent periods and to avoid over-concentration on a single genre. Courses at the 300 level (many of which are lectures) are, in the main, surveys of the major areas of English and American literature; they are open to sophomores who have completed English 250 or 251-252. Courses at the 400 level (most of which are discussions) are, in the main, more limited in focus and more specialized in content; discussion courses are restricted to about fifteen students, and seniors are given preference in electing them. Eight hours of work in writing at the 300 level or higher may be included in the minimum requirement for the major. Eight hours of work in satisfaction of the major may be taken outside the Department in courses numbered 300 or above in the Department of Comparative Literature, in a foreign literature, in American Studies, or in the Society for the Humanities, provided that these are approved by the student's adviser as correlating with courses elected within the Department.

The Honors Program

The Honors program differs from the regular major primarily in requiring that a student include among his major courses an Honors seminar, English 491 or 492 (normally in his junior year, but, on occasion, in his senior year), and an Honors essay course, English 493, in the fall term of his senior year. Permission to enroll in English 491, 492, or 493 will be granted by the chairman of the Honors Committee in the ten days preceding preregistration. Applicants for Honors courses must have demonstrated achievement at the high level described in the Department's brochure.

The Independent Majors Program

For students who wish to design an Independent Major (see p. 21) with a component in English or American literature, a departmental representative will recommend advisers in the Department with particular interdisciplinary interests. Advisers will help to design major programs which focus on the relation between literature and other arts; the relation between literature and another discipline, such as history, linguistics, sociology, anthropology, psychology, or philosophy; the classical background of English literature; American studies; studies in the culture of the Middle Ages, the Renaissance, or other periods; interrelations between English and other literatures. Students in the Independent Majors Program may enroll in English 495-496, a course designed to meet a curricular need where no regular course is available. The Department will attempt to sponsor, in cooperation with other departments, special seminars for groups of students with common interdisciplinary interests.

Distribution Requirement

The Distribution requirement in the humanities is satisfied by any two courses in English other than 203-204, 205-206, 305-306, 385-386, 387-388, 485-486, 488 and 489, but a student may not enroll in both 251 and 255, or in both 252 and 256. The Seminar in Literature, HO, in the Six-Year Ph.D. Program may be used as one of these courses.

The Distribution requirement in the expressive arts can be satisfied by English 203-204, 205-206, 305-306, 385-386, 387-388, or 485-486.

Nonmajors

For students not majoring in English, the Department makes available a variety of courses at all levels: some courses at the 200 level are open to freshmen, and all of them are open, without prerequisite, to sophomores; courses at the 300 level are open to sophomores who have completed English 250 or 251-252 and to juniors and seniors; courses at the 400 level, most of which require the consent of the instructor, are open to specially qualified juniors and seniors.

Teaching Preparation

Prospective teachers of English in secondary schools who seek temporary certification in New York State must fulfill all the requirements of the major. In addition, they elect a special program of professional courses. A detailed statement about programs for teachers is available in the office of the Department of English.

Courses for Freshmen

As part of the Freshman Humanities Program, the Department of English offers a large number of one-

semester courses, each conducted in small sections with limited enrollment. The courses are concerned with various forms of writing (narrative, biographical, expository), with the study of specific areas in English and American literature, and with the relation of literature to culture. Students may elect any two of these courses during their first year to satisfy the Freshman Humanities requirement. Descriptions of these courses are found in the section Freshman Humanities Program (p. 28). See also English 237 and 241.

English as a Second Language

The following courses are offered by the Division of Modern Languages. Foreign students should consult a member of that Division in 106 Morrill Hall.

102 English as a Second Language. *Fall term. Credit six hours. Prerequisite: placement by the instructor. M T W Th F 9:05 plus two hours to be arranged.*

211-212 English as a Second Language. *Throughout the year. Credit three hours a term. Prerequisite: placement by the instructor. M W F 11:15 or 2:30.*

213 English for Nonnative Speakers. *Spring term. Credit three hours. Prerequisite: English 212 or placement by the instructor. Hours to be arranged. Mr. Elliott and staff.* This course is designed for nonnative speakers of English whose fluency is sufficient for them to carry on regular academic work, but who feel the need for refining and developing their ability to express themselves clearly and effectively. Writing style and the effect of some of the less obvious syntactic constructions will be emphasized. As much as possible, individual attention will be given to students in two class hours and a weekly interview.

Intermediate Courses

203-204 Creative Writing. *Throughout the year. Credit three hours a term. English 203 or consent of the instructor prerequisite to English 204. Sections limited to 15. M W 9:05 or 12:20, T Th 11:15 or 2:30, and conferences to be arranged. Mr. Matthews and others.* An introductory course in the theory and practice of writing narrative, poetry, and allied forms.

205-206 Expository Writing. *Throughout the year. Credit three hours a term. English 205 or consent of the instructor prerequisite to English 206. Sections limited to 18. M W 9:05 or T Th 10:10 and conferences to be arranged. Mr. Mineka and others.* For sophomores, juniors, and seniors who, having performed well in the Freshman Humanities Program (or in equivalent courses elsewhere), desire further practice in writing exposition. Regular weekly writing and reading assignments in the chief types of nonfictional prose such as argumentation, description, analysis, criticism, and personal essays.

225 Modern British Literature (1890-1940). *Fall term. Credit three hours. Primarily for students who do not expect to major in English; not open to freshmen. M W F 1:25. Mr. Schwarz.* A critical survey of major poetry and fiction. Selections will include works of Hardy, Conrad, Lawrence, Joyce, Yeats, Eliot, Auden, Thomas, and others.

237 The Reading of Fiction. *Either term. Credit three hours. Strongly recommended for prospective English majors; open to freshmen. May be used to satisfy either the Freshman Humanities requirement or the Distribution requirement in the humanities, but not both. Sections limited to 22. Fall term. M W F 11:15 or 12:20. Mr. Rosenberg and others. Spring term, M W F 12:20 or 2:30. Mr. Schwarz and others.* Forms of mod-

ern fiction, with emphasis on the short story and novella. Critical studies of works by English and American, as well as Continental writers, from 1880 to the present: Chekhov, James, Conrad, Faulkner, Mann, Kafka, and others.

241 Introduction to Drama. *Either term. Credit three hours. Strongly recommended for prospective English majors; open to freshmen. May be used to satisfy either the Freshman Humanities requirement or the Distribution requirement in the humanities, but not both. Sections limited to 22. M W F 10:10. Mr. Fogel.* A study of how drama molds feeling and comprehension by integrating such means available to the dramatist as action, language, and artistic design. Critical examination of plays of all periods, including the twentieth century, with major emphasis on plays written in English, but with collateral examples of outstanding plays from the European tradition. The syllabus will be adjusted from year to year to include plays produced on campus under the sponsorship of the Department of Theatre Arts.

243 Shakespeare. *Either term. Credit three hours. Primarily for students who do not expect to major in English. Limited to 25. Fall term: M W F 2:30. Mr. Kaufman. Spring term: M W F 11:15. Mr. Levy.* A critical study of representative plays from the principal periods of Shakespeare's career.

[245 Studies in American Literature. *Either term. Credit three hours. Primarily for students who do not expect to major in English. Limited to 25. Fall term: M W F 3:35. Mrs. Blackall. Spring term: M W F 2:30. Mr. Matlack. Not offered in 1971-72.]*

250 The Reading of Poetry. *Either term. Credit four hours. Open only to prospective majors in English. Available in the fall term to sophomores and to those freshmen who have received advanced standing credit in English; available in the spring term to freshmen and sophomores. Sections limited to 25. M W F 2:30. Mr. Bishop and others.* Readings in the major periods, modes, and genres of English and American poetry designed to widen the student's experience of poetry and sharpen his powers of understanding and response.

251 Major English Writers. *Either term. Credit four hours. Open only to prospective majors in English. Available in the fall term to sophomores and to those freshmen who have received advanced standing credit in English; available in the spring term to freshmen and sophomores. Sections limited to 25. M W F 1:25 or T Th S 11:15. Mr. Budick and others.* Studies in selected works of major English writers from Chaucer to the seventeenth century, with some consideration of the English literary tradition.

252 Major English Writers. *Either term. Credit four hours. Prerequisite: English 251. Sections limited to 25. M W F 1:25 or T Th S 11:15. Mr. Budick and others.* Studies in selected works of major English writers from the seventeenth to the nineteenth century, with some consideration of the English literary tradition.

255-256 British Literature. *Throughout the year. Credit three hours a term. First term not prerequisite to the second. Primarily for students who do not expect to major in English. T Th S 12:20. Mr. Healey.* Lectures and commentary on some notable works by prominent English, Scottish, and Irish authors. First term: medieval balladists to Dr. Johnson. Second term: Robert Burns to James Joyce.

Courses for Upperclassmen

These courses are mainly intended for juniors and seniors. Courses numbered 300 are open to sopho-

mores who have completed English 251-252 or English 250.

305-306 The Art of the Essay. *Throughout the year. Credit four hours a term. First term not prerequisite to the second. Sections limited to 18. T Th S 10:10. Fall term, Staff. Spring term, Mr. McMillin.* Intensive writing practice in practical criticism, general exposition, and personal essays. Reading and discussion of eighteenth-, nineteenth-, and twentieth-century essayists.

308 The Earliest English Literature. *Spring term. Credit four hours. M W F 12:20. Mr. Hill.* Cultural backgrounds, reading, and critical analysis of Anglo-Saxon poetry in translation; pagan and Christian epic, elegy, heroic legend, and other forms. Attention will be given to the relations of this literature to that of later periods.

309 The Sixteenth Century. *Fall term. Credit four hours. M W F 9:05. Mr. Ettin.* The main traditions in English poetry from 1530 to 1603, with some attention to the prose of the period. Special emphasis on such figures as Wyatt, Sidney, Spenser, Marlowe, and Shakespeare.

310 The Seventeenth Century. *Spring term. Credit four hours. M W F 9:05. Mr. Novarr.* The main traditions in poetry from Donne to Marvell and in prose from Bacon to Bunyan: the metaphysical poets; Jonson and the sons of Ben; the King James Bible; essay, character, epistle, and biography.

315 The Later Seventeenth and Early Eighteenth Centuries (1660-1730). *Fall term. Credit four hours. M W F 2:30. Mr. Budick.* Readings in such writers as Bunyan, Dryden, Rochester, Pope, Gay, Swift, and Thomson; Locke, Shaftesbury, Mandeville, Addison, and Steele. Study of literature, art, politics, and philosophy.

316 The Later Eighteenth Century (1730-1800). *Spring term. Credit four hours. M W F 2:30. Mr. Brownell.* Readings in Johnson, Goldsmith, Boswell, Gray, Burns, Smart, Burke, Hume, Blake, and others. Consideration of changing literary, political, philosophical, and social climates.

317 The Romantic Poets. *Fall term. Credit four hours. T Th S 11:15. Mr. Parker.* A critical study of the poetry of Blake, Wordsworth, Coleridge, Byron, Shelley, and Keats.

320 The Victorians. *Spring term. Credit four hours. T Th S 11:15. Mr. Mineka.* The major poets and prose writers from Carlyle to Bernard Shaw, studied in relation to the thought of the time and to the literature of the twentieth century.

321 The Twentieth Century. *Fall term. Credit four hours. M W F 10:10. Mr. Mizener.* The character of twentieth-century literature, as shown by the work of eight or ten major poets and novelists, from Yeats to Robert Lowell.

327 The Growth of American Literature. *Fall term. Credit four hours. M W F 11:15. Mr. Bishop.* The literature of ideas produced by America's Puritan and Enlightenment writers: Taylor, Edwards, Franklin; and the first achievements of national literature: Irving, Cooper, Poe, Hawthorne.

328 The American Renaissance. *Spring term. Credit four hours. M W F 1:25. Mr. Jorstad.* America's literary maturity at mid-century: the interrelated careers and masterpieces of Emerson, Thoreau, Hawthorne, Melville, Whitman, and Dickinson.

329 Realism in American Literature. *Fall term. Credit four hours. M W F 1:25. Mr. Matlack.* The revolt

against idealism and romance after the Civil War as seen chiefly in the theory and practice of Twain, Howells, James, and Crane, and incidentally in the work of representative writers concerned with regional and ethnic themes.

330 American Literature in the Twentieth Century. *Spring term. Credit four hours. M W F 12:20. Mr. Kaye.* The principal thematic and formal concerns of such major writers as Robinson, Dreiser, Frost, Hemingway, Stevens, Faulkner, and Wright.

332 The Negro in American Literature. *Spring term. Credit four hours. M W F 11:15. Mr. Redding.* The development of writing by Negroes from the beginning to the present, with particular attention to the special experience of being black in America.

335 The Modern American Novel. *Fall term. Credit four hours. M W F 10:10. Mr. Elias.* A critical study of American fiction, beginning with Howells and James and concluding with selected contemporary novels.

337 The Nineteenth-Century Novel. *Fall term. Credit four hours. M W F 12:20. Mrs. Blackall.* A critical study of English fiction from Jane Austen to Conrad.

339 Representative English Dramas. *Fall term. Credit four hours. M W F 11:15. Mr. McMillin.* Selected plays from the Middle Ages to the present century, with emphasis on literary and social contexts.

346 Modern Drama. *Spring term. Credit four hours. M W F 10:10. Mr. Kaufman.* A study of drama from Ibsen to the present day, including major continental playwrights, and giving special attention to Shaw, O'Casey, O'Neill, and Miller.

350 Literature and Theory. *Spring term. Credit four hours. M W F 2:30. Mr. Parker.* A consideration of various approaches to literature, with emphasis on illustrative examples from a range of periods and genres. Readings, lectures, and discussions will explore the relevance for interpretation of a work's political, social, and intellectual context, of its rhetorical and allegorical structures, of the personality and biography of the author, and of the influence of the past, especially the literary past. Some attention will also be paid to mimetic, expressive, and structural theories of fiction.

365 Chaucer. *Fall term. Credit four hours. M W F 12:20. Mr. Farrell.* Reading and critical analysis: *Troilus* and a large selection from the *Canterbury Tales*.

368 Shakespeare. *Spring term. Credit four hours. M W F 11:15. Mr. Fogel.* An introduction to the works of Shakespeare, based on a selection of plays representative of the stages of his artistic development and the range of his achievement.

371 Milton. *Fall term. Credit four hours. M 1:25-3:20, W F 1:25-2:15. Mr. Elledge.* Study of Milton's poetry and selected prose, with emphasis on *Paradise Lost*.

383 The English Language. *Fall term. Credit four hours. T Th S 9:05. Mr. Farrell.* A historical and topical analysis of the development of English, from its beginning to the present.

385-386 Narrative Writing. *Throughout the year. Credit four hours a term. Prerequisite: English 203-204 or consent of the instructor. T Th 11:15 and conferences to be arranged. Fall term, Miss Russ. Spring term, Mr. Hathaway.* The writing of fiction; study of models; analysis of students' work.

387-388 Verse Writing. *Throughout the year. Credit four hours a term. Prerequisite: 203-204 or consent of the instructor. T 1:25-3:20, Fall term, Mr. Matthews.*

70 English

Spring term, Mr. Ammons. The writing of poetry; study of models; analysis of students' poems; personal conferences.

[402 Literary Criticism. *Spring term. Credit four hours. Discussion. Prerequisite: consent of the instructor. T Th S 10:10. Mr. Ettin. Not offered in 1971-72.]*

[405 Spenser and Langland. *Fall term. Credit four hours. Discussion. Prerequisite: consent of the instructor. T Th S 11:15. Miss Anderson. Not offered in 1971-72.]*

412 Elizabethan and Jacobean Drama. *Spring term. Credit four hours. Discussion. Prerequisite: consent of the instructor. M W F 10:10. Mr. Ettin.* Critical study of plays by Marlowe, Marston, Jonson, Beaumont, Fletcher, Webster, Ford, and others.

413 Shakespeare. *Fall term. Credit four hours. Discussion. Prerequisites: English 368 and consent of the instructor. M W F 10:10. Mr. Redding.* An intensive study of three or four of Shakespeare's plays.

[417 The School of Donne. *Fall term. Credit four hours. Discussion. Prerequisite: consent of the instructor. M W F 11:15. Mr. Novarr. Not offered in 1971-72.]*

[425 Restoration and Eighteenth-Century Drama. *Fall term. Credit four hours. Discussion. Prerequisite: consent of the instructor. T Th S 9:05. Mr. Hume. Not offered in 1971-72.]*

431 Topics in the Eighteenth Century. *Fall term. Credit four hours. Prerequisite: consent of the instructor. T Th S 10:10. Mr. Archibald.* Topic for 1971-72: Literature and politics in the age of Wilkes, Johnson, and Burke. An exploration of the complex interplay between political assumption and commitment and literary sensibility and vocation during the second half of the century.

[438 Masterworks of the Romantic Period. *Spring term. Credit four hours. T Th S 10:10. Mr. Abrams. Not offered in 1971-72.]*

[442 The Old World and the New. *Spring term. Credit four hours. T Th S 9:05. Mr. Strout. Not offered in 1971-72.]*

445 Studies in American Literature. *Fall term. Credit four hours. Prerequisite: consent of the instructor. M W F 2:30. Mr. Redding.* Topic for 1971-72: A comparative study of selected black and white American writings preliminary to an assessment of their contribution to the corpus of American literature.

[446 The Political Novel in America. *Spring term. Credit four hours. Discussion. Prerequisite: consent of the instructor. T Th S 9:05. Mr. Matlack.* A study of selected works of American fiction from Cooper to the present day, featuring political analysis, social criticism, or utopian alternatives.

447 Studies in Nineteenth-Century American Literature. *Fall term. Credit four hours. Discussion. Prerequisite: consent of the instructor. T Th S 11:15. Mr. Jorstad.* Topic for 1971-72 to be announced.

452 Major Victorian Poets. *Spring term. Credit four hours. Discussion. Prerequisite: consent of the instructor. T Th S 11:15. Mrs. Mermin.* The poetry of Tennyson, Browning, and Arnold, and a brief survey of the Pre-Raphaelites.

455 Late Victorian and Edwardian Literature (1890-1914). *Fall term. Credit four hours. Prerequisite: consent of the instructor. T Th S 11:15. Mr. Parrish.* The ways in which such writers as Hopkins and Housman, Hardy and Moore, Wilde and Shaw, Beerbohm and Wells changed Victorian attitudes and influenced our own.

457 Studies in the Novel. *Fall term. Credit four hours. Discussion. Prerequisite: consent of the instructor. M W F 12:20. Mr. Schwarz.* Topic for 1971-72 to be announced.

461 Studies in Modern Fiction. *Fall term. Credit four hours. Prerequisite: consent of the instructor. T Th S 9:05. Mr. Mizener.* In 1971-72, the fiction of Fitzgerald, Hemingway, and Faulkner.

462 Major Twentieth-Century Poets. *Spring term. Credit four hours. Discussion. Prerequisite: consent of the instructor. M W F 10:10. Mr. Marcus.* Detailed examination of Yeats and Eliot, with some consideration of Ezra Pound.

463 Studies in Modern Drama. *Fall term. Credit four hours. Discussion. Prerequisite: consent of the instructor. Hours to be arranged. Mr. Kaufman.* A study of themes and dramatic form in T. S. Eliot, O'Casey, Tennessee Williams, and the postwar English playwrights, such as Pinter and Osborne.

466 The Anglo-Irish Literary Tradition. *Spring term. Credit four hours. Discussion. Prerequisite: consent of the instructor. M W F 12:20. Mr. Archibald.* A study of the major works of such writers as Swift and Burke, Joyce and Yeats, of some relationships between them, and of what this suggests about the Irish situation.

468 Contemporary American Poetry. *Spring term. Credit four hours. Discussion. Prerequisite: consent of the instructor. M W F 2:30. Mr. Kaye.* Emphasis on the work of Robert Creeley, Robert Lowell, Theodore Roethke, and James Wright; selective readings from the work of such poets as A. R. Ammons, Robert Bly, Edward Dorn, Randall Jarrell, W. S. Merwin, Charles Olson, Louis Simpson, Gary Snyder, and Richard Wilbur.

[471 The Modernist Tradition in Poetry. *Fall term. Credit four hours. Discussion. Prerequisite: consent of the instructor. M W F 12:20. Mr. Hathaway. Not offered in 1971-72.]*

[474 The Theory of Comedy. *Spring term. Credit four hours. Discussion. Prerequisite: consent of the instructor. M W F 2:30. Mr. Hume. Not offered in 1971-72.]*

480 Studies in American Culture. *Spring term. Credit four hours. Discussion. Prerequisites: senior standing and consent of the instructor. Th 1:25-3:20. Mr. Elias.* A study of the relations between the literature and the social and political issues of a period in American cultural history. Topic for 1971-72: the 1930s.

485-486 Seminar in Writing. *Throughout the year. Credit four hours a term. Discussion. Prerequisite: English 385-386 or consent of the instructor. W 1:25-3:20. Fall term, Mr. Hathaway. Spring term, Mr. McConkey.* For advanced writing students who should be prepared to complete, during the year, a writing project in verse, narrative, or essay. Exploration of principles of literary theory pertinent to projects undertaken.

488 The Teaching of English. *Fall term. Credit four hours. Prerequisites: senior standing and admission to the Department's teacher preparation program. Hours to be arranged. Mr. Gottschalk.* The problems and methods of teaching English in high school.

489 Observation and Practice Teaching. *Either term. Credit six hours. Prerequisites: senior standing and admission to the Department's teacher preparation program. Hours to be arranged. Mr. Gottschalk.*

Allegory and Symbolism (Comparative Literature 402).

[Ancient and Renaissance Literary Criticism (Comparative Literature 408). *Not offered in 1971-72.*]

Medieval Arthurian Literature (Comparative Literature 404).

Medieval Literature (Comparative Literature 333-334).

Myth and Literature (Comparative Literature 416).

The Modern European Novel (Comparative Literature 351-352).

The Literature of Europe in the Modern Period (Comparative Literature 329-330).

World Drama (Comparative Literature 325-326).

Honors Courses

Enrollment in English 491 and 492 is limited to twelve students per seminar. All seminars are open to juniors and seniors, both those in the English Honors Program and others who have secured prior permission from the chairman of the Honors Committee. English 493 and 494 are open to seniors who have received permission. English 495-496 is open to students in the Independent Majors Program.

491A The Criticism of Poetry. *Fall term. Credit four hours. T Th 1:25-3:20. Miss Morgan. Topic for 1971-72 to be announced.*

491B The Criticism of Fiction. *Fall term. Credit four hours. T Th 1:25-3:20. Mrs. Blackall. Topic for 1971-72: The theme of money in the Victorian novel.*

491C Studies in Dramatic Form. *Fall term. Credit four hours. T Th 1:25-3:20. Mr. Fogel. Topic for 1971-72: Shakespeare and his contemporaries. A study of outstanding plays by Shakespeare and such contemporaries as Lyle, Marlowe, Jonson, Marston, Chapman, Webster, and Beaumont and Fletcher. Emphasis on the special achievements of individual dramatists as well as on comedy, tragedy, and other forms; readings in modern criticism of the Elizabethan drama.*

492A The Criticism of Poetry. *Spring term. Credit four hours. T Th 1:25-3:20. Instructor and topic to be announced.*

492B The Evolution of the English Novel. *Spring term. Credit four hours. T Th 1:25-3:20. Mr. Schwarz. An examination of the rise of the novel in the eighteenth and early nineteenth centuries, with some attention to the evolution of the novel form in selected later fiction. Reading will include works by Defoe, Fielding, Richardson, Sterne, Austen, Dickens, Thackeray, Hardy, and Lawrence. Some attention will be given to theoretical problems involved in the study of fiction.*

492C Studies in Dramatic Form. *Spring term. Credit four hours. T Th 1:25-3:20. Instructor and topic to be announced.*

493 Honors Essay Tutorial. *Fall term. Credit four hours. Hours and instructor to be arranged.*

494 Independent Study. *Spring term. Credit four hours. Prerequisites: Successful completion of an Honors course and of English 493. Hours and instructor to be arranged.*

495-496 Supervised Study. *Throughout the year. Credit four hours a term. Prerequisite: acceptance in Independent Majors Program and consent of departmental adviser.*

Graduate Courses

These courses are for graduate students, but a few especially qualified undergraduates may enroll in 500-

level courses. All students must secure the consent of the instructor before registering.

For complete descriptions of courses numbered 500 or above see the *Announcement of the Graduate School: Humanities*. If the course is not included there, consult the Graduate Field Representative.

500 Critical and Scholarly Perspectives. *Either term. Credit five hours. Fall term, Mr. Fogel. Spring term, Mr. Abrams.*

501 Readings in Old English. *Fall term. Credit five hours. Mr. Farrell.*

502 Beowulf. *Spring term. Credit five hours. Prerequisite: English 501. Mr. Hill.*

503 Middle English. *Fall term. Credit five hours. Mr. Hill.*

504 Chaucer. *Spring term. Credit five hours. Mr. Wetherbee.*

506 Philological Problems in the Study of English Literature. *Spring term. Credit five hours. Mr. Farrell.*

[508 The English Language. *Spring term. Credit five hours. Mr. Farrell. Not offered in 1971-72.]*

510 Grammatical Analysis. *Spring term. Credit five hours. Mr. Hathaway.*

[512 Medieval Drama. *Spring term. Credit five hours. Mr. Adams. Not offered in 1971-72.]*

[513 Elizabethan and Jacobean Drama. *Fall term. Credit five hours. Mr. McMillin. Not offered in 1971-72.]*

[516 Currents of Thought in the Early Renaissance. *Spring term. Credit five hours. Miss Anderson. Not offered in 1971-72.]*

520 Readings in Seventeenth-Century Literature. *Spring term. Credit five hours. Mr. Novarr.*

521 Milton. *Fall term. Credit five hours. Mr. Elledge.*

523 Studies in Dramatic Form: Tragedy. *Fall term. Credit five hours. Mr. Gottschalk.*

530 The New England Mind, 1620-1860. *Spring term. Credit five hours. Mr. Colacurcio.*

[531 Studies in American Literature: Melville and Hawthorne. *Fall term. Credit five hours. Mr. McCall. Not offered in 1971-72.]*

537 Studies in American Literature: Naturalism. *Fall term. Credit five hours. Mr. Elias.*

549-550 Creative Writing. *Throughout the year. Credit five hours a term. Fall term, Mr. Ammons. Spring term, Mr. Hathaway.*

[554 Studies in English Poetry. *Spring term. Credit five hours. Mr. Abrams. Not offered in 1971-72.]*

561 Studies in Shakespeare. *Fall term. Credit five hours. Mr. McMillen.*

[564 Dramatic Literature: Shaw and O'Neill. *Spring term. Credit five hours. Mr. Caputi. Not offered in 1971-72.]*

568 The Eighteenth Century. *Spring term. Credit five hours. Mr. Eddy.*

571 Studies in Romanticism. *Fall term. Credit five hours. Mr. Parker.*

[572 The Romantic Period. *Spring term. Credit five hours. Mr. Abrams. Not offered in 1971-72.]*

575 Victorian Prose. *Fall term. Credit five hours. Mr. Mineka.*

72 Geological Sciences

576 Victorian Poetry. *Spring term. Credit five hours.* Mr. Mineka.

[**577 Dickens.** *Fall term. Credit five hours.* Mr. Rosenberg. Not offered in 1971-72.]

582 Studies in Modern Fiction. *Spring term. Credit five hours.* Mr. McConkey.

592 Twentieth-Century Literature: Yeats. *Spring term. Credit five hours.* Mr. Marcus.

594 Studies in Twentieth-Century American Poetry. *Spring term. Credit five hours.* Mr. Fogel.

597 Literary Criticism. *Fall term. Credit five hours.* Mr. Boyd.

598 Master's Essay. *Spring term. No credit.* Staff.

599 Practice Teaching. *Either term. Credit nine hours.* Mr. Gottschalk.

600 Directed Study. *Either term. Credit five hours.* Staff.

601 Group Study. *Either term. Credit five hours.* Staff.

[**604 Textual Criticism of Old English Poetry.** *Spring term. Credit five hours.* Mr. Farrell. Not offered in 1971-72.]

[**608 Studies in Medieval Literature.** *Spring term. Credit five hours.* Mr. Kaske. Not offered in 1971-72.]

[**616 Studies in the Sixteenth Century: Sir Philip Sidney.** *Spring term. Credit five hours.* Mr. Fogel. Not offered in 1971-72.]

[**618 Studies in the Seventeenth Century: John Donne.** *Spring term. Credit five hours.* Mr. Novarr. Not offered in 1971-72.]

[**672 Wordsworth.** *Spring term. Credit five hours.* Mr. Parrish. Not offered in 1971-72.]

698 Teaching and Research. *Either term. Credit five hours.* Staff.

French

For complete course listings and for details of the major, see the heading French in the section Modern Foreign Languages and Literatures.

Geological Sciences

(Geology, Geochemistry, Geophysics, Geobiology, Physical Geography, Applied Fields)

The department offers three courses of study for majors in geological sciences: (a) the structured major; (b) the interdisciplinary major; and (c) the unstructured major.

For admission to the structured major, students should complete Geology 101-102, Mathematics 111-112, and Chemistry 107-108, and should be officially accepted by the departmental major adviser. Structured majors in addition complete the following: Physics 207-208; a three-credit-hour course in mechanical drawing; and a two-credit-hour course in plane surveying. Recommended as further courses are Mathematics 213 and physical chemistry.

After admission to the structured major, the minimum requirements are: (a) Geology 351-352, 322, 441, 471-472, and 490; (b) two elective courses in geology

numbered 300 or higher; and (c) six semester hours' credit at a designated summer camp in field geology. The experimental and theoretical aspects of geology, including field mapping, are integrated with classical studies to give a balanced view of geological science for the student preparing to be a professional geologist.

Students considering graduate study in the physical branches of geological science should select a Distribution sequence from mathematics, physics, chemistry, or engineering; whereas those planning graduate study in aspects of geobiology should elect a Distribution sequence of four courses in biological science.

An interdisciplinary major is for any student who wishes to combine selected geological training with such subjects as agronomy, astronomy and space science, biological sciences, chemistry, economics, engineering, mathematics, and physics. An interdisciplinary major is required to complete a minimum of twelve units in geological sciences, numbered 300 or higher, admission into which requires satisfactory 101-102 credit or equivalent.

The unstructured major is designed for students who wish a broad geologic training and are not planning to practice as geologists. The unstructured major is for a generalist, such as an earth science teacher or environmental or conservation worker. This major must complete a minimum of twenty-four credits in geological sciences (in addition to 101-102 credit or equivalent).

Students wishing certification as earth science teachers must take courses in geological sciences in their Science Education program. Some appropriate groupings are: Geology 212, 312, 314 and 441; Geology 202, 441, 471, 472; Geology 351, 352 and 461, 462 or 451, 452; Geology 322, 421, 441, 542.

Distribution Requirement

The Distribution requirement in physical sciences is satisfied in geological sciences by Geology 101-102.

Geography, Physical

Freshman and Sophomore Courses

111 Earth Science. *Fall term. Credit three hours (see Earth Science Laboratory 113). Combine with Geography 212 for a survey of physical geography.* Lectures, M W F 9:05. Mr. Bloom. Physical geography, including the spatial relationships of the earth, moon, and sun that determine the figure of the earth, time, seasons, atmospheric and oceanic circulation, and climates.

113 Earth Science Laboratory. *Fall term. Credit one hour. To be taken concurrently with Earth Science 111. Laboratory, W or Th 2-4:25.* Mr. Bloom. Observation and calculation of daily, monthly, and seasonal celestial events; topographical mapping and map interpretation; world climatic regions.

212 Mineral Resources. *Spring term. Credit three hours.* Lectures, M W F 9:05. Staff. Utilization of and our dependence upon mineral resources; their nature, occurrence, distribution, and availability at home and abroad. Political and economic aspects of their availability and control.

General Geology

Freshman and Sophomore Courses

Principles and Processes

101 Introductory Geological Science. *Fall term. Credit three hours.* Lectures, T Th 11:15. Two sched-

uled preliminary examinations will be held at 7:30 p.m. during the term. Laboratory, M T W Th or F 2-4:25, S 10:10-12:35. Field trips. Mr. Philbrick. Designed to give students a comprehensive understanding of the earth processes, features, and history. Provides the basic knowledge necessary for more specialized courses or a major in geological science.

Study of the earth, particularly materials, structure, internal condition, and the physical and chemical processes at work. Principles of interpretation of earth history, evolution of continents, oceans, mountain systems, and other features; development of its animal and plant inhabitants.

102 Introductory Geological Science. Spring term. Credit three hours. Prerequisite: Geological Sciences 101. Lectures, T Th 11:15. Two scheduled preliminary examinations will be held at 7:30 p.m. during the term. Laboratory, M T W Th or F 2-4:25, S 10:10-12:35. Field trips. Mr. Philbrick. A continuation of Geology 101.

202 Ancient Life. Spring term. Credit three hours. No prerequisite but Geological Sciences 102 is desirable. Lectures, M W F 11:15. Mr. Wells. A cultural course devoted to a review of the fossil remains of life in the geologic past as the main basis of the concept of organic evolution. Vertebrate forms from fish to man are stressed.

203 Geology and the Environment. Fall term. Credit three hours. Lectures, T Th 9:05. Laboratory T W or Th 1:25-4:25. Two scheduled preliminary examinations will be held at 7:30 p.m. during the term and a laboratory examination will be held at 7:30 p.m. the last week of the term. Field trips. Mr. Kiersch. The principles of geological science with emphasis on the physical phenomena and rock properties as they influence the natural environments of man. The cause and effect of geological problems encountered in the planning, construction, and operation of man's works are analyzed in the laboratory along with the influence of environmental factors.

Junior, Senior, and Graduate Courses

Physical Processes

322 Structural Geology—Tectonics. Spring term. Credit four hours. Prerequisites: Geological Sciences 102 or 203, and 351; 352 recommended. Lectures, M W 11:15. Laboratory, M 2-4:25, and additional assigned problems. Field trips, Mr. Kiersch. Nature, origin, and recognition of geologic structures. Behavior of geologic materials, stresses, geomechanical and tectonic principles applied to the solution of geologic problems. Analysis of structural features by three-dimensional methods.

421 Sedimentation. Fall term. Credit four hours. Given in alternate years. Prerequisite: Geological Sciences 352; Geological Sciences 441 recommended. Lectures, M W 9:05. Laboratory, T 2-4:25, and additional laboratory work. Field trips. Mr. Philbrick. Source materials, mechanics of transport and dispersal, depositional environments, lithification and diagenesis of sediments. Analysis of common problems in applied fields due to these phenomena.

441 Geomorphology. Fall term. Credit four hours. Prerequisite: Geological Sciences 102. Lectures, T Th 9:05. Laboratory, T 2-4:25, and additional assigned problems. Mr. Bloom. Description and interpretation of land forms in terms of structure, process, and stage.

542 Glacial and Pleistocene Geology. Spring term. Credit three hours. Prerequisite: Geological Sciences 441 or consent of the instructor. Lectures, T Th 9:05. Laboratory, T 2-4:25. Several Saturday field trips. Mr.

Bloom. Glacial processes and deposits and the stratigraphy of the Pleistocene.

444 Geological Oceanography. Spring term. Credit three hours. Prerequisite: Geological Sciences 102 or Biological Sciences 461. Lectures, M W F 9:05. Field trips. Mr. Bloom. Shoreline erosion, transportation, and deposition; origin and structure of continental shelves and ocean basins. Geologic processes and geomorphic development in the marine environment.

Geochemistry

Mineral Materials and Processes

351 Mineralogy. Fall term. Credit four hours. Prerequisites: Geological Sciences 102 and Chemistry 108. Lecture, M 10:10. Laboratory, W F 2-4:25, and additional assigned problems. Staff. Crystallography, crystal chemistry, and systematic mineralogy of the ore and rock-forming minerals.

352 Petrology. Spring term. Credit four hours. Prerequisite: Geological Sciences 351. Lectures, M F 10:10. Laboratory, Th 2-4:25 and additional assigned problems. Mr. Bonnicksen. Composition, classification, and origin of igneous, sedimentary, and metamorphic rocks.

451 Optical Mineralogy. Fall term. Credit four hours. Prerequisite: Geological Sciences 351. Lecture, T Th 11:15. Laboratory, F S 9:05-12:20, and additional assigned problems. Staff. Optical properties of crystals and their application to the determination and study of common rock-forming minerals with the petrographic microscope.

452 Optical Petrography. Spring term. Credit four hours. Prerequisites: Geological Sciences 352 and 451. Lecture, T Th 11:15. Laboratory, F S 9:05-12:20, and additional assigned problems. Mr. Bonnicksen. Description, classification, and determination of the origin of igneous, metamorphic, and sedimentary rocks by the use of petrographic microscope.

For complete descriptions of courses numbered 500 or above see the *Announcement of the Graduate School: Physical Sciences*. If the course is not included there, consult the Graduate Field Representative.

551 Geochemistry. Fall term. Credit three hours. Prerequisite: Geological Sciences 352. Lectures, M W F 8. Staff.

554 X-Ray Analysis. Spring term. Credit two hours. Prerequisite: Geological Sciences 352 or consent of the instructor. Lecture, W 12:20. Laboratory, F 2-4:25. Staff.

653 Advanced Petrology. Fall term. Credit three hours. Prerequisite: Geological Sciences 452. Lectures, T Th 9:05. Laboratory, Th 2-4:25. Mr. Bonnicksen.

656 Advanced Mineralogy. Spring term. Credit three hours. Prerequisites: Geological Sciences 452 and 554. Lectures, T Th 10:10. Laboratory, W 2-4:25. Staff.

Mineral Deposits

461 Mineral Deposits: Metals. Fall term. Credit four hours. Prerequisite: Geological Sciences 352. Lectures, M W F 10:10. Laboratory, F 2-4:25. Field trips. Staff. Principles and processes involved in the formation of mineral deposits. Modes of occurrence, origin, distribution, and utilization of the major, rare, and minor metals.

462 Mineral Deposits: Nonmetals. Spring term. Credit four hours. Prerequisite: Geological Sciences 461 or consent of the instructor. Lectures, M W F

74 Geological Sciences

10:10. Laboratory, F 2-4:25. Field trips. Staff. Properties, occurrence, associations, distribution, and economic utilization of the industrial minerals and rocks.

563 Ore Microscopy. Fall term. Credit two hours. Given in alternate years. Prerequisites: Geological Sciences 451 and 461. Laboratory, F S 7:30-9:55 a.m. Staff.

Geophysics

For complete descriptions of courses numbered 500 or above see the *Announcement of the Graduate School: Physical Sciences*. If the course is not included there, consult the Graduate Field Representative.

581 Exploration Geophysics. Fall term. Credit three hours. Given in alternate years. Prerequisites: Physics 208; Geological Sciences 102 or 203; Geological Sciences 322 recommended. Lectures, T Th 9:05. Laboratory, S 10:10-12:35, and assigned problems. Staff.

583 Physics of the Earth. Fall term. Credit three hours. Prerequisites: Geological Sciences 322, Mathematics 112, Physics 208. Lectures and laboratory to be arranged. Staff.

584 Seismology. Spring term. Credit three hours. Prerequisite: Geological Sciences 583. Lectures and laboratory to be arranged. Staff.

586 Seminar in Rock Deformation: Geomechanics. Spring term. Credit two hours. Prerequisites: Geological Sciences 533 and 583. Hours to be arranged. Staff.

Applied Geological Science

For complete descriptions of courses numbered 500 or above see the *Announcement of the Graduate School: Physical Sciences*. If the course is not included there, consult the Graduate Field Representative.

532 Hydrogeology. Spring term. Credit three hours. Given in alternate years. Prerequisites: Geological Sciences 322 and 352; Geological Sciences 441 recommended. Lectures, M W 9:05. Laboratory, T 2-4:25 and field trips. Mr. Philbrick.

533 Engineering Geology: Theory and Environments. Fall term. Credit three hours. Given in alternate years. Prerequisites: Geological Sciences 322 and 352; Geological Sciences 441 recommended. Lectures, M W 11:15. Laboratory, M 2-4:25 and field trips. Mr. Kiersch.

535 Engineering Geology: Practice. Fall term. Credit three hours. Given in alternate years. Prerequisites: Geological Sciences 533 or 322-352 and 441. Lectures, M W 9:05. Laboratory, T 2-4:25 and field trips. Mr. Kiersch.

561 Fundamentals of Mining Geology. Fall term. Credit three hours. Given in alternate years. Prerequisites: Geological Sciences 461 and 462. Lectures, M W F 10:10. Assigned problems. Field trips. Staff.

562 Economics of Mineral Deposits. Spring term. Credit three hours. Given in alternate years. Prerequisites: Geological Sciences 461 and 462; Geological Sciences 561 recommended. M. W F 10:10. Assigned problems. Staff.

[582 Exploration Geology. Spring term. Credit three hours. For those interested in fossil evidence of the graduate students in geological sciences. Prerequisites: graduate standing and field geology. Lectures, M W 9:05. Laboratory, W 2-4:25. Staff. Not offered in 1971-72.]

Geobiology

Paleontology and Stratigraphy

471 Invertebrate Paleontology. Fall term. Credit four hours. For those interested in fossil evidence of the development of organisms. Prerequisite: Geological Sciences 102; invertebrate zoology recommended. Lectures, T Th 10:10. Laboratory, W Th 2-4:25. Mr. Wells. Paleobiology and classification of important fossil invertebrates.

472 Principles of Historic Geology. Spring term. Credit four hours. Prerequisites: Geological Sciences 322 and 471. Lectures, T Th 10:10. Laboratory, W 2-4:25, and additional assigned problems. Mr. Wells. Application of geologic principles to interpretation of earth history: development of the geologic column; geochronology and geochronometry; correlation and the zone concept; sedimentary environments and provinces; geosynclines and platforms; problems of the Pre-Cambrian and continental evolution.

For complete descriptions of courses numbered 500 or above see the *Announcement of the Graduate School: Physical Sciences*. If the course is not included there, consult the Graduate Field Representative.

571 Stratigraphy: Paleozoic. Fall term. Credit three hours. Given in alternate years. Prerequisite: Geological Sciences 472. Lectures, T Th 9:05 and W 7:30 p.m. Mr. Wells.

572 Stratigraphy: Mesozoic and Cenozoic. Spring term. Credit three hours. Prerequisite: Geological Sciences 472. T W Th 9:05. Mr. Wells.

672 Stratigraphy of New York State. Spring term. Credit three hours. Given in alternate years. Prerequisite: Geological Sciences 571. Lectures, T Th 12:20 early in the term, followed by all-day and weekend field trips. Mr. Wells.

Seminars and Special Work

490 Senior Thesis. Either term. Credit one hour. Staff.

For complete descriptions of courses numbered 500 or above see the *Announcement of the Graduate School: Physical Sciences*. If the course is not included there, consult the Graduate Field Representative.

673 Seminar in the History of Geology. Fall term. Credit two hours. Hours to be arranged. Mr. Wells.

Seminar in Geological Sciences. No credit. For majors and required of graduate students, but open to all who are interested. T 4:45. Staff and visiting lecturers.

690 Special Work. Throughout the year. Credit two hours a term. Prerequisite: consent of the instructor. Staff.

690-a Analytical geochemistry, crystallography, and mineralogy. Staff.

690-b Petrology and geochemistry of metamorphic and igneous rocks, associated metallic minerals. Mr. Bonnicksen.

690-c Coastal geomorphology and Pleistocene geology. Mr. Bloom.

690-d Environmental/engineering geology, structural geology, and resources. Mr. Kiersch.

690-e Seismology, crustal and marine geophysics, heat flow. Staff.

690-f Invertebrate paleontology and paleoecology. Mr. Wells.

690-h *Physical and engineering geology, water resources. Staff.*

690-i *Mineral deposits and resources, exploration geophysics. Staff.*

German Literature

For complete course listings and for details of the major, see the heading German in the section Modern Foreign Languages and Literatures.

Government

Mr. A. T. Dotson, Chairman; Messrs. B. R. O'G. Anderson, D. E. Ashford, P. H. Auerbach, Mrs. Judith Best, Messrs. M. J. Brenner, H. W. Briggs, D. J. Danelski, W. J. Dannhauser, L. G. E. Edmondson, M. Einaudi, E. J. Eisenach, M. J. Esman, Mesdames Cynthia Frey, Mary Hanna, Barbara Hinckley, Maryanne Horowitz, Messrs. G. McT. Kahin, D. A. Karns, E. G. Kenworthy, A. J. Milnor, D. P. Mazingo, M. V. Nadel, G. H. Quester, S. D. Resnick, R. Rosecrance, A. W. Rovine, M. Rush, P. J. Sharfman, F. C. Teiwes, N. T. Uphoff, D. E. Van Houweling, R. Weissberg.

(Students are urged to check the list of changes and supplementary offerings maintained in the Department office.)

For a major in government the following courses must be completed: (1) three of the following introductory courses—Government 101, Government 104, Government 203, and Government 206 (During the 1971–1972 academic year, the course Center for International Studies 110 may be substituted for Government 104 or 206.); (2) a minimum of twenty-four additional hours in Department courses numbered 300 or above; (3) in related social science subjects, a minimum of twelve hours. (Students are requested to confirm the acceptability of particular courses with their advisers.)

Juniors and seniors majoring in the Department of Government who have superior grade records may apply for supervised study in government with a particular instructor, whose consent is required. See the description for Government 498 and 499 (Supervised Study).

The Honors Program

The Honors Program provides intensive, supervised study for government majors who have demonstrated their potentialities for advanced work in the field. An average of B+ in government courses is the normal requirement for admission to the Program. Prospective applicants are encouraged to take a Major Seminar (Government 300) in the fall semester of their junior year. Students may enroll in the Program for either two or three semesters, depending on when they are accepted and the period of time it takes them to complete the requirements. Applications should be submitted either by November 15 of the student's junior year, for spring admission; or by April 15, for admission the following fall. Students admitted in the spring of their junior year may complete the program in either two or three semesters; those admitted in the fall of their senior year must finish in two semesters.

Candidates for the degree of Bachelor of Arts with Honors in Government will complete the normal requirements for a major in the Department, during which they must take Government 493 and 494.

Degrees with *cum laude*, *magna cum laude*, or *summa cum laude* in government will be recommended for students who successfully complete the Honors Program.

Distribution Requirement

The Distribution requirement in social sciences is satisfied in government by taking two of the following courses: Government 101, 104, 203, and 206. (For the academic year 1971–72, the course Center for International Studies 110 may be substituted for Government 104 or 206.)

101 American Government and Politics. *Fall term. Credit three hours. Open to all students with first preference for students in the College of Arts and Sciences. Lectures, T Th 2:30. Discussion sections to be arranged. Mrs. Hinckley.* Principles, problems, and processes in American political life.

104 Comparative Government. *Spring term. Credit three hours. Open to all students. Lectures, T Th 2:30. Discussion sections to be arranged.* A comparative study of major contemporary political movements and of governmental institutions and processes in Great Britain, France, Germany, and Russia, as well as in some of the newly emerging countries.

203 Introduction to Political Theory. *Fall term. Credit three hours. Open to all students. Lectures, M W 11:15. Discussion sections to be arranged. Mr. Dannhauser.* A survey of the development of Western political theory from Plato to the present. Readings from the work of the major theorists and an examination of the relevance of their ideas to contemporary politics will be stressed.

206 Introduction to International Relations. *Spring term. Credit three hours. Open to all students. M W 9:05, plus a third hour to be arranged. Mr. Rosecrance.* An introduction to the basic concepts and practice of international relations.

Freshman Seminars

As part of the Freshman Humanities Program, the Department of Government will offer the following two courses. Since they are equivalents of Government 101 and 104, they may be counted toward the major.

101S American Government. *Either term. Credit three hours.* A seminar version of Government 101. (See above.)

104S Comparative Government. *Either term. Credit three hours.* A seminar version of Government 104. (See above.)

Major Seminars

300 Major Seminars. *Either term. Credit four hours. Hours to be arranged.* Every major in the Department is encouraged to take at least one major seminar during his junior or senior years. The topics of the seminars and the names of the faculty offering them each semester will be announced prior to the registration period. Majors should, when registering with their advisers, indicate their preferential choices among the seminars being offered. Nonmajors may be admitted as space is available and should apply through the Department's secretary.

American Government and Institutions

Prerequisite for all courses in this section, Government 101, or consent of the instructor, unless the course description indicates otherwise. Open to sopho-

mores, juniors, and seniors unless specified otherwise.

312 Urban Politics. *Spring term. Credit four hours. M W F 1:25. Mr. Van Houweling.* Analysis of several of the most significant problems facing urban areas and possible political solutions. The effect of political institutions, trends, and power will be emphasized.

[314 Politics and Society. *Spring term. Credit four hours. T Th 11:15. Not offered in 1971-72.]*

315 Interest Groups and Informal Representation in American Politics. *Spring term. Credit four hours. T Th 2:30-4. Mr. Milnor.* Role of groups in the Congress and bureaucracy. Special attention to the limits of the group system, to the group system and social reform, and to the problems of representation for the poor.

316 The American Presidency. *Spring term. Credit four hours. No prerequisite; Government 101 recommended. M W F 11:15. Mr. Nadel.* Analysis of the office and powers of the President with emphasis on the politics of the executive branch, executive-legislative relations, and the role of the President in the formation of public policy.

317 American Political Parties and Elections. *Spring term. Credit four hours. M W F 1:25. Mrs. Hinckley.* A study of American leadership selection through recruitment, nominations, and elections. Emphasis on presidential and congressional selection with some attention to state contests. The role of party, public opinion, and other influences on the selection.

318 The American Congress. *Fall term. Credit four hours. M W F 11:15. Mr. Milnor.* An intensive study of politics and policy formation in Congress. Special emphasis on the problems of the representative assembly in the twentieth century.

319 American Political Behavior. *Fall term. Credit four hours. T Th 11:15-12:45. Mr. Weissberg.* This course examines the political beliefs and behavior of Americans. Particular attention will be given to the nature and distribution of ideology; the reasons for differential political participation; and of such collective behavior as riots and mass movements.

320 Public Opinion and American Democracy. *Spring term. Credit four hours. T Th 11:15-12:45. Mr. Weissberg.* An analysis of the political beliefs of Americans in the context of alternative democratic theories. Both the ways Americans acquire their beliefs and the consequences (if any) of these beliefs for public policy will be examined. The goal will be to appraise existing opinion formation and implementation in terms of the requirements of alternative democratic theories.

321 Politics and Public Policy. *Fall term. Credit four hours. T Th 2:30-4. Mr. Nadel.* A study of public policy in the United States covering both the processes of policy formation and the systematic analysis of policy outcomes. Special emphasis will be given to economic, law enforcement, and national security policies.

323 Public Administration: The Fourth Branch. *Fall term. Credit four hours. M W F 10:10. Mr. Dotson.* An examination of the national administrative branch. Particular attention will be given to the constitutional and political problems which result from the rise of administrative power.

[327 The Supreme Court as a Democratic Institution. *Fall term. Credit four hours. Mr. Danelski. Not offered in 1971-72.]*

[328 The Supreme Court as a Political Institution. *Spring term. Credit four hours. Mr. Danelski. Not offered in 1971-72.]*

Comparative Government

Prerequisite for all courses in this section, Government 104, or consent of the instructor, unless course description indicates otherwise. Open to sophomores, juniors, and seniors unless specified otherwise.

333 Government and Politics of the Soviet Union. *Fall term. Credit four hours. Open to juniors and seniors only. M W F 1:25. Mr. Rush.* A focus on the politics of the top leaders, the institutions through which they operate, and the impact of their policies on the Soviet people. Emphasis also on phases in the development of the Soviet system and on the ways in which the Soviet Union served as the prototype of all subsequent Communist states, as well as on the variant forms that have appeared in other states.

338 Politics and Modernization. *Spring term. Credit four hours. M W F 10:10.* A comparative study of the political development of "Third World" nations. Particular attention is given to selected cases. The political implications of the growing gap between advanced and backward states is examined critically.

340 Government and Politics of Latin America. *Fall term. Credit four hours. M W F 10:10. Mr. Kenworthy.* An introduction to the national politics of the larger nations in recent decades, emphasizing the impact of social and economic changes—international as well as domestic—upon them.

341 Society and Politics in Contemporary France. *Fall term. Credit four hours. T Th 11:15-12:45. Mr. Auerbach.* An introduction to politics and government in Fifth Republic France, History, culture, and social organization will be emphasized as well as the effects of the operation of the French political system on its national and international environments. Selected French films will be shown.

[344 Government and Politics of Southeast Asia. *Fall term. Credit four hours. Mr. Anderson. Not offered in 1971-72.]*

347 Chinese Government and Politics. *Fall term. Credit four hours. M W F 12:20. Mr. Teiwes.* An examination of the politics of modern China including the breakdown of the traditional order and the revolutionary struggle of the Chinese Communist Party. Primary emphasis on the institutions, methods, policies, and problems of the Communist regime since 1949.

[349 Political Role of the Military. *Spring term. Credit four hours. Mr. Anderson. Not offered in 1971-72.]*

350 Comparative Revolutions. *Fall term. Credit four hours. M W 2:30-4. Mr. Mozingo.* An analysis of major revolutionary movements since World War II (China, Indonesia, Cuba, Algeria, Vietnam); their social-political origins, ideology, and organization; with special emphasis on contrasting strategies and roads to power.

361 Race and Politics: Comparative Studies. *Spring term. Credit four hours. M W F 3:30. Mr. Edmondson.* Comparisons of the influence of race in political systems, primarily the United States, South Africa, Zimbabwe (Rhodesia), and Britain. Subjects to be covered include: racism in political culture and political socialization; styles and consequences of race-interest articulation; effectiveness of measures for or against discrimination and influences on the decision-making process; race and socioeconomic stratification; impact of the international system; and reviews of political problems in some other multiracial or polyethnic states.

362 Government and Politics in Africa. *Fall term. Credit four hours. M W F 3:30. Mr. Edmondson.* Analysis of the organization and functioning of African (primarily sub-Saharan) political systems with special attention to issues of political change and development.

374 The Politics of Population. *Spring term. Credit four hours. M W F 10:10. Mr. Quester.* Political problems and approaches on questions of population. Topics to be considered will include birth control and population expansion policies, immigration and "brain drain," education, attempts at cultural standardization and assimilation in multilingual societies, and alternative land tenure systems.

410 From Politics to Policy: The Political Economy of Choice. *Fall term. Credit four hours. T Th 2:30-4. Mr. Uphoff.* In this course, we will examine the realities, dilemmas, and strategies of policymakers in the U.S., Third World, and international relations. The environment of political action and policy choice will be considered analytically from the perspective of actors and choosers, using the framework of a new political economy. The framework will be applied in particular to school desegregation in Virginia and Chicago, the Mexican Revolution's making and implementation, and policymaking on Vietnam.

411 Elites and Society: The Political Economy of Power. *Spring term. Credit four hours. T Th 2:30-4. Mr. Uphoff.* This course should bring together students who have an interest in the nature and uses of power in politics. It will consider how "power" has been treated by earlier political thinkers as well as by contemporary social scientists. The contending arguments about elitism, pluralism, and populism will be examined with reference to power in American, Third World, and international politics. The aim of this approach will be to consider the implications of different distributions and bases of power for the making of public policy.

443 Political Development in Western Europe. *Spring term. Credit four hours. T Th 11:15-12:45. Mr. Auerbach.* An analysis of the political development and/or collapse of ancient and modern societies in the competitive environment of Western Europe. The objective of this course is to arrive at historical and theoretical perspectives on contemporary political change in Europe.

Political Theory

Prerequisite for all courses in this section, Government 203, or consent of the instructor, unless course description indicates otherwise. Open to sophomores, juniors, and seniors unless specified otherwise.

353 Theoretical Roots of Modern Politics. *Fall term. Credit four hours. T Th 2:30-4. Mr. Eisenach.* A study of eighteenth- and nineteenth-century liberal and socialist political theory as antecedents of contemporary ideology.

354 Political Authority in Mass Society. *Fall term. Credit four hours. T Th S 11:15. Mr. Eisenach.* Eighteenth- and nineteenth-century origins of ideology and mass man. Theories of the disintegration of political authority in the nineteenth and twentieth centuries; mass society as political pathology. Modern elitist theory as a response to mass society.

355 American Political Thought. *Spring term. Credit four hours. T Th 2:30-4. Mr. Eisenach.* Survey of American political thought with stress on puritan thought, constitutional theory, selected nineteenth-century literature and contemporary political science.

464 Basic Problems in Political Theory. *Spring term. Credit four hours. M W 2:30-4. Mr. Resnick.* Problems of moral responsibility and politics in the modern democratic state.

International Relations

Prerequisite for all courses in this section, Government 206, or consent of the instructor, unless course description indicates otherwise. Open to sophomores, juniors, and seniors unless specified otherwise.

334 Foreign Policy of the U.S.S.R. *Spring term. Credit four hours. Open to juniors and seniors only. M W F 1:25. Mr. Rush.* The evolution of Soviet foreign policy since 1917, and how the revolution affected the international system and was, in turn, modified by it. Considerable attention will be given to the response of leaders to crucial events, such as the coming of the Nazis to power and the advent of nuclear weapons, and to the origins and prospects of the Cold War.

337 Imperialism. *Spring term. Credit four hours. Open to juniors and seniors only. M W F 10:10. Mr. Kenworthy.* A critical examination of the modern concept of imperialism as fashioned by Hobson and Lenin and modified by such diverse writers as Arendt, Nkrumah, and Servan-Schreiber. The recent foreign relations of the Soviet Union and the United States will be reviewed in the light of these writings. Major emphasis will be placed on U.S.-Latin American relations.

360 Race in International Relations. *Fall term. Credit four hours. T Th 3:30-5. Mr. Edmondson.* Analysis of the factors influencing the internationalization of racial issues and their impact on the contemporary international system. Subjects to be covered include: racial and, at times, ethnic influences in foreign-policy decision making; power distribution and power management in the international system; imperialism, colonialism, and self-determination issues; transnational group linkages and ideologies; and their impact in and through international law and international organization.

370 Theories of International Relations. *Fall term. Credit four hours. M W F 9:05. Mr. Rosecrance.* A survey of relevant theories of international relations emphasizing war prevention and conflict resolution. Theories will be tested against the international experience of the past two centuries.

371 Defense Policy and Arms Control. *Fall term. Credit four hours. M W F 10:10. Mr. Quester.* Political analysis of the needs for military defense, and the problems caused thereby. Subjects to be covered will include nuclear deterrence reasoning, procedures for disarmament, military strategy, military-industrial complexes, and defense budgeting and policy procedures.

375 Contemporary American Foreign Policy. *Spring term. Credit four hours. M W F 11:15. Mr. Sharfman.* An analysis of the dilemmas which confront American foreign policy at the present time, both individual problems and more general questions of capabilities, priorities, and morality. The frame of reference will be the period since 1945.

376 The International Politics of Southern Asia. *Fall term. Credit four hours. M W F 11:15. Mr. Leifer.* An examination of international politics in that area south of China extending from India to the Philippines and embracing states whose independent existence dates, almost without exception, from the end of the Second World War. Among subjects to be considered will be the transfers of power and international status, external interests and involvements, alliances and nonalign-

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ment, intraregional conflicts and association, the interplay between domestic and international politics as well as the foreign policies of the more important states of the region.

377 The United States and Asia. *Spring term. Credit four hours. M W F 9:05. Mr. Kahin.* An analysis of the relations of the United States with the major states of Asia and with those smaller countries (especially Vietnam) with which it is particularly concerned; attention is also given to the relationship of American policy to the Asian policies of France, Great Britain, and Soviet Russia.

381 The United Nations. *Fall term. Credit four hours. M W F 9:05. Mr. Rovine.* The politics of international organization, with primary emphasis on the political and peacekeeping functions of the United Nations. Redistribution of wealth and power, human rights, international service and recruitment, integration, and world order functions are also studied.

471 International Law and World Politics: Peaceful Functions. *Fall term. Credit four hours. M W F 11:15. Mr. Rovine.* The role and functions of the law and lawyers in regulating peaceful relationships among states. Among the problems studied are legal issues involved in relations between western, socialist, and African and Asian nations; legal aspects of conflict between private and socialist patterns of development; problems of nationality, territory, jurisdiction, transnational agreement; the law of human rights.

[472 International Law and World Politics: War and Armed Conflict. *Spring term. Credit four hours. Mr. Rovine. Not offered in 1971-72.]*

478 The Foreign Policy of China. *Spring term. Credit four hours. M W 2:30-4. Mr. Mazingo.* An analysis of Chinese concepts of foreign relations and the policy-making process in the People's Republic of China. Emphasis will be placed on such topics as the contemporary Chinese view of their position in the international community and a comparison of the making and implementation of contemporary Chinese policies with respect to such areas as the Soviet bloc, Afro-Asian countries, and the West.

479 The Development of the International Communist Movement. *Spring term. Credit four hours. M W F 1:25. Mr. Teiwes.* A survey of international communism from the Third International and its antecedents to the present centering on three topics: (1) the ideology, organization, strategy, and tactics of the world movement up to 1956 with particular attention to the relationship between Soviet state interests and the problems and opportunities of individual communist parties; (2) a comparison of the composition, appeals, and effectiveness of communist parties in different national settings; and (3) an examination of the disintegration of the movement since 1956.

Political Methodology

All courses in this section are open, *without prerequisites* to sophomores, juniors, and seniors, unless course description indicates otherwise.

302 Introduction to Empirical Political Analysis. *Spring term. Credit four hours. M W F 10:10. Mr. Karns.* One or two questions, such as the role of public opinion in a democracy, will be used to examine the formulation of statistical questions, selection and manipulation of relevant empirical data. The translation of normative political propositions into statistically testable questions. Individual projects involve limited computer usage.

480 Mathematical Models and Political Analysis. *Fall term. Credit four hours. M W F 10:10. Mr. Karns.* The underlying assumptions of various mathematical analytical techniques, such as regression, causal modeling, factor analysis, and dynamic modeling will be critically examined for both the effect on results and the coherence with nonmathematical political analysis. Discussion of techniques and assumptions will be emphasized rather than data analysis.

Honors Courses

493 Honors Tutorials. *Either term. Credit four hours.* The tutorials involve weekly sessions with professors specializing in fields closest to the student's interests. The tutorials call for periodic papers and intensive reading. Students who join the Program in their junior year may take Government 493 for two successive semesters.

494 The Honors Thesis. *Either term. Credit eight hours.* The Honors Thesis is the major academic obligation undertaken by the student during his final year at the University. The final deadline for theses is May 1. Students who wish to complete their Honors work in the first semester of their senior year must submit their theses by January 1. All candidates for Honors will be given an oral examination on their theses.

Supervised Study

Juniors and seniors majoring in government who have superior grade records may apply for supervised study in government with a particular instructor. The applicant must present a well defined program of study that cannot be satisfied by the taking of regular courses. Emphasis will be placed on the capacity to subject a body of related readings to analysis and criticism. The consent of the instructor is required.

498 Readings. *Either term. Credit two hours. Staff.*

499 Readings. *Either term. Credit four hours. Staff.*

Graduate Seminars

For complete descriptions of graduate courses see the *Announcement of the Graduate School: Social Sciences*. If a course is not included there, consult the Graduate Field Representative.

Field Seminars

Each field seminar presents an overview of a subfield of the discipline, with special attention to persistent and current substantive concerns and analytic methods characteristic of the subfield. Field seminars will be offered by the professors indicated with the assistance of other faculty in the subfield.

501 Field Seminar in Contemporary Political Inquiry. *Fall term. Credit four hours. Open to graduate students and qualified seniors by consent of the instructor. Hours to be arranged. Mr. Ashford.*

502 Field Seminar in Political Research Design. *Spring term. Credit four hours. Open to graduate students and qualified seniors by consent of the instructor. Hours to be arranged. Mr. Karns.*

503 Field Seminar in American Government. *Fall term. Credit four hours. Open to graduate students and qualified seniors by consent of the instructor. Hours to be arranged. Mrs. Hinckley.*

505 Field Seminar in Comparative Government. *Fall term. Credit four hours. Open to graduate students and qualified seniors by consent of the instructor. Hours to be arranged.*

507 Field Seminar in Political Theory. *Fall term. Credit four hours. Open to graduate students and qualified seniors by consent of the instructor. Hours to be arranged. Mr. Eisenach.*

509 Field Seminar in International Relations. *Spring term. Credit four hours. Open to graduate students and qualified seniors by consent of the instructor. Hours to be arranged. Mr. Rosecrance.*

510 Field Seminar in Public Policy. *Spring term. Credit four hours. Open to graduate students and qualified seniors by consent of the instructor. Hours to be arranged.*

Numerous analytic and research seminars in each subfield will also be offered. Students are requested to check the list of offerings maintained in the Department office.

History

Mr. L. Pearce Williams, Chairman; Messrs. D. A. Baugh, A. H. Bernstein, K. Biggerstaff, D. M. Davidson, E. W. Fox, H. E. Guerlac, C. A. Holmes, J. J. John, M. G. Kammen, S. L. Kaplan, H. G. Koenigsberger, D. C. LaCapra, W. F. LaFeber, Miss M. B. Norton, Messrs. G. Osofsky, C. A. Peterson, W. M. Pintner, R. Polenber, W. B. Provine, J. H. Silbey, F. Somkin, B. Tierney, M. Walker, O. W. Wolters, D. K. Wyatt.

For admission to the history major a student must have completed an Introduction to Western Civilization, and have earned grades of C or better in this and in any other history courses taken. Students who have completed only the first semester of the Introduction to Western Civilization, with a grade of C or better, may be provisionally admitted to the major. Prospective majors should apply for admission at the Department of History office.

In fulfillment of the major requirement a student must take twenty-eight hours of history courses numbered 200 or above. Of the twenty-eight hours, sixteen must be in courses numbered above 330, and, of these sixteen, eight must be in one particular field of history (e.g., American, ancient, Latin American, early modern European). To complete the major a student must also take two courses numbered 300 or above offered by other departments that relate to his eight-hour concentration in one particular field of history.

The Honors Program

Candidates for the degree Bachelor of Arts with Honors in history should consult with Mr. Holmes during the spring term of their sophomore year and enroll in the Honors program. The minimum requirements for admission to candidacy for Honors are (1) a cumulative average of B— or better in all courses; (2) a cumulative average of B or better in courses in the humanities and social sciences; (3) enrollment and outstanding performance in at least one history course before the spring term of the sophomore year.

An Honors candidate will take the history proseminar (History 399) during the fall semester of his junior year. In the spring he will take at least one advanced history course entailing frequent discussions and considerable writing under supervision. During the fall term of his senior year the candidate may register, if he wishes, for History 401 or 402 to explore the field of his prospective Honors essay. During the spring term of his senior year the candidate will register for a four-hour course in order to complete and prepare to defend his Honors essay and his general work in history (History 500).

The text of the Honors essay may not exceed sixty pages except by permission of the chairman of the Honors committee and the student's adviser. Two copies will be due during the last week of April. One copy will be returned with the readers' comments. In May, each Honors candidate will be given a thirty-minute oral examination, administered by his major adviser and one or both of the essay readers. The examination will ordinarily be concerned with the broad field of the essay (e.g., Periclean Athens, seventeenth-century science, nineteenth-century France).

The purpose of the Honors program is to give unusually able students an opportunity to do independent work under close faculty supervision. The progression of special courses taken during the junior and senior years (from History 399 through 500) all may be counted toward the twenty-eight hours in history required of a major. Evidence to be considered in awarding the Bachelor of Arts with Honors in history will include (1) grades earned in all history and related courses; (2) readers' reports on the Honors essay; and (3) performance on the senior oral examination.

Distribution Requirement

The Distribution requirement in history is satisfied by any one year course in history through courses at the 300 level.

American History

215–216 American History. *Throughout the year. Credit three hours a term. First term not prerequisite to the second. T Th S 9:05. Fall term, Messrs. Kammen, LaFeber, and staff. Spring term, Messrs. Silbey, Polenber, and staff.* Several major topics will be considered each term, and different modes of historical inquiry will be used. The principal topics during the fall term will be authority, power, and rebellion in colonial and ante-bellum America. A primary purpose will be to give the student opportunities to make his own historical judgments and analyze those made by others. These aims will be pursued through weekly seminar work and frequent short essays. There will be one lecture and two discussion sessions each week.

Note: Freshmen may count either term or both toward satisfaction of the Freshman Humanities requirement. (For description of the Freshman Humanities Program see p. 27.)

[371 Colonization From Antiquity until the Eighteenth Century. *Fall term. Credit four hours. M W F 10:10. Mr. Kammen. Not offered in 1971–72.]*

372 The Origins of American Civilization. *Spring term. Credit four hours. M W F 10:10. Mr. Kammen.* The European and colonial genesis of American culture and society, with emphasis upon the emergence of distinctive institutions, attitudes, and social patterns. Topics include race relations, theology and ecclesiastical organization, politics, movements of social protest, and patterns of economic growth.

373–374 The Structure of American Political History. *Throughout the year. Credit four hours a term. History 373 is not prerequisite to History 374. T Th S 10:10. Mr. Silbey.* A systematic examination of the course of American politics since 1789, focussing on the nature of leadership, decision making, popular, and legislative voting behavior; and the role of interest groups, political parties, and political elites in shaping our political history. Course 373 covers the period to the Civil War; 374 from the Civil War to the present.

[375 The American Civil War and Reconstruction. *Spring term. Credit four hours. T Th S 10:10. Mr. Silbey. Not offered in 1971–72.]*

[376 American Cultural and Intellectual History, 1600-1860. *Fall term. Credit four hours. No prerequisite, but some background in the history and literature of the period is desirable. M W F 2:30. Mr. Somkin. Not offered 1971-72.]*

377 American Cultural and Intellectual History, 1860-1960. *Spring term. Credit four hours. Some background in the history and literature of the period is desirable; History 376 is not a prerequisite. M W F 2:30. Mr. Somkin.*

[379 American History, 1890-1917. *Fall term. Credit four hours. T Th S 12:20. Mr. Polenberg. Not offered 1971-72.]*

380-381 Recent American History, 1917 to the Present. *Throughout the year. Credit four hours a term. First term not prerequisite to the second. Lectures, T Th 12:20; discussion sections to be arranged. Mr. Polenberg. Fall term topics include progressivism and dissent in the First World War, cultural conflict in the 1920's, the social impact of the depression, Franklin Roosevelt and the New Deal. Spring term topics include domestic and diplomatic aspects of World War II, civil liberties and civil rights, social reform from the Fair Deal to the Great Society, critiques of the welfare state.*

383 History of American Foreign Relations. *Fall term. Credit four hours. T Th S 11:15. Mr. LaFeber. A survey of American foreign policy, 1750 to 1914. Special emphasis is placed on the domestic, economic, political, and social changes and how these changes influenced the formulation of American foreign policy.*

[384 History of American Foreign Relations. *Spring term. Credit four hours. T Th S 11:15. Mr. LaFeber. Not offered in 1971-72.]*

[385 Problems in the History of the Old South, 1606-1860. *Fall term. Credit four hours. M W F 11:15. Not offered 1971-72.]*

[387 The South Since Reconstruction, 1877-1960. *Spring term. Credit four hours. M W F 11:15. Not offered 1971-72.]*

[470 The United States in the Middle Period, 1815-1850. *Fall term. Credit four hours. T Th 10:10. Mr. Silbey. Not offered 1971-72.]*

471 Problems in American Political History. *Spring term. Credit four hours. Prerequisite: consent of the instructor. T 2:34-4:25. Mr. Silbey. A seminar investigating the nature of the American political process since 1789 through in-depth study of particular problems and episodes.*

Topic for 1971-72. The politics of race in nineteenth-century America from abolitionism to populism, 1830-1896.

472 Undergraduate Seminar in American History. *Spring term. Credit four hours. Prerequisite: consent of the instructor. W 1:25-3:15. Mr. Kammen. Topic for 1972: The origins of American pluralism. Readings and discussions of topics in race relations (Indians, blacks, and whites), immigration, ethnicity, nativism, religious denominationalism, and changing assumptions about group relations in American society, with particular reference to the colony and state of New York.*

473 Age of the American Revolution, 1763-1815. *Spring term. Credit four hours. T Th 2:30-4:25. Miss Norton. A course stressing political, institutional, and intellectual change during the most creative period in the history of American political thought. The transformation of English colonies into the new American nation; the establishment and organization of republi-*

can government; the origins of the first party system; concepts and modes of opposition; questions of church and state.

474 Nationalism and Nostalgia in American Life, 1870-1930. *Fall term. Credit four hours. M W 1:25-3:20. Consent of the instructor required. Mr. Kammen. A colloquium stressing the interconnections between two major strains in American culture, with particular reference to conservative thought, nativism, the "Genteel Tradition," patriotism and public celebrations, historical writing, the conservation movement, and arcadian mythology.*

[475 American Historiography in the Middle Period. *Fall term. Credit four hours. W 1:25-3:20. Mr. Somkin. Not offered in 1971-72.]*

[476 Problems in American Cultural History. *Spring term. Credit four hours. W 1:25-3:20. Mr. Somkin. Not offered in 1971-72.]*

478 The American Reform Impulse. *Spring term. Credit four hours. Prerequisite: consent of the instructor. M 3:35 or hours to be arranged. Mr. Somkin. An undergraduate seminar. Movements of reform thought in the nineteenth century.*

480 Undergraduate Seminar in Recent American History. *Fall term. Credit four hours. Prerequisite: consent of the instructor. T 1:25-3:15. Mr. Polenberg. Topic for 1971: Civil liberties in America, 1938-1968.*

[481-482 American History: History of the West. *Throughout the year. Credit four hours a term. First term not prerequisite to the second. M W F 12:20. Not offered 1971-72.]*

[483 Problems in the History of the South. *Fall term. Credit four hours. M 2:30-3:20, W 2:30-4:25. Not offered in 1971-72.]*

[484 Motivations of American Foreign Policy. *Spring term. Credit four hours. Prerequisite: consent of the instructor. Mr. LaFeber. Not offered in 1971-72.]*

[485 The Rise of the Urban South, 1820-1960. *Fall term. Credit four hours. M 2:30-3:20, W 2:30-4:25. Not offered in 1971-72.]*

[486 The Study of the South as an Approach to American History. *Spring term. Credit four hours. M 2:30-3:20, W 2:30-4:25. Not offered in 1971-72.]*

Politics of Religion in America (Society for the Humanities Seminar 507-508).

For complete descriptions of courses numbered 500 or above see the *Announcement of the Graduate School: Humanities*. If the course is not included there, consult the Graduate Field Representative.

502 Colloquium in American History. *Fall term. Credit four hours. Required of all entering graduate students in American history. M 3:35-5:25. Staff.*

669-670 Seminar in Early American History. *Throughout the year. Credit four hours a term. Hours to be arranged Mr. Kammen.*

673-674 Seminar in Nineteenth-Century American History. *Throughout the year. Credit four hours a term. Hours to be arranged. Mr. Silbey.*

[675 Seminar in American Cultural and Intellectual History. *Fall term. Credit four hours. Hours to be arranged. Mr. Somkin. Not offered in 1971-72.]*

676 Seminar in American Cultural and Intellectual History. *Spring term. Credit four hours. Hours to be arranged. Mr. Somkin.*

679-680 Seminar in Recent American History. Throughout the year. Credit four hours a term. Hours to be arranged. Mr. Polenberg.

[681-682 Seminar in the History of the American West. Throughout the year. Credit four hours a term. Hours to be arranged. Not offered in 1971-72.]

683-684 Seminar in the History of American Foreign Relations. Throughout the year. Credit four hours a term. Hours to be arranged. Mr. LaFeber.

[685-686 Seminar in the History of the American South. Throughout the year. Credit four hours a term. Hours to be arranged. Not offered in 1971-72.]

Asian History

205 Introduction to Asian Civilizations: Origins to 1600. Spring term. Credit three hours a term. T Th 11:15; discussion sections to be arranged. Messrs. Wolters, Peterson and staff. Examination of central topics in the histories of China, Japan, India, and Southeast Asia, including indigenous beliefs and their development, often under outside influence; the political entities formed—their kinds and evolution; bases for social distinctions; relations with neighboring cultures; and general characteristics on the eve of extensive contact with the West.

206 Introduction to Asian Civilizations: From 1600. Fall term. Credit three hours a term. T Th 11:15; discussion sections to be arranged. Messrs. Biggerstaff, Wyatt, and staff. A survey of central themes in the modern histories of China, Japan, India, and Southeast Asia. After general consideration of the intrusion of European imperialism, the course focuses attention upon the intellectual, social, political, and economic transformations of the region prior to World War II, and the consequences which followed the war.

393 History of Chinese Civilization Prior to the Nineteenth Century. Fall term. Credit four hours. Open to sophomores. Not open to students who have had History 323. T Th 10:10; discussion sections to be arranged. Mr. Peterson. Consideration of major issues in the history of China from earliest times to the late imperial period.

394 History of Chinese Civilization: Nineteenth and Twentieth Centuries. Spring term. Credit four hours. Open to sophomores. Not open to students who have had History 324. T Th 10:10; discussion sections to be arranged. Mr. Biggerstaff. An analysis of the modernization of Chinese civilization under the impact of the West. After a brief examination of early nineteenth-century China, the Western political, economic, and intellectual invasion is considered, followed by a more thorough study of the revolutionary changes that have taken place during this century.

492 The Medieval Chinese World. Spring term. Credit four hours. Prerequisite: History 323, 393, or consent of the instructor. T Th 1:25-3:00. Mr. Peterson. Analytic study of Chinese culture and society between the seventh and thirteenth centuries.

495 Southeast Asian History to the Fourteenth Century. Fall term. Credit four hours. T Th S 11:15. Mr. Wolters.

496 Southeast Asian History from the Fifteenth Century. Spring term. Credit four hours. Prerequisite: History 206, 495 or consent of the instructor. T Th S 11:15. Mr. Wyatt. An analytic survey of Southeast Asian states and societies and the changes which have transformed them. After a brief examination of the classical order of the fifteenth through seventeenth

centuries, the course considers in depth the economic, intellectual, and political impact of the West in the eighteenth and nineteenth centuries and the search for meaningful modernization in the twentieth century.

[497 Southeast Asia in the Nineteenth Century. Fall Term. Credit four hours. Prerequisite: History 496, 206, or consent of the instructor. M 1:25, Th 1:30-3:30. Mr. Wyatt. Not offered in 1971-72.]

For complete descriptions of courses numbered 500 or above see the *Announcement of the Graduate School: Humanities*. If the course is not included there, consult the Graduate Field Representative.

588-589 The Historiography of Southeast Asia. Throughout the year. Credit four hours a term. Prerequisite: consent of the instructors. Hours to be arranged. Mr. Wolters and Mr. Wyatt.

591 Chinese Historiography and Source Materials. Fall term. Credit four hours. Prerequisite: consent of the instructor. Hours to be arranged. Mr. Peterson.

593 Modernization of China. Fall term. Credit four hours. A discussion seminar open to graduate students and to seniors who have completed History 324 or its equivalent with a grade of B or better. M 3:35-5:30. Mr. Biggerstaff.

594 Modernization of China. Spring term. Credit four hours. A research seminar. Prerequisite: History 593. M 3:35-5:30. Mr. Biggerstaff.

691-692 Seminar in Medieval Chinese History. Throughout the year. Credit four hours a term. Hours to be arranged. Mr. Peterson.

693-694 Seminar in Modern Chinese History. Throughout the year. Credit four hours a term. Hours to be arranged. Mr. Biggerstaff.

695-696 Seminar in Southeast Asian History. Throughout the year. Credit four hours a term. Hours to be arranged. Fall term. Mr. Wyatt. Spring term, Mr. Wolters.

European History

105-106 Introduction to Western Civilization. Throughout the year. Credit three hours a term. For freshmen and sophomores. Open to juniors and seniors with consent of the instructor. First term prerequisite to the second except with consent of the instructor. M W F 11:15. Messrs. Bernstein, Provine, and staff. A survey of European history since antiquity. Attention is given equally to the major political and social developments and to the intellectual heritage of the West. A considerable portion of the reading is in contemporary sources.

Note: Freshmen may count either term or both toward satisfaction of the Freshman Humanities requirement. (For description of the Freshman Humanities Program, see p. 27.)

A. Ancient

301 Ancient Greek History. Spring term. Credit three hours. Open to freshmen. Two lectures and one discussion section per week. M W F 9:05. Mr. Bernstein. A survey of Greek civilization from its origins to the Roman conquest. Special attention will be given to the relation between intellectual trends and political development.

431 The Roman Revolution, 146-44 B.C. Fall term. Credit four hours. Prerequisite: History 302 or consent of the instructor. M W 1:25-3:20. Mr. Bernstein. An undergraduate seminar. Political history from the Gracchi to Cicero and Caesar, comprising the destruc-

tion of Republican Rome and the establishment of Caesar's imperial autocracy.

[432 **Early Imperial Rome, 44 B.C.-A.D. 70.** *Spring term. Credit four hours. Prerequisite: History 302 or consent of the instructor. M W 3:35-5. Mr. Bernstein. Not offered in 1971-72.* An undergraduate seminar. An analysis of the origins and development of dictatorship under the Caesars.]

[433 **Classical Greece, 510-404 B.C.** *Fall term. Credit four hours. Prerequisite: History 301 or consent of the instructor. M W 3:35-5. Mr. Bernstein. Not offered in 1971-72.* An undergraduate seminar. The political history of mainland Greece, with an emphasis on Athens, from the Persian to the Peloponnesian War.]

[434 **Classical Greece, 404-338 B.C.** *Spring term. Credit four hours. Prerequisite: History 301 or consent of the instructor. M W 3:35-5. Mr. Bernstein. Not offered in 1971-72.* An undergraduate seminar. The history of Greece from the end of the Peloponnesian War to the Battle of Chaeronea. The works of Plato, Aristotle, and the Greek orators will be considered as well as those of the historians and biographers.]

For complete descriptions of courses numbered 500 or above see the *Announcement of the Graduate School: Humanities*. If the course is not included there, consult the Graduate Field Representative.

631-632 Seminar in Ancient Classical History. *Throughout the year. Credit four hours a term. Hours to be arranged. Mr. Bernstein.*

B. Medieval and Early Modern

303-304 Medieval History. *Throughout the year. Credit three hours a term. Open to sophomores. First term not prerequisite to the second. M W F 12:20. Mr. John.* A survey of the main trends of political, economic, intellectual, and religious development in Europe: from the fourth to the twelfth century in the fall term, and from the twelfth to the fifteenth century in the spring term.

[335 **Medieval Culture, 400-1150.** *Spring term. Credit four hours. Prerequisite: History 303 or consent of the instructor. T Th 1:25-2:40. Mr. John. Not offered in 1971-72.*]

336 Medieval Culture, 1150-1300. *Spring term. Credit four hours. Prerequisite: History 304 or consent of the instructor. T Th 1:25-2:40. Mr. John.*

341-342 Europe in the Age of the Renaissance, Reformation, and Counter-Reformation. *Throughout the year. Credit four hours. Prerequisite: six hours in European history or consent of the instructor. M W F 11:15. Mr. Koenigsberger.*

437 Church and State During the Middle Ages. *Fall term. Credit four hours. Prerequisite: History 303-304 or consent of the instructor. T Th 3:00-4:15. Mr. Tierney.*

442 Catherine de Medici and the French Wars of Religion. *Spring term. Credit four hours. Prerequisites: six hours of European history and consent of the instructor. M W F 9:05. Mr. Koenigsberger.*

Images of the Mind, 15th Through the 17th Centuries (Society for the Humanities Seminar 415-416).

For complete descriptions of courses numbered 500 or above see the *Announcement of the Graduate School: Humanities*. If the course is not included there, consult the Graduate Field Representative.

638 Seminar in Medieval History. *Fall term. Credit four hours. Hours to be arranged. Mr. Tierney.*

639-640 Seminar in Latin Paleography. *Throughout the year. Credit four hours a term. Hours to be arranged. Mr. John.*

641 Graduate Seminar: The Theory and Practice of Reason of State. *Fall term. Credit four hours. Hours to be arranged. Mr. Koenigsberger.*

C. Modern

307 English History from Anglo-Saxon Times to the Revolution of 1688. *Fall term. Credit three hours. M W F 11:15. Mr. Holmes.* A survey of the government, social organization, and cultural and religious experience of the English people in the period, laying particular stress on the administrative and legal unification of the realm, the rise of representative institutions, and changes in agrarian organization and the development of urban and commercial classes.

308 English History from the Revolution of 1688 to the Present. *Spring term. Credit three hours. M W F 11:15. Mr. Baugh.* The emphasis is on political, industrial, and social developments. The movement of English society from its eighteenth-century aristocratic base is traced through the liberal experiment of the nineteenth century to twentieth-century collectivism.

309 Introduction to Russian History. *Fall term. Credit three hours. Open to sophomores, M W F 9:05. Mr. Pintner.* A survey from the earliest times until the present day. The origin and development of the autocratic state, its relationship to the major segments of the population, and the unique features of Russian culture are stressed.

310 Major Problems in Russian History. *Spring term. Credit four hours. Open to sophomores. History 309 is desirable but not a prerequisite for students willing to do additional background reading. M W F 9:05. Mr. Pintner.* An introductory course, using a topical approach. Important problems of political, cultural, social, and economic history will be studied in some detail using primary sources and specialized secondary works. Written work and discussion sections will be an important part of the course.

344 War, Trade and Empire, 1585-1815. *Spring term. Credit four hours. T Th S 10:10. Mr. Baugh.* Maritime enterprise, imperial policy, and naval power in the age of expansion. The accent is on English, French, and Dutch rivalry in the Atlantic and Caribbean.

345-346 The Old Regime and the French Revolution. *Throughout the year. Credit four hours a term. First term recommended but not required for enrollment in the second term. T Th S 9:05. Mr. Kaplan.* First term: a study of government and society from the latter part of the reign of Louis XIV through the age of Voltaire. Second term: an inquiry into the disintegration of the old regime and the nature of the revolutionary experience; the birth of a new nation and its world-wide impact.

[347 **English Constitutional History I: To 1485.** *Fall term. Credit four hours. Prerequisite: History 303-304, History 307, or consent of the instructor. T Th S 11:15. Not offered, 1971-72.*]

[348 **English Constitutional History II: Since 1485.** *Spring term. Credit four hours. Prerequisite: History 307-308, History 347, or consent of the instructor. T Th S 11:15. Not offered, 1971-72.*]

351 Europe in the Nineteenth Century. *Fall term. Credit four hours. Prerequisite: History 106 or consent of the instructor. W F 1:25-3:20. Mr. Fox.* A discussion course conducted at an advanced level, with emphasis on the impact of the industrial revolution on the political, social, and intellectual development of Europe.

352 Europe in the Twentieth Century. *Spring term. Credit four hours. Prerequisite: History 106 or 351, or consent of the instructor. W F 1:25-3:30. Mr. Fox.* A discussion course conducted at an advanced level with emphasis on the impact of major diplomatic and military confrontations on the political, social, and economic development of Europe.

353-354 European Intellectual History in the Nineteenth and Twentieth Centuries. *Throughout the year. Credit four hours a term. First term not prerequisite to the second. M W F 12:20. Mr. LaCapra.* The focus is on social and cultural thought in France, England, and Germany. A central concern is the relation of theories and ideologies to individual biography, social history, and philosophy. Topics include reactions to the French Revolution and industrialization; the definition of conservative, liberal, and radical perspectives; literature and social thought; varieties of existentialism; the birth and development of the social sciences; psychoanalysis and post-Freudian psychology; linguistic philosophy; and structuralism. Readings for the first term include Burke, Tocqueville, Mill, Hegel, Marx, Stendhal, Balzac, Nietzsche, and Durkheim. Readings for the second term include Weber, Freud, Laing, Wittgenstein, Mann, Camus, Sartre, and Lévi-Strauss.

355-356 Modern German History. *Throughout the year. Credit four hours a term. First term not prerequisite to the second. T Th S 10:10. Mr. Walker.* Historical consciousness, and overcoming the past. In the fall term, a description of how German society and political traditions were formed, 1648-1848; in the spring term, the story of their encounter with industrialization, parliamentary government, and problems of world power, 1848 to the present.

444 The Age of Enlightenment. *Spring term. Credit four hours. Prerequisite: six hours of European history. Th 2:00-4:30. Mr. Guerlac.*

[445 Seminar on Eighteenth-Century French Social History. *Fall term. Credit four hours. Permission of instructor required. Hours to be arranged. Mr. Kaplan. Not offered 1971-72.* A study of the social structure, economic conditions, demographic patterns, and material life of the French people in the last century of the old regime.]

449 History of England Under the Tudors and Stuarts. *Spring term. Credit four hours. M W 1:25-3:20. Mr. Holmes.* A discussion of the major problems in English history from the "New Monarchy" to the "Glorious Revolution." There will be particular stress on the relation between the intellectual developments of the period and political, social, and religious change.

450 England Since 1870. *Fall term. Credit four hours. Freshmen must obtain instructor's permission. M 1:25, W 1:25-3:20. Mr. Baugh.* The last hundred years of English history. Emphasis on the displacement of the Liberal Party by Labour, the development of the economic problem, and the changing relationships with Europe and the empire.

[451 The English Civil War, 1640-60. *Spring term. Credit four hours. Prerequisite: History 449 or consent of the instructor. M W 1:25-3. Mr. Holmes. Not offered in 1971-72.* A seminar. An analysis of the causes and development of the war, and the constitutional and religious experiments of the period 1648-1660. The major part of the work will be a research paper.]

454 Topics in Modern European Intellectual History. *Spring term. Credit four hours. Prerequisite: consent of instructor. T 1:25-3:20. Mr. LaCapra.*

456 German Problems in Historical Perspective. *Spring term. Credit four hours. Prerequisite: History*

355 or 356, or consent of the instructor. Th 1:25-3:20. Mr. Walker. Germany in international affairs: continuity and change. Designed as an undergraduate seminar.

[457 Government and Society in Seventeenth-Century France, from Louis XIV to Henry IV. *Spring term. Credit four hours. Enrollment limited to 15. Permission of instructor required. No language requirement. Hours to be arranged. Prof. Kaplan. Not offered in 1971-72.* An inquiry into the social and economic conditions and their relationship to administrative structure and government policy. Emphasis on analysis of characteristic problems of old regime rather than chronicle of events.]

461 Economic and Social History of Russia. *Fall term. Credit four hours. Prerequisite: History 309 or consent of the instructor. M 1:25-2:15, W 1:25-3:20. Mr. Pintner.* Emphasizes the role of the peasantry throughout the entire course of Russian history, from the Kievan period to the present day. Special attention will be devoted to the various methods used by the state in the economic exploitation and political control of the population. Seminar format.

462 History of Russian Foreign Relations for the Fifteenth Century. *Spring term. Credit four hours. Prerequisite: History 309 or consent of the instructor. M 1:25-2:15, W 1:25-3:20. Mr. Pintner.* Deals with the nature of Russia's relationships with other powers, particularly with the question of the extent these relationships have changed in the past 500 years. Seminar format.

[467 Intellectual Currents of the Seventeenth Century. *Spring term. Credit four hours. Primarily for upperclassmen. Th 2-4:30. Mr. Guerlac. Not offered in 1971-72.]*

For complete descriptions of courses numbered 500 or above see the *Announcement of the Graduate School: Humanities*. If the course is not included there, consult the Graduate Field Representative.

553 Revolution in France, 1789-1848. *Fall term. Credit four hours. Prerequisite: consent of the instructor. A reading knowledge of French is desirable. Conducted as a seminar. T Th 3:35-5:30. Mr. Fox.*

551 The French Republic in the Twentieth Century. *Spring term. Credit four hours. Prerequisite: consent of the instructor. A reading knowledge of French is required. Conducted as a seminar. T Th 3:35-5:30. Mr. Fox.*

645-646 Seminar in Modern British History. *Throughout the year. Credit four hours a term. Hours to be arranged. Mr. Baugh.*

647-648 Seminar in Tudor and Stuart History. *Throughout the year. Credit four hours a term. Hours to be arranged. Mr. Holmes.*

650 Seminar in the French Revolution. *Spring term. Credit four hours. Reading knowledge of French and permission of the instructor required. Hours to be arranged. Mr. Kaplan.*

651-652 Seminar in Modern European History. *Throughout the year. Credit four hours a term. Hours to be arranged. Mr. Fox.*

653-654 Seminar in Modern European Intellectual and Cultural History. *Throughout the year. Credit four hours a term. Hours to be arranged. Mr. LaCapra.*

657-658 Seminar in Modern German History. *Throughout the year. Credit four hours a term. Hours to be arranged. Mr. Walker.*

661-662 Seminar in Russian History. *Throughout the year. Credit four hours a term. Hours to be arranged. Mr. Pintner.*

History of Science

311-312 Science in Western Civilization. *Throughout the year. Credit three hours a term. Open to sophomores. Prerequisite: one year of college science. History 311 or consent of the instructor prerequisite to History 312. M W F 10:10. Mr. Williams.* A survey of the development of science in its relation to the main currents of European and American civilization from classical antiquity to the present day.

445 Problems in the History of Biology. *Fall term. Credit four hours. M W 2-3:30. Mr. Provine.* History of the evolutionary hypothesis from earliest times to the present.

446 Problems in the History of Biology. *Spring term. Credit four hours. M W 2-3:30. Mr. Provine.* History of developmental biology, especially the mechanism vs. vitalism controversy; and the rise of molecular biology.

For complete descriptions of courses numbered 500 or above see the *Announcement of the Graduate School: Humanities*. If the course is not included there, consult the Graduate Field Representative.

655 Seminar in the History of Early Modern Science. *Fall term. Credit four hours. Hours to be arranged. Mr. Guerlac.*

667-668 Seminar in the History of Science During the Nineteenth and Twentieth Centuries. *Throughout the year. Credit four hours a term. Hours to be arranged. Mr. Williams.*

Latin American History

319 The Colonial Experience in Latin America. *Fall term. Credit three hours. Open to sophomores. M W F 9:05. Mr. Davidson.* A survey of the colonial period from the sixteenth to the nineteenth centuries, stressing the nature of colonialism and the shape and style it assumed in Latin America. Topics will include the Iberian conquests and elaboration of imperial ideology and political systems; the origins of Latin American economic development, underdevelopment, and dependency; the formation of plural societies, and the cultural and ecological readjustments of Europeans, Indians, and Africans to their meeting in the new world. One lecture and two discussions each week.

320 Latin American History in the Nineteenth and Twentieth Centuries. *Spring term. Credit three hours. Open to sophomores. M W F 9:05. Mr. Davidson.* A survey using a topical approach. Topics will include the creation of nation-states, economic and social change, intellectual and cultural life, and the varieties of nationalism, reform, and revolution. Generalizations will be based largely on the experiences of Argentina, Brazil, Chile, Cuba, and Mexico. One lecture and two discussions each week.

487 Slavery and Abolition in the Americas. *Fall term. Credit four hours. Prerequisite: consent of the instructor. M W 2:30-4:00. Mr. Davidson.* An inquiry into the rise, decline, and aftermath of the slave systems of the western hemisphere, contrasting developments in selected areas of Latin America, the West Indies, and the American South. A seminar, with emphasis on student discussions, presentations, and papers.

488 Seminar in the History of Brazil. *Spring term. Credit four hours. Prerequisite: consent of the instructor. Mr. Davidson. Th 1:25.*

[489 Seminar in Latin-American History. *Fall term. Credit four hours. Prerequisite: consent of the instructor. Th 1:25 Mr. Davidson. Not offered in 1971-72.]*

For complete descriptions of courses numbered 500 or above see the *Announcement of the Graduate School: Humanities*. If the course is not included there, consult the Graduate Field Representative.

687-688 Seminar in Latin American History. *Throughout the year. Credit four hours a term. Hours to be arranged. Mr. Davidson.*

Reading and Research Courses

401 Supervised Reading. *Either term. Credit two hours. Open only to seniors with grades of B— or better in virtually all courses in the humanities and social sciences. Prerequisite: consent of the instructor.*

402 Supervised Research. *Either term. Credit four hours. Open only to seniors with grades of B— or better in virtually all courses in the humanities and social sciences. Prerequisite: consent of the instructor.*

For complete descriptions of courses numbered 500 or above see the *Announcement of the Graduate School: Humanities*. If the course is not included there, consult the Graduate Field Representative.

511-512 Supervised Reading. *Throughout the year. Credit four hours a term. For graduate students only. Hours to be arranged. Staff.*

Honors Courses

399 Honors Proseminar. *Fall term. Credit three hours. Open only to juniors who have been accepted by the Department as candidates for Honors in history. Th 1:25-3:20. Mr. Holmes.* An introduction to historical writing and modes of research, emphasizing the possibilities and limitations of historical inquiry.

500 Honors Guidance. *Spring term. Credit four hours. Prerequisite: History 399.*

Master of Arts in Teaching and Provisional Certification

Students interested in obtaining M.A.T. or Provisional Certification in Social Studies must consult with Mr. LaFeber.

The requirements for the M.A.T. Program are: (1) A Bachelor of Arts degree in Social Studies; (2) At least eighteen hours of Education, including History 507-508 (History 507-508 are given only in the spring term); (3) Graduate seminar work in at least one social studies field; and (4) Residence requirements of two regular academic semesters plus one summer session term.

The requirements for the Provisional Certification Program are: (1) At least thirty-six hours of Social Studies courses; and (2) At least eighteen hours of Education, including History 507-508 (History 507-508 are given only in the spring term).

All students who plan to take History 507-508 in the spring must register in the History Office for these courses no later than September 30.

507 Methods of Teaching Social Sciences. *Four credit hours. Hours to be arranged. Mr. LaFeber.* This course cannot count as credit toward the history major, history minor, or Distribution requirement.

508 Practice Teaching in Social Studies. *Undergraduates register for six credit hours; M.A.T. students register for nine credit hours. Hours to be arranged. Mr. LaFeber.* This course cannot count as credit toward the history major, history minor, or the Distribution requirement.

History of Art

Mr. S. J. O'Connor, Chairman; Mrs. LeGrace G. Benson; Messrs. T. M. Brown, R. G. Calkins, J. E. Coleman; Mrs. Esther G. Dotson; Messrs. H. P. Kahn, T. W. Leavitt, H. Okun, A. S. Roe, J. F. Scott, F. O. Waage, M.W. Young.

Students who wish to major in the history of art should plan to have completed two courses in the Department of the History of Art by the end of their sophomore year. Students who have taken only one course may petition to major in the Department if that course is at the 200 level or above and is completed with a grade of C or better. Students should also have completed the Distribution requirements, but exceptions will be considered upon petition to the Department chairman at the time of application to the major.

In their junior and senior years, students who are majoring shall work closely with their major advisers to determine acceptable programs of courses in the major field. Normally the program will include at least thirty additional hours of courses, of which twenty-four should be at the 300 or 400 level, chosen from those listed below, and a minimum of two additional courses in the Department or a related area approved by the major adviser. Courses at the 200 or 300 level taken in the Department during the freshman or sophomore years may be counted toward the major, providing such courses are in addition to the two courses offered in satisfaction of the prerequisite to the major. Students who are majoring are encouraged to take studio courses in painting and sculpture offered by the Department of Art in the College of Architecture, Art, and Planning, but such courses will be considered electives and cannot count toward the basic thirty hours normally required in the major.

The Honors Program

A student who wishes to become a candidate for the degree of Bachelor of Arts with Honors in the History of Art may indicate his intention at any time during his junior year to the Department chairman. In order to be eligible for the Honors program, the student must have a cumulative average of at least B— and of B for courses in the Department of the History of Art. In his senior year he will include among the regular requirements course 493-494, involving the preparation of a senior thesis under faculty supervision.

Distribution Requirement

The Distribution requirement in expressive arts is satisfied by a combination of any two courses at the 200 level or above.

Freshman Seminar

103 Freshman Seminar in Art History. *Either term. Credit three hours. M W F 10:10, 11:15, 12:20; T Th S 10:10, 11:15. Staff.* Offered in the Freshman Humanities Program and as a freshman elective but not in satisfaction of the Distribution requirement. For description see p. 29.

Introductory Courses

The following courses are designed to introduce students to the processes and methods of art history by means of a systematic examination of a closely related body of visual material. The courses need not be taken in any particular sequence. One 200-level course is normally the prerequisite to courses at the 300 level.

210 Introduction to Art History: Beginnings of Civilization. *Spring term. Credit three hours. T Th S 10:10. Mr. Scott.* The role art played in the dawn of urban man as seen in the ancient Near East, from the kingdom of Egypt to the city-states of Mesopotamia and the Indus Valley. Themes will be developed on the forms art takes at different stages of political organization, and relevant material from other early civilizations will be introduced.

220 Introduction to Art History: Classical Art and Archaeology (Also Classical Civilization 220). *Fall term. Credit three hours. M W F 10:10. Mr. Coleman.* Introduction to the artistic achievements of the Greeks and Romans as revealed in architecture, sculpture, and painting (including painted pottery). Within a framework of broad chronological divisions a limited number of specific works of art which can be considered representative will be studied from a variety of approaches.

230 Introduction to Art History: Medieval Art. *Spring term. Credit three hours. T Th S 9:05. Mr. Calkins.* Not a survey, but an introduction to the methods of art history through a study of selected works of art from the Middle Ages. Representative works of architecture, sculpture, painting, manuscript illumination, metal work, and ivory of various periods will be examined in depth in terms of their formal stylistic characteristics, their iconographical content, and their historical, social, economic, and religious context.

240 Introduction to Art History: The Renaissance. *Spring term. Credit three hours. M W F 10:10. Mrs. Dotson.* A study of selected works of architecture, sculpture, and painting of the fifteenth and sixteenth centuries in Italy and northern Europe; not primarily a chronological survey. The course will focus on problems of distinguishing the varieties of artistic expression and of understanding historical processes in the development and spread of artistic ideas. Illustrative material will be cited from a wide variety of artists, but only a few major artists such as Donatello, Michelangelo, and Titian in Italy, Jan van Eyck, Roger van der Weyden and Peter Brueghel in the Netherlands; and Dürer in Germany will be studied in detail.

250 Introduction to Art History: The Baroque Era. *Fall term. Credit three hours. M W F 12:20. Mr. Roe.* A survey of the major artistic trends in western Europe during the seventeenth century. The course will begin with the consideration of architecture, sculpture, and painting in Italy during the first half of the century. The schools of painting of Spain, Flanders, Holland and France will then be considered.

260 Introduction to Art History: Nineteenth-Century Art. *Fall term. Credit three hours. M W F 11:15. Mr. Okun.* The main focus in this course will be on European painting from Goya and David to Munch and Cezanne. Consideration will also be given to artists' intentions, definitions of art, and the social and cultural implications of the material.

270 Introduction to Art History: American Art of the Colonial Period and of the Nineteenth Century. *Fall term. Credit three hours. M W F 10:10. Mr. Roe.* Art in the United States from colonial beginnings to the early years of the present century. Architecture and the decorative arts will be considered as they exemplify the transmission of European styles to early America. Later emphasis will be on painting; the development of sculpture from the mid-nineteenth century onwards will also be treated. Emphasis will be focused upon the contributions of major figures: Copley, West, C. W. Peale, Stuart, Homer, Eakins, Ryder, Saint-Gaudens, D. C. French.

280 Introduction to Art History: Asian Traditions. *Spring term. Credit three hours. M W F 11:15. Mr. O'Connor.* Designed to introduce students to the varied responses of the Asian artist in differing times and geographical contexts, the course will include material on the Buddhist tradition, the Hindu temple, miniature paintings, Chinese Bronze Age Art, and the development of Chinese landscape painting.

290 Introduction to Art History: Architecture and Environment. *Fall term. Credit three hours. T Th S 12:20. Mr. Brown.* With emphasis on the social aspects of architecture in the nineteenth and twentieth centuries, an investigation of one of the oldest, most pervasive, and influential facets of human environment. After a lengthy introduction to architectural elements such as space, form, function and structure, the course will concentrate on the thoughts, attitudes, and forms that have influenced the physical shape of the modern world. Extensive reading will be offered in a variety of social, environmental, and esthetic works such as Le Corbusier, *Towards a New Architecture* (1923); Huxley, *Brave New World* (1932); Neutra, *Survival Through Design* (1954).

The Tradition of the New (Interdisciplinary Studies in the Humanities 201).

Intermediate Courses

The following courses are intended primarily for upperclassmen and qualified sophomores, and all require as general prerequisite one course at the 200 level. In a few cases, a specific 200-level course is indicated. Some of the courses have discussion sections.

313 Prehistoric Art. *Fall term. Credit four hours. M W F 9:05. Mr. Waage.* The evolution and diffusion of Stone Age art and artifacts in Eurasia and Africa will be presented so as to acquaint the student at the same time with the major aspects and problems of archaeological activity, in general. The time span extends from the Lower Palaeolithic period to the Metals Age civilizations of the Near East.

314 Primitive Art. *Spring term. Credit four hours. M W F 9:05. Mr. Waage.* The shaping and use of art forms to satisfy group needs in cultures where art was an indispensable element of everyday life. The lectures will cover the tribal arts of Africa; subjects for the term paper will involve also the primitive arts of Australia, the Pacific Islands, and North America.

[315 Pre-Columbian Art. *Spring term. Credit four hours. T Th S 12:20. Mr. Scott. Not offered in 1971-72.]*

333 Early Medieval Art. *Fall term. Credit four hours. T Th S 11:15. Mr. Calkins.* An examination of the sculpture, painting, and architecture from A.D. 300 to A.D. 1050. The Roman tradition will be studied in the context of its transformation in the early Christian period and its revival and fusion with non-Mediterranean traditions under the Carolingian and Ottonian Empires. The evolution of the Byzantine tradition will also be considered. Lectures and discussion periods. Students will prepare a substantial term paper.

[334 Romanesque Art. *Spring term. Credit four hours. T Th S 9:05. Mr. Calkins. Not offered in 1971-72.]*

335 Gothic Art. *Fall term. Credit four hours. T Th S 9:05. Mr. Calkins.* The painting, sculpture, and architecture of the thirteenth and fourteenth centuries, primarily in France and England, but with reference to important manifestations of the spread of the Gothic style across Western Europe. Some of the topics which will be considered: the significance of the

gothic cathedral in terms of its structure, decoration, iconography, and function in medieval society; the changing role of the artist and patron in the later Middle Ages; the proliferation of objects and illuminated manuscripts for private devotion; the appearance of the "International Gothic Style"; and the concept of the "Waning Middle Ages" in relation to the transition to the early Renaissance style. Lectures and discussion sections. Students will prepare a substantial term paper.

[336 Medieval Italian Art. *Spring term. Credit four hours. T Th S 11:15. Mr. Calkins. Not offered in 1971-72.]*

[341 Flemish Painting. *Spring term. Credit four hours. Spring Term. Credit four hours. M W F 12:20. Mr. Roe. hours. T Th S 9:05. Mr. Calkins. Not offered in 1971-72.]*

[342 Medieval and Renaissance German Art. *Fall term. Credit four hours. T Th S 11:15. Mr. Calkins. Not offered in 1971-72.]*

[343 Italian Renaissance Art of the Fifteenth Century. *Fall term. Credit four hours. M W F 12:20. Mr. Roe. Not offered in 1971-72.]*

[344 Italian Renaissance Art of the Sixteenth Century. *Spring term. Credit four hours. M W F 12:20. Mr. Roe. Not offered in 1971-72.]*

[349 Italian Renaissance Architecture. *Spring term. Credit four hours. T Th S 9:05. Mr. Calkins. Not offered in 1971-72.]*

[354 Dutch Painting of the Seventeenth Century. *Spring term. Credit four hours. M W F 10:10. Not offered in 1971-72.]*

[355 French Art of the Sixteenth and Seventeenth Centuries. *Fall term. Credit four hours. T Th S 11:15. Mrs. Dotson. Not offered in 1971-72.]*

357 European Art of the Eighteenth Century. *Fall term. Credit four hours. T Th S 10:10. Mrs. Dotson.* A study of tradition, change, and revolution in the architecture, painting, sculpture, and minor arts of eighteenth-century Europe. The course will be organized around a selected sequence of European centers where the various eighteenth-century styles underwent an especially brilliant, original, or influential development and an effort will be made to relate these developments to the cultural background of the period and of these centers. Among the subjects to be discussed will be the contrasting late baroque styles of northern and southern Italy, Austria, and the south German states, and England; the court art of France from the late years of Louis XIV until the French Revolution; the range of influences on art and art theory emanating from Rome; the art of revolutionary France; "pre-romanticism" in England and Spain.

363 Modern Painting. *Spring term. Credit four hours. Prerequisite: History of Art 260. T Th S 11:15. Mr. Okun.* A study of the major developments in European and American painting and new two-dimensional media from cubism to the present day. While principal focus of the course will center upon such major figures as Matisse, Picasso, Kandinsky, Klee, and Mondrian, equal emphasis will be given to the new visual points of view which have emerged since World War II.

[367 Modern Architecture. *Fall term. Credit four hours. It is assumed that students will have some background in nineteenth- and twentieth-century history, literature, and art. M W F 11:15. Mr. Brown. Not offered in 1971-72.]*

[376 Modern American Art. *Fall term. Credit four hours. T Th S 11:15. Mrs. Benson. Not offered in 1971-72.]*

[380 Comparative Genres in East-West Art. *Spring term. Credit four hours. It is assumed that students will have had some exposure both to Asian culture and art history in the West. M W 1:25 and an additional hour to be arranged. Not offered in 1971-72.]*

[381 Buddhist Art in Asia. *Spring term. Credit four hours. Prerequisite: History of Art 280. M W 10:10 and additional conferences to be arranged. Mr. O'Connor. Not offered in 1971-72.]*

383 Art of China. *Fall term. Credit four hours. T Th 12:20 and an additional discussion section to be arranged. Mr. Young.* Major monuments in the history of Chinese art, from the early bronzes through Buddhist sculpture, ceramic art, and early landscape paintings. The role of Buddhism, Taoism, and Confucianism in shaping the aesthetic expression of China will be discussed in detail. Although some attention will be given to painting, the lectures will concentrate on the earlier (Buddhist) periods as well as treat ceramics and the minor arts extensively. Students interested primarily in Chinese painting should take History of Art 385.

384 Art of Japan. *Spring term. Credit four hours. M W F 12:20. Mr. Young.* Painting, sculpture, and architecture from the Buddhist period through the development of national style to the modern age. Considerable attention will be paid to the various forms of folk art, tea arts, the great decorative traditions, and paintings and prints of the "floating world."

[385 Chinese Painting. *Spring term. Credit four hours. M 1:25-3:20 and an additional discussion hour to be arranged. Mr. Young. Not offered in 1971-72.]*

386 Studies in Indian and Southeast Asian Art. *Fall term. Credit four hours. M W F 11:15. Mr. O'Connor.* The course will focus on major developments in Indian art: the Indus civilization, early Buddhist painting and sculpture, the Hindu temple and Rajput miniature painting. Some monuments in Southeast Asia will also be examined with reference to the assimilation and adaptation of Indian traditions on the art of that region.

392 Latin American Art. *Spring term. Credit four hours. T Th S 12:20. Mr. Scott.* Beginning with the conquest, this course will trace the early "mestizaje", Hispanic Baroque, early national classicism, and the modern revolutions, with emphasis on Mexico.

Undergraduate and Graduate Seminars

The following courses are intended primarily for majors, graduate students, or other advanced students who can meet the prerequisites. Courses at the 400 level are primarily for upperclassmen and majors; seminars at the 500 level are for graduate students and qualified senior majors. All seminars involve the writing and presentation of research papers. Enrollment is limited in this group of courses, and consent of the department or instructor is normally required. The 500-level courses with announced topics may be repeated.

401 Independent Study. *Either term. Credit two hours. Prerequisite: consent of a Department member.* Individual investigation and discussion on special topics not covered in the regular course offerings, by arrangement with various members of the Department. The course may be repeated.

402 Independent Study. *Either term. Credit four hours. Prerequisite: consent of a Department member.*

Individual investigation and discussion on special topics not covered in the regular course offerings, by arrangement with various members of the Department. The course may be repeated.

405 Original Works of Art. *Spring term. Credit four hours. Prerequisite: at least four courses in the history of art and consent of the instructor. Enrollment limited to 12 students. F 1:25-3:20. Mr. Leavitt.* Designed to acquaint the advanced student with original works of art, the course meetings will be in the White Art Museum and will consider a wide group of materials from the point of view of connoisseurship and quality. Lectures, discussions, reports.

411 Techniques and Materials: Painting. *Fall term. Credit four hours. Prerequisite: at least four courses in the history of art and consent of the instructor. History of art majors given first preference. Graduate auditors given second preference. Limited to 20 students. W 1:25-3:20 plus one work session to be arranged. Mr. Kahn.* For majors and other advanced students, this course will deal with technical aspects of painting in the historical context. Included will be studies of traditional media employed by the old masters, conservation techniques, and laboratory exercises. Conducted as a seminar, with lectures, discussions, museum study, projects, and reports.

[412 Techniques and Materials: Graphics. *Spring term. Credit four hours. Prerequisite: at least four courses in the history of art and consent of the instructor. History of art majors given first preference. Graduate auditors given second preference. Limited to 20 students. W 1:25-3:20 plus one work session to be arranged. Mr. Kahn. Not offered in 1971-72.]*

413 Books, Prints, and the Graphic Image. *Spring term. Credit four hours. Prerequisite: at least four courses in the history of art and consent of the instructor. History of art majors given first preference. Graduate auditors given second preference. Limited to 20 students. W 1:25-3:20 plus one work session to be arranged. Mr. Kahn.* The relation of letter forms, printed pages, and books to graphic images; through the history of type, books, and the graphic media to our own time.

415 Seminar in Pre-Columbian Art. *Fall term. Credit four hours. Prerequisite: History of Art 315 or consent of instructor. Th 1:25-3:20. Mr. Scott.* Topic to be announced.

431 Greek Sculpture (Also Classical Civilization 431). *Spring term. Credit four hours. Prerequisite: History of Art 220 (Classical Civilization 220) or consent of instructor. M W F 2:30. Mr. Coleman.* Study of ancient Greek sculptural techniques and achievements in marble and bronze. Detailed examination of a selection of works to illustrate sculptural development.

432 Arts of the Roman Empire. *Spring term. Credit four hours. T 1:25-3:20. Mr. Waage.* The visual arts in the service of the first world state. The course starts with the Etruscan and Republican periods and ends with the conflict of styles in the early Christian period.

[446 Literary Sources in the Italian Renaissance *Spring term. Credit four hours. Th 1:25-3:20. Not offered in 1971-72.]*

[448 Mannerism and the Early Baroque in Italy. *Spring term. Credit four hours. M 2:30-4:25. Mrs. Dotson. Not offered in 1971-72.]*

458 Classic and Romantic Art. *Spring term. Credit four hours. Th 1:25-3:20. Mrs. Dotson.* The concept of antithetical and mutually exclusive artistic forms and aims; its history and implications in Western art and

thought since the Renaissance. In 1971-72 the principal topic will be proponents and opponents of academic doctrine in the seventeenth and eighteenth centuries.

462 Art and Technology: 1850-1950. *Spring term. Credit four hours. Prerequisites: History of Art 260, 290, 363, 367, or equivalents, or consent of instructor. Enrollment limited to 25 students. T Th 12:20 and an additional discussion section to be arranged. Mr. Brown.* Approached topically and not as a survey, the response of painting, sculpture, photography, architecture, and industrial design to a developing mass-technological world; emphasis on "interpretation", rather than "coverage" of material. The changing conditions, forms, and content of the visual arts, examined within the framework of topics such as "changing definitions of art", "use and form", "a machine esthetic", "art or technology: false alternatives". Extensive reading, ranging from Thoreau's *Walden* (1854) to Jarrell's *A Sad Heart at the Supermarket* (1960); Kandinsky's *The Spiritual in Art* (1912) to Gropius' *The New Architecture and the Bauhaus* (1934).

[472 Romanticism in Painting. *Spring term. Credit four hours. W 1:25-3:20. Mr. Leavitt. Not offered in 1971-72.]*

481 Masters of Japanese Prints. *Fall term. Credit four hours. M 1:25-3:20. Mr. Young.* A detailed examination of *Ukiyo-e* or art of the "floating world" as revealed in the woodblock prints of such masters as Moronobu, Harunobu, Hokusai, and Hiroshige. The factors which gave rise to the popular art of Tokugawa Japan, along with other forms of aesthetic expression, will be discussed. The print collection of the White Art Museum will be utilized as a source of study.

[482 Ceramic Art of Asia. *Fall term. Credit four hours. M 1:25-3:20. Mr. O'Connor. Not offered in 1971-72.]*

488 Traditional Arts in Southeast Asia. *Spring term. Credit four hours. W 1:25-3:20. Mr. O'Connor.* An examination of several complexes of artifact and idea—the keris, Wayang, megaliths, the temple, and divine image—that played an important role in the societies of Southeast Asia. The persistence of tradition will be emphasized. Lectures, discussion, and individual reports.

493 Honors Work. *Fall term. Credit four hours. S-U grades only. Hours to be arranged.* Intended for seniors who have been admitted to the Honors Program. Basic methods of art historical research will be discussed and individual readings assigned leading to the selection of an appropriate thesis topic.

494 Honors Work. *Spring term. Credit four hours. Prerequisite: History of Art 493.* The individual student, under faculty direction, will prepare a senior thesis.

[510 Seminar in Latin American Art. *Fall term. Credit four hours. W 1:25-3:20. Mr. Scott. Not offered in 1971-72.]*

531 Problems in Medieval Art and Architecture. *Spring term. Credit four hours. Prerequisites: History of Art 333 or 336 and consent of the instructor. T 1:25-3:20.* Topic: Byzantium and Western medieval art.

548 Studies in Italian Renaissance Art. *Fall term. Credit four hours. Prerequisite: a previous course in Renaissance art, and consent of the instructor. Th 1:25-3:20. Mr. Roe.* Topic: Italian sculpture of the fifteenth century.

[549 Studies in Italian Renaissance Art II. *Spring term. Credit four hours. T 1:25-3:20. Not offered in 1971-72.]*

[552 Studies in English Art. *Spring term. Credit four hours. Prerequisite: consent of the instructor. W 1:25-3:20. Mr. Roe. Not offered in 1971-72.]*

[563 Problems in Twentieth-Century Art. *Fall term. Credit four hours. Prerequisites: History of Art 260 or 376 and consent of instructor. Th 1:25-3:20. Mrs. Benson. Not offered in 1971-72.]*

564 Problems in Twentieth-Century Art. *Fall term. Credit four hours. Prerequisite: consent of the instructor. T 1:25-3:20. Mr. Okun.* Topic to be announced.

565 Problems in Modern Art and Architecture. *Spring term. Credit four hours. Prerequisite: consent of the instructor. M 1:25-3:20. Mr. Brown.* Topic to be announced.

[580 Problems in Asian Art. *Fall term. Credit four hours. T 1:25-3:20. Not offered in 1971-72.]*

[584 Problems in Chinese Art. *Spring term. Credit four hours. Prerequisite: consent of the instructor. W 1:25-3:20. Mr. Young. Not offered in 1971-72.]*

[586 Studies in Chinese Painting. *Spring term. Credit four hours. Prerequisites: History of Art 383 and consent of the instructor. W 1:25-3:20. Mr. Young. Not offered in 1971-72.]*

591-592 Supervised Reading. *Throughout the year. Credit four hours, but may be taken more than once in the same term. For graduate students only.*

595 Methodology Seminar. *To be offered when there is sufficient demand. Credit four hours. Restricted to and required of all graduate students. Staff.*

Archaeology

Students who are interested in archaeology are directed especially to History of Art 313, 314, and 432, all of which include archaeological material. The following specialized courses treat specific excavational material and procedures, and are therefore open only to a limited number of students who have some background in ancient history, ancient languages, anthropology, or art history.

[521 Numismatics. *Fall term. Credit four hours. Prerequisite: consent of the instructor. T 1:25-3:20. Mr. Waage. Not offered in 1971-72.]*

523 Ceramics. *Fall term. Credit four hours. Prerequisite: consent of the instructor. T 1:25-3:20. Mr. Waage.* Pottery specimens from several Near Eastern sites will be studied to provide direct experience in one of the basic prerequisites of archaeological excavation—the identification and dating of pottery types. Two papers, delivered as reports in class, will concern ancient ceramic materials of particular types and periods, and possibly other related matters and material.

Italian

For complete course listings and for details of the major, see the heading "Italian" in the section Modern Foreign Languages and Literatures.

Mathematics

Mr. W. H. J. Fuchs, Chairman; Messrs. I. Berstein, J. H. Bramble, L. D. Brown, S. U. Chase, M. M. Cohen, R. Connelly, C. J. Earle, R. H. Farrell, N. J. Friedman, W. H. J. Fuchs, H. Garland, L. Gross, R. S. Hamilton,

D. W. Henderson, K. Ito, A. V. Jategaonkar, P. J. Kahn, H. Kesten, J. C. Kiefer, A. W. Knapp, S. Lichtenbaum, G. R. Livesay, M. D. Morley, A. Nerode, P. Olum, L. E. Payne, R. A. Platek, G. S. Rinehart, A. Rosenberg, O. S. Rothaus, A. H. Schatz, R. B. Schneider, S. Sen, F. L. Spitzer, R. S. Strichartz, M. E. Sweedler, R. J. Walker, H. C. Wang, W. C. Waterhouse, J. E. West.

At all times a student at Cornell is urged to take the most advanced mathematics course for which he is prepared. Members of the Department are always available to discuss with students the appropriate courses for their levels of ability and interest, and students are urged to avail themselves of this help.

Much time may be saved by a careful reading of this *Announcement*.

Students wishing to take any of the courses numbered 300 or above are invited to confer, before registering, with the instructor concerned.

Subject matter of courses is indicated by the second digit thus: 0, general; 1, 2, analysis; 3, 4, algebra; 5, 6, geometry; 7, probability and statistics; 8, logic; 9, other. The level of a course is indicated by the first digit of the course number: Roughly 1, 2, indicate underclass courses; 3, 4, upperclass courses; 5, 6, graduate courses.

In all 600-level courses, as well as in course 515, the final grades will be only S or U with the exception of 690.

Basic Sequences

College algebra and trigonometry are not taught at Cornell. There are two sequences in elementary calculus and in addition several special purpose sequences. The elementary calculus sequences have 111 in common. The upper sequence continues with 122 and 221-222 while the standard one continues with 112 and 213. Students who desire more mathematics should take the upper sequence, which is prerequisite for most of the advanced courses. The standard sequence is designed for students whose programs do not permit more than three semesters of mathematics and for those who find the upper sequence too demanding. A student whose performance in 112 has been exceptional can (with the consent of his instructor) be admitted into 221. A student in the 111 and 213 sequence who wants the linear algebra material of 221 may obtain it at an appropriate level by taking 331. The special-purpose sequences are, (a) 107-108, primarily for students in the biological and social sciences and (b) 191-192 and 293-294, primarily for engineers.

Advanced Placement

Secondary school students are strongly urged to take one of the two Advanced Placement Examinations of the College Entrance Examination Board in their senior year. In addition, there will be a placement examination in mathematics offered at Cornell just before the beginning of classes in the fall which some students should take. It is most important that anyone with any knowledge of calculus read carefully the relevant portion of the section on Advanced Placement at the beginning of this *Announcement*.

Major Options

There are three options available for students intending to major in mathematics; the respective minimum requirements are listed below. In each case, a student will be accepted as a major by the Department only if he can reasonably be expected to have satisfied the prerequisite to his option by the end of the term in

which he applies for admission to the major. This acceptance is contingent upon actual fulfillment of the prerequisites.

Option I.

This option includes all prospective Honors candidates and all students who contemplate an eventual Ph.D. in pure or applied mathematics. Prerequisite: course 221-222. Requirements: (a) 411-412, (b) 431-432, (c) at least twelve additional hours of mathematics courses numbered 300 or above, other than 313, 315, 370; Computer Science 421, 422 may be included in these twelve hours.

The Department strongly recommends that all prospective Option I majors take Physics 112 and 213 or 207-208 in their freshman year. Those interested in the applications of mathematics should certainly do so and should also seriously consider the offerings in differential equations, probability and statistics, and numerical analysis.

Option II.

This option includes those mainly interested in the application of mathematics who do not contemplate an eventual Ph.D. in mathematics or applied mathematics. It will not prepare a student for work at the Ph.D. level in the theoretical side of even such applied areas as statistics, numerical analysis, etc. Prerequisites: (a) 221-222; (b) Physics 207-208 or 112 and 213. Requirements: (a) 421, 422; (b) 431, and either 332 or 432; (c) Computer Science 202; (d) an approved eight-hour sequence in statistics, numerical analysis (in the Department of Computer Science), or differential equations; (e) at least eight additional hours of courses numbered 300 or above in mathematics, computer science, or a physical science not including Mathematics 313, 315, 370, nor Computer Science 311.

An alternate version of Option II is available for those specifically interested in computer science. Prerequisites: (a) 221-222; (b) Computer Science 202. Requirements: (a) 411-412 or 421-422; (b) 431 and either 332 or 432; (c) Computer Science 409, 411, 385 or 485-486, 222 or 421-422. One of the sequences 485-486 or 421-422 must be included.

Option III.

For prospective secondary school teachers and others who wish to major in mathematics but do not intend to become professional mathematicians, e.g., premedical and prelaw students. This option does not prepare a student for graduate work in mathematics. Prerequisites: (a) 22 or (a') 213 and 200, both at a high level of performance; (b) Physics 101-102, or 207-208. Mathematics requirements: (a) 311 and 315; (b) 331 if 221 has not been taken, 332; (c) 451; (d) Computer Science 202; and either (e) 452 and four additional hours of mathematics courses numbered above 300 plus nine hours of Education courses (Mathematics 370 is recommended but not required) or (e') 312 or 452 and eight additional hours of mathematics courses numbered above 300.

The Honors Program

The requirements for Honors in mathematics are: (1) satisfaction of the requirements of Option I at a high level of performance; (2) satisfactory performance in the Honors Seminar 401; (3) satisfactory performance on an oral examination. (A knowledge of the material of 421, 422 will be required for this examination.)

Distribution Requirement

The Distribution requirement in mathematics is satisfied with any six hours in mathematics or by the

sequence Computer Science 201 and Electrical Engineering 4110 (College of Engineering).

Graduate Courses

For complete descriptions of graduate courses see the Graduate School Announcement. A list of these courses taught in 1971-72 is given at the end of the listing of undergraduate courses.

General

Students wanting a general introductory mathematics course are advised to take 107-108. (See description below.)

200 Basic Concepts of Mathematics. *Spring term. Credit three hours. Prerequisite: 213 or consent of the instructor, with 112. T Th S 9:05.* Primarily for prospective teachers and other undergraduates with a cultural interest in mathematics. Set theory, logic, axiom systems, the real number field, other simple algebraic structures, cardinal numbers.

401 Honors Seminar. *Fall term. Credit four hours. Prerequisite: provisional acceptance as a candidate for Honors. Hours to be arranged.* Students will discuss selected topics under the guidance of one or more members of the staff. This seminar is required for Honors in mathematics.

690 Supervised Reading and Research. *Variable credit.*

Basic Sequences

107-108 Finite Mathematics and Calculus with Applications to the Biological and Social Sciences. *May be started either term. Credit three hours a term. Prerequisites: three years of high school mathematics, including trigonometry. 107, fall term: lectures, M W 11:15, 12:20 plus two hours to be arranged. 107, spring term: lectures, M W 12:20 plus two hours to be arranged. 108, fall term: lectures, M W 12:20 plus two hours to be arranged. 108, spring term: lectures, M W 11:15, 12:20 plus two hours to be arranged. Preliminary examinations will be held at 7:30 p.m. on October 7, November 4, December 2, February 24, March 16, and April 27.* This course is intended primarily for students in the more descriptive areas of biological and social sciences, who would otherwise be taking Mathematics 111. This course will normally be terminal. Students who take Orientation 110 are advised to take Mathematics 107-108 rather than Mathematics 111.

Mathematics 107 provides a foundation in finite mathematics useful to many students of the biological and social sciences. Mathematics 108 gives an introduction to calculus. Students interested in the more analytical aspects of biology, such as biochemistry and all those wanting to take further work in mathematics, are advised to take Mathematics 111. Only in exceptional cases will a student be allowed to go into Mathematics 112 after completion of Mathematics 108.

Mathematics 107-108 is not recommended for students in the physical sciences, engineering, or mathematics.

A student may not receive credit for both Mathematics 108 and Mathematics 111 but may receive credit for both Mathematics 107 and Mathematics 111.

Mathematics 107: logic and set theory, probability, vectors and matrices, linear programming, functions and graphs. Mathematics 108: behavior of functions, introduction to integral and differential calculus, elementary differential equations.

111 Calculus. *Either term. Credit three hours. Prerequisite: three years of high school mathematics, including trigonometry. Fall term: lectures, T Th 11:15, 12:20 plus one hour to be arranged. There may be an experimental section of this course taught by programmed learning. Hours to be arranged. Interested students should check with the Department of Mathematics at the beginning of the fall term. Spring term: lectures T Th 9:05 plus one hour to be arranged. Preliminary examinations will be held at 7:30 p.m. on October 4, November 1, November 29; February 28, March 20, and May 1.* Plane analytic geometry, differentiation and integration of algebraic and trigonometric functions, applications.

111C Calculus. *Fall term. Credit three hours. Prerequisite, three years of high school mathematics, including trigonometry and analytic geometry of the straight line and the circle. T Th S 11:15.* Equivalent to 111. Students will be taught the use of an electronic computer as an aid to the study of calculus.

112 Calculus. *Either term. Credit three hours. Prerequisite: 111, 111C or, exceptionally, 108. Fall term: lectures, T Th 12:20 plus one hour to be arranged. Spring term: lectures, T Th 9:05, 10:10 plus one hour to be arranged. Preliminary examinations will be held at 7:30 p.m. on October 4, November 1, November 29; February 28, March 20, and May 1.* Differentiation and integration of elementary transcendental functions, the technique of integration, polar coordinates, partial differentiation, introduction to multiple integration, power series.

213 Calculus. *Either term. Credit three hours. Prerequisite: 112. Fall term: lectures, T Th 10:10 plus one hour to be arranged. Spring term: M W F 8, 10:10. Preliminary examinations will be held at 7:30 p.m. on October 4, November 1, and November 29.* Vector analysis, line integrals, multiple integration, differential equations, complex numbers, series.

122 Calculus. *Either term. Credit three hours. Prerequisite: recommendation of the lecturer in course 111. (This recommendation will be based on exceptional performance.) For fall term, admission by consent of the Department. Fall term: M W F 11:15; T Th S 9:05. Spring term: M W F, 11:15; T Th S, 10:10.* Differentiation and integration of elementary transcendental functions, the technique of integration, polar coordinates, and infinite series. The approach is more theoretical than in 112.

122C Calculus. *Spring term. Credit three hours. Prerequisites: 111C and recommendation of the teacher of 111C. M W F 9:05, T Th S 9:05.* Covers content of 122 making use of a computer.

221 Calculus. *Either term. Credit four hours. Prerequisite, grade of B or better in 122 or exceptional performance in 112 and consent of the instructor. Fall term: M W F 8, 10:10; T Th S 8, 10:10. Spring term: M W F 9:05; T Th S 9:05, 12:20.* Linear algebra and differential equations. Topics include vector algebra, linear transformations, matrices, linear differential equations.

222 Calculus. *Either term. Credit four hours. Prerequisite: 221. Fall term: M W F 9:05. Spring term: M W F 8, 9:05; T Th S 8, 10:10.* Vector differential calculus, calculus of functions of several variables, multiple integrals.

221H-222H Calculus. *Honors section of 221-222. Throughout the year. Credit two hours a term. Prerequisite: consent of the instructor. Open only to students simultaneously registered in 411-412. Hours to be arranged.*

191 Calculus for Engineers. *Either term. Credit four hours. Prerequisite: three years of high school mathematics, including trigonometry. Fall term: lectures, M W F 9:05, 11:15, plus recitation periods to be arranged. Spring term: M W F S 9:05, 11:15. Preliminary examinations will be held at 7:30 p.m. on October 1, October 22, November 12, and December 3.* Plane analytic geometry, differential and integral calculus, and applications.

193 Calculus for Engineers. *Fall term. Credit four hours. Prerequisite: four years of high school mathematics, including trigonometry and calculus. Lectures, M W F 9:05, 11:15, plus recitation periods to be arranged. Preliminary examinations will be held at 7:30 p.m. on October 1, October 22, November 12, and December 3.* Covers contents of 191 in more detail, including more theoretical material.

192 Calculus for Engineers. *Either term. Credit four hours. Prerequisite: 191 or 193. Lectures, M W F 9:05, 11:15, plus recitation periods to be arranged. Preliminary examinations will be held at 7:30 p.m. on October 1, October 22, November 12, December 3; February 16, March 8, April 5, and May 3.* Transcendental functions, technique of integration and multiple integrals, vector calculus, analytic geometry in space, partial differentiation, applications.

194 Calculus for Engineers. *Spring term. Credit four hours. Prerequisite: recommendation of the lecturer in course 191 or course 193. Lectures, M W F 9:05, 11:15, plus recitation periods to be arranged. Preliminary examinations will be held at 7:30 p.m. on February 16, March 8, April 5, and May 3.* Covers contents of 192 in more detail and includes more theoretical material.

293-293H Engineering Mathematics. *Either term. Credit four hours. Prerequisite: 192 or 194. Lectures, M W F 10:10, 12:20, plus recitation periods to be arranged. Preliminary examinations will be held at 7:30 p.m. on October 12, November 9, December 7; February 29, March 21, and May 2.* 293H is an Honors section given in the fall term only. Vectors and matrices, first-order differential equations, infinite series, complex numbers, applications. Problems for programming and running on the automatic computer will be assigned and students are expected to have a knowledge of computer programming equivalent to that taught in Engineering 104.

294-294H Engineering Mathematics. *Either term. Credit three hours. Prerequisite: 293. Lectures, M W 8, 12:20, plus recitation periods to be arranged. Preliminary examinations will be held at 7:30 p.m. on October 5, November 2, November 30, February 22, March 14, April 24.* 294H is an Honors section given in the spring term only. Linear differential equations, quadratic forms and eigenvalues, differential vector calculus, and applications.

Applied Mathematics and Differential Equations

315 Higher Calculus. *Spring term. Credit three hours. Prerequisite: 213. T Th S 8.* Intended for students who have had only three semesters of calculus. It does not prepare for 415-416, and will not meet the needs of those graduate students whose work requires really serious application of mathematical methods.

Vector analysis. Ordinary and partial differential equations. Fourier series. Special functions. Laplace transforms. Emphasis is placed on a wide range of formal applications of the calculus rather than on the logical development.

421 Applicable Mathematics. *Either term. Credit four hours. Prerequisite: 222 or Honors section of 294 or consent of the instructor. (Students from regular sections of 294 will be admitted upon the 294 instructor's recommendation. T W Th F 12:20.* Graduate students who need mathematics extensively in their work and who have had a solid advanced calculus course as undergraduates should take 415-416. If they have not had such an advanced calculus course they should take 421-422-423. If their preparation is still too weak for this, they should take all or part of 221-222, followed by 421-422-423.

Theorems of Stokes, Green, Gauss, etc. Sequences and infinite series. Fourier series and orthogonal functions. Ordinary and partial differential equations.

422 Applicable Mathematics. *Spring term. Credit four hours. Prerequisite: 421 or consent of the instructor. T W Th F 12:20.* Complex variables. Generalized functions. Fourier and Laplace transforms. Probability and statistics.

423 Applicable Mathematics. *Fall term. Credit four hours. Prerequisite: 421. T W Th F 12:20.* Linear operators and integral equations. Calculus of variations. Application to eigenvalue problems. Green's function, and treatment of special problems of mathematical physics.

415-416 Mathematical Methods in Physics. *Throughout the year. Credit four hours a term. Intended for graduate students in physics or related fields who have had a strong advanced calculus course and at least two years of general physics. The course goes very quickly, covering in two semesters slightly more than 421-422-423. Undergraduates will be admitted only with consent of the instructor. First term prerequisite to the second. T W Th F 12:20.* Lectures and problem work designed to give a working knowledge of the principal mathematical methods used in advanced physics. Topics include a brief discussion of some basic notions: metric space, vector space, linearity, continuity, integration. Generalized functions (Schwartz distributions). Fourier series and Fourier integrals. Elementary complex variable. Saddle point method. Linear transformations in finite and in infinite-dimensional spaces. Matrices. Differential operators and integral operators, the equations and eigenvalue problems connected with them and the special functions arising from them. Elements of group theory. The rotation group and its representations.

Analysis

311 Elementary Analysis. *Fall term. Credit four hours. Prerequisites: 213, 200. T Th S 10:10.* A careful study of the topology of the real line. Functions. Theory of continuous functions of one real variable. Differentiation and integration of such functions. Series and sequences. The material of 311-312 is similar to that of 411-412 below, but is taught at a more elementary level and at a slower pace. A student may not receive credit for both 311-312 and 411-412.

312 Elementary Analysis. *Spring term. Credit four hours. Prerequisite: 311. T Th S 11:15.* Functions of several variables.

411-412 Introduction to Analysis. *Throughout the year. Credit four hours a term. Prerequisite: 222. T Th S 10:10.* (There will be a special Honors section of this course. The instructor should be consulted.)

An introduction to the theory of functions of real variables, stressing rigorous logical development of the subject rather than technique of applications. Topics include elementary topology, the real number system, continuous and differentiable functions, inte-

gration, convergence and approximation theorems, Fourier series, calculus in several variables and differential forms.

413 Introduction to the Theory of Functions of One Complex Variable. *Spring term. Credit four hours. Prerequisite: 222 or 312. M W F 9:05. 411 is not a prerequisite, but some previous acquaintance with advanced calculus as presented in 411 is definitely helpful.* A rigorous introduction to complex variable theory. Intended mainly for undergraduates and for graduate students outside mathematics; graduate students in mathematics desiring a first course in complex variable should take 511–512. Complex numbers. Differential and integral calculus for functions of a complex variable including Cauchy's theorem and the calculus of residues. Elements of conformal mapping. Elements of several complex variables.

Algebra

331 Linear Algebra. *Fall term. Credit four hours. Prerequisites: 200 or consent of the instructor, and 112. A student may not receive credit in both 221 and 331. M W F 10:10.* Emphasis on applications rather than theoretical development. Vectors, matrices, and linear transformations, affine and euclidean spaces, transformation of matrices, and eigenvalues.

332 Algebra and Number Theory. *Spring term. Credit four hours. Prerequisite: 221 or 331. M W F 10:10.* Commutative rings with unity, fields, and finite groups. Motivations and examples are mostly derived from arithmetical problems on the integers or congruence classes of integers. Course 332 will not serve as a prerequisite for courses numbered 500 or higher.

431–432 Introduction to Algebra. *Throughout the year. Credit four hours a term. Prerequisite: 221 or 331. First term prerequisite to the second. M W F 10:10.* (There will be a special Honors section of this course. The instructor should be consulted.) A rigorous introduction to modern algebra. First term, linear algebra. Second term, introduction to algebraic systems such as groups, rings, modules, and fields.

431 Linear Algebra. *Spring term. Credit four hours. Prerequisite: 221 or 331. T Th S 10:10.* Same content as 431 in the sequence 431–432.

Geometry and Topology

451–452 Classical Geometrics. *Throughout the year. Credit four hours a term. Prerequisite: 221 or 331 or 431, which may be taken concurrently. First term prerequisite to the second. T Th S 9:05.* Axiomatic methods in geometry. Foundations of Euclidean geometry. Non-Euclidean geometry, projective geometry, and other geometric theories.

453–454 Introduction to Topology and Geometry. *Throughout the year. Credit four hours a term. Prerequisites: 412 and 432, or consent of the instructor. T Th S 11:15.* Topics in general and algebraic topology, differentiable manifolds, and perhaps some differential geometry.

Probability and Statistics

370 Elementary Statistics. *Fall term. Credit four hours. Prerequisites: 112, 122 or 192, or 108 with consent of the instructor. M W F 12:20. Preliminary examinations will be held at 7:30 p.m. on October 6, November 3, and December 1.* Topics in probability which are essential to an understanding of statistics; introduction to the principles underlying modern statistical inference and the rationale underlying

choice of statistical methods in various situations. This is a terminal course, intended for those who will take no further work in this area.

371 Basic Probability. *Fall term. Credit four hours. Prerequisite: 213 or 222. M W F 11:15. Preliminary examinations will be held at 7:30 p.m. on October 6, November 3, and December 1.* Topics covered include combinatorics, important probability laws, expectations, moments, moment generating functions, limit theorems. Emphasis is on diverse applications and on development of use in statistical applications. While this course can serve as a terminal course in basic probability, it is primarily intended for those who will continue with 472. (See also the descriptions of 370 and 571.)

472 Statistics. *Spring term. Credit four hours. Prerequisites: 371 and knowledge of linear algebra such as taught in 221. M W F 11:15. Preliminary examinations will be held at 7:30 p.m. on February 23, March 22 and May 3.* Classical and recently developed statistical procedures are discussed in a framework which emphasizes the basic principles of statistical inference and the rationale underlying the choice of these procedures in various settings. These settings include problems of estimation, hypothesis testing, large sample theory. See also the description of 370, 473, and 574 (formerly 572).

473 Statistics. *Fall term. Credit four hours. Prerequisite: 472 or 574 (formerly 572). M W F 9:05. Preliminary examinations will be held at 7:30 p.m. on October 6, November 3, and December 1.* A continuation of Mathematics 472 in which emphasis will be placed on experimental designs, nonparametric statistics, multivariate analysis, sequential analysis, and multiple decision problems.

Mathematical Logic

381 Elementary Mathematical Logic. *Spring term. Credit four hours. Prerequisite: 122 or 200. M W F 11:15.* Propositional calculus via truth tables and as a formal axiomatic theory. Boolean algebras. Introduction to the predicate calculus.

Graduate Courses

For complete descriptions of graduate courses see the *Announcement of the Graduate School: Physical Sciences*. If a course is not included there, consult the Graduate Field Representative.

Applied Mathematics and Differential Equations

427–428 Introduction to Partial Differential Equations.

519–520 Partial Differential Equations.

521 Elementary Functional Analysis.

522 Applied Functional Analysis.

627–628 Seminar in Partial Differential Equations.

For courses in numerical analysis see Computer Science 421, 422.

Analysis

511–512 Real and Complex Analysis.

611–612 Seminar in Analysis.

613 Functional Analysis.

615 Fourier Analysis.

Algebra

- 531-532 Algebra.
 549-550 Lie Groups and Differential Geometry.
 631-632 Seminar in Algebra.
 635 Ring Theory.
 637 Algebraic Number Theory.
 641 Homological Algebra.
 649 Topological Groups.

Geometry and Topology

- 551 Introductory Algebraic Topology.
 552 Differentiable Manifolds.
 561 Introductory Geometric Topology.
 651-652 Seminar in Topology.
 653-654 Algebraic Topology.
 657 Advanced Topology.
 655-656 Homotopy Theory.

Probability and Statistics

- 571 Probability Theory I.
 572 Probability Theory II.
 574 Statistics.
 671-672 Seminar in Probability and Statistics.
 675 Statistical Estimation.
 676 Decision Functions.
 677-678 Stochastic Processes.

Mathematical Logic

- 581-582 Logic.
 681-682 Seminar in Logic.
 687 Set Theory.

Medieval Studies

Students who plan to do graduate work in medieval studies at Cornell or elsewhere have an opportunity to take many relevant courses as undergraduates. Instruction is available in the following areas: medieval Hebrew, medieval Arabic, medieval Latin, Old English, Middle English, Old Provençal, medieval French, medieval Spanish, medieval Italian, Old Saxon, Old High German, Middle High German, Gothic, Old Norse (Old Icelandic), Old Russian, Old Bulgarian, Old Church Slavonic, medieval art and architecture, medieval history, Latin paleography, medieval philosophy, musicology, comparative Slavic linguistics, and comparative Romance linguistics.

Undergraduates who wish to do an independent major in medieval studies should consult the Field Representative for Medieval Studies, Miss Alice Colby, 293 Goldwin Smith. The staff of the graduate program in medieval studies will do its best to guide such students.

Modern Foreign Languages and Literatures

Courses in modern foreign languages and literatures are offered as follows:

Department of German Literature

Mr. Herbert Deinert, Chairman.
 Courses in German literature.

Division of Modern Languages

Mr. J. M. Cowan, Director.

All elementary and intermediate modern language courses, conversation and composition courses, and courses in linguistics are offered by the Division of Modern Languages. An option is provided for elementary courses in most languages as follows. The basic course sequence, 101-102, gives a thorough grounding in the language—listening, speaking, reading, and writing. It is conducted in small groups with native speakers as instructors. The elementary reading course sequence, 131-132 and 133-134, concentrates on the comprehension of written texts. For the course listings, see the separate language headings in this section.

For fulfillment of the Language requirement for graduation, see p. 15; for attainment of Qualification, see p. 15. S/U options as explained on p. 19 of this *Announcement* may be chosen for all courses offered by the Division of Modern Languages except for German 101-102 and Burmese, Thai, and Vietnamese.

Department of Romance Studies

Mr. D. I. Grossvogel, Chairman.

For courses in French literature, see pp. 95-98; Italian literature, see pp. 101-102, and Spanish literature, see pp. 106-108. See separate language headings in this section for course listings and information about major programs.

Department of Russian Literature

Mr. G. Gibian, Chairman.
 Courses in Russian literature.

Burmese

Mr. R. B. Jones, Jr.

101-102 Basic Course. *Throughout the year. Credit six hours a term. M-F 10:10, T Th 11:15.*

201-202 Burmese Reading. *Throughout the year. Credit three hours a term. Prerequisite: for 201, Qualification in Burmese; for 202, Burmese 201 or consent of the instructor. Hours to be arranged. Mr. Jones.*

203-204 Composition and Conversation. *Throughout the year. Credit three hours a term. Prerequisite: for 203, Qualification in Burmese; for 204, Burmese 203 or consent of the instructor. Hours to be arranged. Mr. Jones.*

301-302 Advanced Burmese Reading. *Throughout the year. Credit four hours a term. Prerequisite: Burmese 201-202 or the equivalent. Hours to be arranged. Mr. Jones. Selected readings in Burmese writings in various fields.*

Cebuano (Bisayan)

Mr. J. U. Wolff.

101-102 Basic Course. *Throughout the year. Credit six hours a term. Offered according to demand. Hours to be arranged.*

Chinese

Messrs. N. C. Bodman, J. McCoy, T. L. Mei; Mrs. Pei Shin Ni; Mrs. Pilwun Wang; Mr. K. M. Wong.

For a major involving Chinese studies see Asian Studies.

101-102 Basic Course. Throughout the year. Credit six hours a term. M-F 8, M W F 9:05.

101C-102C Cantonese Basic Course. Throughout the year. Credit six hours a term. Prerequisite: consent of the instructor. M-F 11:15 plus lectures to be arranged. Mr. McCoy.

131H-132H Elementary Hokkien Chinese. Throughout the year. Credit three hours a term. Prerequisite: consent of the instructor. M-F 11:15. Mr. Bodman.

201-202 Intermediate Chinese I. Throughout the year. Credit four hours a term. Prerequisite: Qualification in Chinese. M-F 9:05.

201C-202C Intermediate Cantonese. Throughout the year. Credit three hours a term. Prerequisite: Cantonese 102C or consent of the instructor. Hours to be arranged. Mr. McCoy.

203-204 Chinese Conversation. Throughout the year. Credit one hour a term. S-U grades only. Prerequisite: Chinese 101-102. Two class hours. Can be repeated for credit. Guided conversation and oral composition and translation. Corrective pronunciation drill.

213-214 Introduction to Classical Chinese. Throughout the year. Credit two hours a term. Prerequisite: Qualification in Chinese or consent of the instructor. This course can be taken concurrently with Chinese 201-202. The content of Chinese 213 is substantially the same as that of the introduction to classical Chinese in Chinese 301. Chinese 214 can be taken concurrently with Chinese 302. T Th 10:10. Mr. Wong.

301 Intermediate Chinese II. Fall term. Credit five hours. Students who have taken Chinese 213 may register for three hours of modern Chinese. Prerequisite: Chinese 202 or the equivalent. M-F 10:10. Readings and drill in modern expository Chinese, three hours; introduction to classical Chinese, two hours.

302 Intermediate Chinese III. Spring term. Credit three hours. Prerequisite: Chinese 301. M W F 10:10. Readings in modern Chinese with social science and humanities content.

313 Chinese Historical and Philosophical Texts. Fall term. Credit four hours. Prerequisite: Chinese 214. M W F 11:15. Mr. Mei.

316 Classical Chinese Poetry. Spring term. Credit four hours. Prerequisite: consent of the instructor. Hours to be arranged. Mr. Mei.

401-402 History of the Chinese Language. Throughout the year. Credit four hours a term. Prerequisite: consent of the instructor. W 2:30-4:25. Mr. Bodman.

403 Linguistic Structure of Chinese: Phonology and Morphology. Fall term on student demand. Credit four hours. Prerequisite: consent of the instructor. T 2:30-4:25. Mr. Bodman.

404 Linguistic Structure of Chinese: Syntax. Spring term on student demand. Credit four hours. Prerequisite: Chinese 403. T 2:30-4:25. Mr. McCoy.

405 Chinese Dialects. Fall term on student demand. Credit four hours. Prerequisite: consent of the instructor. Th 2:30-4:25. Mr. Bodman. Emphasis on comparative and contrastive phonology.

411-412 Advanced Readings in Modern Chinese. Throughout the year. Credit four hours a term. Prerequisite: Chinese 302. M W F 1:25.

414 Classical Chinese Prose. Spring term. Credit four hours. Prerequisite: consent of the instructor. Hours to be arranged. Mr. Mei.

[417 Chinese Poetic Drama. Fall term. Credit four hours. Prerequisite: consent of the instructor. Hours to be arranged. Not offered in 1971-72.]

420 Readings in the Traditional Chinese Novel. Either term, according to demand. Credit two to four hours. Prerequisite: consent of the instructor. Hours to be arranged. Mr. Wong.

421-422 Directed Reading. Throughout the year. Credit two to four hours a term. Prerequisite: consent of the instructor. Hours to be arranged. Mr. Mei, Mr. Wong.

For complete descriptions of courses numbered 500 or above see the *Announcement of the Graduate School: Humanities*. If a course is not included there, consult the Graduate Field Representative.

501 Introduction to Literary Research. Mr. Mei, Mr. Wong.

507 Chinese Dialect Seminar. Either term on student demand. Credit four hours. Prerequisites: Chinese 405 and consent of the instructor. Hours to be arranged. Mr. Bodman or Mr. McCoy. Analysis and/or field techniques in a dialect area.

521-522 Advanced Readings in Classical Chinese. Throughout the year. Credit two or four hours a term. Prerequisite: consent of the instructor. Hours to be arranged. Mr. Wong, Mr. Mei.

[571 Seminar in Chinese Literature. Either term. Credit and hours to be arranged. Not offered in 1971-72.]

Sino-Tibetan Linguistics (Linguistics 582).

Dutch

F. C. van Coetsem.

131-132 Elementary Reading Course I. Throughout the year. Credit three hours a term. Prerequisite: consent of the instructor. Hours to be arranged.

133-134 Elementary Reading Course II. Throughout the year. Credit three hours a term. Prerequisite: Dutch 132 or consent of the instructor. Hours to be arranged.

Seminar in Dutch Linguistics (German 681-682).

English as a Second Language

Mr. C. E. Elliott, Mrs. Marilyn Martin.

The following courses are offered by the Division of Modern Languages. Foreign students should consult a member of the Division (Morrell 106).

102 English as a Second Language. Fall term. Credit six hours. Prerequisite: placement by the instructor. M T W Th F 9:05 plus two hours to be arranged.

211-212 English as a Second Language. Throughout the year. Credit three hours a term. Prerequisite: placement by the instructor. M W F 11:15 or 2:30.

213 English for Nonnative Speakers. Spring term. Credit three hours. Prerequisite: English 212 or placement by the instructor. Hours to be arranged. Mr. Elliott and staff. This course is designed for nonnative

speakers of English whose fluency is sufficient for them to carry on regular academic work, but who feel the need for refining and developing their ability to express themselves clearly and effectively. Writing style and the effect of some of the less obvious syntactic constructions will be emphasized. As much as possible, individual attention will be given to students in two class hours and a weekly interview.

French

Messrs. L. J. Benoit, J. Béreaud; Miss Alice Colby; Messrs. H. Dieckmann, D. I. Grossvogel, P. Lewis; Mrs. Alexandra Littauer; Messrs. J. Mehlman, E. Morris, J. S. Nobliitt; Mrs. Jean Parrish; Mr. A. Seznec.

French Major

The French major is designed to give the student proficiency in the oral and written language, to acquaint him with a fair portion of the masterworks of French literature, and to develop his skill in literary analysis.

The student wishing to major in French should consult a member of the French faculty with whom he will work out his plan of studies. The student's previous training and his interests will be taken into account in order to devise a coherent program. He will be encouraged to take courses in related subjects such as anthropology, music, history, art history, philosophy, linguistics, Classics, English, comparative literature and other foreign languages and literatures.

Interested students are encouraged to seek faculty advice about the major as early as possible. For admission to a major in French, students should normally have completed French 201-202 and French 211-212 (or 203-204) or their equivalents and should be accepted by the director of undergraduate studies (Mr. Béreaud).

To fulfill the major requirements, students are expected to complete successfully twenty-four hours of French literature courses at the 300-level or higher. Students seeking teacher certification may substitute one term of French 401-402 or 403 for four hours of the twenty-four required. One or more courses offered by the Department of Comparative Literature may be counted towards the required twenty-four hours if the student obtains the prior approval of his major adviser. The student majoring in French will also be expected to develop competence in the language. This competence is demonstrated by the successful completion of French 312 or by the passing of a special examination to be taken no later than the end of the junior year. For any question concerning placement in language courses within the Department please consult Mr. Béreaud, who will arrange a placement test whenever necessary.

French majors may study in France during their junior year under any of several study abroad plans which have been recognized by the Department and which allow the transfer of credit. The Department has information on such plans.

The Honors Program

The purpose of the Honors program is to encourage well-qualified students to do independent work in French literature, outside the structure of courses. The preparation of the senior Honors essay, in particular, spread out over three terms, provides a unique learning opportunity, since it allows for wide reading, careful outlining, and extensive rewriting to a degree not practically possible in the case of course papers. At each stage of his work the student will have regular weekly meetings with his faculty tutor.

No special seminars or courses are required of

Honors students. The junior tutorial (ordinarily, two terms; exceptionally, one) will be devoted to intensive study of selected problems or authors, and to the choice of a topic for the Honors essay; the senior tutorial, to the writing of that essay. Honors students may be released from one or two courses in either the junior or senior year to have adequate time for Honors work (credit is obtained by enrolling in French 419-420). They will take an informal oral examination at the end of the senior year.

Honors students are selected on the basis of their work in French and literature courses in the freshman and sophomore years. Students interested should consult Mr. Morris for details, no later than the spring term of sophomore year, and earlier if possible.

Distribution Requirement

The Distribution requirement in the Humanities is satisfied in French by French 201-202 or 201E-202E (French 222 may be taken in substitution of any part of the normal 201-202 sequence) if these courses are not used in fulfillment of the language requirement.

Of the courses listed below, those dealing with literature, together with language courses 211-212 and 311-312 and 429, are staffed and administered by the Department of Romance Studies, and inquiries in regard to them ought to be addressed to that Department (Goldwin Smith 278).

The courses dealing with linguistics and the other language courses are offered by the Division of Modern Languages, and administered by that Division (Morrill 106).

Language and Linguistics

101-102 Basic Course. *Throughout the year. Credit six hours a term. Students who have previously studied French should consult p. 11 before registering for this course. Drill M-F 8, 9:05, 10:10, or 1:25; lecture T Th 9:05 or 12:20.*

131-132 Elementary Reading Course I. *Throughout the year. Credit three hours a term. Students who have previously studied French should consult p. 11 before registering for this course. M W F 9:05, 11:15, 1:25, or 2:30.*

133-134 Elementary Reading Course II. *Throughout the year. Credit three hours a term. Prerequisite: French 132 or the equivalent. M W F 2:30 or 3:35 or T Th S 9:05. Lecture: fall term, Th 11:15; spring term, F 1:25.*

200 Intermediate Course (Reading). *Either term. Credit three hours. Prerequisite: Qualification in French (for definition of Qualification, see p. 15). Fall term: M W F 11:15, 12:20, 2:30, or T Th S 10:10 or 11:15; lecture W 8 or T 1:25 or T 2:30. Spring term: M W F 12:20, 1:25, 2:30, or T Th S 11:15; lecture W 10:10 or T 1:25. Extended readings in selected modern humanistic writings.*

203 Intermediate Course (Conversation). *Either term. Credit three hours. Prerequisite: Qualification in French (for definition of Qualification, see p. 15). Fall term: M W F 8, 11:15, 12:20, 1:25, or T Th S 9:05 or 10:10; lecture W 10:10, W 11:15, T 10:10, or T 2:30. Spring term: M W F 9:05, 1:25, or T Th 10:10 or 11:15; lecture W 11:15 or T 1:25. Guided conversation, grammar drill, oral and written composition, and reading. Emphasis is placed upon increasing the student's oral command of French.*

204 Intermediate Composition and Conversation. *Spring term. Credit three hours. Prerequisite: French 203. M W F 8, 9:05, 11:15, 12:20, 1:25 or T Th S 9:05, 10:10, or 11:15; lecture W 2:30 or T 10:10, or T 2:30.*

Continuation of the work of French 203, with special attention to accurate and idiomatic expression in French. Oral and written drill.

211-212 Intermediate French. Throughout the year. Credit three hours a term. Enrollment limited. Prerequisites: Qualification in French and consent of the instructor. Fall term, M W F 11:15. Spring term, M W F 11:15. Mr. Béreaud and Staff. This course is designed for students who intend to go on in French language or literature, whether they plan to become French majors or not. Work in class will be devoted to a review of modern French syntax and a critical reading of texts on contemporary French culture and literature, with emphasis on language problems involved. Students are expected to write short weekly essays in French. In addition, there will be one hour of conversation per week in small groups of three or four students.

311-312 Advanced Composition and Conversation. Throughout the year. Credit four hours a term. Prerequisite: French 212 or 204, or placement by special examination. M W F 10:10. Mr. Béreaud and staff. Reading and analysis of selected contemporary texts. Detailed study of present-day syntax. Weekly translations or essays in French. One hour of conversation each week in groups of two or three students. The first semester will focus on French civilization; the second semester places more emphasis on literary texts and intellectual issues. Class discussion conducted in French.

401-402 History of the French Language. Throughout the year. Credit four hours a term. Prerequisites: Qualification in French and Linguistics 201. M W 2-3:30. Mr. Benoit. Fall term: detailed study of the structural development of French from the origins to the Old French period. Spring term: selected readings in Old French texts, examination of structural changes from the Old French period to the present.

403 Linguistic Structure of French. Fall term. Credit four hours. Prerequisites: Qualification in French and Linguistics 201. M W 3:35-5. Messrs. Benoit and Noblitt. A descriptive analysis of present-day French, with emphasis on its phonetics, phonemics, morphology, and syntax. Required of students seeking certification by New York State.

The Comparative Study of the Romance Languages (Linguistics 441-442, 443-444, 445, 446, 450).

404 French for Teachers. Spring term. Credit four hours. Prerequisite: Qualification in French. M W 3:35-5. Mr. Benoit. Survey of the current teaching methods, preparation of teaching materials, selection and use of textbooks and realia, further study of phonetics, syntax, and culture as needed. Required of students seeking certification by New York State.

[429 Composition and Style. Fall term. Credit four hours. Primarily for graduate students. Mr. Béreaud. Not offered in 1971-72.]

For complete descriptions of courses numbered 500 or above see the *Announcement of the Graduate School: Social Sciences*. If a course is not included there, consult the Graduate Field Representative.

[554 Gallo-Romance Dialectology. Spring term. Credit four hours. Prerequisite: Linguistics 441-442, 443-444, or consent of the instructor. T Th 2:30. Mr. Benoit. Given in alternate years. Not offered in 1971-72.]

555 Historical Phonology of French. Fall term. Credit four hours. Prerequisite: Linguistics 201 or consent of the instructor. T Th 2:30. Mr. Benoit.

558 Linguistic Structures of Old and Middle French. Spring term. Credit four hours. Prerequisite: French 403 or consent of the instructor. T Th 3:35-4:50. Mr. Noblitt.

600 Seminar in French Linguistics. According to demand. Credit four hours a term. Hours to be arranged. Mr. Hall.

Literature

201-202 Introduction to French Literature. Each course may be taken either term. Credit three hours a term. Prerequisite: a score of 630 on the College Board Achievement Test; the ability to read literary French with some facility is presupposed. French 201 serves as the prerequisite for 300-level courses in French literature. French 201: Fall term, M W F 9:05, 10:10, 11:15, 12:20 or 2:30; T Th S 9:05, 10:10 or 11:15. Spring term, M W F 12:20; T Th S 11:15. French 202: Fall term, M W F 12:20; T Th S 11:15. Spring term, M W F 9:05, 10:10, 11:15 or 2:30; T Th S 10:10 or 11:15. Mrs. Parrish; Messrs. Béreaud, Grossvogel, Lewis, Mehlman, Seznec, and staff. Completion of these two courses will acquaint the student with a substantial number of major works in French literature. Students who wish to do so may amplify and refine their knowledge of the French language in these courses.

201 Problems of Literary Expression. An attempt to grasp and appreciate the richness of the major French literary genres. Primary emphasis will be placed upon development, by the student, of the critical and analytic skills required to confront these texts in their political, sociological, historical, and literary contexts. Readings will include: Madame de Lafayette, *La Princesse de Cleves*; Diderot, *Le Neveu de Rameau*; Ronsard, *Poèmes choisis*; Baudelaire, *Les Fleurs du Mal*; Racine, *Phèdre*; Beaumarchais, *Le Mariage de Figaro*.

202 The Modern Tradition. Through the study of established masterpieces dating from the symbolist period to the present-day "new novel," this course will attempt to treat the principal themes, techniques, and interpretive dilemmas encountered in modern French literature. The examination of each work will focus upon the problem of individual self-discovery and communication within an unstable, alien society. Readings will include: Proust, *Combray*; Robbe-Grillet, *La Jalousie*; selected poems of Mallarmé and Apollinaire; Sartre, *Huis-Clos*; Beckett, *En attendant Godot*.

201E-202E (Experimental section). Enrollment limited. Students electing this experimental version of French 201-202 must take both semesters of it. M W F 11:15. Mr. Morris. Traditionally, French 201-202 has sought to introduce students to some acknowledged masterpieces of French literature, to accustom them to close and accurate reading of literary French, and to acquaint them with certain regularities inherent to short lyric poems, prose narrative, comedy, and tragedy. In this course, the attempt will be made to achieve those same ends and at the same time to give the student some feeling for the ways, problems (social and spiritual), and accomplishments of selected moments in the history and literature of France. The course will not proceed by chronological "survey," but by historical "sections," or samplings. The relation of literary consciousness to historical consciousness will be explored: how does each age see itself, and write itself down? how does it portray other times?

The texts studied in 1971-72 will be chosen from the following:

- (a) 1857 (after the failure of the revolution of 1848): Baudelaire, *les Fleurs du mal*; Flaubert, *Mme. Bovary*;
- (b) The times of Louis XIV: Racine, *Andromaque*;

La Fontaine, *Fables*; Mme. de LaFayette, *La Princesse de Clèves*; Molière, *Le Tartuffe*; Saint-Simon, *Mémoires*.

(c) 1909–1913 (France on the eve of the first world war); Gide, *la Porte étroite*; Claudel, *l'Annonce faite à Marie*; Apollinaire, *Alcools*; Proust, *Du côté de chez Swann*;

(d) From Romanesque to Gothic: *La Chanson de Roland*; Chrétien de Troyes, *Yvain*; Rutebeuf, *Le Miracle de Théophile*; a farce; lyric poems; chronicle of Villehardouin.

205 Critic and Visionary from Voltaire to Sartre. Fall term. Credit three hours. M W F 11:15. Miss Colby. For description see Freshman Humanities Program, p. 28.

206 Literature: An Obsolete Concept? Spring term. Credit three hours. M W F 10:10. Mrs. Parrish. For description see Freshman Humanities Program, p. 28.

222 French Civilization. Spring term. Credit three hours. Prerequisite: Qualification in French or a sequence of two language courses at the 100-level. M W F 11:15. Mr. Béreaud. The course will be devoted to a description of contemporary civilization, French institutions, culture, and attitudes. In so doing, it will examine the historical and social roots of the institutions in question. Although emphasis will be on problems that might relate to the student's life (such as educational, social, economic, and political problems), the burden of the course will be devoted to the reading and the analysis of responsible writing in the areas to be covered. Guest lecturers will occasionally be asked to present some of the material. Lectures in English; readings in French. This course can be taken in substitution of any part of the normal 201–202 sequence but will not serve as prerequisite for upper division literature courses. Students who pass this course will meet the language requirement (Proficiency).

309 Modes of the French Novel. Fall term. Credit four hours. M W F 11:15. Mrs. Parrish. A survey of French novels from the Middle Ages through the eighteenth century covering a form that has evolved from the Roman Courtois through the sixteenth century bourgeois and comic novels, Madame de Lafayette, Diderot, etc.

350B French Literature and History, 1547–1598. Fall term. Credit four hours. M W F 10:10. Mr. Morris. One of a series of courses intended to help French majors (and, in this case, students of the Renaissance concentrating in other areas) place their readings in some historical perspective.

Literature and culture from the death of Francis I through the Wars of Religion to the Edict of Nantes. The works of major writers considered both as the expression of developments internal to literary tradition (for example, the early Pléiade and the new enthusiasm for Greek, Latin, and Italian poets) and as individual responses to changing conditions in society and the world (for example, Montaigne, D'Aubigné, and the later Ronsard as witnesses of the civil wars). Some readings in modern historians and contemporary accounts; some attention to developments in music, painting, and architecture. Conducted in French.

356 Music and Poetry in France: Late Middle Ages and Renaissance (Also Music 316). Spring term. Credit four hours. Prerequisite: consent of either instructor. This course will be of most interest to students who have done some work in music or in French literature; a good reading knowledge of French will be a practical necessity. M 1:25, W 1:25–3:15. Messrs. Randel and Morris, and guest lecturers. Changing

interrelations between vernacular poetry and secular music from the late fourteenth century to the times of Ronsard. Not a continuous chronological survey, the course will be organized around five contrasting historical samples: Guillaume de Machaut as composer and as "the last great poet in France to think of the lyric and its musical setting as a single entity" (Flutre); the courtly *chansons* of Dufay and his contemporaries; Josquin des Prez's settings of the Rhetoricians and of popular songs; Marot's *Adolescence clémentine* (1532), poems from which were set by some fifty composers; the Pléiade poets and the *air de cour*.

Topics: the evolution of poetry, and the growing primacy of the written or printed text; the poets' musical culture; music as a metaphorical motif in poetry; the rôle of music in Humanist esthetics; versification and musical setting; the composers' changing habits in choosing texts, and the changing balance of musical expression and verbal expression. Through description and analysis of a rich historical example of the interdependency of two arts, this course will seek to raise some broad questions in general esthetics.

362 French Theater: The Seventeenth and Eighteenth Century. Spring term. Credit four hours. Prerequisite: French 201 or 202 or consent of the instructor. M W F 10:10. Mr. Sez nec. Discussion of a few major works dating from 1630 to the French Revolution. The course will also deal with the development of dramatic genres and their relationship to other arts, particularly ballet and opera. Finally some emphasis will be placed on the social and political aspects of the plays read. Authors will include Corneille, Rotrou, Molière, Racine, Marivaux, Lesage, Diderot, and Beaumarchais. Class conducted primarily in French.

388 Metamorphosis of the Modern Novel: Balzac to Beckett. Spring term. Credit four hours. T Th 1:25–2:40. Mr. Lewis. Can the present-day "new novel" or "anti-novel" really be read as a novel? Do contemporary experiments in novelistic conception and style stem from a gradual exhaustion of the traditional novelistic genre? Starting with the conventional Balzacian novel (*Le Père Goriot*) as a frame of reference, this course will attempt to analyze some of the profound, often highly self-conscious transformations that the novel has undergone in the works of several major writers: Flaubert (*L'Éducation sentimentale*), Huysmans (*A Rebours*), Proust (*Un Amour de Swann*), Gide (*L'Immoraliste*), Sartre (*La Nausée*), Beckett (*Maloy*).

394 "Literature" / "Structuralism". Spring term. Credit four hours. T Th S 9:05. Mr. Mehlman. The course will operate on the shifting ground between literary criticism and intellectual history in an effort to delineate the structure of that space in which the French have imagined the problem of "literature" in this century. Principal texts: Proust (*Du côté de chez Swann*), Leiris (*Biffures*), Sartre (*Les Mots, Saint Genet*), Lévi-Strauss (*Tristes tropiques*).

C399 Varieties of the French Film. Fall term. Credit three hours. Weekly: one 90-minute lecture, the projection of one motion picture, one non-compulsory 90-minute discussion section. There will be additionally a reading list, a mid-term and final paper and/or exam. T 2:30–4:00. Discussion section W 7:30–9:00 p.m. Films projected Sunday or Monday evenings. Selected faculty. The course proposes to explore a number of problems that have been of recurrent interest to French film makers through such experimentors as Bresson, Cocteau, Robbe-Grillet, Truffaut, etc. In particular, it will investigate the phenomenology of the motion picture, its importance as an esthetic and graphic object; it will consider the French film in rela-

tion to the French social scene as an expression of national traits, etc.; it will also analyze the ties which have joined the French film to literature, through such movements as surrealism, esthetic concerns like those of the Nouveau Roman, etc.

419-420 Honors Work in French. *May be taken without credit or for four hours with consent of the adviser. Open to juniors and seniors. See director of Honors Program, Mr. Morris.*

447-448 Medieval Literature. *Throughout the year. Credit four hours. Prerequisite: two terms of 300-level French literature courses or consent of the instructor. First term not prerequisite to the second. Fall term: M W F 9:05. Spring term: F 2:30-4:25, and an additional hour to be arranged for students entering in the spring term without previous training in Old French. Miss Colby.* Translation of Old French texts into English and Modern French. The first term deals with the epic; the second term with the romance. Facility in reading Old French and appreciation of these two major genres are the primary goals of this course, but some attention will be given to other important genres.

474 Rousseau. *Spring term. Credit four hours. M W F 11:15. Mrs. Parrish.* A reading of the first six books of the *Confessions*, followed by the *Rêveries*. The confessional mode and its artistic form will be closely analyzed in its eighteenth century context and in its later developments.

483 Narrative Problems of the Confessional Persona in Romantic Prose. *Fall term. Credit four hours. Prerequisite: French 201-202, or consent of the instructor. M W 1:25-2:40. Mr. Gossen.* Readings will include *Atala/René* (Chateaubriand), as well as segments of *Les Mémoires d'Outre-tombe, Adolphe* (Constant), *La Confession d'un enfant du siècle* (Musset), works by G. Sand, *La Vie d'Henri Brulard* (Stendhal).

For complete descriptions of courses numbered 500 or above see the *Announcement of the Graduate School: Humanities*. If a course is not included there, consult the Graduate Field Representative.

544 Medieval Seminar: The Old French Epic. *Spring term. Credit four hours. W 2:30-4:25. Miss Colby.*

556 Music and Poetry in France: Late Middle Ages and Renaissance (Also Music 516). *Spring term. Credit four hours. M 1:25-3:20, W 1:25-2:15. Messrs. Morris and Randel.*

560 French Thought in the Seventeenth Century. *Spring term. Credit four hours. Th 2:30-4:30. Mr. Dieckmann.*

576 Seminar on the Eighteenth-Century Novel: Novel and Novel Theory in France, England, and Germany. *Spring term. Credit four hours. T 2:30-4:30. Mr. Dieckmann.*

593 Freud in France. *Fall term. Credit four hours. F 2:30-4:25. Mr. Mehlman.*

599 Seminar on the Contemporary French Novel: Robbe-Grillet. *Fall term. Credit four hours. M 2-4. Mr. Grossvogel.*

Principles of Esthetics and Literary Criticism (Spanish 630).

639-640 Special Topics in French Literature. *Credit four hours. Staff.*

German

Miss Eva Augsburg; Messrs. V. Bjarnar, E. A. Blackall; Miss Renate Born; Mrs. Lucy Collings; Messrs. D. Connor, J. M. Cowan, H. Deinert; Mrs. Inta

Ezergailis; Mr. S. L. Gilman, Mr. R. L. Jones; Mrs. Ingrid Kovary; Messrs. H. Kufner, P. Lowe, Jr., F. van Coetsem; Miss Elizabeth Wilkinson.

German Major

The student majoring in German is encouraged to design his program in a manner which will allow for diversity in his course of study. It should enable him to become acquainted with an adequate selection of major works, authors, and movements of German literature and to develop his skill in literary analysis. A student majoring in German will normally proceed through German 201, 202, and 203-204. However, if his previous training qualifies him for immediate enrollment in 300 and 400 level courses, every effort will be made to permit him to do so. For details, please consult the major adviser, Mr. Connor. A student majoring in German is expected to complete successfully a minimum of six 300- and 400-level courses in addition to German 303-304. These courses should be a representative selection of subjects in German literature and/or Germanic linguistics. The attention of students majoring in German is called to the courses offered by the Department of Comparative Literature, many of which complement the course offerings in German.

A student majoring in German is also expected to become competent in the German language. This competence is normally demonstrated by the successful completion of German 304. The placement in language courses of German majors who have done no language work at Cornell will be determined by the level of preparation they have obtained elsewhere. For details, please consult the major adviser, Mr. Connor. All German majors, particularly those who have had no German prior to coming to Cornell, are encouraged to spend at least part of their junior year abroad. Students have the opportunity to enroll, for credit, in a Cornell sponsored Summer Language Program in Heidelberg, Germany. Information is available upon request at the departmental offices.

The Honors Program

The Honors program in German is open to superior students who wish to work independently in an area of their own choice. The student is free to select any member of the field of Germanic Studies to assist him in designing his Honors program, to supervise his work, and to help him select a suitable topic for an Honors essay. The independent study courses 451-452 may form part of the program.

Distribution Requirement

The Distribution requirement in the Humanities is satisfied in German by German literature courses on the 200 level and above if these courses are not used in fulfillment of the language requirement.

101-102 Basic Course. *Throughout the year. Credit six hours a term. Students who have previously studied German should consult p. 11 before registering for this course. Drill, M-F 8, 10:10, 11:15, 12:20; lecture, M W 9:05.*

103-104 Freshman Seminar in German Literature in English Translation. *Throughout the year. Credit three hours a term. Mr. Connor, Mrs. Ezergailis and staff.* For description, see Freshman Humanities Program, p. 29.

105-106 Elementary German for Literary Studies. *Throughout the year. Credit three hours a term. Hours to be arranged. Mrs. Valk.* The course is intended to give students with no previous knowledge of German the ability to read and understand German literary texts. A substantial amount of reading is handled, but

the speaking of German is also an important aspect of the course, the topic of conversation usually being some work of literature. Inquiries should be addressed to the Department of German Literature.

131-132 Elementary Reading Course I. *Throughout the year. Credit three hours a term. Students who have previously studied German should consult p. 11 before registering for this course. M W F 8, 9:05, 10:10, 11:15, 12:20, 1:25, or 2:30; or T Th S 9:05. Lecture, M 11:15, or 1:25; or T 11:15, 1:25, or 2:30.*

133-134 Elementary Reading Course II. *Throughout the year. Credit three hours a term. Prerequisite: German 132 or the equivalent. M W F 10:10, 2:30, or T Th S 10:10; lecture (fall term only), T 9:05.*

201 Problems in the Analysis of Drama. *Either term. Credit three hours. Prerequisite: Qualification in German. (For definition of Qualification, see p. 15.) Fall term: M W F 9:05, 11:15; T Th S 9:05, 10:10. Spring term: M W F 9:05, 11:15; T Th S 9:05. Messrs. Deinert, Gilman, and staff. Self-confrontation and social conflict in the plays of six major Austrian, Swiss, and German dramatists: Dürrenmatt, Brecht, Büchner, Hofmannsthal, Weiss, and Kleist. These texts will be used to develop an analytic approach to drama as well as to enable the student to improve his reading knowledge of German.*

202 Problems in the Analysis of Prose. *Either term. Credit three hours. Prerequisite: Qualification in German. (For definition of Qualification, see p. 15.) Fall term: M W F 9:05, T Th S 9:05. Spring term: M W F 9:05, 10:10, T Th S 9:05. Messrs. Deinert, Gilman, and staff. The complexities of inner and outer reality as expressed in selected prose works of Kafka, Mann, Kleist, Grass, Brentano, Tieck, and Rilke. These texts will be used to develop a critical method for the reading of modern narrative literature.*

203 Intermediate Composition and Conversation. *Either term. Credit three hours. Prerequisite: Qualification in German. (For definition of Qualification, see p. 15.) Fall term: M W F 9:05, 10:10, 11:15, or 1:25. F 2:30. Spring term: M W F 12:20. Miss Augsberger. Guided conversation and oral and written composition, with special attention to accurate and idiomatic expression in German.*

204 Intermediate Composition and Conversation. *Either term. Credit three hours. Prerequisite: German 203 or consent of the instructor. Fall term: M W F 12:20; spring term: M W F 9:05 or 10:10. Miss Augsberger. Continuation of the work of German 203. Emphasis is placed on increasing the student's active vocabulary and command of grammatical patterns.*

Of the 300-level courses, those bracketed will be offered the following year.

303-304. Advanced Composition and Conversation. *Throughout the year. Credit four hours a term. Prerequisite: German 204 or consent of the instructor. M W F 2:30. Emphasis is placed on increasing the student's oral and written command of German. Detailed study of present-day syntax and different levels of style.*

351 Aufklärung, Sturm, und Drang. *Fall term. Credit four hours. Prerequisite: German 201, 202 or consent of the instructor. M W F 9:05.*

354 Schiller. *Spring term. Credit four hours. Prerequisite: German 201, 202 or consent of the instructor. T Th S 9:05.*

[355 The Young Goethe. *Fall term. Credit four hours. Prerequisite: German 201, 202 or consent of the instructor. M W F 10:10. Mr. Blackall. Not offered in 1971-72.]*

356 Goethe's Faust. *Spring term. Credit four hours. Prerequisite: German 201, 202 or consent of the instructor. M W F 12:20.*

357 Romanticism. *Fall term. Credit four hours. Prerequisite: German 201, 202 or consent of the instructor. M W F 12:20.*

359 Nineteenth-Century Realism I. Prose and Poetry. *Fall term. Credit four hours. Prerequisite: German 201, 202 or consent of the instructor. T Th S 9:05. Mr. Gilman.*

[360 Nineteenth-Century Realism II, The Drama. *Spring term. Credit four hours. Prerequisite: German 201, 202 or consent of the instructor. Not offered in 1971-72.]*

[361 Modern German Literature I. Twentieth Century German Prose. *Fall term. Credit four hours. Prerequisite: German 201, 202 or consent of the instructor.]*

362 Modern German Literature II. Drama and Poetry. *Spring term. Credit four hours. Prerequisite: German 201, 202 or consent of the instructor. M W F 9:05. Mrs. Ezergailis.*

401-402 History of the German Language. *Throughout the year. Credit four hours a term. Given in alternate years. Prerequisites: German 204 and Linguistics 201, or consent of the instructor. M W F 11:15. Fall term. Mr. Kulner; spring term, Mr. Lowe.*

403 Linguistic Structure of German. *Fall term. Credit four hours. Prerequisites: German 204 and Linguistics 201, or consent of the instructor. M W F 10:10. Mr. Jones. A descriptive analysis of present-day German, with emphasis on its phonetics, phonemics, morphology, and syntax.*

404 German for Teachers. *Spring term. Credit four hours. Required for provisional New York State teacher certification. Prerequisite: German 403. M W F 10:10. Mr. Jones. Methods of teaching the language based on a contrastive study of the structure of English and German. Extensive outside reading, reports on textbooks, discussion of various teaching aids and realia.*

405-406 Introduction to Medieval German Literature. *Throughout the year. Credit four hours a term. M W F 11:15. Mrs. Collings. Intended for students with no previous knowledge of Middle High German. The course will provide a survey of the most outstanding works of the Court Epic, the Heroic Epic, and Minnesang. Emphasis will be placed on a thorough understanding of the Middle High German language.*

411 Modern Dramatists: Bertolt Brecht. *Fall term. Credit four hours. M W F 10:10. Mr. Connor. A discussion of Brecht's major works in English translation.*

[413 Topics in German Literature I. *Fall term. Credit four hours. M W F 11:15. Mrs. Ezergailis. Not offered in 1971-72.]* Topic: Hermann Hesse.

[414 Topics in German Literature II. *Spring term. Credit four hours. M W F 11:15. Mr. Deinert. Not offered in 1971-72.]* Topic: Franz Kafka.

[417-418 The Great Moments of German Literature. *Throughout the year. Credit four hours a term. Recommended for graduate students and undergraduates, whether majoring in German or not, who wish to acquire an overall view of the whole range of German literature from the earliest texts to the present day. Prerequisite: reading knowledge of German. M W F 10:10. Mr. Blackall. Not offered in 1971-72.]*

424 Old Norse Sagas in English Translation. *Spring term. M W F 10:10. Mrs. Collings.*

451-452 Independent Study. *Either term. Credit four hours. Staff. Extensive reading of texts supplementary*

to regular course work, under the direction of a member of the Department.

For complete descriptions of courses numbered 500 or above, see the *Announcement of the Graduate School: Humanities*. If the course is not included there, consult the Graduate Field Representative.

[501 Introduction to Germanic Linguistics. *Fall term. Credit four hours. Given in alternate years. Prerequisite: Linguistics 201. W 1:25. Mr. van Coetsem. Not offered in 1971-72.]*

[502 Gothic. *Spring term. Credit four hours. Given in alternate years. Prerequisite: Linguistics 201. W 1:25. Mr. van Coetsem. Not offered in 1971-72.]*

503-504 Old Saxon, Old High German, Old Low Franconian, Old Frisian. *Throughout the year. Credit four hours a term. Given in alternate years. Prerequisite, Linguistics 201. M W F 3:35. Mr. van Coetsem.*

509-510 Old Norse. *Throughout the year. Credit four hours a term. Hours to be arranged. Mr. Bjarnar.*

511 Sagas. *Fall term. Credit four hours. Prerequisite: German 510 or consent of the instructor. Hours to be arranged. Mr. Lowe.*

512 Edda. *Spring term. Credit four hours. Prerequisite: German 510 or consent of the instructor. Hours to be arranged. Mr. Lowe.*

[520 Germanic Mythology. *Spring term. Credit four hours. Prerequisite: reading knowledge of modern German. Mrs. Collings. Not offered in 1971-72.]*

521 Middle High German Literature I. *Fall term. Credit four hours. Prerequisite: German 405-406 or consent of the instructor. Th 11:15-1:10. Mrs. Collings.*

[522 Middle High German Literature II. *Spring term. Credit four hours. Prerequisite: German 405-406 or consent of the instructor. T 1:25-3:20. Not offered in 1971-72.]*

525 Sixteenth-Century German Literature. *Fall term. Credit four hours. M 2:30-4:25.*

[527 Seventeenth-Century German Literature. *Fall term. Credit four hours. W 1:25-3:20. Not offered 1971-72.]*

530 Storm and Stress. *Spring term. Credit four hours. T 2:30-4:25. Mr. Gilman.*

531 Goethe. *Fall term. Credit four hours. Th 2:30-4:25.*

[533 German Romanticism. *Fall term. Credit four hours. M 2:30-4:25. Mr. Blackall. Not offered in 1971-72.]*

535 Nineteenth-Century German Literature. *Fall term. Credit four hours. W 2:30-4:25. Mr. Deinert.*

538 Twentieth-Century German Literature. *Spring term. Credit four hours. Th 2:30-4:25. Mr. Deinert.*

[540 History and Methods of Modern German Literary Criticism. *Spring term. Credit four hours. M 2:30-4:25. Mr. Gilman. Not offered in 1971-72.]*

541 The Post-War German Novel. *Fall term. Credit four hours. Th 2:30-4:25. Mrs. Ezergailis.*

599 Colloquium on the Teaching of Literature. *Either term. Credit one hour. Open to teaching assistants in the Department of German Literature. Composed of all faculty members and assistants teaching undergraduate courses. Meetings every other week. To be arranged.*

621-622 Computer Methods in Germanic Studies. *Throughout the year, subject to the needs of students and to the limitations of staff time. Credit four hours*

a term. Hours to be arranged. Mr. Jones. The use of the computer in analyzing Germanic texts, including modern Germanic languages. Practical experience in using text processing programs.

641-642 Seminar in Scandinavian Linguistics. *Throughout the year, subject to the needs of students and to the limitations of staff time. Credit four hours a term. Hours to be arranged. Mr. Lowe. Selected topics including history, structure, and dialects of selected Scandinavian languages.*

651-652 Seminars in Germanic Linguistics. *Throughout the year, subject to the needs of students and to the limitations of staff time. Credit four hours. Hours to be arranged. Various staff members.*

653-654 Seminar in German Literature. *Throughout the year. Credit four hours a term. Hours to be arranged. Staff.*

661-662 Seminar in Comparative Germanic Linguistics. *Throughout the year, subject to the needs of students and to the limitations of staff time. Credit four hours a term. Hours to be arranged. Mr. van Coetsem. The comparative study of early Germanic languages.*

671-672 Seminar in German Linguistics. *Throughout the year, subject to the needs of students and to the limitations of staff time. Credit four hours a term. Hours to be arranged. Mr. Kulner. Selected topics including the history, structure, and dialects of modern German.*

681-682 Seminar in Dutch Linguistics. *Throughout the year, subject to the needs of students and to the limitations of staff time. Credit four hours a term. Hours to be arranged. Mr. van Coetsem. Selected topics including the history, structure, and dialects of modern Dutch.*

Austrian Drama and Theatre of the Nineteenth and Twentieth Centuries (Society for the Humanities Seminar 409-410).

Problems in Old Norse Historiography (Society for the Humanities Seminar 411).

Hindi

Mr. C. E. Elliott.

101-102 Basic Course. *Throughout the year. Credit six hours a term. Drill, M-F at 9:05; lecture, T Th 10:10.*

201-202 Hindi Reading. *Throughout the year. Credit three hours a term. Prerequisite: for 201, Qualification in Hindi; for 202, Hindi 201 or consent of the instructor. Hours to be arranged.*

203-204 Composition and Conversation. *Throughout the year. Credit three hours a term. Prerequisite for 203, Qualification in Hindi; for 204, Hindi 203 or consent of the instructor. Hours to be arranged.*

301-302 Readings in Hindi Literature. *Throughout the year. Credit four hours a term. Prerequisite: Hindi 202. Hours to be arranged.*

303-304 Advanced Composition and Conversation. *Throughout the year. Credit four hours a term. Prerequisite: Hindi 204. Hours to be arranged.*

305-306 Advanced Hindi Readings. *Throughout the year. Credit four hours a term. Prerequisite: Hindi 202. Hours to be arranged. Intended for those who wish to do readings in history, government, economics, etc., instead of literature.*

[401 History of Hindi. *Fall term in alternate years. Credit four hours. Prerequisites: Hindi 101-102 or equivalent and Linguistics 202. Hours to be arranged. Not offered in 1971-72.]*

For complete descriptions of courses numbered 500 or above see the *Announcement of the Graduate School: Social Sciences*. If the course is not included there, consult the Graduate Field Representative.

600 Seminar in Hindi Linguistics (See also Linguistics 331, 432, 521, 522, 530, 531, 532, 534). *Either term. Credit three hours. Prerequisite: consent of the instructor. Hours to be arranged. Mr. Elliott, Mr. Gair, or Mr. Kelley.*

Indonesian

Messrs. J. M. Echols and J. U. Wolff.

101-102 Basic Course. *Throughout the year. Credit six hours a term. Hours to be arranged.*

201-202 Indonesian Reading. *Throughout the year. Credit three hours a term. Prerequisite: for 201, Qualification in Indonesian; for 202, Indonesian 201 or consent of the instructor. Hours to be arranged.*

203-204 Composition and Conversation. *Throughout the year. Credit three hours a term. Prerequisite: for 203, Qualification in Indonesian; for 204, Indonesian 203 or consent of the instructor. Hours to be arranged.*

301 Readings in Indonesian and Malay. *Either term. Credit four hours. Prerequisite: Indonesian 201-202 or the equivalent. Hours to be arranged.*

302 Readings in Indonesian and Malay. *Either term. Credit four hours. Prerequisite: Indonesian 301. Hours to be arranged.*

303-304 Advanced Indonesian Conversation and Composition. *Throughout the year. Credit four hours a term. Prerequisite: Indonesian 204 or the equivalent. Hours to be arranged.*

305-306 Advanced Readings in Indonesian and Malay Literature. *Throughout the year. Credit four hours a term. Prerequisite: Indonesian 302 or consent of the instructor. Hours to be arranged.*

403 Linguistic Structure of Indonesian. *Either term. Credit four hours. Prerequisites: Indonesian 101-102 or the equivalent, and Linguistics 201. Hours to be arranged. Mr. Wolff.*

Malayo-Polynesian Linguistics (Linguistics 573-574).

Italian

Mr. G. P. Biasin, Miss Maria Calderón, Messrs. G. Celati, R. A. Hall, Jr., Mrs. Anita Grossvogel.

Italian Major

The student wishing to major in Italian should choose a faculty member to serve as his major adviser; the general plan and the details of the student's course of studies will be worked out by consultation. Italian majors are encouraged to take courses in related subjects such as history, art history, music, philosophy, anthropology, classics, linguistics, and other modern languages and literatures. While theoretically a Cornell major occupies only the junior and senior years, as a matter of practical fact it is wise for the student to seek faculty advice on the major as early as possible.

Students who elect to major in Italian should ordinarily have completed Italian Literature 201-202, and Italian Language 203-204 by the end of their sophomore year. Exemptions can be made on the basis of an examination. A student majoring in Italian is expected to become conversant with a fair portion of the masterworks of Italian literature, to acquaint him-

self with the outlines of Italian literary history, and to develop some skill in literary analysis. To this end he will be expected to complete successfully twenty-four hours of Italian literature courses at the 300 level or higher, with papers to be written in Italian or English, including a course on the history of the Italian language. One or more courses offered by the Department of Comparative Literature may be counted toward the required twenty-four hours if the student obtains the prior approval of his major adviser.

The student majoring in Italian will also be expected to acquire competence in the handling of the language. That competence may be demonstrated by the successful completion of Italian 304 or by the passing of an oral and written examination to be arranged with his adviser.

Italian majors may study in Italy, generally during their junior year, under any one of those study-abroad plans, organized by American universities, which allow the transfer of grades and credit, such as the Syracuse Semester in Italy in Florence.

Distribution Requirement

The Distribution requirement in the Humanities is satisfied in Italian by Italian 201-202 if this course is not used in fulfillment of the language requirement.

Of the courses listed below, those in square brackets will be offered in later years. Those dealing with literature are staffed and administered by the Department of Romance Studies, and inquiries in regard to them ought to be addressed to that Department (Goldwin Smith 278).

The courses dealing with language and linguistics are offered by the Division of Modern Languages, and administered by that Division (Morrill 106).

Language and Linguistics

101-102 Basic Course. *Throughout the year. Credit six hours a term. Drill, M-F 8 or 12:20; lecture, T Th 10:10.*

131-132 Elementary Reading Course. *Throughout the year. Credit three hours a term. M. W. F 2:30.*

203-204 Composition and Conversation. *Throughout the year. Credit three hours a term. Prerequisite: Qualification in Italian. M W F 9:05.*

304 Advanced Composition and Conversation. *According to demand. Credit two to four hours. Prerequisite: Italian 204. Hours to be arranged.*

[431 Structure of Italian. *Fall term. Credit four hours. Given in alternate years. Prerequisite: Qualification in Italian. M W F 9:05. Mr. Hall. Not offered in 1971-72.]*

[432 Italian Dialectology. *Spring term. Credit four hours. Given in alternate years. M W F 9:05. Mr. Hall. Not offered in 1971-72.]*

[433 Old Italian Texts. *Fall term. Credit four hours. Given in alternate years. Prerequisite: consent of the instructor. M W F 9:05. Mr. Hall. Not offered in 1971-72.]*

434 History of the Italian Language. *Spring term. Credit four hours. Given in alternate years. Prerequisites: Qualification in Italian and Linguistics 201. M W F 9:05. Mr. Hall.*

For complete descriptions of courses numbered 500 or above see the *Announcement of the Graduate School: Social Sciences*. If the course is not included there, consult the Graduate Field Representative.

600 Seminar in Italian Linguistics. *According to demand. Credit four hours. Mr. Hall.*

Literature

201-202 Introduction to Italian Literature. Throughout the year. Credit three hours a term. Prerequisite: Qualification in Italian. Classes will be conducted in Italian. Hours to be arranged. Staff.

327-328 Dante: la Divina Commedia. Throughout the year. Credit four hours a term. Prerequisite: consent of the instructor. M W 12:20-1:35. Miss Calderón.

[329 Early Italian Prose and Poetry. Fall term. Credit four hours. Miss Calderón. Not offered in 1971.]

Medieval Literature: Dante in Translation (Comparative Literature 334).

[345 Gli eredi del Boccaccio: da Sacchetti a Bando. Fall term. Credit four hours. Not offered in 1971-72.]

[349 Il Quattrocento. Fall term. Credit four hours. Not offered in 1971-72.]

357-358 The Renaissance Epic Hero through Ariosto and Tasso. Throughout the year. Credit four hours a term. Fall, M W F 10:10. Spring, T Th S 10:10. Mr. Celati.

[370 The Enlightenment in Italy. Spring term. Credit four hours. Not offered in 1971-72.]

[372 Seventeenth and Eighteenth Century Italian Theatre. Spring term. Credit four hours. Not offered in 1971-72.]

[385 The Nineteenth Century Historical Novel. Fall term. Credit four hours. Not offered in 1971-72.]

[390 The Romantic Movement. Spring term. Credit four hours. Not offered in 1971-72.]

[395-396 The Modern Novel. Throughout the year. Credit four hours a term. Not offered in 1971-72.]

[435 Boccaccio. Fall term. Credit four hours. Prerequisite: consent of the instructor. T 12:20-2:20. Not offered in 1971-72.]

[438 Petrarch. Spring term. Credit four hours. Not offered in 1971-72.]

[444 Mirrors of Renaissance Man. Spring term. Credit four hours. Not offered in 1971-72.]

451 Sixteenth Century Italian Theatre. Fall term. Credit four hours. Prerequisite: consent of the instructor. Th 12:20-2:20. Miss Calderón. The development of drama in Renaissance Italy, illustrated by the works of such authors as Machiavelli, Bibbiena, Ariosto, Tasso, and Trissino.

474 Galileo to Vico: The New Science. Spring term. Credit four hours. Th 2:30-4:30. Mr. Celati.

[481 Modern Theatre: Luigi Pirandello. Fall term. Credit four hours. Not offered in 1971-72.]

[485 Modern Novel: Giovanni Verga. Fall term. Credit four hours. Not offered in 1971-72.]

[487 Romantic Poetry: Ugo Foscolo. Fall term. Credit four hours. Not offered in 1971-72.]

[488 Romantic Poetry: Giacomo Leopardi. Spring term. Credit four hours. Not offered in 1971-72.]

498 Poetry of Decadentism: Gabriele D'Annunzio. Spring term. Credit four hours. Prerequisites: reading knowledge of Italian and consent of the instructor. T 2:30-4:30. Mr. Biasin. Reading and discussion of selected works by one of the most intriguing and controversial figures in the Italian poetry of the twentieth century.

For complete descriptions of courses numbered 500 or above see the *Announcement of the Graduate*

School: Humanities. If the course is not included there, consult the Graduate Field Representative.

563 Renaissance and Baroque Poetics. Fall term. Credit four hours. W 2:30-4:30. Mr. Celati.

[585 Romantic Novel: Alessandro Manzoni. Fall term. Credit four hours. Not offered in 1971-72.]

594 Trends in Contemporary Criticism. Spring term. Credit four hours. Prerequisites: reading knowledge of Italian and consent of the instructor. W 2:30-4:30. Mr. Biasin. An examination of how the old and new "sciences of man," such as sociology, psychoanalysis, structuralism, linguistics and semiology affect literary criticism.

[595 Modern Novel: Italo Svevo. Fall term. Credit four hours. Not offered in 1971-72.]

[596 Modern Novel: Cesare Pavese. Spring term. Credit four hours. Not offered in 1971-72.]

[597 Contemporary Poetry: Eugenio Montale. Fall term. Credit four hours. Not offered in 1971-72.]

Principles of Esthetics and Literary Criticism (Spanish 630).

639-640 Special Topics in Italian Literature. Throughout the year. Credit four hours a term. Hours to be arranged. Staff.

649 Graduate Tutorials. Fall term. Credit four hours. Hours to be arranged. Staff.

Japanese

Mrs. Eleanor Jorden, Mr. J. McCoy, Mrs. Etsuko Terasaki.

101-102 Basic Course. Throughout the year. Credit six hours a term. M-F 9:05 or 12:20, and M W F 10:10.

201-202 Elementary Reading. Throughout the year. Credit three hours a term. Prerequisite: Japanese 102. M W F 1:25.

203-204 Intermediate Conversation. Throughout the year. Credit three hours a term. Prerequisite: Japanese 102. M W F 2:30.

301-302 Intermediate Reading. Throughout the year. Credit four hours a term. Prerequisite: Japanese 202 or consent of the instructor. Hours to be arranged. Mrs. Terasaki. Reading of selected modern texts with emphasis on expository style.

305-306 Introduction to Literary Japanese. Throughout the year. Credit four hours a term. Prerequisite: Japanese 202 or consent of the instructor. Hours to be arranged. Mrs. Terasaki.

401-402 Advanced Reading. Throughout the year. Credit four hours a term. Prerequisite: Japanese 302 or consent of the instructor. Hours to be arranged. Mrs. Terasaki.

404 Linguistic Structure of Japanese. Spring term. Credit four hours a term. Prerequisite: Japanese 102 or consent of the instructor, and Linguistics 201. Hours to be arranged. Mrs. Jorden and Mr. McCoy.

405-406 Intermediate Literary Japanese. Throughout the year. Credit four hours a term. Prerequisite: Japanese 306 or consent of the instructor. Hours to be arranged. Mrs. Terasaki.

421-422 Directed Readings. Throughout the year. Credit four hours a term. Prerequisite: Japanese 402 or consent of the instructor. Hours to be arranged. Topics will be selected on the basis of student needs.

431-432 Japanese Reading for Students of Chinese. Throughout the year. Credit three hours a term. Pre-

requisite: reading knowledge of Chinese and consent of the instructor. Hours to be arranged. Mrs. Jorden and Mrs. Terasaki.

Javanese

Messrs. J. M. Echols, J. U. Wolff.

131-132 Elementary Course. *Throughout the year. Credit three hours a term. Prerequisite: Qualification in Indonesian. Hours to be arranged.*

133-134 Intermediate Course. *Throughout the year. Credit three hours a term. Prerequisite: Javanese 132 or the equivalent. Hours to be arranged.*

Linguistics

Messrs. F. B. Agard, L. J. Benoit, N. C. Bodman, J. S. Bowers, J. M. Cowan, J. M. Echols, C. E. Elliott, F. A. Foos, J. W. Gair, R. A. Hall, Jr., C. F. Hockett, R. L. Jones, R. B. Jones, Jr.; Mrs. Eleanor Jorden; Messrs. G. B. Kelley, H. L. Kufner, R. L. Leed, P. Lowe, Jr., A. G. Lozano, G. M. Messing, J. McCoy, J. S. Noblitt, R. M. Quinn, D. F. Solá, F. C. van Coetsem, J. U. Wolff.

Linguistics Major

The major in linguistics has three prerequisites: (1) Linguistics 201-202; (2) Qualification in two languages, one from the familiar European group (Latin, Greek, French, Italian, Portuguese, Spanish, German, Russian) and one from the other languages offered at Cornell, with six hours beyond Qualification in one or the other of these two; (3) a two-semester sequence in a related discipline (e.g. the literature of the language in which six hours beyond Qualification was offered as a prerequisite, anthropology, computer science, mathematics, philosophy, psychology, or sociology). Completion of the major requires: (1) Linguistics 301, 303, 304; (2) a course in historical linguistics, either a course in historical method such as Linguistics 502 or the history of a specific language or family; (3) a minimum of eight additional hours in linguistics chosen in consultation with the adviser. Prospective majors should see Mr. Gair.

Distribution Requirement

Linguistics 201-202, or the combination Linguistics 201 and any other course for which Linguistics 201 is a prerequisite, satisfies the Distribution requirement in the social sciences.

201-202 Introduction to the Scientific Study of Language. *Throughout the year. Credit three hours a term. Lecture, M W F 9:05, 10:10, or 11:15. Messrs. Gair, Kelley, Kufner.* An introductory survey course designed to acquaint the student with the nature of human language and with its systematic study.

207 Practical Phonetics. *Fall term. Credit three hours. Prerequisite: Linguistics 202. M W 3:35-4:50. Mr. Agard.*

Linguistics and Psychology (Psychology 215).

301-302 The Structure of English. *Throughout the year. Credit four hours a term. Prerequisite: Linguistics 201-202 or consent of the instructor. M W F 11:15. Mr. Elliott.* The first term is devoted to a study of the structure of English from the point of view of modern transformational analysis. Emphasis is on enabling students to develop the skills of analysis, though current works on English grammar are also examined. The second term is divided into two segments. In the first segment, approaches to the semantic interpretation of English sentences are examined as a part of linguistic analysis. The second segment is devoted to practical

application of linguistics to the teaching of English as a second language.

303 Phonology. *Fall term. Credit four hours. Prerequisite: Linguistics 201. T Th 3:35-4:50. Mr. Agard.*

304 Morphology. *Spring term. Credit four hours. Prerequisite: Linguistics 201. T Th 3:35-4:50. Mr. Agard.*

306 Syntax. *Spring term. Credit four hours. Prerequisite: consent of the instructor. T Th 11:15-1:10. Mr. Gair.*

331 India as a Linguistic Area. *Fall term. Credit four hours. Given in alternate years. Prerequisite: Linguistics 202. Hours to be arranged. Mr. Gair.*

401 Linguistic Structures. *Fall term. Credit four hours. Prerequisite: consent of the instructor. T Th 11:15-1:10. Mr. R. B. Jones, Jr.*

403-404 Analytic Techniques. *Throughout the year. Credit four hours a term. Prerequisite: Linguistics 201-202. M W F 10:10. Mr. Hockett.*

406 Dialectology. *Spring term. Credit four hours. W 1:25-3:20. Mr. Hall.*

413-414 Linguistic Data Processing. *Throughout the year. Credit two hours a term. Prerequisites: Linguistics 201 and consent of the instructor. T Th 1:25; laboratory hour to be arranged. Mr. R. L. Jones.*

420 Applied Linguistics and Second Language Acquisition. *Spring term. Credit four hours. Prerequisite: structure of a language at 400 level. T Th 3:35. Mr. Noblitt.* Theoretical considerations contributing to a psycholinguistic model of second language acquisition, exploiting the techniques of descriptive, contrastive, and error analysis. Emphasis is placed on the specification of the learning task rather than on methodology.

432 Indo-Aryan Structures. *Spring term. Credit four hours. Given in alternate years. Prerequisite: Linguistics 201. Hours to be arranged. Mr. Gair.*

436 Dravidian Structures. *Spring term. Credit four hours. Given in alternate years. Prerequisite: Linguistics 201. Mr. Kelley.*

[441-442 History of the Romance Languages. *Throughout the year. Credit four hours a term. Given in alternate years. T Th 1:25-2:40. Mr. Agard. Not offered in 1971-72.]*

443-444 Comparative Romance Linguistics. *Throughout the year. Credit four hours a term. Given in alternate years. T Th 1:25-2:40. Mr. Hall.*

[445 Problems and Methods in Romance Linguistics. *Fall term. Credit four hours. Given every third year. W 1:25-3:20. Mr. Hall. Not offered in 1971-72.]*

[446 Romance Dialectology. *Spring term. Credit four hours. Given every third year. M W F 9:05. Mr. Hall. Not offered in 1971-72.]*

450 Areal Topics in Romance Linguistics. *Spring term. Credit four hours. Given every third year. M W F 9:05. Mr. Hall. May be repeated for credit.*

For complete descriptions of courses numbered 500 or above see the *Announcement of the Graduate School: Social Sciences*. If the course is not included there, consult the Graduate Field Representative.

502 Comparative Methodology. *Spring term. Credit four hours. Given in alternate years. Prerequisite: Linguistics 201-202. Th 1:25-3:20. Mr. Kufner.*

504 History of Linguistics. *Spring term. Credit four hours. Prerequisite: consent of the instructor. W 1:25-3:20. Mr. Hall.*

104 Russian

505 Literature, Language, and Culture. *Fall term. Credit four hours. W 1:25-3:20. Mr. Hall.*

[506 Pidgin and Creole Languages. *Spring term. Credit four hours. M W F 11:15. Mr. Hall. Not offered in 1971-72.]*

507-508 Field Methods and Linguistic Typology. *Throughout the year. Credit four hours a term. Prerequisite: for 507, Linguistics 404 or consent of the instructor. M W F 9:05. Mr. Hockett.*

511-512 Accoustical Phonetics. *Throughout the year. Credit four hours a term. Prerequisite: consent of the instructor. Hours to be arranged. Mr. Cowan.*

513-514 Transformational Analysis. *Throughout the year. Credit four hours a term. T Th 10:10-12:05. Mr. Elliott and Mr. Bowers.*

515-516 Sociolinguistics. *Throughout the year. Credit four hours a term. Given in alternate years. Prerequisite: consent of the instructor. Hours to be arranged. Mr. Kelley.*

520 Topics in Transformational Grammar. *Either term. Credit three hours. Prerequisite: consent of the instructor. W 3-5. Mr. Bowers and Mr. Elliott.*

[521-522 Comparative Indo-European Linguistics. *Throughout the year. Credit four hours a term. Prerequisite: consent of the instructor. Hours to be arranged. Mr. Messing. Given in alternate years. Not offered in 1971-72.]*

530 Elementary Pali. *Either term according to demand. Credit three hours. Hours to be arranged. Mr. Gair.*

531-532 Elementary Sanskrit. *Throughout the year. Credit three hours a term. Given in alternate years. T 1:25-3:20. Mr. Messing.*

[534 Comparative Indo-Aryan. *Spring term. Credit four hours. Prerequisites: Linguistics 201-202 or the equivalent of an Indo-Aryan language. Hours to be arranged. Mr. Kelley. Given in alternate years. Not offered in 1971-72.]*

[536 Comparative Dravidian. *Spring term. Credit four hours. Prerequisites: Linguistics 201-202 or the equivalent of a Dravidian language. Hours to be arranged. Mr. Kelley. Given in alternate years. Not offered in 1971-72.]*

537-538 Old Javanese. *Throughout the year. Credit four hours a term. Hours to be arranged. Mr. Echols.*

561-562 Comparative Slavic Linguistics. *Throughout the year. Credit four hours a term. Given in alternate years. Prerequisite: consent of the instructor. Hours to be arranged. Mr. Foos.*

571-572 Seminar in Southeast Asian Languages. *Throughout the year. Credit four hours a term. Prerequisites: Linguistics 201-202 and consent of the instructor. Hours to be arranged. Mr. R. B. Jones, Jr.*

573-574 Malayo-Polynesian Linguistics. *Throughout the year. Credit four hours a term. Prerequisites: Linguistics 201-202 and consent of the instructor. Hours to be arranged. Mr. Wolff.*

577 Thai Dialectology. *Fall term. Credit four hours. Prerequisites: Linguistics 202 and consent of the instructor. Th 2:30-4:25. Mr. R. B. Jones, Jr.*

578 Comparative Thai. *Spring term. Credit four hours. Prerequisites: Linguistics 502 or equivalent and consent of the instructor. Th 2:30-4:25. Mr. R. B. Jones, Jr.*

579 Tibeto-Burman Linguistics. *Fall term. Credit four hours. Prerequisites: Linguistics 502 or equivalent and consent of the instructor. T 2:30-4:25. Mr. R. B. Jones, Jr.*

582 Sino-Tibetan Linguistics. *Spring term on student demand. Credit four hours. Prerequisites: Linguistics 201-202 or Chinese 401-402 and consent of the instructor. Th 2:30-4:25. Mr. Bodman.*

[583 Contrastive Vietnamese and Chinese Grammar. *Either term. Credit three hours. Prerequisite: consent of the instructor. Hours to be arranged. Mr. Quinn. Not offered in 1971-72.]*

600 Seminar. *Either term. Credit to be arranged. Prerequisite: consent of the instructor. Hours to be arranged. Staff.*

615-616 Directed Research.

Related linguistics courses offered in other departments are: Anthropology 520; Classics 421, 422; English 383, 501; Philosophy 215, 415, 590, 595; and Psychology 215, 313, 416.

Portuguese

Mr. F. B. Agard.

101-102 Basic Course. *Throughout the year. Credit six hours a term. M-F 2:30, and an additional two hours to be arranged.*

131-132 Elementary Course. *Throughout the year. Credit three hours a term. Prerequisites: Qualification in Spanish and consent of the instructor. M W F 10:10 and an additional hour to be arranged. A basic course designed principally for students majoring in Spanish or interested especially in Portugal or Brazil. Phonology, grammar, listening comprehension, and reading.*

203-204 Composition and Conversation. *Throughout the year. Credit three hours a term. Prerequisite: for 203, Qualification in Portuguese; for 204, Portuguese 203 or consent of the instructor. M-F 11:15.*

303-304 Advanced Composition and Conversation. *Throughout the year. Credit four hours a term. Prerequisite: Portuguese 204. Hours to be arranged.*

305-306 Advanced Readings. *Throughout the year. Credit four hours a term. Prerequisite: Portuguese 304. Hours to be arranged. Designed for students needing further practice in reading Portuguese that is not literary.*

Quechua

Mr. D. F. Solá.

133-134 Intermediate Course. *Throughout the year. Credit three hours a term. Prerequisites: Qualification in Spanish and Quechua 101S (see Announcement of the Summer Session) or comparable experience. T Th 11:15-1:10. An intermediate course in the Cuzco dialect of Quechua, emphasizing basic auditory comprehension and verbal control.*

For complete descriptions of courses numbered 500 or above see the *Announcement of the Graduate School: Social Sciences*. If the course is not included there, consult the Graduate Field Representative.

600 Seminar in Quechua Linguistics. *Either term. Credit to be arranged. Prerequisite: consent of the instructor. Hours to be arranged. Mr. Solá.*

Russian

Miss Patricia Carden; Messrs. H. W. Chalsma, F. A. Foos, G. Gibian; Miss Antonia Glasse; Mr. R. L. Leed; Mrs. Alla Novosilzov, Mr. V. Ripp.

Russian Major

Russian majors study Russian language, literature, and linguistics, with emphasis placed in accordance with their specific interests.

It is desirable, although not necessary, for a prospective major to complete Russian 101-102, 201-202, 203-204 as a freshman or sophomore since these courses are prerequisite to most of the junior and senior courses which count toward the major. A student may be admitted to the major upon satisfactory completion of Russian 102 or the equivalent.

Students who elect to major in Russian should consult with Mr. Gibian or Mr. Leed as soon as possible.

For a major in Russian a student will be required to complete: (1) Russian 303-304 or the equivalent; (2) twenty-four hours from 300- and 400-level literature and linguistics courses of which twelve hours must be in literature in the original.

Prospective teachers of Russian in secondary schools should take Linguistics 201 in the freshman or sophomore year, followed by Russian 403-404.

The Honors Program

Students taking Honors in Russian undertake individual reading and research, write an Honors essay, and take a comprehensive examination at the end of the senior year.

Distribution Requirement

The Distribution Requirement in the Humanities is satisfied in Russian by Russian literature courses on the 200-level and above, if these courses are not used in fulfillment of the language requirement.

101-102 Basic Course. *Throughout the year. Credit six hours a term. Students who have previously studied Russian should consult p. 11 before registering for this course. Drill, M-F 8, 9:05, 10:10, 11:15, or 12:20; lectures, M W 2:30 or T Th 11:15.*

103 Freshman Seminar: Russian Literature. *Fall term. Credit three hours.*

104 Freshman Seminar: Russian Literature. *Spring term. Credit three hours. For description, see Freshman Humanities Program, p. 29.*

131S-132S, 133S-134S Elementary Course in Slavic Languages. *Throughout the year. Credit three hours a term. Prerequisites: Qualification in Russian or consent of the instructor. Hours to be arranged. Staff. In a given year one of the following languages will be offered according to demand: Serbo-Croatian, Bulgarian, Slovenian, Polish, or Czech.*

131-132 Elementary Reading Course. *Throughout the year. Credit three hours a term. Students who have previously studied Russian should consult p. 11 before registering for this course. Sections: M W F 8, 11:15, 12:20, or 3:35; lecture, T 2:30 or W 1:25.*

133-134 Elementary Reading Course II. *Throughout the year. Credit three hours a term. Prerequisite: Russian 132 or the equivalent. Sections: M W F 1:25 or 3:35; lecture, Th 2:30.*

201-202 Introduction to Russian Literature. *Throughout the year. Credit three hours a term. Prerequisite: Qualification in Russian. (For definition of Qualification, see p. 15.) M W F 10:10. Completion of this series is the prerequisite for all 300 and 400 courses where the reading is done in Russian. Open to Freshmen as a Humanities Seminar. Mr. Ripp.*

203-204 Composition and Conversation. *Throughout the year. Credit three hours a term. Prerequisite: Qualification in Russian. (For definition of Qualification see p. 15.) M W F 10:10, 12:20 or 1:25; lecture T 9:05 or 10:10.*

Russian Literature (Comparative Literature 207-208).

The Writer, His Work, and His World (Comparative Literature 215).

292 Supervised Reading in Russian Literature. *Either term. Variable credit. By initiation of the Department.*

301-302 Advanced Russian Morphology and Syntax. *Throughout the year. Credit four hours a term. Prerequisite: Russian 202 or 203. Hours to be arranged.*

303-304 Advanced Composition and Conversation. *Throughout the year. Credit four hours a term. Prerequisite: for 303, Russian 204. M W F 11:15 and an additional hour to be arranged. Mrs. Novosilzov. Emphasis is placed upon increasing the student's oral and written command of Russian. Advanced grammar, syntax, usage, idiomatic expressions. Oral reports, group discussion, selected readings of classic and Soviet writers.*

314 Intellectual Background of Russian Literature, 1750-1860. *Spring term. Credit four hours. Conducted in Russian. M W F 12:20. Miss Glasse.*

331 Russian Poetry. *Fall term. Credit four hours. Prerequisites: Russian 202 and the consent of the instructor. M W F 1:25 and an additional hour to be arranged. Mr. Chalsma.*

332 Russian Theater and Drama. *Spring term. Credit four hours. Conducted in Russian. M W F 10:10. Miss Glasse.*

The Russian Novel (Comparative Literature 367).

Soviet Literature (Comparative Literature 368).

[369 Dostoevsky. *Fall term. Credit four hours. M W F 1:25. Mr. Chalsma. Not offered in 1971-72.]*

[401-402 History of the Russian Language. *Throughout the year. Credit four hours a term. Prerequisites: Qualification in Russian and Linguistics 201. Hours to be arranged. Mr. Leed. Given in alternate years. Not offered in 1971-72.]*

403 Linguistic Structure of Russian. *Fall term. Credit four hours. Prerequisites: Qualification in Russian and Linguistics 201-202. Hours to be arranged. Mr. Leed. A descriptive study and analysis of Russian linguistic structure, morphology, and syntax.*

404 Russian for Teachers. *Spring term in alternate years. Credit four hours. Prerequisites: Qualification in Russian, Linguistics 201, and Russian 403. Hours to be arranged. Mr. Leed. Methods of teaching the language based on a contrastive study of the structures of English and Russian. Extensive outside reading, reports on textbooks, discussion of various teaching aids and realia. Required for provisional New York State teacher certification.*

421 Supervised Reading and Research. *Either term. Credit to be arranged. Prerequisite: consent of the Department.*

431 Russian Prose Fiction. *Fall term. Credit four hours. Prerequisites: Russian 202 or the equivalent and consent of the instructor. T Th 2:30 and an additional hour to be arranged. Mr. Ripp.*

432 Pushkin. *Spring term. Credit four hours. Prerequisites: Russian 202 or the equivalent, and the consent of the instructor. T Th 1:25. Mr. Chalsma.*

[435 Gogol. *Fall term. Credit four hours. Prerequisites: Russian 202 or the equivalent and the consent of the instructor. M W F 10:10. Not offered in 1971-72.]*

436 Turgenev and Other Prose Writers of His Time. *Spring term. Credit four hours. Prerequisites: Russian*

202 or the equivalent and the consent of the instructor. Hours to be arranged. Mr. Ripp.

Origins of the Avant-Garde (Comparative Literature 472).

493 Honors Essay Tutorial. Either term. Credit four hours.

For complete descriptions of courses numbered 500 or above see the *Announcement of the Graduate School: Social Sciences*. If a course is not included there, consult the Graduate Field Representative.

[501 Old Church Slavic. Fall term. Credit four hours. Hours to be arranged. Not offered in 1971-72.]

[502 Old Russian. Spring term. Credit four hours. Hours to be arranged. Mr. Foos. Not offered in 1971-72.]

517 Russian Stylistics. Fall term. Credit four hours. Conducted in Russian. M W F 11:15. Miss Glasse.

[518 Russian Stylistics. Spring term. Credit four hours. Conducted in Russian. Hours to be arranged. Miss Glasse. Not offered in 1971-72.]

[520 Studies in Russian Poetry. Spring term. Credit four hours. Hours to be arranged. Mr. Chalsma. Not offered in 1971-72.]

521 Russian Literature from the Beginnings to 1700. Fall term. Credit four hours. M W 3:30-4:30. Miss Garden.

[522 Eighteenth-Century Literature. Fall term. Credit four hours. Hours to be arranged. Conducted in Russian. Miss Glasse. Not offered in 1971-72.]

[523 Early Nineteenth-Century Literature. Spring term. Credit four hours. Hours to be arranged. Conducted in Russian. Prerequisite: Russian 522 or consent of the instructor. Miss Glasse. Not offered in 1971-72.]

524 Mid-Nineteenth-Century Literature. Fall term. Credit four hours. Conducted in Russian. Hours to be arranged. Miss Glasse.

[528 Topics in Soviet Literature. Fall term. Credit four hours. M W F 2:30. Not offered in 1971-72.]

Comparative Slavic Linguistics (Linguistics 561-562).

600 Seminar in Slavic Linguistics. According to demand. Credit four hours. Hours to be arranged. Mr. Leed, or Mr. Foos.

601 Introduction to Graduate Study. Fall term. Credit four hours. S-U grades only. T 3:35-5:30. Mr. Gibian and Staff.

604 Seminar in Application of Linguistics to Analysis of Slavic Literature. Fall term. Credit four hours. Prerequisite: consent of the instructor. Hours to be arranged. Mr. Foos.

611 Seminar in Russian Dialect Geography. Fall term. Credit four hours. Prerequisite: Consent of the instructor. Hours to be arranged. Mr. Leed.

671 Seminar in Nineteenth-Century Russian Literature. Fall term. Credit four hours. Th. 3:35-5:30. Mr. Gibian.

672 Seminar in Twentieth-Century Russian Literature. Spring term. Credit four hours. Th 3:35-5:30. Mr. Chalsma. Topic in 1972: Emigré Literature.

Sinhalese

Mr. J. W. Gair.

101-102 Basic Course. Throughout the year. Credit six hours a term. M-F 9:05 and T Th 10:10.

201-202 Sinhalese Reading. Throughout the year. Credit three hours a term. Prerequisite: Qualification in Sinhalese. Hours to be arranged.

203-204 Composition and Conversation. Throughout the year. Credit three hours a term. Prerequisite: for 203, Sinhalese 203 or consent of the instructor. Hours to be arranged.

(See also Linguistics 331, 432, 521, 522, 530, 532, 534.)

Spanish

Messrs. F. B. Agard, C. M-Arroyo, D. Brenes; Mrs. Armanda Chacona; Mr. R. O. González, Miss L. Kerr, Messrs. J. W. Kronik, A. G. Lozano; Miss Alice Michtom; Messrs. D. Nasjleti, D. F. Sola.

Spanish Major

The Spanish major is designed to give the student proficiency in the oral and written language, to acquaint him with the culture of Spain and Spanish America, and to develop his skill in literary analysis. Satisfactory completion of the major should enable the student to meet language and literature requirements for a provisional teaching certificate, to continue with graduate work in Spanish, or to satisfy standards for acceptance into the training programs of the government, social agencies, or business concerns.

The student electing to major in Spanish will work out his plan of studies in consultation with his adviser. The student's previous training and his interests will be taken into account, and he is encouraged to take related courses in fields such as history, philosophy, anthropology, linguistics, art, music, Classics, English, comparative literature, and other foreign languages and literatures. Interested students are encouraged to seek faculty advice about the major as early as possible.

The student majoring in Spanish must have had Spanish 201 and 204 or their equivalent and is normally expected to complete: (1) 311-312 and 303-304 or the equivalent of the latter two courses; (2) twenty-four additional hours in Spanish literature, including at least two 400-level courses; and (3) 403.

Spanish majors are encouraged to spend all or part of their junior year in Spain or another of the Spanish-speaking countries on one of the study-abroad programs organized by American universities, which allow the transfer of grades and credits.

For acceptance into the major the student must have approval of the chairman of the Department of Romance Studies and of the major adviser, Mr. Brenes.

The Honors Program

The Honors program in Spanish is open to superior students who wish to undertake guided independent reading and research in an area of their choice. The student in his senior year selects a member of the Spanish faculty who will supervise his work and direct the writing of his Honors essay.

Distribution Requirement

The Distribution requirement in the Humanities is satisfied in Spanish by any two of the following courses: Spanish 201, 311, 312; but no course may be counted if it is used in fulfillment of the language requirement.

Of the courses listed below, those dealing with literature, as well as Spanish 111-112, are staffed and administered by the Department of Romance Studies, and inquiries in regard to them should be addressed to that Department (Goldwin Smith 278).

The courses dealing with language and linguistics (except 111-112) are offered by the Division of Modern Languages, and administered by that Division (Morrill 106).

Language and Linguistics

101-102 Basic Course. *Throughout the year. Credit six hours a term. Students who have previously studied Spanish should consult p. 11 before registering for this course. Drill M-F 8, 9:05, 10:10; lecture M W 2:30.*

111-112 Basic Course. *Throughout the year. Credit three hours. M W F 9:05. Mr. Brenes.* A beginning course specially designed to develop in the student the ability to read literary texts as early as possible. It also seeks to give the student oral control of the material he learns so that he can understand spoken Spanish and can make himself understood by a native speaker of Spanish.

Students eligible for Spanish 101 are eligible for 111 but preference is given to students who have had no previous work in Spanish. Students who have completed 111 or 101 are eligible for 112.

131-132 Elementary Reading Course I. *Throughout the year. Credit three hours a term. Students who have previously studied Spanish should consult p. 11 before registering for this course. M W F 11:15 or 12:20; lecture T 9:05.*

133-134 Elementary Reading Course II. *Throughout the year. Credit three hours a term. Prerequisite: Spanish 132 or the equivalent. M W F 12:20 or 1:25; lecture, Th 9:05.*

203 Intermediate Composition and Conversation. *Either term. Credit three hours. Prerequisite: Qualification in Spanish. (For definition of Qualification see p. 15.) Fall term: M-F 9:05, 10:10, 11:15, or 12:20. Spring term: M-F 8 or 12:20, or 1:25.* Guided conversation, grammar review, and oral and written composition. Emphasis is on increasing the student's oral and written command of Spanish.

204 Intermediate Composition and Conversation. *Spring term. Credit three hours. Prerequisite: Spanish 203. M-F 9:05, 10:10, 11:15, or 12:20.* The study of advanced grammar. Exercises designed to improve the student's ability to speak, read, and write Spanish.

303-304 Advanced Composition and Conversation. *Throughout the year. Credit four hours a term. Prerequisite: Spanish 204. M-F 10:10.* The study of fundamental aspects of style in standard spoken Spanish; advanced problems in comparative usage in English and Spanish. Frequent oral and written reports in Spanish are required. Extensive reading in current Spanish language publications. The study of fundamental aspects of style in standard written Spanish. Cultural content is oriented to Spain in the fall semester and to Spanish America in the spring semester.

401 History of the Spanish Language. *Fall term. Credit four hours. Prerequisites: Qualification in Spanish and Linguistics 201. T Th 1:25-2:40. Mr. Sola.*

402 Old Spanish Texts. *Spring term. Credit four hours. Prerequisite: Qualification in Spanish. T Th 1:25-2:40. Mr. Sola.*

403 The Grammatical Structure of Spanish. *Fall term. Credit four hours. Prerequisites: Qualification in Spanish and Linguistics 201. M W F 2:30. Mr. Lozano.* Descriptive analysis of the morphological and syntactical structure of present-day standard Spanish.

404 Spanish for Teachers. *Spring term. Credit four hours. Prerequisites: Qualification in Spanish and Linguistics 201. M W F 2:30. Mr. Lozano.* A course in methodology and applied linguistics for prospective teachers of the Spanish language. A survey of current attitudes, methods, materials, and techniques. The application of descriptive linguistics to the organization of lesson material, illustrated mainly through the

contrastive study of Spanish and English phonology. Required for provisional New York State teacher certification.

The Comparative Study of the Romance Languages (See Linguistics 441-442, 443-444, 445, 446, 450).

For complete descriptions of courses numbered 500 or above see the *Announcement of the Graduate School: Social Sciences*. If a course is not included there, consult the Graduate Field Representative.

[501 Linguistic Structures of Ibero-Romance. *Fall term. Credit four hours. Prerequisite: consent of the instructor. M W F 1:25. Mr. Lozano. Given every third year; scheduled for 1972-73.* A study in depth of one of the Iberian languages or dialects other than Castilian.]

[502 Hispanic Dialectology. *Fall term. Credit four hours. Prerequisite: consent of the instructor. T Th 1:25-2:40. Mr. Sola. Given every third year; scheduled for 1973-74.* The study of phonological, grammatical, and lexical variation in peninsular and American dialects of Spanish.]

503 Contemporary Theories of Spanish Phonology. *Fall term. Credit four hours. Given every third year. Prerequisite: consent of the instructor. T Th 3-4:15. Mr. Sola.*

504 Contemporary Theories of Spanish Grammar. *Spring term. Credit four hours. Given every third year. Prerequisite: consent of the instructor. M W F 1:25. Mr. Lozano.*

600 Seminar in Ibero-Romance Linguistics. *According to demand. Credit four hours. Hours to be arranged.*

Literature

201 Introduction to Spanish Literature. *Either term. Credit three hours. Prerequisite: Qualification in Spanish or consent of the instructor. (For definition of Qualification, see p. 15.) Fall term, M W F 8:00 or 2:30; T Th S 8:00 or 9:05. Spring term, M W F 8:00, 9:05; T Th S 9:05. Mr. Kronik, Mr. González, Miss Kerr, and staff.* An intermediate reading course in which Spanish texts of established literary quality are read and analyzed. The purpose is two-fold: to develop reading and speaking facility through acquisition of vocabulary and idiom, and to develop methods and habits of critical appreciation of a foreign literature. Class discussion is conducted mainly in Spanish. The literature course which normally follows Spanish 201 is Spanish 311 or 312.

205 Alienated Heroes in Hispanic Literature. *Fall term. Credit three hours. M W F 10:10. Mr. González.* For description see Freshman Humanities Program, p. 29.

206 The Modern Spanish Drama (in translation). *Spring term. Credit three hours. M W F 10:10. Mr. Kronik.* For description see Freshman Humanities Program, p. 29.

311-312 Masterpieces of Hispanic Literature. *Throughout the year. Credit four hours a term. Prerequisite: Spanish 201, four years of entrance Spanish, or consent of the instructor. First term not prerequisite to the second. Fall term: 311, M W F 9:05. Spring term: 312, M W F 1:25 or T Th S 10:10. Mr. Arroyo, Mr. González and Miss Kerr.* Reading and discussion of representative works of Spanish and Spanish American literature. Works chosen are read in their entirety. The texts chosen for the first semester are primarily from the Renaissance and the Golden Age. Second semester deals with the nineteenth and twentieth centuries. Class conducted in Spanish.

329 Spanish American Literature to "Modernismo". Fall term. Credit four hours. Prerequisite: Spanish 311 or 312 or consent of the instructor. T Th 11:15-12:30. Miss Kerr. Study of major works in the various genres from the colonial period through the nineteenth century.

330 Spanish American Literature from "Modernismo" to the Present. Spring term. Credit four hours. Prerequisite: Spanish 311 or 312 or consent of the instructor. T Th 11:15-12:30. Miss Kerr. Study of major works in the various genres from Dario to the contemporary generation.

[331 The Twentieth-Century Spanish American Drama. Fall term. Credit four hours. Not offered in 1971-72.]

[336 The Modern Spanish American Novel. Spring term. Credit four hours. Not offered in 1971-72.]

[338 Modern Spanish American Poetry. Spring term. Credit four hours. Not offered in 1971-72.]

[389 The Generation of 1898. Fall term. Credit four hours. Not offered in 1971-72.]

395 The Post-Civil War Novel in Spain. Fall term. Credit four hours. Prerequisite: Spanish 311 or 312 or consent of the instructor. M W F 1:25. Mr. Kronik. The search for form and the search for social expression in the contemporary generation of novelists: Cela, Delibes, Sánchez Ferlosio, Matute, and others. Conducted in Spanish.

419-420 Special Topics in Hispanic Literature. Throughout the year. Credit four hours a term. Prerequisite: consent of the instructor. Staff. Guided independent study of specific topics.

429-430 Honors Work in Hispanic Literature. Throughout the year. Credit four hours a term. Prerequisite: senior status and consent of instructor. Staff.

[440 Medieval Literature. Spring term. Credit four hours. Not offered in 1971-72.]

[455 The Picaresque Novel. Fall term. Credit four hours. Not offered in 1971-72.]

[462 Drama of the Spanish Golden Age. Spring term. Credit four hours. Not offered in 1971-72.]

465-466 Cervantes. Throughout the year. Credit four hours a term. Prerequisite: Spanish 311 or 312 or consent of the instructor. First term not prerequisite to the second. Hours to be arranged. First meeting in Goldwin Smith 288 at 4:30 on first day of instruction. Mr. Brenes. Fall term: *Don Quijote*, Part I, and the *Novelas ejemplares*. Spring term: *Don Quijote*, Part II, the *Persiles*, and dramatic works.

468 Poetry of the Spanish Golden Age. Spring term. Credit four hours. Prerequisite: Spanish 311 or 312 or consent of the instructor. M W F 10:10. Mr. González. Transformations of the Italianate and traditional Castilian poetic idioms from Garcilaso to the Baroque, including Fray Luis de León, San Juan de la Cruz, Góngora, Quevedo.

469 Golden Age Literature: Mysticism. Fall term. Credit four hours. Prerequisite: Spanish 311 or 312 or consent of the instructor. T Th 3:35-4:50. Mr. Arroyo. A study of the main spiritual movements in sixteenth-century Spain. Intensive analysis of the works of Santa Teresa, Fray Luis de León, and San Juan de la Cruz. Conducted in Spanish.

[480 Romanticism in Spain. Spring term. Credit four hours. Not offered in 1971-72.]

[482 Eighteenth and Nineteenth-Century Spanish Drama. Spring term. Credit four hours. Not offered in 1971-72.]

486 The Nineteenth-Century Spanish Novel. Spring term. Credit four hours. Prerequisite: Spanish 311 or 312 or consent of the instructor. M W F 11:15. Mr. Kronik. Topic: Galdós and Clarín. Intensive study of their major novels with focus on both thematic and structural problems.

[492 Contemporary Spanish Drama. Spring term. Credit four hours. Not offered in 1971-72.]

594 Graduate Seminar in Spanish Literature: José Ortega y Gasset. Spring term. Credit four hours. W 3:35-5:15. Mr. Arroyo. Study of Ortega's major works and his philosophical development, with special emphasis on his aesthetic ideas.

630 Principles of Esthetics and Literary Criticism. Fall term. Credit four hours. Th 1:25-3:05. Mr. Arroyo. Problems in the definition of art; the classifications of the arts; the functions of language and literary art; metaphor, symbol, and the problem of realism; the problem of literary genres; main trends in literary criticism from the Renaissance to the present.

639-640 Special Topics in Hispanic Literature. Throughout the year. Credit four hours a term. To be taken by all new graduate students. Hours to be arranged. Staff.

Swedish

Mr. J. M. Echols.

131-132 Elementary Reading Course. Throughout the year. Credit three hours a term. Hours to be arranged. Mr. Echols.

Tagalog

Mr. J. U. Wolff.

101-102 Basic Course. Throughout the year. According to demand. Credit six hours a term. Prerequisite: consent of the instructor. Hours to be arranged.

201-202 Tagalog Reading. Throughout the year. Credit three hours a term. Prerequisite: Tagalog 102. Hours to be arranged.

403 Linguistic Structure of Tagalog. Either term. Credit four hours. Prerequisite: Linguistics 201. Hours to be arranged. Mr. Wolff.

Tamil

Mr. J. W. Gair.

101-102 Basic Course. Throughout the year. According to demand. Credit six hours a term. Prerequisite: consent of the instructor. Hours to be arranged.

Teiugu

Mr. G. B. Kelley.

101-102 Basic Course. Throughout the year. Credit six hours a term. Drill, M-F 9:05; lecture, T Th 10:10.

201-202 Teiugu Reading. Throughout the year. Credit three hours a term. Prerequisite: Qualification in Telugu. Hours to be arranged.

(See also Linguistics 331, 436, 536.)

Thai

Mr. R. B. Jones, Jr.; Mrs. Ruchira Mendiones.

101-102 Basic Course. Throughout the year. Credit six hours a term. M-F 9:05, T Th 10:10.

201-202 Thai Reading. *Throughout the year. Credit three hours a term. Prerequisite: for 201, Qualification in Thai; for 202, Thai 201 or consent of the instructor. Hours to be arranged. Mr. Jones.*

203-204 Composition and Conversation. *Throughout the year. Credit three hours a term. Prerequisite: for 203, Qualification in Thai; for 204, Thai 203 or consent of the instructor. Hours to be arranged. Mr. Jones.*

301-302 Advanced Thai. *Throughout the year. Credit four hours a term. Prerequisite: Thai 201-202 or the equivalent. Hours to be arranged. Mr. Jones. Selected readings in Thai writings in various fields.*

305-306 Thai Literature. *Throughout the year. Credit four hours a term. Prerequisite: Thai 301-302 or consent of the instructor. Hours to be arranged. Mr. Jones. Reading of some of the significant novels, short stories, and letters written since 1850.*

405-406 Directed Individual Study. *Throughout the year. For advanced students. Credit four hours a term. Prerequisite: consent of the instructor. Mr. Jones.*

Urdu

Mr. G. B. Kelley.

101-102. Basic Course. *Throughout the year. Credit six hours a term. Drill, M-F 9:05; lecture, T Th 10:10. (See also Linguistics 331, 432, 521, 522, 530, 531, 532, 534)*

201-202 Urdu Reading. *Throughout the year. Credit three hours a term. Prerequisite: Qualification in Urdu. Hours to be arranged.*

Vietnamese

Mr. R. M. Quinn.

101-102 Basic Course. *Throughout the year. Credit six hours a term. Hours to be arranged.*

201-202 Vietnamese Reading. *Throughout the year. Credit three hours a term. Prerequisite: for 201, Qualification in Vietnamese; for 202, Vietnamese 201 or consent of the instructor. Hours to be arranged. Mr. Quinn.*

203-204 Composition and Conversation. *Throughout the year. Credit three hours a term. Prerequisite: for 203, Qualification in Vietnamese; for 204, Vietnamese 203 or consent of the instructor. Hours to be arranged. Mr. Quinn.*

301-302 Advanced Vietnamese. *Throughout the year. Credit four hours a term. Prerequisite: Vietnamese 201-202 or consent of the instructor. Hours to be arranged. Mr. Quinn.*

305-306 Vietnamese Literature. *Throughout the year. Credit four hours a term. Prerequisite: Vietnamese 301-302 or consent of the instructor. Hours to be arranged. Messrs. Jones and Quinn. Reading of selections from contemporary literature.*

405-406 Directed Individual Study. *Throughout the year for advanced students. Credit four hours a term. Prerequisite: consent of the instructor. Mr. Quinn.*

Music

Mr. H. E. Samuel, Chairman; Messrs. W. W. Austin, M. Bilson, R. Bloch, W. J. Davis, G. C. Green, J. T. H. Hsu, K. Husa, R. M. Palmer, D. R. M. Paterson, D. M. Randel, T. A. Sokol, M. W. Stith; Miss Barbara Troxell; Mr. N. A. Zaslaw.

There are two options available to the student planning to major in music. At the core of both options is a program which carries the study of music to an advanced level through the deliberate integration of performance, music theory, and music history. This core program sets standards which the Department of Music believes all serious students of music must meet, regardless of the role which music may ultimately play in their lives. *Option I* is designed to allow the student greater opportunity to elect courses in fields other than music. *Option II* is designed for the student interested in a more specialized program with a view toward graduate study and a career in music.

Option I presupposes some musical background and the satisfactory completion of Music 151-152 by the end of the sophomore year. Students unable to meet the requirements for admission to Music 151 must elect Music 141-142 as freshmen. The student will be expected to pass a keyboard examination, normally by the end of the sophomore year.

Required for the Bachelor of Arts degree with a major in music under *Option I* are four semester courses in music theory (351-352 and 353 or 451), three semester courses in music history (381-382 plus one other), and four semesters of participation in a musical organization or ensemble.

Option II presupposes considerable musical studies before entering and the satisfactory completion of Music 251-252, normally by the end of the sophomore year. The student will be expected to pass a keyboard examination, normally by the end of the sophomore year.

Required for the Bachelor of Arts degree with a major in music under *Option II* are three semester courses in music theory (351-352 and 353 or 451), three semester courses in music history (381-382 plus one other), and two semesters of participation in a musical organization.

In addition, the student majoring in music under *Option II* will concentrate in one of the following areas:

A. Performance. The student who has shown exceptional promise as a performer during his freshman and sophomore years may concentrate in performance by electing, during his junior and senior years, four semesters of private instruction in his major instrument plus two semesters of chamber music. These courses may include Music 401-402, Honors in Music.

B. Theory and Composition. The student concentrating in theory and composition will elect, during his junior and senior years, four additional semester courses in this area plus Music 462 or 463. These courses may include Music 401-402, Honors in Music.

C. Music History. The student concentrating in music history will elect, during his junior and senior years, four additional semester courses in this area plus Music 462 or 463. These courses may include Music 401-402, Honors in Music. Two of the four may be drawn from the offerings of other departments.

Students contemplating a program in music under either option should arrange for placement examinations and auditions during the orientation period of the freshman year or earlier if possible. Before entering the major, each student should choose an adviser from among the department's faculty members.

The Honors Program

The Honors program in music is intended to provide a special distinction to the Department's ablest undergraduate majors. To become a candidate for Honors in music a student must be invited by the faculty at the beginning of the second semester of his junior year. As soon as possible thereafter the student will

form a committee of three faculty members to guide and evaluate his Honors work. In his senior year he will enroll in Music 401-402 with the chairman of his Honors committee as instructor. He will be encouraged to formulate a program that will allow him to demonstrate his total musical ability. The level of Honors conferred will be based on the whole range of his independent work in this program of which a major part will culminate in his Honors thesis, composition, or recital, to be presented not later than April 1, and a comprehensive examination to be held not later than May 1.

Distribution Requirement

The Distribution requirement in the expressive arts is satisfied in music with any six hours in music, except Music 127. A maximum of three hours in courses from Music 331 through 338 and 441 through 444 may be used to satisfy this requirement.

Facilities

A large collection of recorded music and scores is housed in the Department of Music, where listening facilities are provided in the Music Library. These facilities may be used by any member of the student body at hours to be announced each term.

Choral and instrumental ensembles are trained and directed by members of the departmental staff each term, and all students who are interested are invited to join one or more of these groups. These ensembles include the Sage Chapel Choir, the Cornell Chorus, the Cornell University Glee Club, the Bands (Marching Band, Wind Ensemble, Symphonic Band, Brass Ensembles), the Cornell Symphony Orchestra, the Cornell Chamber Orchestra, and Chamber Music groups. For rehearsal hours and conditions for academic credit, see Music 331 through 338 and 441 through 444. Announcements of tryouts for all organizations will be made at the beginning of the fall term.

Music Theory

141 Basic Techniques of Music. *Either term. Credit three hours. May not be counted toward the requirements for the major in music. Ability to sing on pitch is required for admission; some ability to play an instrument is desirable. Fall term: M W 9:05, Th 12:20-2:15, Messrs. Bloch and Green. Spring term: M W 1:25, T 2:30-4:25, Mr. Randel.* Study of the fundamental techniques of music. Includes rhythmic, melodic, and harmonic dictation; sight singing; writing of melody and simple four-part harmony.

142 Basic Techniques of Music. *Spring term. Credit three hours. Prerequisite: Music 141. M W 9:05, Th 12:20-2:15. Mr. Green.* Introduction to analysis and simple contrapuntal writing for voices and instruments.

151-152 Elementary Theory. *Throughout the year. Credit four hours a term. Students intending to major in music under Option II should enroll in Music 151-152 during their freshman year. A knowledge of the rudiments of music and some ability to perform are required for admission. Registration for this course is provisional, depending upon the demonstration of adequate background and ability in proficiency tests given at the beginning of the term. M W F 9:05 and Th 2:30. Mr. Paterson.* Designed for students expecting to major in music and other qualified students. An integrated theory course required for admission to the music major. Detailed study of the fundamental elements of tonal music: rhythm, scales, intervals, triads; melodic movement, two-part counterpoint, harmonic progression in the chorale style of J. S. Bach; and

introduction to analysis of small forms. Drill in aural discrimination, sight singing, keyboard harmony, and elementary figured bass; rhythmic, melodic, and harmonic dictation; and score reading.

251-252 Intermediate Theory. *Throughout the year. Credit four hours a term. Prerequisite: Music 152 or the equivalent. M W F 10:10, Th 1:25-3:00.* Continuation of study and writing in the chorale style of J. S. Bach, concentrating on seventh chords; also study of secondary dominants, modulation, augmented sixth chords, and the Neapolitan. Introduction to writing small forms using piano textures, combined with analysis of larger forms and sonatas. Analysis and writing of two- and three-voice chorale preludes. Ear training, keyboard harmony, and score reading.

351-352 Advanced Theory. *Throughout the year. Credit four hours a term. Prerequisite: Music 252 or the equivalent. M W 11:15 and another hour to be arranged. Mr. Bloch.* 351: Inventions, chromatic harmony, analysis of larger forms and nineteenth-century music, ear training, score reading, and advanced keyboard studies including figured bass. 352: Introduction to some techniques of composers from 1900 to 1950, including expanded tonal resources, atonality, and new approaches to form and rhythm. Analysis of representative smaller works by Bartók, Hindemith, Schoenberg, Stravinsky, Webern, and some American composers. Writing assignments in various styles.

353 Analysis of Structure and Function in Tonal Music. *Fall term. Credit three hours. Prerequisite: Music 252. T Th 9:05. Mr. Palmer.* A systematic analysis of structure and function in tonal music. Emphasis on the Viennese classics and Bach, with a particular study of tonal evolution to the nineteenth century.

[451 Modal Counterpoint and Analysis. *Fall term. Credit four hours. Prerequisite: Music 352 or the equivalent. M W Th 12:20. Mr. Palmer. Not offered in 1971-72.]*

[453 Fugue. *Fall term. Credit four hours. Prerequisite: Music 352 or the equivalent. Mr. Palmer. Not offered in 1971-72.]*

456 Orchestration. *Spring term. Credit four hours. Prerequisite: Music 352 or the equivalent. W 10:10-12:05. Mr. Husa.* A study of the instruments of the orchestra and their use in representative works from 1700 to the present. Scoring for various instrumental groups including large orchestra. Students will occasionally attend rehearsals of the Cornell musical organizations and ensembles.

457-458 Composition (Proseminar). *Credit four hours a term. Prerequisite: Music 352 or the equivalent. First term not prerequisite to the second. T 2:30-4:30 and one additional hour to be arranged. Fall term, Mr. Husa; spring term, Mr. Green.* Problems of writing in the smaller forms and in various media. Class discussion and performance, with analysis of contemporary works. The basic techniques of composition and their extensions in the twentieth century. Students will be required to attend the Friday afternoon reading sessions of student compositions and occasionally to attend rehearsals of the Cornell musical organizations and ensembles.

[462 Orchestral Conducting. *Spring term. Credit two hours. Prerequisite: Music 352. Mr. Husa. Not offered in 1971-72.]*

463 Choral Conducting. *Fall term. Credit two hours. Prerequisite: Music 252 or the equivalent. F 2:30-4:10. Mr. Sokol.* A study of the techniques of choral music: conducting, score reading, rehearsing, and arranging music for chorus.

464 Choral Style. *Spring term. Credit two hours. Prerequisite: Music 352 or the equivalent. F 1:25–3:15. Mr. Sokol.* A study of the art of choral music. Emphasis on the principal vocal forms and on historical and national performance styles.

Music History

204 The Enchanted Island, Seven Days in May, 1664 (Also Theatre Arts 204). *Spring term. Credit three hours. M W F 3:35. Messrs. Carlson, Seznec, and Zaslav.* For description, see Interdisciplinary Studies in the Humanities at the end of the Courses of Instruction section.

213 The Art of Music: Rock, Folk, Bach. *Fall term. Credit three hours. T Th 11:15 and one discussion section to be arranged. Mr. Austin and assistants.* A survey of old and new, easy and difficult music, designed to speed up the continuing development of various independent tastes. Frequent short written reports based on listening, beating time, and singing. Each topic, such as rhythm, chords, etc., is illustrated by recent popular music, folk music, jazz, church music, and concert music. Students choose individually which types to emphasize in their study, but all learn enough of the other types to build up a sense of continuities amid the contrasts among historical styles.

[214 The Art of Music: Opera. *Spring term. Credit three hours. Mr. Randel. Not offered in 1971–72.]*

218 Chopin, Chaikovsky, Musorgsky. *Spring term. Credit three hours; no prerequisites. Credit four hours; prerequisite, reading knowledge of Russian. Lecture-recital T Th, 11:15. Seminar for Russian readers only, M 2:30. Discussion sections to be arranged. Messrs. Austin, Gibian, and staff.* Chief works of the three composers, including symphonies, concertos, and operas, are studied through phonograph records. Piano music and chamber music are presented in live performance. The biographical, social, and intellectual contexts of the music are considered in relation to concerns of the present; students' essays may deal with such concerns more than any technical aspect of the music, though techniques are not neglected.

[313 Music and Poetry in the Renaissance. *Fall term. Credit four hours. Prerequisite: any course in music or consent of the instructor. Mr. Randel. Not offered in 1971–72.]*

[315 Brahms, Wagner, and the End of an Era. *Fall term. Credit four hours. Prerequisite: any course in music or consent of the instructor. M W F 1:25. Mr. Randel. Not offered in 1971–72.]*

316 Music and Poetry in France: Late Middle Ages and Renaissance (Also French 356). *Spring term. Credit four hours. Prerequisite: consent of either instructor. This course will be of most interest to students who have done some work in music or in French literature. A good reading knowledge of French will be a practical necessity. M 1:25, W 1:25–3:15. Messrs. Randel and Morris and guest lecturers.* Changing interrelations between vernacular poetry and secular music from the late fourteenth century to the times of Ronsard. Not a continuous chronological survey, the course will be organized around five contrasting historical samples: Guillaume de Machaut as composer and as "the last great poet in France to think of the lyric and its musical setting as a single entity" (Flutre); the courtly *chansons* of Dufay and his contemporaries; Josquin des Prez's settings of the *Rhétoriqueurs* and of popular songs; Mærot's *Adolescence clémentine*

(1532), a selection of which were set by some fifty composers; the Pléiade poets and the *air de cour*.

Topics: the evolution of poetry, and the growing primacy of the written or printed text; the poets' musical culture; music as a metaphorical motif in poetry; the role of music in Humanist esthetics; versification and musical setting; the composers' changing habits in choosing texts, and the changing balance of musical expression and verbal expression. Through description and analysis of a rich historical example of the interdependency of two arts, this course will seek to raise some broad questions in general esthetics.

318 Baroque Instrumental Music. *Spring term. Credit four hours. Prerequisite: any course in music or consent of the instructor. M W F 12:20. Mr. Zaslav.* A survey of the major schools, genres, and styles from the emergence of purely instrumental music in the sixteenth century until the disappearance of the trio sonata and *ritornello* concerto in the mid-eighteenth century. Various instrumental works of the late Baroque (by Vivaldi, Bach, Handel, and others) will be considered in their historical contexts. The Cornell University Trio will provide live demonstrations.

381 Gabrieli to Mozart. *Fall term. Credit four hours. Prerequisite: Music 152 or consent of the instructor. T 11:15, Th 11:15–1:05. Mr. Zaslav.* The history of musical styles from the Venetian polychoral school until the emergence of the mature classical style.

382 Beethoven to Debussy. *Spring term. Credit four hours. Prerequisite: Music 151 or consent of the instructor. M W F 10:10. Mr. Samuel.* The history of musical styles from the time of Beethoven through Debussy, Strauss, and Mahler.

385 Schoenberg, Bartok, and Stravinsky. *Fall term. Credit three hours. Prerequisite: ability to play (on any instrument the student prefers) a piece from Bartók's Mikrokosmos, vol. 1. M W 11:15. Mr. Austin.* A survey of the three composers' works, of their interactions with each other, and of their connections with some of the literary, artistic, political, and religious concerns of their time.

386 Shostakovich, Cage, Stockhausen. *Spring term. Credit three hours. Prerequisite: Music 385 or consent of the instructor. M W and occasionally F 11:15. Mr. Austin and guest lecturers.* Study of the main works of three outstanding composers—Soviet, American, and European—in the context of their ideas about Society. Other living composers will also be considered; students may work independently on composers of their own choice in relation to the three studied by the whole class.

387 Mozart. *Fall term. Credit four hours. Prerequisite: any course in music or consent of the instructor. M W F 11:15. Mr. Zaslav.* The music of Mozart in its historical, sociological, stylistic, and performance-practice contexts. Students will be encouraged to perform Mozart's music.

[481 Music in Western Europe to Josquin. *Fall term. Credit four hours. Prerequisite: Music 382 or consent of the instructor. Mr. Randel. Not offered in 1971–72.]*

[482 Josquin to Monteverdi. *Spring term. Credit four hours. Prerequisite: Music 382 or consent of the instructor. Mr. Randel. Not offered in 1971–72.]*

Independent Study

301–302 Independent Study in Music. *Either term. Credit one to four hours a term. Limited to juniors and seniors who are majoring in music. Departmental approval required. Hours to be arranged. Staff.*

The Honors Program

401-402 Honors in Music. *Credit four hours a term. Open only to Honors candidates in their senior year. Staff.*

Musical Performance

321-322 Individual Instruction in Voice, Organ, Piano; String, Woodwind, and Brass Instruments. *Throughout the year. Undergraduate credit only: Music 321, fall term, credit one hour; Music 322, spring term, credit two hours. With special departmental permission, a student may begin Music 321 in the spring term; credit one hour. Consent of the instructor required; students may not preregister. Basic fee for one half-hour lesson weekly during one term (carrying no credit), \$60. Fees for a practice schedule of six hours weekly during one term: \$30 for the use of a pipe organ; \$15 for a practice room with piano; \$5 for a practice room without piano.*

For credit: one hour lesson weekly (or two half-hours) and a double practice schedule carry three hours of credit for two terms, provided that the student has earned, or is earning, at least an equal amount of credit in courses in music history or music theory. The basic fees involved are then multiplied by one and one half (lesson fee \$90; practice fee \$45, \$22.50, and \$7.50). A student may register for this course in successive years.

The Department of Music offers a limited number of scholarships in applied music. For information inquire at the Department office.

391-392 Advanced Individual Instruction. *Throughout the year. Credit four hours a term. Open only to juniors and seniors who are majoring in music under Option II with concentration in performance.*

Musical Organizations and Ensembles

Students may participate in musical organizations and ensembles throughout the year and obtain one credit hour per term. Consent of the instructor is required, and admission is by audition only. Registration is permitted in two of these courses simultaneously, and students may register in successive years, but no student may earn more than six hours of credit in these courses. Membership in these and other musical organizations is also open to students without credit, if desired.

331-332 Sage Chapel Choir. *Th 7:00-9:00 p.m., Sunday 9:30 a.m. Mr. Paterson.*

335-336 Cornell Orchestras. *Rehearsals for the Cornell Symphony Orchestra: W 7:30-10 p.m., full orchestra; alternate T or Th 7:30-10 p.m., sectional rehearsals. Rehearsals for the Cornell Chamber Orchestra, M 7:30-10 p.m. (Limited to more experienced players.) Mr. Husa.*

337-338 University Bands. *During football season: Marching Band, T Th 7:15-9:15 p.m., F 4:30-5:45; Symphonic Band, T Th 4:30-5:45. After football season: Wind Ensemble, T 4:30-5:45, Th 7:15-9:15 p.m.; Symphonic Band, T 7:15-9:15 p.m., Th 4:30-5:45. Mr. Stith.*

339-340 Ear Training and Sight Singing. *Throughout the year. Open only to students who are participating in a University musical ensemble. Consent of the instructor is required. T 3:35. Mr. Sokol.*

A practical course designed to improve the students' conception of melody and rhythm and his sight reading ability. Progressive class exercises in intervals, rhythms, melodies, and counterpoints.

441-442 Chamber Music Ensembles. *Hours to be arranged. Consent of the instructor is required. Messrs. Bloch and Hsu. Study and performance of chamber music literature: string and wind groups, piano trios and quartets, trio sonatas, etc. Emphasis on musical problems, with some practice in sight reading.*

443-444 Chamber Singers. *Consent of the instructor is required. F 4:30-6. Mr. Sokol. Study and performance of selected vocal music.*

Graduate Courses and Seminars

Primarily for graduate students. Open to qualified undergraduates with consent of the instructor. For complete descriptions of courses numbered 500 or above see the *Announcement of the Graduate School: Humanities*. If a course is not included there, consult the Graduate Field Representative.

516 Music and Poetry in France: Late Middle Ages and Renaissance (Also French 556). *Spring term. Credit four hours. M 1:25-3:20, W 1:25-2:15. Messrs. Randel and Morris.*

551 Introduction to Twentieth-Century Music. *Fall term. Credit four hours. M W 10:10, Th 2:30. Mr. Green.*

553 Analysis of Structure and Function in Tonal Music. *Fall term. Credit four hours. T 9:05-11, Th 9:05. Mr. Palmer.*

557-558 Composition. *Throughout the year. Credit four hours a term. W 1:25-3:20. Mr. Palmer.*

581-582 Introduction to Bibliography and Research. *Throughout the year. Credit four hours a term. Prerequisites: a reading knowledge of French and German and an elementary knowledge of music theory and general music history. M 1:25-3:20. Mr. Samuel.*

[583 Early Theories of Tonality. *Fall term. Credit four hours. Mr. Zaslav. Not offered in 1971-72.]*

584 Seminar in Renaissance Music. *Spring term. Credit four hours. T 2:30-4:15. Mr. Zaslav.*

585 Schoenberg, Bartok, and Stravinsky. *Fall term. Credit five hours. Prerequisites: ability to play Stravinsky's Pieces for the Five Fingers, and a reading knowledge of one relevant foreign language—French, German, Russian, or Hungarian. M W F 11:15. Mr. Austin.*

587 Mozart. *Fall term. Credit four hours. M W 11:15, T 2:30-4:15. Mr. Zaslav. Research in the music of Mozart and his contemporaries.*

654 Seminar in Analytic Techniques for Twentieth-Century Music. *Spring term. Credit four hours. T 9:05-11:00. Mr. Palmer.*

656 Problems in Music Theory. *Spring term. Hours and credits to be arranged. Mr. Palmer. Preparation of twentieth-century music research projects for the M.F.A. and D.M.A. degrees.*

[681-682 Seminar in Musicology. *Throughout the year. Credit four hours a term. Not offered in 1971-72.]*

683-684 Seminar in Medieval Music. *Throughout the year. Credit four hours a term. Th 2:30-4:15. Mr. Randel.*

[685-686 The Music of Heinrich Schütz. *Throughout the year. Credit four hours a term. Mr. Samuel. Not offered in 1971-72.]*

[687-688 Debussy to Boulez. *Throughout the year. Credit four hours a term. Mr. Austin. Not offered in 1971-72.]*

[689-690 Liturgical Chant in the West. *Throughout the year. Credit four hours a term. Mr. Randel. Not offered in 1971-72.*]

Solo Literature for Viola da Gamba (Society for the Humanities Seminar 505).

The Division and Lyra Viols (Society for the Humanities Seminar 506).

Philosophy

Mr. N. Kretzmann, Chairman; Messrs. M. Black, R. Dancy, A. Fine, C. Ginet, B. Goldberg, J. A. W. Kamp, D. Lyons, N. Malcolm, S. Shoemaker, R. Stalnaker, N. Sturgeon, A. Wood.

Students expecting to major in philosophy should begin their systematic study of it in their freshman or sophomore years. For admission to the major, the normal requirement is earning a grade of C or better in a philosophy course above 200. Application for admission is made to the Department of Philosophy.

For the major, eight philosophy courses are required, and these must include (a) Philosophy 201; (b) at least one course in the history of philosophy from among 202, 301, 302, 303, 305, 307, 309; (c) at least two courses numbered above 400 (with the exception of 490). Philosophy majors must also complete at least eight hours of approved courses in related subjects. Philosophy 210, while not required, is especially recommended for prospective majors.

The Honors Program

For provisional acceptance as a candidate for Honors, a student must be a philosophy major, have a cumulative average of B- for all work in the College of Arts and Sciences and have an average of B for courses in philosophy. All candidates for Honors pursue, in their senior year, a program of research (taking Philosophy 490) in either the fall or the spring term leading to the writing of an Honors essay.

Distribution Requirement

The Distribution requirement in the Humanities is satisfied in philosophy by completing any two courses in philosophy, with the following exceptions: (a) Philosophy 100 if used in satisfying the Freshman Humanities requirement; (b) a combination of two introductory courses, 100 and 101; (c) a combination of two courses in formal logic, such as 212, 412, 413, and 419.

Introductory Courses

100 Freshman Seminar in Philosophy. *Either term. Credit three hours. Open only to freshmen who have not taken Philosophy 101. Fall term: M W 2:15-3:30, Mr. Sturgeon; M W 2:15-3:30, Mr. Kretzmann; T Th 2:15-3:30, Mr. Sturgeon; T Th 2:15-3:30. Spring term: M W 2:15-3:30, Mr. Malcolm; M W 2:15-3:30, Mr. Kretzmann; T Th 2:15-3:30, Mr. Malcolm.* Central topics in various areas of philosophy are studied and discussed in sections of this course. Offered as part of the Freshman Humanities Program. See p. 29.

101 Introduction to Philosophy. *Either term. Credit three hours. Open only to freshmen and sophomores who have not taken Philosophy 100. Registration is limited to 35 students a section. Fall term: M W F 9:05, Mr. Shoemaker; M W F 11:15, Mr. Shoemaker; M W F 12:20, Mr. Dancy; T Th S 11:15, Mr. Lyons. Spring term: M W F 11:15, Mr. Ginet; T Th S 10:10, Mr. Goldberg; T Th S 12:20, Mr. Lyons.* An introduction to philosophi-

cal ideas and problems through an intensive study of the writing of several major philosophers.

Courses Primarily for Undergraduates

All 200- and 300-level courses in philosophy are designed primarily for undergraduates and are open to sophomores, juniors, and seniors except as noted in the course descriptions. The 200-level courses generally have no prerequisites. The 300-level courses generally have some restrictions which instructors may waive in individual cases. (Graduate students in philosophy may be permitted to enroll in certain 300-level courses by special action of the Department.) Credit for each such course is four hours.

201 Ancient Philosophy. *Fall term. Credit four hours. Open to sophomores, juniors, and seniors. Required for students majoring in philosophy. M W F 2:30. Mr. Dancy.* A study of the treatment of major philosophical problems by philosophers in antiquity, with reference to the influence of their philosophical theories on science and literature.

[202 Modern Philosophy. *Not offered in 1971-72.*]

210 Philosophical Problems. *Either term. Credit four hours. Open to sophomores, juniors, seniors and to freshmen who have taken 100 or 101. Recommended for prospective majors in philosophy. Registration is limited to 35 students. Fall term, M W F 9:05. Mr. Malcolm. Spring term, time and instructor to be announced.* The study of a selected philosophical problem. Contemporary as well as classical sources are used. Topic for the fall term: Problems of Mind. Topic for the spring term: To be announced.

212 Introduction to Logic. *Either term. Credit four hours. Open to freshmen, sophomores, juniors, and seniors. Fall term, M W F 10:10. Mr. Ginet. Spring term, M W F 10:10. Mr. Stalnaker.* The analysis and evaluation of reasoning in terms of formalized languages (the sentential calculus and the first-order predicate calculus with identity).

215 Semantics. *Fall term. Credit four hours. Open to sophomores, juniors and seniors. M W F 10:10. Mr. Stalnaker.* A survey of the philosophy of language and symbolism including discussion of the nature of communication, speech acts, and theories of meaning.

223 Social and Political Philosophy. *Spring term. Credit four hours. Open to sophomores, juniors, and seniors. T Th S 10:10. Mr. Wood.* A historical survey of philosophical thinking about the nature and norms of human society.

225 Ethics. *Spring term. Credit four hours. Open to sophomores, juniors, and seniors. M W F 1:25. Mr. Sturgeon.* An introduction to problems and theories in moral philosophy. Particular issues and questions of moral concern, such as the justification of punishment, whether there can be just wars, etc., are used to bring out or test the application of theories.

[301 Modern Philosophy I: Rationalism. *Not offered in 1971-72.*]

[302 Modern Philosophy II: Empiricism. *Not offered in 1971-72.*]

[303 Medieval Philosophy. *Not offered in 1971-72.*]

305 Special Topics in the History of Philosophy. *Spring term. Credit four hours. Open to sophomores, juniors, and seniors. M W F 10:10. Mr. Kretzmann.* The development of the philosophy of language from antiquity to the early twentieth century in discussions of such topics as the relation of language to thought, the analysis of language as a philosophical method, the nature of meaning and of truth.

114 Philosophy

- [307 **Kant.** *Not offered in 1971-72.*]
- 308 **Contemporary Philosophy.** *Fall term. Credit four hours. Open to sophomores, juniors, and seniors. M W F 12:20. Mr. Stalnaker.* Topics to be announced.
- [309 **Philosophy of Marx.** *Not offered in 1971-72.*]
- [310 **Philosophy of History.** *Not offered in 1971-72.*]
- 311 **Existentialism and Phenomenology.** *Spring term. Credit four hours. Open to sophomores, juniors, and seniors. T Th S 12:20. Mr. Wood.* An examination of selected readings from modern continental philosophers, exploring their radical approach to questions of human perception, understanding, value, decision, and action.
- [314 **Introduction to Philosophy of Mathematics.** *Not offered in 1971-72.*]
- 316 **Metaphysics and Epistemology.** *Spring term. Credit four hours. Open to sophomores, juniors, and seniors. T Th S 11:15. Mr. Wood.* Topics in metaphysics and epistemology including causality, substance, identity, space, and time.
- [320 **Philosophy in Literature.** *Not offered in 1971-72.*]
- [321 **Aesthetics.** *Not offered in 1971-72.*]
- 322 **Philosophy of Religion.** *Spring term. Credit four hours. Open to sophomores, juniors, and seniors. M W F 2:30. Mr. Dancy.* A survey of philosophical thinking about the nature and justifiability of the beliefs and practices of religion in the western tradition.
- 323 **Law, Society and Morality.** *Fall term. Credit four hours. Open to juniors and seniors. T Th S 9:05. Mr. Lyons.* An examination of related problems in moral, legal, and political philosophy, including the nature of morality and of law and the connections between them, justice, rights, equality, punishment, and political obligation.
- [325 **Ethical Theory.** *Not offered in 1971-72.*]
- [327 **Introduction to the Philosophy of Science.** *Not offered in 1971-72.*]
- [333 **Philosophy of Psychology.** *Not offered in 1971-72.*]

Advanced Courses and Seminars

All 400-level courses in philosophy are designed primarily for advanced undergraduates, philosophy majors, and graduate students. All 500-level courses in philosophy are seminars designed primarily for graduate students. The 400- and 500-level courses are open to others only by consent of the instructor or as indicated in the course descriptions. Credit for each course is four hours.

- [403 **Plato and Aristotle.** *Not offered in 1971-72.*]
- 412 **Deductive Logic.** *Fall term. Credit four hours. Prerequisite: Philosophy 212 or the equivalent. M W F 9:05. Mr. Fine.* The first-order predicate calculus: proof theory and model theory; the completeness theorem. Theories and definitions. Axiomatic set theory: sets, functions, relations, cardinals, ordinals, the recursion theorem.
- [413 **Deductive Logic.** *Not offered in 1971-72.*]
- 414 **Philosophy of Logic.** *Spring term. Credit four hours. Open to juniors, seniors and graduate students. Prerequisite: mastery of the topics covered in Quine's Methods of Logic (or an equivalent text) or consent of the instructor. M W F 2:30. Mr. Black.* Philosophical

problems connected with logical theory, including such topics as meaning and reference; logic and ontology; logic and ordinary language; identity and substitutivity; modal logic.

415 **Problems in the Philosophy of Language.** *Fall term. Credit four hours. Open to upperclassmen and graduate students. M W F 12:20. Mr. Ginet.* Selected problems concerning contemporary theories of language.

417 **Theory of Knowledge.** *Spring term. Credit four hours. Open to upperclassmen and graduate students. M W F 11:15. Mr. Malcolm.* Topic for 1971-72: Leibniz.

418 **Inductive Logic.** *Spring term. Credit four hours. Open to upperclassmen and graduate students. Prerequisite: Philosophy 212 or consent of instructor. M W F 12:20. Mr. Stalnaker.* A critical examination of the foundations of induction and probability, including such topics as nondemonstrative inference, relations between probability and frequency, Goodman's paradoxes, and the justification of induction.

[419 **Intensional Logic.** *Not offered in 1971-72.*]

[425 **Contemporary Ethical Theory.** *Not offered in 1971-72.*]

[427 **Problems in the Philosophy of Science.** *Not offered in 1971-72.*]

433 **Problems in Ethics and Philosophy of Mind.** *Spring term. Credit four hours. Open to upperclassmen and graduate students. Prerequisite: consent of the instructor or two courses in philosophy. M W F 11:15. Mr. Sturgeon.* Selected topics in moral and mental philosophy; moral feelings and attitudes, practical reason, thought and action, intentions, oneself and one's future. Topic for 1971-72: To be announced.

490 **Special Studies in Philosophy.** *Either term. Credit four hours. Open only to Honors students in their senior year. Staff.*

For complete descriptions of courses numbered 500 or above see the *Announcement of the Graduate School: Humanities*. If a course is not included there, consult the Graduate Field Representative.

[551 **Philosophy of Religion.** *Not offered in 1971-72.*]

576 **Ancient Philosophy.** *Spring term. Credit four hours. Th 3:35-5:30. Mr. Dancy.* Topic for 1971-72: To be announced.

580 **Medieval Philosophy.** *Fall term. Credit four hours. T 3:35-5:30. Mr. Kretzmann.* Topic for 1971-72: Anselm.

585 **Ethics and Value Theory.** *Both terms. Credit four hours. Fall term, F 3:35-5:30. Mr. Sturgeon. Spring term, W 3:35-5:30. Mr. Lyons.* Topic for fall term: Non-naturalism and Non-cognitivism. Topic for spring term: Bentham.

588. **Metaphysics.** *Fall term. Credit four hours. Th 3:35-5:30. Mr. Shoemaker.* Topic for 1971-72: To be announced.

589 **Metaphysics.** *Spring term. Credit four hours. M 3:35-5:30. Mr. Goldberg.* Topic for 1971-72: The Idea of Emergence.

[590 **Philosophy of Language.** *Not offered in 1971-72.*]

591 **Philosophy of Mind.** *Spring term. Credit four hours. F 3:35-5:30. Mr. Malcolm.* Topic for 1971-72: The Explanation of Behavior.

594 **Theory of Knowledge.** *Spring term. Credit four hours. T 3:35-5:30. Mr. Ginet.* Topic for 1971-72: To be announced.

595 Semantics. *Fall term. Credit four hours. M 3:35–5:30. Mr. Black.* Topic for 1971–72: Foundations of Transformational Grammar.

[596 Logic. *Not offered in 1971–72.]*

597 Philosophy of Science. *Fall term. Credit four hours. W 3:35–5:30. Mr. Fine.* Topic for 1971–72: Classic Mechanics: Newton, Kant, and Mach.

600 Informal Study. *Either term. Credit to be arranged. To be taken by graduate students only in exceptional circumstances and by arrangement made by the student with his special committee and the faculty member who has agreed to direct the study. Staff.*

Physics

Mr. D. F. Holcomb, Chairman; Messrs. V. Ambegaokar, N. W. Ashcroft, K. Berkelman, H. A. Bethe, R. Bowers, A. A. Browman, P. A. Carruthers, D. G. Cassel, G. V. Chester, R. M. Cotts, J. W. DeWire, M. J. Feigenbaum, D. B. Fitch, B. Gittelman, K. Gottfried, K. Greisen, L. N. Hand, D. L. Hartill, P. L. Hartman, T. Kinoshita, J. A. Krumhansl, D. M. Lee, R. M. Littauer, E. C. Loh, H. Mahr, B. W. Maxfield, B. D. McDaniel, N. D. Mermin, N. B. Mistry, H. F. Newhall, J. Orear, L. G. Parratt, J. Peoples, Jr., R. O. Pohl, J. D. Reppy, R. C. Richardson, E. E. Salpeter, A. J. Sievers, III, R. H. Silsbee, A. Silverman, P. C. Stein, R. M. Talman, D. H. White, J. W. Wilkins, K. G. Wilson, R. R. Wilson, W. M. Woodward, T-M Yan, and D. R. Yennie.

Entering freshmen may receive advanced placement and credit for one or two terms of Physics 101–102, 112, or 207–208 by demonstrating a high level of physics proficiency in the Advanced Placement Examination administered in the spring by the College Entrance Examination Board, or in a special Cornell examination given just before the start of classes for the fall term. Further progress in physics may be limited by the level of attainment in calculus.

Physics Major

The physics major program provides flexibility for the student either to concentrate heavily in physics (strengthening his preparation for professional or graduate work) or, to take less physics and pursue an outside but related concentration. For the more intensive physics program, courses Physics 112 and 217–218 (and, preferably, 315) and Mathematics 193–194 and 293H–294H (or 191, 122, and 221–222) should be completed by the end of the sophomore year; for a less intensive physics program, Physics 112 (or 207) and 213–214 serve well (or, with permission, 207–208 is possible), and the program may be begun as late as the beginning of the sophomore year. With its minimal requirements the program is designed to be a relaxed one, especially if the student enters college with advanced placement in calculus.

A prospective physics major is urged to visit the Department office as soon as possible for an appointment with a faculty member for advice in planning his program. This step may precede acceptance into the major. Acceptance is normally postponed until the student has completed a year of physics and mathematics at a level indicating proficiency sufficient to undertake the major.

At the time of his acceptance by a physics major adviser, a physics student is expected to propose a tentative plan for completing all the requirements for graduation, including those of the major. The plan may change from time to time and must finally be approved by the major adviser. The major requirements are in two categories—core and concentration.

Core

The core requirements consist of (a) Physics 214 or, with permission, 208 and Mathematics 294, or their equivalents, and (b) a physics course, numbered between 300 and 500, in each of these areas: mechanics, electricity and magnetism, modern physics, and laboratory physics.

Concentration

This component shall reflect the individual student's interests in some area more or less related to physics and the array of courses must have internal coherence. The concentration shall include at least fifteen credit hours, unless otherwise stated, with at least six credit hours in courses at the junior-senior level (numbered above 300). Illustrative concentrations are physics; mathematics; biology and chemistry; astrophysics; natural sciences; engineering; computer science; science, technology, and society; environmental studies; intellectual history, or history and philosophy of science; city planning and urban development; and business and economics.

The concentration in physics is recommended as preparation for professional or graduate work in physics or in any closely related discipline. Twelve credit hours from physics courses numbered above 300, in addition to those selected for the (b) part of the core requirements, are required. In satisfying the first three of the (b) core requirements, courses 315, 319, and 325 should be elected. For this concentration, completion of Physics 410 and 443, and at least one of 444 and 454, is strongly advised, as well as Mathematics 421–422–423.

For the concentration in mathematics, fifteen credit hours of mathematics courses, all with numbers greater than 300, are required. A biology and chemistry concentration is recommended for premedical students or those who wish to do subsequent work in biophysics. Concentration in the natural sciences is particularly appropriate for students interested in teacher preparation.

Foreign Language Requirement

Students who have an interest in eventual graduate work are advised to meet the foreign language requirement with work in French, German, or Russian.

The Honors Program

A student may be granted Honors in Physics upon the recommendation of the Physics Advisers Committee of the physics faculty.

Distribution Requirement

The distribution requirement in physical science is satisfied by Physics 101–102, 201–202, 207–208, 112–213 or by the first term of any of these sequences followed by the second term of another.

If a student wishes to take a course for which he does not have a stated prerequisite, he must obtain the consent of the instructor.

101–102 General Physics. *Throughout the year. Credit four hours per term. Prerequisite: three years of high school mathematics including some trigonometry. Course 101 (or 112 or 207) is prerequisite to 102. Includes more modern physics and less mathematical analysis than 207–208 or 112–213; but more mathematical analysis than 201–202. Students who plan to major in a physical science should elect physics 207–208 or 112 and 213–214. As far as possible in 1971–72, an audio-tutorial (A-T) format of*

instruction will be used, allowing students to work in a learning center at hours of their own choice. Large group meetings, W F 9:05 or 11:15. If the A-T facilities are not ready, discussion sections (two hours per week) and a two-hour laboratory period on alternate weeks will be arranged. Preliminary examinations will be held at 7:30 p.m. on October 6, November 10, February 23, April 5. Mr. Greisen and staff. Basic principles of physics, treated quantitatively but without calculus. Major topics in the first term are mechanics, conservation laws, heat, wave motion, and optics. The second term includes electricity and magnetism, relativity, elementary particles, quantum physics, and structure of atoms, nuclei, and solids. Laboratory emphasis on instruments, measurement, and interpretation of data. At the level of *Physics Principles and Insights*, 1968, by Ira M. Freeman.

112 Introductory Analytical Physics I. *Either term. Credit four hours. Prerequisite: coregistration in Mathematics 192 (or 112). Lecture, M 10:10 or 12:20. Three discussion periods per week and one two-hour laboratory period every other week to be arranged. Preliminary examinations will be held at 7:30 p.m. October 5, November 9, February 22, and April 11. Primarily for students of engineering and for prospective majors in physics. Fall term, Messrs. Ashcroft, Hartill, and staff. Spring term, Mr. Silcox and staff.* The mechanics of particles; kinematics, dynamics, and introduction to special relativity, conservation laws, central force fields, and periodic motion. The mechanics of many particle systems; center of mass, simple rotational mechanics of a rigid body, static equilibrium. Kinetic theory of simple gases, introduction to heat, temperature, equations of state and equivalence of heat and work. At the level of *Mechanics and Heat*, by Young.

201-202 Aspects of the Physical World. *Throughout the year. Credit three hours a term. (Not suitable for credit if taken after any two-term college physics course.) Prerequisites: three years of college preparatory mathematics and high school physics or chemistry, or consent of the instructor. Course 201 is prerequisite to 202. Open to freshmen by special permission only. Students who plan to take a second-year (or higher) physical or biological science course should elect Physics 101-102 or 207-208 instead of this course. Lectures, M W F 2:30. One two-hour laboratory-discussion period per week to be arranged. (Total class time will average about four hours per week.) Mr. Silverman and staff.* The course is designed for the nonscientist. Its goal is the systematic presentation of a contemporary view of the nature of the physical world. The first semester will deal with prerelativistic (Newton) and relativistic (Einstein) views of space, time, and mechanics. In the second semester electromagnetic interactions, wave propagation, atomic physics, and elementary particles will be studied. Where possible, applications of these ideas with important impact on contemporary society will be emphasized. (See also the Physical Science Seminar in the Six-Year Ph.D. Program mentioned at the end of the Courses of Instruction section.)

207-208 Fundamentals of Physics. *Throughout the year. Credit four hours a term. Prerequisite for 207, at least coregistration in Mathematics 112. High school physics is a normal background. Course 207 (or either 101 or 112 with special permission) is prerequisite to 208. Intended as the first college-physics course for most students majoring in a physical science, mathematics, or in an analytically oriented biological science. Demonstration lectures, W F 9:05 or 11:15. Two discussion periods a week and one 2½-hour laboratory period alternate weeks to be arranged.*

Preliminary examinations will be held at 7:30 p.m. on October 11, November 15, February 28, April 10. Mr. Newhall and staff. Topics treated during the year include Newton's Laws, conservation of momentum and energy, electricity, magnetism, waves, special relativity, atomic physics (including some wave mechanics), and statistical physics. Emphasis is placed on the fundamental concepts and on the analytical techniques of problem and laboratory work. At the level of *University Physics*, 4th ed. by Sears and Zemansky.

208H Fundamentals of Physics. *Spring term. An Honors section of 208. Prerequisites: a request for this course as expressed by the student in consultation with the 208H instructor and an invitation from the instructor. Lectures, W F 9:05 or 11:15. Two discussion periods a week to be arranged. Laboratory T 1:25-4:25 or W 1:25-4:25. Students interested in 208H should reserve these hours but should preregister for 208. Evening preliminary examinations as listed in Physics 208.*

213 Physics II: Electricity and Magnetism. *Either term. Credit three hours. Primarily for students of engineering and for prospective majors in physics. Prerequisites: Physics 112 and Mathematics 192 or 112. Coregistration in 213L required. Lectures T Th 9:05 or 11:15. Two discussion periods per week to be arranged. Preliminary examinations will be held at 7:30 p.m. on October 12, and November 23, in the fall term and on February 29, and April 11 in the spring term. Mr. Pohl and staff.* Electrostatics, behavior of matter in electric fields, magnetic fields, Faraday's Law, electromagnetic oscillations and waves, magnetism and relativity. At the level of *Fundamentals of Electricity and Magnetism*, 1969, by Arthur F. Kip.

213L Laboratory to Accompany Physics 213. *Either term. Credit one hour. Coregistration in Physics 213 required. One two-hour period every week to be arranged. Experiments include electrical measurements and circuits, and physical electronics.*

214 Physics III: Optics, Waves, and Particles. *Either term. Credit three hours. Primarily for students of engineering and for prospective majors in physics. Prerequisites: Physics 213 and Mathematics 293 or 221; coregistration in 214L required. Lectures T Th 9:05 or 11:15. Two discussion periods per week to be arranged. Wave phenomena; electromagnetic waves; physical and geometrical optics; quantum effects, matter waves; uncertainty principles; introduction to wave mechanics, elementary applications. At the level of *Fundamentals of Optics and Modern Physics* by H. D. Young.*

214L Laboratory to Accompany Physics 214. *Either term. Credit one hour. Coregistration in Physics 214 required. One two-hour period to be arranged. Experiments include optics, lasers, atomic spectroscopy, solid state, nuclear and particle physics.*

217 Physics II: Electricity and Magnetism. *Fall term. Credit three hours. An Honors section of 213. Prerequisites: the same as for 213; in addition: (a) a request for this course as expressed by the student in consultation with the 217 instructor, and for an engineering student the concurrence of the director of the Division of Basic Studies in the College of Engineering; (b) an invitation from the instructor. Enrollment limited. T Th S 11:15. Topics included are the same as in Physics 213 but their treatment is generally more analytical and somewhat more intensive.*

217L Laboratory to Accompany Physics 217. *Fall term. Credit one hour. May be taken without 217*

by permission of instructor. One two-hour period every week to be arranged. Experiments include electrical measurements and circuits, and physical electronics.

218 Physics III: Optics, Waves and Particles. Spring term. Credit three hours. An Honors section of 214. Same conditions govern enrollment as for 217. T Th S 11:15.

218L Laboratory to Accompany Physics 218. Spring term. Credit one hour. May be taken without 218 by permission of instructor. One two-hour period every week to be arranged. Experiments include optics, lasers, atomic spectroscopy, solid state, nuclear and particle physics.

301 Fundamentals of Physics III: Relativity, Kinetic Theory, and Quantum Physics. Fall term. Credit four hours. Prerequisites: Physics 208 and Mathematics 213, or consent of the instructor. M W F 11:15. One other hour to be arranged. Mr. Pohl. This course is intended as a continuation of Physics 207 and 208. It will cover special relativity, kinetic theory, and an introduction to quantum physics and to wave mechanics. At the level of *Foundations of Modern Physics* by Tipler.

303 Intermediate Mechanics. Fall term. Credit three hours. Prerequisites: Physics 208 and at least co-registration in Mathematics 213 or 221. M W F 10:10. Mr. Parratt. Newtonian mechanics, conservation laws, central forces, oscillation systems, wave propagation, and relativity. At a level slightly higher than *Mechanics*, 1965, by Kittel, Knight, and Ruderman.

307 Optics and Wave Motion. Fall term. Credit four hours. Prerequisites: Physics 208H or 303, and Mathematics 293H or 213, or consent of the instructor. T Th S 12:20 and T 2:30. Mr. Mahr. Properties of waves (electromagnetic, mechanical, acoustic, etc.): phase and group velocity, dispersion, coherence, interference, diffraction, polarization, etc. Interaction of light with matter: absorption, dispersion, refraction, reflection, etc. Nonlinear optics. At the level of *Waves* by Crawford and of *Fundamentals of Physical Optics*, 3d ed., by Jenkins and White.

315 Microphysics. Spring term. Credit three hours. Primarily for students of engineering and prospective majors in physics. Prerequisite: Physics 214. T Th S 11:15. Introduction to statistical physics, solid state physics, nuclear physics and elementary particles, and current topics. At the level of *Modern Physics*, 2d ed., by R. L. Sproull.

319 Analytical Mechanics. Fall term. Credit four hours. Prerequisites: Physics 208H (or 208 with special permission) or 214 or 234, and coregistration in Mathematics 421. M W F 10:10 and F 1:25. Mr. Gittelman. Analytical mechanics of material particles, systems of particles and rigid bodies; oscillating systems; planetary motion, stability of orbits; collisions; Euler's equations, gyroscopic motion; Lagrange's equations; Hamilton's equation; relativistic mechanics. At the level of *Mechanics*, 2d ed., by Symon.

322 Principles of Electricity. Spring term. Credit four hours. Prerequisites: Physics 303 (and preferably 307 and 310) and Mathematics 293H or 221 or 331 or 315. M W F 11:15 and Th 12:20 or F 3:35. Mr. Lee. Topics selected from Physics 325-326 (excluding optics), treated with less mathematical sophistication. At the level of *Electricity and Magnetism*, 1966, by Purcell (Berkeley Physics Course, vol. 2).

325-326 Electricity, Magnetism, and Physical Optics. Fall term 325, Spring term 326. Credit four hours a term. Prerequisites: same as for Physics 319. Course

325 is prerequisite to 326. Lectures, T Th S 11:15 and Th 1:25. Preliminary examinations will be held at 7:30 p.m. on October 6, November 10, March 1, and April 5. Fall term, Mr. Woodward; Spring term, Mr. Stein. Electrostatics: electric charge and field, potential, multipoles, conductors, Laplace equation and formal solutions, electric field energy, dielectric materials, polarization. Magnetostatics: current, magnetic field, vector potential, magnetic moment, induction, inductance, magnetic materials, Maxwell's stress equation, Poynting vector, Maxwell's equations. Electrodynamics: applications of Maxwell's equations, wave equation, transmission lines, wave guides, radiation from a moving charge. Physical optics: reflection, refraction, dispersion, polarization, Fresnel and Fraunhofer diffraction, lasers, and masers. Special relativity. At the level of *Lectures on Physics*, vol. II, by Feynman; of *Foundations of Electromagnetic Theory* by Reitz and Milford; of *Electricity and Magnetism* by Slater and Frank; and of *Optics* by Sommerfeld.

342 Kinetic Theory and Thermodynamics. Spring term. Credit four hours. Prerequisites: Physics 322 (or 218 with special permission), and Mathematics 293H or 221 or 331 or 315, or consent of the instructor. T Th S 9:05 and M or T 2:30. Concepts of temperature, laws of thermodynamics, Carnot cycles, entropy, thermodynamic relations, free energies, phase equilibrium, multicomponent systems, chemical reactions, and thermodynamic stability criteria. Application of thermodynamics to physical systems. Introduction to statistical mechanics including a treatment of Maxwell-Boltzmann, Bose-Einstein, and Fermi-Dirac statistics with applications. Elementary transport theory. At the level of *Fundamentals of Statistical and Thermal Physics* by Reif, or of *Thermal Physics* by Morse.

360 Introductory Electronics. Either term. Credit three hours. Prerequisite: Physics 208 or 214L or 236, or consent of the instructor. Lecture, M 1:25-3:20. Laboratory, T Th 1:25-4:25 or W F 1:25-4:25. Mr. Cotts. Introduction to the principles of semiconductor devices, of electronic components and circuits, and to the operating characteristics of power supplies, amplifiers, oscillators, switching and timing circuits, etc. At the level of *Basic Electronics for Scientists*, 1967, by Brophy, and of *Elementary Electronics*, 1966, by White.

400 Intermediate Experimental Physics. Either term. Credit two or three hours per term. Prerequisites: Physics 208 or 214-214L. Laboratory, T W or Th F 1:25-4:25. (If only two hours credit, laboratory time commitment may be reduced.) Mr. Hartman and staff. Selected laboratory experiments to suit the student's interests. Student has access to experimental facilities of Physics 410. Experiments especially appropriate for Physics 400 will be available.

410 Advanced Experimental Physics. Either term. Credit four hours. Limited to seniors except by special permission. Prerequisite: Physics 218L, or 310, or 360, and 303 or 319, and 322 or 325 or consent of the instructor. Laboratory, T W or Th F 1:25-4:25. Lecture, M 2:30-4:25. Mr. Hartman and staff. Lectures and problems on selected topics in experimental concepts and techniques. About seventy different experiments are available among the subjects of mechanics, acoustics, optics, spectroscopy, electrical circuits, electron and ion physics, heat, x rays and crystal structure, solid state physics, cosmic rays, and nuclear physics. The student is expected to perform four to eight experiments, selected to meet his individual needs and interests. Stress is laid on independent work.

431-432 Introductory Theoretical Physics I and II. Throughout the year. Credit four hours a term. Pre-

*requisites: completion of the equivalent of Physics 207-208; for Course 432 either 431 or its equivalent; and coregistration in Mathematics 421-422, or consent of the instructor. Primarily for graduate students in a science other than physics (e.g., in chemistry, engineering, or biology) who wish to prepare for more advanced course (e.g., Physics 443, 561, 562 or 572 or Chemistry 593-594). Fall term, M W F S 10:10. Mr. White. Spring term, M W F S 11:15. Mr. Lee. Fall term. Mechanics. Includes Newtonian mechanics, Lagrange's and Hamilton's equations, central forces, rigid body motion and small oscillations. At the level of *Mechanics*, second edition, by Simon. Spring term. Electricity and magnetism. Includes electrostatics, magnetostatics, boundary value problems, dielectric and magnetic media, circuit theory, Maxwell's equations and propagation of electromagnetic waves. At the level of *The Physics of Electricity and Magnetism* by Scott.*

436 Modern Physics. Spring term. Credit four hours. Prerequisite: Physics 301 or 443. Should not be elected by students who plan to take Physics 444 or 454. M W F 9:05 and F 1:25. Mr. Carruthers. Atomic physics, solid state physics, particle and nuclear physics. The material covered will depend on the interests of the instructor and the students.

443 Atomics and Introductory Quantum Mechanics. Fall term. Credit four hours. Prerequisites: Physics 305 or 315, 319, and 325, or 432, and Mathematics 316 or 421, or consent of the instructor. Very few students should take Physics 572 before taking this course or its equivalent. T Th S 10:10 and M 9:05 or 2:30. Mr. Bowers. Difficulties with the classical interpretations of atomic properties are resolved in terms of quantum mechanics. At the level of *Introduction to Quantum Theory* by Park.

444 Nuclear and High-Energy Particle Physics. Spring term. Credit four hours. Prerequisite: Physics 443 or consent of the instructor. M W F 9:05 and F 1:25. Mr. Browman. Behavior of high-energy particles and radiation; elementary particles; basic properties of nuclei; nuclear reactions; nuclear forces; cosmic rays; general symmetries and conservation laws of nature. At the level of *Nuclei and Particles* by Segre.

454 Introductory Solid State Physics. Spring term. Credit four hours. Prerequisite: Physics 443, or Chemistry 593, or consent of the instructor. T Th S 10:10 and T 3:35. Mr. Mahr. A semiquantitative introduction to modern solid state physics, including lattice structure, lattice vibrations, thermal properties, electron theory of metals and semiconductors, magnetic properties, and superconductivity. At the level of *Introduction to Solid State Physics*, 3d. ed., by Kittel.

490 Independent Study in Physics. Either term. Credit one to three hours a term. Ordinarily limited to seniors. Prerequisites: consent of the professorial staff member under whose direction the work is to be done must be obtained before registration. Hours to be arranged. Individual project work. Reading or laboratory work in any branch of physics. Often associated with the Physics 410 laboratory.

491 Senior Seminar. Fall term. Credit one hour. Intended primarily for physics majors in their senior year. Prerequisite: consent of the student's major adviser (or of the instructor if the student is not majoring in physics). F 2:30-4:25. Mr. Cassel. Practice in the organization, oral presentation, and discussion of selected topics in physics.

For complete descriptions of courses numbered 500 or above see the *Announcement of the Graduate School: Physical Sciences*. If a course is not included there, consult the Graduate Field Representative.

500 Informal Graduate Laboratory.

505-506 Design of Electronic Circuitry.

510 Advanced Experimental Physics.

520 Projects in Experimental Physics.

551 Formalism of Classical Mechanics.

561 Classical Electrodynamics. Fall term. Credit three hours. Prerequisites: Physics 325 or 432, and coregistration in Mathematics 415 or 423, or consent of the instructor. T Th S 11:15. Mr. Wilkins.

562 Thermal, Statistical, and Continuum Physics. Spring term. Credit three hours. Prerequisites: Physics 319 and 443 or coregistration in Physics 572 or consent of the instructor. T Th S 11:15. Mr. Salpeter.

572 Quantum Mechanics I. Either term. Credit three hours. Prerequisite: Physics 443, and at least coregistration in Physics 551 and Mathematics 415 or 423, or consent of the instructor. M W F 11:15. Fall term, Mr. Ambegaokar. Spring term, Mr. Yennie.

574 Quantum Mechanics II.

612 Experimental Atomic and Solid-State Physics.

614 Experimental High-Energy Physics.

635 Solid State Physics I.

636 Solid State Physics II.

645 Nuclear Physics.

646 High Energy Particle Physics.

Only grades of S and U will be given in courses numbered 650 or above.

651 Advanced Quantum Mechanics.

652 Quantum Field Theory.

653 Statistical Physics.

654 Theory of Many-Particle Systems.

657 Theory of Nuclei.

661 High Energy Phenomena.

680(A,B,C,D) Special Topics. The particular topics will be announced just before the start of each term.

690 Independent Study in Physics.

Psychology

Mr. H. Levin, Chairman; Messrs. H. A. Alker, A. L. Baldwin, H. A. Bernbach, U. Bronfenbrenner, J. Catlin, R. B. Darlington; Mrs. Eleanor J. Gibson; Messrs. J. J. Gibson, B. P. Halpern, R. J. Johnston, S. C. Jones, W. W. Lambert, E. H. Lenneberg, D. Levitsky, J. B. Maas, R. B. MacLeod, L. Meltzer, M. P. Naditch, U. Neisser, D. T. Regan, T. A. Ryan, F. Stollnitz, M. Waldman, G. W. Wilcox.

The Major

Prerequisites for admission are: (a) three courses in psychology which must include Psychology 101 and will normally include a laboratory course (Human Development and Family Studies 115 may be counted toward the three course requirement); (b) no grade below C+ in any psychology course; (c) acceptance by the admissions committee of the Department of Psychology.

Application forms may be obtained at the departmental office and should be filed two weeks before the preregistration period.

Requirements for the major are:

(a) A total of forty hours in psychology, including prerequisites. Students majoring in psychology are expected to choose, in consultation with their advisers, a range of courses which cover the basic processes in psychology, and to have laboratory experience.

(b) Completion, by the beginning of the senior year, of an approved course in statistics, or the passing of an achievement examination administered by the department.

With the permission of the major adviser, courses in other departments may be accepted toward the major requirements.

Concentration in Social Psychology

In cooperation with the Department of Sociology, a concentration in social psychology is available. Psychology majors who wish to specialize in social psychology are expected to meet the general requirements set by the Department, including statistics and laboratory. To ensure a solid interdisciplinary grounding, students in the concentration will be permitted to include in the major courses in sociology and related fields. Advisers will assist the student in the selection of a coherent set of courses in social organization, cultural anthropology, experimental psychology, social methodology, and several aspects of social psychology. Seniors in the concentration may elect graduate seminars.

The Honors Program

The Honors Program is intended to give the student an opportunity to examine selected problems in depth, and subsequently to carry out independent investigation under the direction of a faculty member. During the spring term of their junior year, Honors students will take either Psychology 494, a special seminar focusing on classic problems in psychology, or (with their adviser's consent) some other appropriate course at the 400 level or above. In the fall term of their senior year, they will enroll in Psychology 495, choosing between a special seminar dealing with problems in perception, learning, and physiological psychology, and one dealing with problems in personality and social psychology. These seminars are intended to help the student focus on a thesis problem, and will consist primarily of individualized instruction. Thesis research will normally begin during this semester, and will continue in the spring, by enrollment in Psychology 498. Final Honors standing is based upon a written thesis (due on the first Monday in May) and an oral defense of the thesis, as well as upon general academic performance. Prospective candidates are encouraged to file applications as early as possible but not later than the Friday before Thanksgiving. These applications should be turned in to one of the department secretaries in 313 Morrill Hall. For consideration by the Honors Committee applicants must have, at a minimum, a cumulative grade average of B in all courses taken in psychology.

Distribution Requirement

The Distribution requirement in social science is satisfied by any two courses in psychology. (Human Development and Family Studies 115 and Rural Education 110 may be counted.)

101 Introduction to Psychology: Bases of Human Behavior. *Fall term. Credit three hours. Open to freshmen. Those planning to major in psychology should begin with this course. Three lectures and one demonstration-discussion seminar per week. Lectures, M W F 10:10; seminars to be assigned. Mr. Maas. Em-*

phasizes the study of human behavior from the standpoint of the basic processes. Topics include brain functioning, dreaming, intelligence, psychological testing, perception, learning, motivation, emotion, abnormal behavior, and psychiatry. The course centers upon contemporary problems confronting psychologists and is supported by films, guest speakers, and discussion seminars.

Introduction to Psychology: Development of Human Behavior (Human Development and Family Studies 115). *Fall term. Credit three hours. Open to freshmen. Graduate students are advised to take this course as Human Development and Family Studies 615. Psychology 101 not a prerequisite. Three lectures and an optional section meeting. Lectures, M W F 11:15; section to be arranged. Mr. Bronfenbrenner. The course provides a systematic analysis of the forces affecting human development from infancy to adulthood. Attention is focused on the interplay of biological factors, interpersonal relationships, social structure, and cultural values in changing behavior and shaping the individual. Special emphasis is given to the social implications of existing knowledge.*

102 Introduction to Psychology: Personality and Social Behavior. *Spring term. Credit three hours. Open to freshmen. M W F 11:15. Mr. Jones. An examination of personality and social influences on the individual's adjustment to himself and his environment. Both classic and contemporary viewpoints will be considered and evaluated in the light of empirical evidence.*

[103 Educational Psychology. *Spring term. Credit three hours. Prerequisite: an introductory course in psychology. Not offered in 1971-72.]*

201 Introduction to Experimental Psychology. *Spring term. Credit three hours. Prerequisite: Psychology 101. Lectures M W F 12:20. Mr. Catlin. An exposition of the role of experimentation in psychology, by examination of a diverse set of topics, primarily in perception, learning, motivation, etc. In the various areas, both the research methods (experimental and other) employed and the relationship between experimentation/research and theory will be examined. Concurrent registration in 201A not required.*

201A Introduction to Experimental Psychology Laboratory. *Spring term. Credit two hours. Prerequisite: Concurrent registration in Psychology 201. Laboratory T or W or Th 9:05-11 or Th 2:30-4:25, or F 1:25-3:20.*

[206 Psychology in Business and Industry. *Spring term. Credit three hours. Prerequisite: Psychology 101 or Human Development and Family Studies 115, or consent of the instructor. Not offered in 1971-72.]*

210 Attention and Memory. *Spring term. Credit three hours. Prerequisite: Psychology 101 or consent of the instructor. M W F 9:05. Mr. Neisser. A study of the relations between the constructive processes of attention and memory, emphasizing recent studies of attentive and preattentive processes in vision, of selective listening, of short-term memory and recoding, and of long-term memory and imagery.*

212 Modern Psychology in Historical Perspective. *Spring term. Credit four hours. Prerequisite: one course in psychology or consent of the instructor. Lectures, M W F 1:25. Mr. MacLeod. An examination of the broad problems of psychology, e.g., mind and body, the basis of knowledge, the basis of conduct, as they have been envisaged at various periods of history. Special emphasis is laid on the relation between psychological thinking and developments in philosophy, religion, the sciences, literature, and the arts. Designed for the general student.*

215 Linguistics and Psychology. *Fall term. Credit three hours. Open to freshmen. Prerequisite: consent of the instructor. M W F 11:15. Messrs. Kelley and Levin.* An introductory course covering the recent development of a new field of study based on psychology and linguistics. Topics covered will be the nature of language and its acquisition, the influence of the sounds and grammar of language on perception and memory, bilingualism, and dialects.

216 Decision and Choice. *Fall term. Credit three hours. Prerequisite: a course in psychology or consent of the instructor. M W F 2:30. Mr. Wilcox.* An analysis of human decision making and choice behavior in situations with risky alternatives. Experimental findings on the effects of situational influences and the role of personal characteristics are examined. An introduction to rational theories of choice using the notions of subjective probability and utility is given. Philosophical questions regarding the freedom of decision are explored.

Intergroup Relations: Prejudice, Discrimination, and Conflict (Sociology 264).

280 Social Influence Processes: Attitude and Behavior Change (Also Sociology 280). *Fall term. Credit three hours. No prerequisites. T Th 11:15-12:30. Mr. Regan.* This course is intended to provide an extensive review of the literature on social influence processes. Beginning with the effects of the mere presence of others on behavior, we will discuss theory and empirical research related to conformity, compliance, imitation and modeling, group decision making, and attitude change. The relationship between attitudes and behavior will be examined in detail, and application will be made to naturally occurring social influence situations.

281 Interpersonal Relations and Small Groups (Also Sociology 281). *Spring term. Credit three hours. Prerequisite: a course in sociology or psychology. M W F 9:05.* The presentation and development of selected theories offered to account for the dynamics of interpersonal relationships and the social structures which emerge from and condition these relationships. Emphasis will be upon social psychological processes in small groups such as athletic teams committees fraternities and engaged couples. These perspectives are compared and evaluated.

[284 Social-Psychological Theories and Applications (Also Sociology 284). *Fall term. Credit three hours. Not offered 1971-72.]*

285 Personality and Social Systems (Also Sociology 285). *Fall term. Credit four hours. No prerequisites. T Th 9:05-10:35. Mr. Naditch.* A number of theories and conceptual approaches that have been used to understand the relationship between personality and social systems will be critically examined, including the cultural-configurational, psychoanalytic-cultural, behavioristic psychoanalytic, and social structural-functional approaches. A conceptual model of the interaction of personality and social systems will be developed. Emphasis will be on the relationship of individual and situational variables, and the role of cultural values in personality development.

301 An Information Processing Approach to Psychology. *Spring term. Credit three hours. Prerequisite: one year of mathematics or a physical science, or consent of the instructor. M W F 10:10. Mr. Bernbach.* Introductory treatment of human behavior as the behavior of an information processing system. Topics covered include input and coding of information (detection and perception), storage and retrieval of information (learning and memory), and output proc-

esses (skill learning and performance). Also covered is a treatment of behavior as a choice among alternatives and the bases of such choices (motivation).

305 Visual Perception. *Fall term. Credit four hours. Prerequisites: two courses in psychology including Psychology 101. Lectures, M W F 9:05. Laboratory for current and prospective Psychology majors W or Th 2:30-4:25. Discussion sections for nonmajors one hour a week, to be arranged. Mr. Neisser.* The basic phenomena of visual perception, explained in terms of the stimulus variables on which they depend and the mechanisms involved. Topics include perceptual constancy, illusions, space perception, motion, elementary visual mechanisms, pattern recognition, and some problems of perceptual learning and development.

306 Learning. *Spring term. Credit four hours. Prerequisite: Psychology 101, or 201, or 301, or consent of the instructor. Lectures, T Th 10:10. Laboratory, M or T or W 1:25-4:25. Mr. Stollnitz.* The fundamental conditions and principles of learning, both animal and human. The basic phenomena of classical and operant conditioning, discrimination learning, motor learning, and verbal learning will be studied experimentally. Traditional and contemporary theories of learning will be reviewed, and selected experimental literature will be discussed with special emphasis upon recent developments in the field.

[307 Motivation. *Fall term. Credit four hours. Prerequisites: Psychology 101 and 201, or 306, or consent of the instructor. Lectures, W F 10:10; Laboratory, T 1:25-3:20. Mr. Ryan. Offered in alternate years. Not offered 1971-72.]*

309 Development of Perception and Attention. *Spring term. Credit four hours. Prerequisites: Psychology 201, 305, 306, or consent of the instructor. M W F 10:10. Mrs. Gibson.* Theories of perceptual learning and methods of studying them. The development of perception of objects, the spatial layout, events, representations and coded stimuli. Development of attention and learned discriminations in children.

310 Human Learning and Memory. *Fall term. Credit three hours. T Th 10:10 and an additional hour to be arranged. Mr. Bernbach.* Basic process of human learning and memory, particularly for simple verbal material. Emphasis on the storage and retrieval of information as the fundamental unit of learning.

313 Cognitive Processes. *Fall term. Credit three hours. Prerequisite: six hours of psychology or consent of the instructor. T 1:25-3:20. Mr. Baldwin.* The course concentrates on higher thought processes. It covers problem solving, concept formation, thinking, theories of thinking, mathematical models, and computer simulation of thought processes. Students are expected to carry out a small empirical research project on some problem in this area.

316 Auditory Perception. *Spring term. Credit four hours. Prerequisites: two courses in psychology, including Psychology 201 or 305, or consent of the instructor. M W F 9:05. Mr. Wilcox.* The basic phenomena of auditory perception will be studied with an emphasis on music and speech. Topics in the foundations of auditory perception including loudness, pitch, masking, binaural localization, and elementary neurophysiology of the auditory pathway will be followed by an examination of the perceptual bases of harmony, melody, and rhythm. Topics in speech include the rudiments of acoustic phonetics, natural and synthetic mechanisms of speech production, theories of speech perception, and auditory coding of sound.

323 Physiological Psychology (Also Biological Sciences 323). *Fall term. Credit three hours. Prerequisites: Psychology 201 or a 300-level laboratory course in Psychology, Biological Sciences 101-102 or its equivalent, and Chemistry 103-104 or its equivalent. T Th 9:05. Mr. Halpern.* A selective examination of neural, endocrine, and biochemical functions related to emotion, memory, learning, and sleep.

323A Physiological Psychology Laboratory (Also Biological Sciences 323A). *Fall term. Credit three hours. May be taken on an S-U basis with consent of the instructor. Prerequisites: concurrent registration in Psychology 323. Also Psychology 201A and Biological Sciences 320 and consent of the instructor. Discussion section M 7:30-9 p.m. Laboratory T 1:25-4:25. Mr. Halpern.* Experiments will be done on physiological aspects of conditioning and memory in vertebrates and invertebrates, interactions between hormones and behavior, and effects of brain lesions on perceptual behavior. A final original experiment will be planned and carried out.

325 Abnormal Psychology. *Fall term. Credit four hours. Prerequisite: nine hours of Psychology, or consent of the instructor. M W 1:25-2:40.* An introduction to the study of disordered behavior. Description of major syndromes, investigations and theories of etiology, and approaches to treatment will be covered in an attempt to introduce the student to major concepts and problems in this area.

326 Comparative Psychology. *Fall term. Credit four hours. Prerequisite: Psychology 201 or Biological Sciences 320, or consent of the instructors. T Th 10:10; laboratory to be arranged. Messrs. Johnston and Stollnitz.* Similarities and differences in the behavior of animals ranging from the unicellular forms to man. Psychological and ethological approaches to animal behavior will be discussed. Topics will include perception, learning, social behavior, and communication, stressing both species-specific behavior and general trends in phylogeny.

328 Behavioral Maturation (Also Biological Sciences 328). *Spring term. Credit four hours. Prerequisites: familiarity with psychological theories of learning and development and one year of college biology. W F 12:20 and one hour to be arranged. Mr. Lenneberg.* Emergence of behavior will be studied in the light of developmental biology, including behavior genetics, neuroembryology and morphogenesis, physical maturation of the brain, transformation and allometry.

350 Statistics and Research Design. *Fall term. Credit four hours. Prerequisite: a course in the behavioral sciences. M W F 10:10. Mr. Darlington.* Devoted about equally to elementary applied statistics—both estimation and hypothesis testing—through two-way analysis of variance, and to general problems in the design and analysis of research projects.

361 Drugs and Behavior. *Fall term. Credit three hours. No prerequisites, though Biological Sciences 101-102 and Psychology 101 are strongly recommended. M W F 10:10. Mr. Levitsky.* This course will cover the techniques and problems in experimental psychopharmacology as they relate to psychoactive drugs as well as the behavioral, biochemical, and physiological effects of these drugs. Social and legal issues relating to the use of drugs in human societies will also be treated.

[363 Physiological Mechanisms and Motivations. *Fall term. Credit three hours. Prerequisites: Psychology 323, Biological Science 101, 102, or equivalent. Mr. Levitsky. Not offered 1971-72.]*

381 Social Psychology (Also Sociology 381). *Spring term. Credit four hours. Prerequisites: three hours of psychology and three hours of sociology. M W F 10:10. Mr. Lambert.* Analysis of the history, concepts, methods, and theories used to describe and conceptualize the ways in which people react to one another in social settings and in the laboratory. Students will work individually or as teams on projects, using experimental or other empirical methods. The topics for investigation in lectures and reading will include socialization, attitude change, communication, interpersonal influence, impression formation, leadership, and propaganda.

385 Theories of Personality (Also Sociology 385). *Fall term. Credit four hours. Prerequisite: Psychology 101 or 102, or consent of the instructor. M W F 12:20. Mr. Lambert.* A critical survey of the concept of personality in literature, the social sciences, and psychology. A number of the modern specialists will be discussed at some length, and recent empirical and experimental work that has grown out of their thought will be analyzed. The empirical relation of personality notions to some philosophical beliefs and literary productions will be considered. The emphasis will be mainly upon "normal" personality.

387 Psychological Aspects of Political Behavior (Also Sociology 387). *Fall term. Credit four hours. Prerequisites: junior standing and a course in social psychology or personality, or consent of the instructor. M W F 2:30. Mr. Alker.* A survey covering student activism, dogmatism, political paranoia, determinants of "left" and "right" ideology, Machiavellianism, autocratic vs. democratic leadership, need for power, group polarization and consensus, political socialization, and psychocultural theories of war. An empirical, hypothesis testing approach will be adopted.

401 Psychological Testing I. *Spring term. Credit four hours. Prerequisites: six hours in psychology and a course in elementary statistics. T Th 11:15 and additional hours to be arranged. Mr. Darlington.* Emphasis is on logical and mathematical problems in the interpretation, evaluation, and construction of tests. No training in administering tests.

[402 Psychological Testing II. *Spring term. Credit four hours. Prerequisite: Psychology 401 or consent of the instructor. Offered in alternate years. Not offered in 1971-72.]*

410 Individual Differences. *Spring term. Credit four hours. Prerequisites: seven hours of psychology and junior or senior standing, or consent of the instructor. M W F 2:30. Mr. Alker.* A survey of the research literature in differential psychology on personality, intelligence, creativity, psychopathology, sex, and race. Conflicts between experimental, i.e., manipulative and correlational research approaches will be considered in terms of both their "relevance" and scientific quality. General problems in personality assessment will also be considered.

416 Psychology of Language. *Spring term. Credit four hours. Prerequisite: Psychology 215 or consent of the instructor. M W 2:30-4. Mr. Catlin.* An advanced treatment of the nature of the human capacity for language. Topics will include the nature of linguistic theory, semantics and reference, language universals, speech perception and production, comparative primate vocalization/communication, the relationship of language to other cognitive processes, and the embodiment of language in the brain.

424 Brain and Behavior (Also Biological Sciences 424). *Spring term. Credit four hours. Prerequisite: familiarity with theories of perception, memory, and*

122 Psychology

physiological psychology, or consent of the instructor. M 1:25-4:25. Mr. Lenneberg. A theoretical introduction to human neurology for students of behavior. This survey of clinical symptoms and their etiology is designed to enable students to make use of disease for research purposes.

426 Experimental Psychopathology. *Spring term. Credit four hours. Prerequisite: consent of the instructor. Lecture, M W 3:35-4:50. The application of experimental methods to behavior disorders. A survey of current investigations of etiology and treatment with special emphasis upon a scientific approach to pathology.*

427 Sensory Function (Also Biological Sciences 427). *Fall term. Credit three hours. Offered in alternate years. Prerequisites: Biological Sciences 320 or the equivalent and consent of the instructors. M W F 11:15 and a one-hour discussion section to be arranged. Messrs. Halpern and Tapper. Sensory receptors and the central nervous system transformation of afferent activity will be considered in relation to human and animal psychophysical data and to the adaptive significance of behavior. The receptors will be examined in terms of anatomy, biochemistry, biophysics of transduction, and the central nervous system control of peripheral input.*

427A Sensory Function Laboratory (Also Biological Sciences 427A). *Fall term. Credit two hours. May be taken with an S-U option. Offered in alternate years. Prerequisites: Psychology 427 and consent of the instructors. Enrollment limited to 15 students. Hours to be arranged. Messrs. Halpern and Tapper. Experiments on the principles of receptor function and afferent neural activity.*

[429 Psychophysics and Scaling. *Fall term. Credit four hours. Prerequisite: calculus, statistics, junior or senior standing, or consent of the instructor. Not offered in 1971-72.]*

440 Sleep and Dreaming. *Spring term. Credit four hours. Prerequisites: advanced undergraduate or graduate standing and consent of the instructor. Enrollment limited to 15 students. T 10:10-12:05 and laboratory to be arranged. Mr. Maas. Investigation of animal and human biological, physiological, and psychological research on sleep and dreaming. Explores the relationship between physiological evidence, empirical laboratory research, and clinical findings in the process and content of the dream state. Demonstration of research techniques used in the animal and human sleep laboratory. Seminars will focus on reviews of the literature and research design and proposals.*

442 Physiological Mechanisms of Animal Social Behavior. *Spring term. Credit four hours. Prerequisites: Psychology 323 or 328, or Biological Sciences 320, or consent of the instructor. M W F 11:15. Mr. Johnston. The course will examine the intricate relationships between environmental, behavioral, and physiological factors in the causation of social behaviors (e.g., sexual behavior, competition and aggression, maternal behavior, social organization). Hormone, neuro-hormonal, and brain functions related to these behaviors will be studied. The course will be broadly comparative and will cover both psychological and ethological approaches.*

[462 Discrimination Learning. *Fall term. Credit four hours. Prerequisite: Psychology 306 or the equivalent. Not offered in 1971-72.]*

464 Motivation and Human Learning. *Fall term. Credit four hours. Offered in alternate years. Prere-*

quisites: Psychology 306 or 307 or 310 or consent of the instructor. M W F 10:10. Mr. Ryan. Problems in the initiation and control of learning behavior. A review of classical and current learning theories with emphasis upon motivational constructs. A survey of research on intentional and unintentional learning, cognitive and noncognitive factors in conditioning, motivational factors in intellectual learning, motor skill, and memorizing.

[465 Mathematical Behavior Theory. *Fall term. Credit four hours. Prerequisite: one year of calculus. Not offered in 1971-72.]*

[466 Theories of Vision. *Spring term. Credit four hours. Prerequisite: consent of the instructor. Not offered in 1971-72.]*

471-472 Statistical Methods in Psychology. *Throughout the year. Credit four hours a term. Prerequisite: Psychology 101 or Human Development and Family Studies 115, Psychology 201 or consent of the instructor. Psychology 471 is prerequisite to 472. M W F 1:25. Mr. Ryan. An analysis of the methods for treating various kinds of psychological data. Fall term: tests of significance and confidence limits, analysis of variance and correlation. Spring term: complex designs in analysis of variance, analysis of trends and covariance, multiple and curvilinear correlation, introduction to factor analysis.*

475 Analysis of Nonexperimental Data. *Fall term. Credit four hours. Offered in alternate years. Prerequisites: Psychology 471 or equivalent. T Th 11:15 and an additional hour to be arranged. Mr. Darlington. Introduction to techniques of data analysis especially applicable to nonexperimental situations. Multiple regression and its application to problems of unequal frequencies in analysis of variance and covariance; path analysis; factor analysis; general rational expressions; empathy and person perception; clinical vs. statistical prediction; Bayesian analysis; canonical analysis. Examples are drawn primarily from behavioral genetics, political behavior, crosscultural studies, and other nonlaboratory areas. Little emphasis on computational procedures since standard computer programs are used for most of the techniques discussed.*

[476 Instrumentation in Psychology. *Spring term. Credit four hours. Prerequisite: consent of the instructor. Not offered in 1971-72.]*

[480 Attitude Theory (Also Sociology 480). *Spring term. Credit four hours. Prerequisite: a course in social psychology. Not offered 1971-72.]*

481 Advanced Social Psychology (Also Sociology 481). *Spring term. Credit four hours. Prerequisite: a course in social psychology or consent of the instructor. M W F 11:15. Mr. Regan. Emphasis is on the empirical study of social psychological phenomena. Students will be introduced to empirical laboratory and field methods used in social psychology. Substantive problems will provide the focus for the demonstration and use of these techniques.*

482 Social Psychological Aspects of Social Change (Also Sociology 482). *Spring term. Credit four hours. Prerequisites: any two courses in psychology or sociology or consent of the instructor. T Th 2:30-4. Mr. Naditch. A critical analysis of social psychological theories of social change. The development of a theory of social change. The evaluation of social change theories and of the personality and social systems approach to understanding social change by examination of the utility of these approaches for understanding contemporary social phenomena.*

483 Social Interaction (Also Sociology 483). *Fall term. Credit four hours. Prerequisites: consent of the*

instructor and three hours in psychology and three hours in sociology. Hours to be arranged. A field and laboratory course dealing with the major dimensions of interpersonal perception and behavior. The relation of these dimensions to self-conception, social roles, group structure, and dynamics are examined. Contemporary research is stressed in the readings. Student projects are an integral part of the course.

484 Experimental Group Dynamics (Also Sociology 484). Spring term. Credit four hours. Prerequisites: a course in statistics and a course in social or experimental psychology. M W (F) 12:20 and additional laboratory hours to be arranged. A practicum. Supervised research experience in the design, execution, and analysis of experimental research on topics such as group cohesiveness, group pressures, group goals, leadership, group performance, and interpersonal influence and communication.

486 Groups as Socializing Agents (Also Sociology 486). Spring term. Credit four hours. Prerequisites: graduate or upper class standing and consent of the instructor. T 1:25-3:20. Mr. Bronfenbrenner. The seminar examines critically existing theory and research on the role of groups in shaping the behavior and values of their members. Particular attention is focused on such processes as modeling, social reinforcement, and pressure to conform in enduring social structures such as the family, the peer group, work teams, and business organizations. Students are expected to work independently in assembling and evaluating material relevant to particular issues.

489 Seminar: Selected Topics in Social Psychology (Also Sociology 489). Fall term. Credit four hours. Prerequisites: consent of the instructor and three hours of psychology and three hours of social psychology or sociology. T 2:30-4:30. Mr. Jones. A small discussion seminar dealing with issues in both social and personality psychology. Initial discussions will focus on specific areas of the field such as interpersonal evaluation, attitude change, and group processes. Subsequently, the discussions will become more general and raise such questions as: What are the major themes social psychologists are or should be studying? What are the appropriate units of analysis of social behavior?

494 Junior Honors Seminar. Spring term. Credit four hours. Prerequisite: admission to the departmental Honors program. Hours to be arranged. One or more fundamental issues in psychology will be examined in depth and from many points of view.

495 Senior Honors Seminar. Fall term. Credit four hours. Prerequisite: admission to the departmental Honors program. Hours to be arranged. Mr. Neisser. Intended to introduce the Honors student to specific areas of psychological research so that he can choose and begin working on a dissertation topic. The seminar will usually be divided into two sections, dealing with different areas of interest.

496 Supervised Study. Either term. Credit two hours. Staff.

497 Supervised Study. Either term. Credit four hours. Staff.

498 Senior Honors Dissertation. Spring term. Credit four hours. Prerequisite: admission to the departmental Honors program and (usually) Psychology 495. Hours to be arranged.

Neurobiology and Behavior

Recommended courses in neurobiology and behavior in other departments are Biological Sciences 106,

320, 324, 326, 522, and 526 and Electrical Engineering 4588 and 4589.

Graduate Courses and Seminars

Primarily for graduate students, but with the consent of the instructor may be taken by qualified undergraduates. Approximately five graduate courses or seminars will be offered each term, the selection to be determined by the needs of the students. During the preregistration period, the list of courses and seminars for the following term will be posted, specifying instructors, topics to be covered, and hours of meeting.

For complete descriptions of courses numbered 500 or above see the *Announcement of the Graduate School: Social Sciences*. If a course is not included there, consult the Graduate Field Representative.

501-502 General Seminar for Beginning Graduate Students. Either term. Credit three hours.

511-512 Perception. Either term. Credit four hours.

513-514 Learning. Either term. Credit four hours.

515-516 Motivation. Either term. Credit four hours.

517-518 Language and Thinking. Either term. Credit four hours.

519-520 Cognition. Either term. Credit four hours.

521-522 Psychobiology. Either term. Credit four hours.

523-524 Physiological Psychology. Either term. Credit four hours.

525-526 Mathematical Psychology. Either term. Credit four hours.

531-532 History of Psychology. Either term. Credit four hours.

541-542 Statistical Methods. Either term. Credit four hours.

543-544 Psychological Tests. Either term. Credit four hours.

545-546 Methods in Social Psychology. Either term. Credit four hours.

547-548 Methods of Child Study. Either term. Credit four hours.

561-562 Human Development and Behavior. Either term. Credit four hours.

575-576 Personality. Either term. Credit four hours.

577-578 Industrial Psychology. Either term. Credit four hours.

583 Proseminar in Social Psychology and Personality (Also Sociology 583). Fall term. Prerequisites: graduate major in social psychology or minor in social psychology with consent of the instructor. M W 4-5:45. Mr. Lambert and staff.

585 Social Structure and Personality (Also Sociology 585). Fall term. Credit four hours. Prerequisite: graduate student standing or consent of the instructor. T 3:35-5:30. Mr. Rosen.

591-592 Educational Psychology. Either term. Credit four hours.

595-596 The Teaching of Psychology. Either term. Credit four hours.

683 Research Practicum in Social Psychology (Also Sociology 683). Fall term. Credit four hours. Hours to be arranged. Mr. Hayes.

Seminar: Social Psychology of Modernization (Sociology 685).

Romance Studies

The Department of Romance Studies offers courses in French language and literature, Italian language and literature, and Spanish language and literature. For complete course listing and for details of the major programs in French, Italian, and Spanish, see those language headings in the section Modern Foreign Languages and Literatures.

Russian Literature

For complete course listings and for details of the major, see the heading "Russian" in the section Modern Foreign Languages and Literatures.

Semitic Languages and Literatures

Messrs. C. Carmichael, A. Ivry, I. Rabinowitz.

The Department of Semitic Languages and Literatures offers Cornell undergraduates access to the thought and self-expression of the cultures which produced Judaism, Christianity, and Islam, and which today help to define and characterize the many millions of people in the group of countries that comprise the region we call the Middle East. Hebrew, Aramaic, and Arabic are not only the languages of the Old Testament and of the Koran, but of literatures of intrinsic merit and interest whose influence has permeated and enriched the literatures of many other civilizations, both East and West, ancient and modern, including our own. Studies pursued in this Department will, therefore, be found of lasting benefit and utility to all whose career interests involve the Middle East or Africa, and to all whose interest in religion and the humanities is more than merely casual.

Students who elect Semitics as their major study must complete twenty-four hours of advanced courses offered by the Department (courses numbered above 201, except as specified below) and fifteen hours, approved by the Department, in related subjects. Related subjects may be selected by the student from course offerings in other departments of the College which are relevant to his intellectual interests or to his preparation for professional training or graduate study.

Students whose major study is in Semitics may emphasize either Hebrew or Arabic language and texts, provided that at least nine hours of course work be taken in the less emphasized language; all courses in the less emphasized language may be counted among the twenty-four needed to complete the major study.

Independent study may be arranged for students who have special interests or needs and are able to work in areas not covered by the courses.

The Honors Program

Candidates for the degree of Bachelor of Arts with Honors in Semitics, in addition to fulfilling the requirements of the major study as outlined above, must complete successfully the special Honors courses 370, 371, and 372. Part of the credit for Honors courses may be included in the twenty-four hours required for the major study. Students who wish to become candi-

dates for Honors and who have a cumulative average of B or better should consult their major advisers before preregistering for the second term of the junior year.

Distribution Requirement

The Distribution requirement in humanities is satisfied in Semitic literatures by any two courses in Semitics at the 200 level or above, provided the courses have not been used in fulfilling the language requirement.

Hebrew and Aramaic

101A-102A Elementary Modern Hebrew (oral emphasis). *Throughout the year. Six credit hours per term. Section 1, M-F 11:25; Section 2, M-F 12:20; Section 3, time to be arranged. Mrs. Komem and Mrs. Parnes.*

101B-102B Elementary Modern Hebrew (literary emphasis). *Throughout the year. Three credit hours per term. M W F 1:25. Mrs. Komem.*

103-104 Classical Hebrew. *Throughout the year. Three credit hours per term. M W F 11:15. Mr. Carmichael and staff. Intended for students who wish to read the Bible in the original language.*

201 Classical Hebrew Prose. *Fall term. Credit three hours. Prerequisites: Hebrew 103-104 or discretion of the instructor. M W F 2:30. Mr. Carmichael. Selected prose narratives of the Hebrew Bible.*

202-203 Intermediate Modern Hebrew. *Throughout the year. Three credit hours per term. Prerequisites: Hebrew 101A-102A. M W F 10:10. Mrs. Dannhauser.*

204 Postbiblical Hebrew Prose (1). *Spring term. Credit three hours. Prerequisites: Hebrew 103, or three units of entrance Hebrew, and the consent of the instructor. T Th 9:05 and an additional hour to be arranged. Mr. Rabinowitz. Rapid reading of narrative texts in rabbinic, medieval, and modern Hebrew.*

[302 Classical Hebrew Poetry. *Spring term. Credit four hours. Prerequisite: Hebrew 201 or consent of the instructor. Mr. Carmichael. Not offered in 1971-72.]*

[305 Postbiblical Hebrew Prose (2). *Fall term. Credit four hours. Prerequisites: Hebrew 204, or four units of entrance Hebrew and consent of the instructor. Not offered in 1971-72.]*

[307 Postbiblical Hebrew Poetry. *Fall term. Credit four hours. Prerequisite: Hebrew 305. Not offered in 1971-72.]*

[411 Mishnah and Tosephta. *Fall term. Credit four hours. Prerequisite: Hebrew 305 or consent of the instructor. Not offered in 1971-72.]*

[422 Midrash. *Spring term. Credit four hours. Prerequisite: Hebrew 305 or consent of the instructor. Not offered in 1971-72.]*

[423 Talmud. *Fall term. Credit four hours. Prerequisite: Hebrew 305 and Aramaic 452, or consent of the instructor. Not offered in 1971-72.]*

432 Medieval Hebrew Literature. *Spring term. Credit four hours. Prerequisite: Hebrew 305 or consent of the instructor. Hours to be arranged. Reading of a group of texts of philosophical interest.*

[441 Modern Hebrew Literature. *Fall term. Credit four hours. Prerequisite: Hebrew 305 or consent of the instructor. Not offered in 1971-72.]*

451 Aramaic. *Spring term. Credit four hours. Prerequisite: Hebrew 201, Arabic 208, or consent of the instructor. Hours to be arranged. Mr. Rabinowitz. The*

Western Aramaic of the Bible, the Qumran Scrolls, and the Targums.

[452 **Talmudic Aramaic.** *Spring term. Credit four hours. Prerequisite: Hebrew 305 or consent of the instructor. Mr. Rabinowitz. Not offered in 1971-72.*]

[453-454 **Syriac.** *Throughout the year. Credit four hours a term. Prerequisite: Hebrew 201, Arabic 208, or consent of the instructor. Not offered in 1971-72.*]

[472 **Seminar.** *Spring term. Credit four hours. Prerequisite: Hebrew 302 or consent of the instructor. Not offered in 1971-72.*]

401 **Independent Study.** *Either term. Credit two hours. For qualified students. Staff.*

402 **Independent Study.** *Either term. Credit four hours. For qualified students. Staff.*

Arabic

105-106 **Elementary Literary Arabic.** *Throughout the year. Credit three hours a term. First term prerequisite to the second. T Th S 12:20. Staff.*

207-208 **Intermediate Literary Arabic.** *Throughout the year. Credit three hours a term. Prerequisite: Arabic 106 or consent of the instructor. M W F 9:05. Mr. Ivry. Rapid reading of selected texts in the main genres of Arabic literature.*

[317 **Islamic Texts in Arabic.** *Fall term. Credit four hours. Prerequisite: Arabic 208 or consent of the instructor. Mr. Ivry. Not offered in 1971-72.*]

[318 **Arabic Geographers and Historians.** *Spring term. Credit four hours. Prerequisite: Arabic 208 or consent of the instructor. Not offered in 1971-72.*]

[461 **Medieval Arabic Belles Lettres ('Adab).** *Fall term. Credit four hours. Prerequisite: Arabic 317 or 318, or consent of the instructor. Not offered in 1971-72.*]

[462 **Arabic Philosophers.** *Spring term. Credit four hours. Prerequisite: Arabic 317 or 318, or consent of the instructor. Mr. Ivry. Not offered in 1971-72.*]

[491 **Seminar.** *Fall term. Credit four hours. Open to qualified undergraduate and graduate students. Not offered in 1971-72.*]

405 **Independent Study.** *Either term. Credit two hours. For qualified students. Staff.*

406 **Independent Study.** *Either term. Credit four hours. For qualified students. Staff.*

Honors Courses

370 **Honors Course.** *Spring term. Credit four hours. To be taken in the junior year. A program of readings and consultations devoted to an author or topic to be made known in advance of the term.*

371-372 **Senior Honors Course.** *Throughout the year. Credit four hours a term. First term prerequisite to the second. Continuation of 370 with change of author or topic.*

Semitic Literature in Translation

209 **Classics of Islamic Thought.** *Fall term. Credit three hours. M W F 1:25. Mr. Ivry. Readings in English translation on the culture and poetry of pre-Islamic Arabia, Mohammed and the Koran, and works of traditional and secular authors of the eighth to thirteenth*

centuries A.D. Students will be introduced to the diversified culture of the Islamic "Golden Age" which has set the standard for subsequent intellectual and cultural developments in the Moslem World.

[210 **The Literature of the New Testament.** *Spring term. Credit three hours. Mr. Carmichael. Not offered in 1971-72.*]

215 **The Jewish Heritage.** *Fall term. Credit three hours. M W F 10:10. A survey of the major Jewish classics from earliest to modern times. The aim of the course is to introduce the student to the principal works of literature which have become the classics of Judaism and the Jewish people, and to analyze their literary qualities and assess their formative aspects (e.g. Old Testament, Mishnah, Rashi, Medieval Hebrew Literature, modern Hebrew Poetry). All texts will be read in English translation.*

The Literature of the Old Testament (Comparative Literature 301). *Spring term. Credit four hours. M W F 9:05. Mr. Rabinowitz.*

Literary Studies in Christian Origins (Comparative Literature 303). *Fall term. Credit four hours. M W F 10:10. Mr. Carmichael.*

The Rational Tradition in Judaism (Comparative Literature 304). *Spring term. Credit four hours. M W F 1:25. Mr. Ivry.*

[306 **Studies in Biblical Literature.** *Spring term. Credit four hours. Mr. Carmichael. Not offered in 1971-72.*]

[**The Dead Sea Scrolls in Their Literary and Historical Context (Also Comparative Literature 302).** *Spring term. Credit four hours. M W F 9:05. Mr. Rabinowitz. Not offered in 1971-72.*]

[309 **Modern Hebrew Literature (Comparative Literature 309).** *Fall term. Credit four hours. Not offered in 1971-72.*]

409 **Averroes and Averroism in Islam, Judaism, and Christianity.** *Spring term. Credit four hours. T Th 3:35 plus a third hour to be arranged. Mr. Ivry. Readings in translation of Averroes' writings on the soul and intellect, illustrative of that doctrine which came to symbolize the antithesis of traditional beliefs in personal immortality and in religious truth in general. Attention will be paid to the devastating effect Averroism had upon the development of philosophical and scientific inquiry in Islam and Judaism, and to the reaction of Christianity to its challenge.*

410 **Ethics and Mysticism in Judaism.** *Fall term. Credit four hours. T Th 3:35, plus a third hour to be arranged. Mr. Ivry. A study of ethical and mystical systems of thought in Jewish writings from late Hellenistic to contemporary times. Comparisons will be made with Gnostic, Islamic, and Christian writings, as well as with "normative" Rabbinic thought. Readings in translation from Kabbalistic and other medieval texts, as well as from Hasidic and modern authors such as Buber.*

Sociology

Mr. L. Reissman, Chairman; Messrs. H. A. Alker, P. Chi, G. H. DeFriese; Mrs. Rose K. Goldsen; Messrs. G. Gordon, S. J. Gould, D. P. Hayes, N. W. Henry, J. A. Kahl, W. W. Lambert, J. A. MacDougall, P. G. Marden, R. McGinnis, L. Meltzer, M. W. Meyer, M. P. Naditch, B. C. Rosen, G. F. Streib, J. M. Stycos, N. Tavuchis, W. F. Whyte, R. M. Williams, Jr.

Sociology Major

A. General Sociology

For a major in sociology, the following courses must be completed:

(a) *Prerequisites.* A student applying for admission to the major must have completed Sociology 101 and one 200-level sociology course. In addition, he must present two other courses in related subjects, typically to be chosen from Industrial and Labor Relations 210 (Statistics I), Mathematics 107-108 or 111, Philosophy 212 (Introduction to Logic), and Linguistics 201 (Introduction to the Scientific Study of Language). In special cases, however, other preparatory courses may be more relevant to the student's choice of concentration within sociology (e.g., courses in biological sciences for a concentration in demography or ecology; courses in computer science and/or engineering for systems analysis). In such cases, the Undergraduate Committee will judge the appropriateness of the courses.

(b) *Upperclass Courses.* A student accepted in the major must complete thirty-two hours of courses at the 300 level or higher, chosen in consultation with, and with the consent of, his adviser. Realizing the variety of other academic interests and career intentions to which sociology is relevant (for example, law, public service, and government) and which a major in sociology should serve, the Department wishes to allow each student and his adviser freedom to construct an appropriate sequence of courses. Students should, however, include among the thirty-two hours one course in the techniques of research; for example, Sociology 321, 425, 462 or Rural Sociology 320.

(c) *Senior Year Requirement.* All students will either (1) include within their thirty-two hours of advanced courses a graduate seminar during their senior year, writing for the seminar a comprehensive term paper, or (2) present to the Department during their last term of residence a substantial essay using empirical or library research.

B. Special Programs

Sociology with a Concentration in Social Psychology. Sociology majors who wish to specialize in social psychology, a program sponsored jointly by the Departments of Sociology and Psychology, must meet the requirements set for a major in general sociology. To ensure a solid interdisciplinary grounding, students in the concentration will be permitted to include in the major courses in psychology and related fields. Advisers will assist the student in the selection of a coherent set of courses in social organization, cultural anthropology, experimental psychology, social methodology, and several aspects of social psychology. Seniors in the concentration may elect graduate seminars.

Sociology with a Concentration in Urban Studies. Students who elect to specialize in the area of urban studies must meet the requirements set for a major in general sociology. In order to ensure a solid and diverse academic background while fulfilling these requirements, students in the concentration will be permitted to include in the sociology major courses in related fields. Advisers will assist the student in the selection of a coherent set of courses in sociology, social psychology, economics, government, and other related fields in the social sciences. Students seeking further information should consult with Mr. DeFriesse.

Sociology with a Concentration in Population Studies. A concentration in the area of population studies will provide the student with the opportunity to take a wide variety of courses and to participate in on-going re-

search in many areas of demography. Students who specialize in this area must meet the requirements set for a major in general sociology but will be encouraged to take related courses in fields other than sociology. Advisers will assist the student in the selection of courses that focus upon the basic demographic concerns of fertility, mortality and morbidity, migration, urbanization, and population policy. Courses in the techniques of population analysis and graduate seminars are also open to students in this concentration. For further information, students should see Mr. Marden.

Social Relations Major

The major in social relations, which is sponsored jointly by the Departments of Sociology and Anthropology, provides the student with basic competence in cultural anthropology, social psychology, and sociology, while giving particular emphasis to the common methods of research in these disciplines. The student electing this major is expected to obtain a grasp of the common interests and evidence of these disciplines as well as knowledge of their unique insights in attempting to develop generalizations regarding man in society. The student's work is integrated in his senior year when he takes the social relations seminar in which he is expected to interrelate aspects of the theory and data of the three disciplines.

1. *Prerequisites to the Major.* The candidate must apply to the Committee on Admission to the Social Relations Major, offering the following: (a) Either Anthropology 101 or Sociology 101; (b) Either Psychology 101 or 102, or Human Development and Family Studies 115 or Sociology 281; and (c) Either Industrial and Labor Relations 210 or equivalent.

2. *The Major.* The major calls for a minimum of thirty-six hours of course work as follows: (a) Three pairs or other combinations of related courses at the 300 level or above, to be selected in consultation with the major adviser. These six courses must include two courses from each of the following disciplines: anthropology, social psychology, sociology; (b) At least one course in methods, to be selected from the following: anthropological methods, techniques of experimentation (psychology), methods in sociology, advanced psychological statistics, the philosophy of science or of social science, advanced statistics (such as Industrial and Labor Relations 311); (c) At least one course in theory which is related to social relations; (d) The senior seminar in social relations (Sociology 497, or Anthropology 495).

A list of the courses which may be used to satisfy the requirements for a major in social relations is available from any of the major advisers.

Students seeking admission to the program in social relations should apply to the Chairman of the Social Relations Committee, Mr. Williams.

The Honors Program

For admission to the Honors Program, students should file application with the Department during the second semester of their junior year. Honors candidates must have a general average of at least B- and an average in departmental courses of at least B, or show exceptional promise.

Distribution Requirement

The Distribution requirement in social sciences is satisfied in sociology by any two courses in the Department of Sociology.

Seminars

Seminars may be taken by qualified undergraduates with the consent of the instructor, except as otherwise noted in course listings.

Participation in Research

Participation in sociological research may be required as part of course work for any student when the instructor considers that it will be to the student's educational advantage.

101 Man in Society. *Fall term. Credit three hours. M W F 11:15. Mr. Reissman.* An introduction to the principal concepts and perspectives of contemporary sociology. Course is organized around illustrative sociological research and offers experience with the data and techniques of the discipline.

Personality and Social Behavior (Psychology 102).

230 Population Problems. *Spring term. Credit three hours. M W F 12:20. Mr. Stycos.* The practical and scientific significance of population growth and composition. Fertility, migration, and mortality in relation to social and cultural factors and in relation to questions of population policy. National and international data will receive approximately equal emphasis.

248 Politics in Society. *Fall term. Credit three hours. M W F 10:10. Mr. Gould.* An examination of political institutions and theories as sociological phenomena. Cultural and social factors associated with political structure, political attitudes, and political behavior. Political decision making and theorizing as sociological processes.

[262 Public Opinion. *Spring term. Credit three hours. M W F 11:15. Mrs. Goldsen. Not offered in 1971-72.]*

264 Intergroup Relations: Social Conflict and Cooperation. *Spring term. Credit three hours. Prerequisite: Sociology 101 or consent of the instructor. T Th S 11:15. Mr. Williams.* Analysis of relations among ethnic, racial, and religious groups. Sources of collective conflict and cooperation. Relation of conflict to social order and social change. The course reviews causes and consequences of prejudice and discrimination, as well as of cooperation and accommodation. Social and political movements stressing militance or intolerance, and efforts to resolve intergroup conflict, will be examined with special attention to current developments in the U.S. Attention will be given to strategies of confrontation and conflict resolution.

272 Urban Communities. *Spring term. Credit three hours. Prerequisite: Sociology 101 or consent of the instructor. M W F 9:05. Mr. Reissman.* The study of urban aggregates as ecological, social, and cultural systems. The structure of urban communities will be studied both from the perspective of the larger, environmenting social and cultural system and from the perspective of internal relationships of institutions within the community. Patterns of community power structure and political participation will be examined within this context.

280 Social Influence Processes: Attitude and Behavior Change (Also Psychology 280). *Fall term. Credit three hours. T Th 11:15-12:30. Mr. Regan.* This course is intended to provide an extensive review of the literature on social influence processes. Beginning with the effects of the mere presence of others on behavior, we will discuss theory and empirical research related to conformity, compliance, imitation and modeling, group decision making, and attitude change. The relationship between attitudes and behavior will be examined in

detail, and application will be made to naturally occurring social influence situations.

281 Interpersonal Relations and Small Groups (Also Psychology 281). *Spring term. Credit three hours. Prerequisite: a course in psychology or sociology. M W F 9:05.* The presentation and development of selected theories offered to account for the dynamics of interpersonal relationships and the social structures which emerge from, and condition, these relationships. Emphasis will be upon social psychological processes in small groups, such as athletic teams, committees, fraternities, and engaged couples. These perspectives are compared and evaluated.

[284 Social-Psychological Theories and Applications (Also Psychology 284). *Fall term. Credit three hours. T Th (S) 10:10. Not offered in 1971-72.]*

285 Personality and Social Systems (Also Psychology 285). *Fall term. Credit four hours. T Th 9:05-10:30. Mr. Naditch.* A number of theories and conceptual approaches that have been used to understand the relationship between personality and social systems will be critically examined, including the cultural-configurational, psychoanalytic-cultural, behavioristic psychoanalytic, and social structural-functional approaches. A conceptual model of the interaction of personality and social systems will be developed. Emphasis will be on the relationship of individual and situational variables, and the role of cultural values in personality development.

321 Techniques of Sociological Research. *Fall term. Credit four hours. Prerequisite: a course in sociology. T Th 10:10 and laboratory time to be arranged. Mr. Hayes.* The course will stress research design and the operational side of laboratory methodology with a series of field and laboratory projects. Students will carry out several studies from planning to analysis stages.

343 The Family. *Fall term. Credit four hours. M W F 10:10. Mr. Tavuchis.* The concern is with the structure and function of the nuclear and extended family in the West and cross-culturally. Specific areas which will be examined include biological foundations, incest taboos, mate selection, illegitimacy, sex and sexual controls, internal familial processes, disorganization, differential class patterns, the family and social change. Although family patterns in the contemporary United States are considered throughout, the primary stress is cross-temporal and comparative. A copy of the reading list may be consulted in the main office of the Department of Sociology.

346 Class, Status, and Power. *Spring term. Credit four hours. Prerequisite: Sociology 101 or consent of the instructor. M W F 1:25. Mr. Tavuchis.* An exploration of various theories and empirical investigations of the sources and consequences of social stratification considered historically and cross-culturally.

350 Comparative Social Change. *Spring term. Credit four hours. Prerequisite: Sociology 101. M W F 11:15. Mr. Rosen.* An examination of social and psychological factors which affect the modernization process. Emphasis is placed upon cross-national data which show how social structure and personality interact to influence the transition of communities from traditional to modern forms of social organization. Among the topics to be covered are psychological factors in economic development, the impact of industrialization on family structure and socialization, and personality elements which affect the political process in developing societies.

351 Sociology of Deviance. *Spring term. Credit four hours. Prerequisite: Sociology major or consent of the*

instructor. M W F 2:30. Mr. DeFriese. A study of explanations of deviant behavior and societal reactions to deviance. Emphasis is given to the role and function of the deviant in society, the problem of social control, and the processes of norm formation and enforcement.

[354 Religions and Secularism in Western Society. Fall term. Credit four hours. Prerequisite: Sociology 101 or consent of the instructor. M W (F) 9:05. Not offered in 1971-72.]

367 After the Revolution: Mexico and Cuba. Fall term. Credit four hours. Prerequisite: two courses in the social sciences. M W F 1:25. Mr. Kahl. A comparison of the economic, political, and social development of Mexico and Cuba following their revolutions. Assigned readings will be in English.

368 Contemporary Brazil (Also Economics 368). Spring term. Credit four hours. Prerequisite: two courses in the social sciences. M W 1:25-3:20. Messrs. Davis and Kahl. A study of the style of development in economy, polity, and society followed by contemporary Brazil along with an analysis of the contradictions that led to the military coup of 1964 and its aftermath; some comparisons with other Latin American countries will be made. Assigned readings will be in English.

381 Social Psychology (Also Psychology 381). Spring term. Credit four hours. Prerequisites: three hours of psychology and three hours of sociology. M W F 10:10. Mr. Lambert. Analysis of the history, concepts, methods, and theories used to describe and conceptualize the ways in which people react to one another in social settings and in the laboratory. Students will work individually or as teams on projects, using experimental or other empirical methods. The topics for investigation in lectures and reading will include socialization, attitude change, communication, interpersonal influence, impression formation, leadership, and propaganda.

385 Theories of Personality (Also Psychology 385). Fall term. Credit four hours. Prerequisite: Psychology 101 or 102 or consent of the instructor. M W F 12:20. Mr. Lambert. A critical survey of the concept of personality in literature, the social sciences, and psychology. A number of the modern specialists will be discussed at some length, and recent empirical and experimental work that has grown out of their thought will be analyzed. The empirical relation of personality notions to some philosophical beliefs and literary productions will be considered. The emphasis will be mainly upon "normal" personality.

387 Psychological Aspects of Political Behavior (Also Psychology 387). Fall term. Credit four hours. Prerequisites: junior standing and a course in social psychology or personality, or consent of the instructor. M W F 2:30. Mr. Aiker. A survey covering student activism, dogmatism, political paranoia, determinants of "left" and "right" ideology, Machiavellianism, autocratic vs. democratic leadership, need for power, group polarization and consensus, political socialization, and psychocultural theories of war. An empirical, hypothesis testing approach will be adopted.

402 Social Theory. Fall term. Credit four hours. Prerequisite: undergraduate major in sociology. M 1:25-3:20. Mr. Gould. Survey of selected theories and concepts in contemporary sociology reviewed in historical perspective, in relation to the contributions of other social sciences, and in terms of present-day developments in theory and research. Throughout, emphasis will be placed on trends in contemporary social theory.

420 Mathematical Sociology I. Spring term. Credit four hours. Prerequisite: one year of college mathe-

tics or consent of the instructor. Th 1:25-3:20 and one hour to be arranged. Mr. McGinnis. Elementary mathematics as applied to sociological theory. Both deterministic and probabilistic models are considered. Stochastic probability processes are emphasized in relation to theories of social change.

421 Mathematical Sociology II. Fall term. Credit four hours. Prerequisites: courses in calculus and probability or consent of the instructor. T Th (S) 11:15. Mr. Henry. Models of social processes with particular attention to their relevance to social science research techniques. A detailed examination of James Coleman's book, *Mathematical Sociology*.

425 Foundations of Statistical Analysis. Fall term. Credit four hours. Prerequisite: Mathematics 107-108 or equivalent. M W F 11:15. Mr. Henry. A first course in statistics for students in the social sciences. Basic principles of statistical inference will be stressed, including problems of point and interval estimation, hypothesis testing, and sampling theory. Nonparametric techniques applicable in social research and an introduction to linear regression analysis will also be included.

[437 Population Growth and Development. Fall term. Credit four hours. Prerequisite: Sociology 230 or consent of the instructor. M W F 1:25. Not offered in 1971-72.]

[438 Human Migration. Spring term. Credit four hours. Prerequisite: Sociology 230 or consent of the instructor. T Th 10:10 and one hour to be arranged. Not offered in 1971-72.]

Introduction to Human Ecology. (Planning 513, College of Architecture, Art, and Planning).

441 Structure and Functioning of American Society —I. Fall term. Credit four hours. Prerequisite: Sociology 101 or consent of the instructor. T Th S 9:05. Mr. Williams. Systematic analysis of the major institutions of kinship, stratification, economic activity, political structure, education, and religion. Special attention is given to values and their interrelations in the modern social order as well as to deviance and evasion. A survey of the more important types of groups and associations making up a pluralistic nation is included.

442 Structure and Functioning of American Society —II. Spring term. Credit four hours. Prerequisite: Sociology 441 or consent of the instructor. T Th S 9:05. Mr. Williams. Primary attention is directed to the study of interrelations of institutions, including analysis of the regulation of economic and political systems. Group cooperation and conflict are surveyed. Analysis of important processes of change in institutions, values, and social organizations.

447 Sociology of Health and Medicine. Fall term. Credit four hours. Prerequisite: background in the social sciences, premedical status, or consent of the instructor. M W F 9:05. Mr. Marden. An analysis of health, illness, and the health professions and institutions from the sociological perspective. Topics to be considered will include social epidemiology, mortality and morbidity, the social psychology of illness, the socialization of health professionals, the organization of health care, and patient-professional relationships. Some attention will be directed to health and medical care in developing areas.

[462 Survey Research Methods. Spring term. Credit four hours. Prerequisites: undergraduate major in sociology and Industrial and Labor Relations 210 or equivalent and consent of the instructor. Th. 1:25-3:20 and additional time to be arranged. Mrs. Goldsen. Not offered in 1971-72.]

471 Urban Confrontations. *Fall term. Credit four hours. Prerequisites: Sociology 101 and 272 or equivalent and consent of the instructor. W F 1:25-3:00. Mr. DeFriese.* An in-depth study of the social organization and political controversy surrounding public education, law enforcement, and health systems of American urban areas. Emphasis will be placed on the process by which public policy is made and the impact of public service consumers on the decision-making process.

472 International Urbanization. *Spring term. Credit four hours. Prerequisite: consent of the instructor. M 3:35-5:30 and one hour to be arranged. Mr. Marden.* An examination of the nature of urbanization in developed and developing nations. The growth, nature, and problems of urban centers will be considered. Careful attention will be directed to the sociological questions involved in urbanization and urbanism, but other perspectives on cities will be employed as appropriate. Students will have an opportunity to develop their own interests on urbanization in international contexts during the course.

Individual Differences (Psychology 410).

[480 Attitude Theory (Also Psychology 480). *Spring term. Credit four hours. Prerequisite: a course in social psychology. M W F 11:15. Not offered in 1971-72.]*

481 Advanced Social Psychology (Also Psychology 481). *Spring term. Credit four hours. Prerequisite: a course in social psychology or consent of the instructor. M W F 11:15. Mr. Regan.* Emphasis is on the empirical study of social psychological phenomena. Students will be introduced to empirical laboratory and field methods used in social psychology. Substantive problems will provide the focus for the demonstration and use of these techniques.

482 Social Psychological Aspects of Social Change (Also Psychology 482). *Spring term. Credit four hours. Prerequisites: two courses in psychology or sociology or consent of the instructor. T Th 2:30-4:00. Mr. Naditch.* A critical analysis of social psychological theories of social change. The development of a theory of social change. The evaluation of social change theories and of the personality and social systems approach to understanding social change by examination of the utility of these approaches for understanding contemporary social phenomena.

483 Social Interaction (Also Psychology 483). *Fall term. Credit four hours. Prerequisites: the consent of the instructor and three hours in psychology and three hours in sociology. Hours to be arranged.* A field and laboratory course dealing with the major dimensions of interpersonal perception and behavior. The relation of these dimensions to self-conception, social roles, group structure, and dynamics are examined. Contemporary research is stressed in the readings. Student projects are an integral part of the course.

484 Experimental Group Dynamics (Also Psychology 484). *Spring term. Credit four hours. Prerequisites: a course in statistics and a course in social or experimental psychology. M W (F) 12:20 and additional laboratory hours to be arranged.* A practicum. Supervised research experience in the design, execution, and analysis of experimental research on topics such as group cohesiveness, group pressure, group goals, leadership, group performance, and interpersonal influence and communication.

486 Groups as Socializing Agents (Also Psychology 486). *Spring term. Credit four hours. Prerequisites: graduate or upperclass standing and consent of the instructor. T 1:25-3:20. Mr. Bronfenbrenner.* The seminar examines critically existing theory and research on

the role of groups in shaping the behavior and values of their members. Particular attention is focused on such processes as modeling, social reinforcement, and pressures to conform in enduring social structures such as the family, the peer group, work teams, and business organizations. Students are expected to work independently in assembling and evaluating material relevant to particular issues.

489 Seminar: Selected Topics in Social Psychology (Also Psychology 489). *Fall term. Credit four hours. Prerequisites: consent of the instructor and three hours of psychology and three hours of social psychology or sociology. T 2:30-4:30. Mr. Jones.* A small discussion seminar dealing with issues in both social and personality psychology. Initial discussions will focus on specific areas of the field such as interpersonal evaluation, attitude change, and group processes. Subsequently, the discussions will become more general and raise such questions as: What are the major themes social psychologists are or should be studying? What are the appropriate units of analysis of social behavior?

491 Selected Topics in Sociology. *Either term. Credit two hours. Open only to majors. Hours to be arranged. Staff.*

492 Selected Topics in Sociology. *Either term. Credit four hours. Open only to majors. Hours to be arranged. Staff.*

495 Honors Research: Senior Year. *Fall term. Credit four hours. Open only to students in sociology Honors Program. Hours to be arranged. Staff.*

496 Honors Thesis: Senior Year. *Spring term. Credit four hours. Prerequisite: Sociology 495. Hours to be arranged. Staff.*

497 Social Relations Seminar (Also Anthropology 495). *Spring term. Credit four hours. Open only to seniors majoring in social relations. Hours to be arranged.*

For complete descriptions of courses numbered 500 or above see the *Announcement of the Graduate School: Social Sciences* or consult with the department.

503 Sociology of Science. *Fall term. Credit four hours. Prerequisite: graduate student standing or consent of the instructor. Hours to be arranged. Mr. Gordon.*

522 Philosophy of Social Research. *Fall term. Credit four hours. Prerequisite: graduate student standing or consent of the instructor. W 3:35-5:30. Mr. McGinnis.*

524 Statistical Inference and Causal Analysis. *Spring term. Credit four hours. Prerequisite: a course in statistics or consent of the instructor. M Th 1:25-3:20. Mr. Henry.*

526 Mathematics of Human Mobility. *Spring term. Credit four hours. Given in alternate years. Prerequisites: one year of college mathematics and one term of statistics, or consent of the instructor. F 3:35-5:30 and one hour to be arranged. Mr. McGinnis.*

[528 Measurement and Latent Structure Theory. *Spring term. Credit four hours. Given in alternate years. Prerequisite: 524 or consent of the instructor. Hours to be arranged. Mr. Henry. Not offered in 1971-72.]*

530 Introduction to Social Demography. *Fall term. Credit four hours. Prerequisite: graduate student standing or consent of the instructor. M W F 10:10. Mr. Chi.*

[531 Demographic Theory. *Fall term. Credit four hours. Open to majors and graduate students. T 1:25-3:20. Not offered in 1971-72.]*

535 Techniques of Demographic Analysis. *Spring term. Credit four hours. Prerequisite: Sociology 230 or consent of the instructor. Hours to be arranged. Mr. Chi.*

[536 Demographic Research Methods. *Spring term. Credit four hours. Prerequisite: Sociology 230 or consent of the instructor. F 1:25-3:20 and one hour to be arranged. Not offered in 1971-72.]*

541 Social Organization and Change. *Spring term. Credit four hours. Prerequisite: graduate student standing or consent of the instructor. Hours to be arranged. Mr. Meyer.*

543 Family and Kinship. *Fall term. Credit four hours. Prerequisites: graduate student standing, a course on the family, or consent of the instructor. Hours to be arranged. Mr. Tavuchis.*

561 Sociology of Southeast Asia. *Fall term. Credit four hours. Prerequisite: graduate student standing or consent of the instructor. Hours to be arranged. Mr. MacDougall.*

Methods in Social Psychology (Psychology 545-546).

583 Proseminar in Social Psychology and Personality (Also Psychology 583). *Fall term. Credit four hours. Prerequisite: graduate major in social psychology or graduate minor in social psychology with consent of the instructor. M Th 4-5:45. Mr. Lambert and staff.*

585 Social Structure and Personality (Also Psychology 585). *Fall term. Credit four hours. Prerequisite: graduate student standing or consent of the instructor. T 3:35-5:30. Mr. Rosen.*

602 Seminar: Social Theory. *Fall term. Credit four hours. Prerequisite: graduate major in Sociology and Sociology 541 or equivalent. Hours to be arranged. Mr. Williams.*

632 Seminar: Contemporary Research in Demography. *Fall term. Credit four hours. Prerequisite: graduate student standing or consent of the instructor. T 3:35-5:30. Mr. Stycos.*

642 Seminar: Comprehensive Health Planning (Also Business and Public Administration 465, Graduate School of Business and Public Administration, and Planning 789, College of Architecture, Art, and Planning). *Spring term. Credit three hours. Prerequisite: graduate standing and consent of an instructor. Hours to be arranged. Messrs. Brown, DeFriese, and Riordan.*

643 Seminar: Medical Sociology. *Spring term. Credit four hours. Prerequisites: graduate standing or undergraduate major in relevant fields, and consent of the instructor. Hours to be arranged. Mr. DeFriese.*

647 Seminar: Contemporary Research on Social Stratification. *Fall term. Credit four hours. Prerequisites: graduate student standing and consent of the instructor. Th 3:35-5:30. Mr. Kahl.*

648 Seminar: Issues in Latin American Development. *Spring term. Credit four hours. Prerequisites: fluent reading knowledge of Spanish or Portuguese and consent of the instructor. Th 3:35-5:30. Mr. Kahl.*

662-663 Seminar: Social Systems Analysis. *Throughout the year. Credit four hours each term. Hours to be arranged. Messrs. Henry and McGinnis.*

672 Seminar: International Urbanization. *Fall term. Credit four hours. Prerequisite: graduate student standing or consent of the instructor. M 3:35-5:30. Mr. Marden.*

Organizational Behavior II (Industrial and Labor Relations 521, School of Industrial and Labor Relations).

Cross-Cultural Studies of Work and Institutional Development (Industrial and Labor Relations 662, School of Industrial and Labor Relations).

683 Research Practicum in Social Psychology (Also Psychology 683). *Fall term. Credit four hours. Hours to be arranged. Mr. Hayes.*

685 Seminar: Social Psychology of Modernization. *Spring term. Credit four hours. Hours to be arranged. Mr. Rosen.*

691-692 Directed Research. *Either term. Credit to be arranged. Hours to be arranged. Staff.*

Spanish

For complete course listings and for details of the major, see the heading "Spanish" in the section Modern Foreign Languages and Literatures.

Theatre Arts

Mr. J. H. Clancy, Chairman; Messrs. H. D. Albright, M. A. Carlson; Mrs. Joan Churchill; Messrs. R. Churchill, S. R. Cole, P. Curtis; Miss Peggy Lawler, Mrs. LaVerne Light; Messrs. D. Marme, B. O. States, P. Stelzer, R. Sudre, H. F. Wessler.

The Department of Theatre Arts offers a broad and varied curriculum dealing with theatre and related arts. All majors must complete the sequence 109-110 plus thirty additional hours of work in the Department, which must include 251-252 and at least two additional hours in courses numbered in the 250's. Upperclassmen accepted as majors who have not taken 109-110 must complete instead 209 and an additional course prescribed by the Department. In addition, majors must complete at least twelve hours of related work outside the Department. All majors must demonstrate proficiency in practical theatre work.

At the end of the sophomore year a small number of especially qualified students may be selected to receive special training through participation in aspects of the Masters of Fine Arts (M.F.A.) professional training program. These students will be admitted in their junior year to selected courses and projects which advance their special interests and talents in theatre arts as a profession. This group will be assigned an adviser who will help guide their elective work toward professional specialization. (For further information, see the *Announcement of the Graduate School: Humanities.*)

Opportunities for performance in theatre, dance, and cinematography are available to all members of the student body through the facilities of the Department. A wide variety of theatrical performances is presented each term in the University Theatre of Willard Straight Hall, the Kaufmann Auditorium in Goldwin Smith Hall, and the Drummond Studio in Lincoln Hall. Students may participate as actors, dancers, directors, playwrights, film makers, designers, or technicians. Auditions for particular productions are scheduled throughout the year. Film making equipment and facilities are available for student use.

Four prizes are offered under the auspices of the Department: the Heermans Prize for One-Act Plays on an American Theme (open to undergraduates), the George A. McCalmon Prize for One-Act Plays (open to graduates and undergraduates, with no restriction as to theme), the Cornell Dramatic Club First President's Prize for significant contributions to the theatre program, and the Cornell Student Film Festival Prize (open to graduates and undergraduates, with no restriction as to length or theme).

The Drummond Awards were established in honor of the late Professor A. M. Drummond, to acknowledge, each year, outstanding achievements by undergraduate members of the Cornell Dramatic Club and other undergraduate participants in the University Theatre program.

The Honors Program

Students wishing to graduate with Honors may undertake to work toward an Honors essay or an Honors production project. Those interested in working toward the essay should make application to the chairman by the first term of their junior year, those working toward the production project by the first term of their sophomore year. For provisional acceptance as a candidate for Honors, a student must have chosen theatre as his major, have a cumulative average of B- for all work done in the College, and have no grades below B- for courses in the Department. Successful candidates will be removed from provisional status at the end of their junior year, and as seniors must enroll in the Honors sequence 427-428.

Distribution Requirement

The Distribution requirement in the expressive arts is satisfied by any two of the three-credit courses in the Department of Theatre Arts. Modern Dance (Physical Education 200-201) may also be used.

Theatre Laboratory

Each of the following courses (251-252, 253-254, 255-256 and 257-258) is offered throughout the year. Credit one hour a term. Consent of the instructor is required. The courses may be repeated for credit, but no student may earn more than six hours of credit applicable towards graduation. Acting, directing, managerial, and technical responsibilities in productions of the University Theatre and/or studio and cinema programs under the direction of the University Theatre staff. Participation is also open to students without credit.

251-252 Technical Theatre. *Credit one hour a term. S/U grades only. Shop hours to be arranged. Staff.* Practice in construction, painting, and lighting for the University Theatre productions.

253-254 Cinema Production. *Credit one hour per term. S/U grades only. First meeting in Lincoln 304 at 7:30 p.m. on the first day of instruction. Hours to be arranged. Staff.*

255-256 Rehearsal and Performance. *Credit one hour a term. S/U grades only. First meeting in Lincoln 302 at 7:30 p.m. on the first day of instruction. Hours to be arranged. Staff.*

257-258 Management and Direction. *Credit one hour a term. S/U grades only. First meeting in Lincoln 302 at 7:30 p.m. on the first day of instruction. Hours to be arranged. Staff.*

Acting

280-281 First Year Acting. *Throughout the year. Credit three hours. Prerequisite: registration through departmental roster. First term prerequisite to second. M W 11:15-1:15, M W 2:30-4:25, T Th 2:30-4:25. Mr. Cole and Mr. Stelzer. Sections limited by number of students.* Introduction to the problems and basic technique of the actor. Practice in creative exercises, pantomime, improvisation, psychological sets, and physical images.

380-381 Second Year Acting. *Throughout the year. Credit three hours. Prerequisite: Theatre Arts 280-281.*

First term prerequisite to second. Open to Theatre Arts majors only. M W 2:30-4:25. Mr. Cole and Mr. Stelzer. Practical emphasis upon integration of conception, preparation of role and techniques of presentation.

480 Graduate Acting. *Throughout the year. Credit four hours. Primarily for M.F.A. candidates; open to others with consent of the instructor. May be repeated for credit. T Th 10:10-12:10, T Th 11:15-1:15. Mr. Cole and Mr. Stelzer. The study and practice of fundamental and advanced techniques and methodology.*

282-283 Dance and Movement for the Theatre. *Throughout the year. Credit three hours a term. First term prerequisite to the second. Consent of the instructor required. T 4:40-6:00, F 1:30-3:00. Miss Lawler.* Basic dance technique designed to help the actor improve his use of the body as an expressive instrument. Emphasis in the second term is on changing styles of movement.

Modern Dance (Physical Education 200, 201, 202, 203).

285 Kinesthetics for the Theatre. *Fall term. Credit two hours. Primarily for M.F.A. candidates; others by consent of the instructor. W F 12:00. Mr. Sudre.* Flexibility and coordination exercises; posture and walk control; yoga as applied to theatre movement. Introduction to basic rules of body aesthetics, dietetics, physiotherapy as applied to the performing arts.

286 Kinesthetics for the Theatre. *Spring term. Credit two hours. Prerequisite: Theatre Arts 285. W F 12:00. Mr. Sudre.* Continuation of Theatre Arts 285 with introduction to techniques of weaponry, combat, and stage dueling.

382 Voice and Speech for Performance. *Fall term. Credit two hours. Primarily for M.F.A. candidates; others with consent of instructor. M W 10:10 and laboratory to be arranged. Mrs. Light.* A study of voice and speech variables and their nature when applied to theatrical performance. Emphasis is on ear training and the techniques of voice production to achieve precision of articulation, and to improve vocal range, resonance, and flexibility.

Laboratory sessions under supervision of the instructor include programmed self-instruction in General American and English phonetics, and work on individual voice and articulation problems.

383 Voice and Speech for Performance. *Spring term. Credit two hours. Prerequisite: Theatre Arts 382. M W 10:10 and laboratory to be arranged. Mrs. Light.* Advanced voice and diction for the stage. Stage dialects studied through the combined approach of applied phonetics and ear training. Continued work in the techniques of voice production to improve range, resonance, and flexibility.

482-483 Graduate Voice and Speech for Performance. *Throughout the year. Credit two hours. M.F.A. candidates only. M W 2:00 and laboratory to be arranged. Mrs. Light.* Emphasis on vocal interpretation of roles. Application of special skills and vocal technique in building character.

385-386 First Year American Mime. *Throughout the year. Credit two hours a term. First term prerequisite to the second. Primarily for M.F.A. candidates. Others with consent of the instructor. M 2:00-4:00. Mr. Curtis and Mr. Wessler.* The actor is taught to create and perform symbolic activities in the mime form. The first year's work is divided into acting, movement, and material.

387-388 Second Year American Mime. *Throughout the year. Credit two hours a term. Prerequisites: Theatre Arts 385, 386, and consent of the instructor. M*

11:15–1:15. *Mr. Curtis and Mr. Wessler.* Continuation of Theatre Arts 385–386 with emphasis on directing, design, and creative imagination. Work is completed by the creating and playing of scenes.

Directing

[289 **Acting for the Director.** *Not offered in 1971–72.*]

399 First Principles of Directing. *Fall term. Credit three hours. Prerequisite: consent of instructor. M W F 2:30–4:25. Mr. Clancy.* The study and practice of the fundamental craft of the director. The structure of visual and temporal patterns as interpretation of the script; rehearsal procedures and techniques; the relationship of the technical and design arts to the directorial approach. Lecture, discussion, demonstration, and practice. Students will prepare scenes for class critique, demonstration, and revision.

498 Advanced Directing. *Spring term. Credit four hours. Prerequisites: Theatre Arts 399 and consent of the instructor. M W F 2:30–4:25. Mr. Clancy.* Investigation of the theatrical meaning of a play and the methods by which such meaning may be communicated in the modern theatre. Discussion and studio practice.

499 Projects in Directing. *Either term. Credit to be arranged. Prerequisite: consent of the departmental staff. Hours to be arranged. Staff.* The planning and execution of directing projects by advanced students in the public facilities of the Theatre Arts Department.

599 Seminar in Theories of Directing. *Fall term. Credit four hours. Prerequisite: graduate standing and/or consent of the instructor. T 1:30–3:20. Mr. Clancy.* A study of the theory and practice of significant directors in theatre history. An examination of directorial interpretation and theatrical realization, with consideration of the social, philosophical, and cultural milieu in which the directors worked.

Theatre Production and Design

351–352 Theatre Practice. *Throughout the year. Credit two hours. Prerequisite: consent of the instructor. Hours to be arranged. Staff.* Work on specific projects and/or productions under supervision of set designer, costume designer, or technical director.

361 Stagecraft. *Either term. Credit four hours. Prerequisite: consent of the instructor. M W 12:20. Laboratory hours to be arranged. Staff.* A survey of technical problems of stage production. Lectures and demonstrations on theatre structure and equipment, scene construction and painting, stage lighting and equipment, costume construction, and technical drawing. Practice in scene and costume construction, painting, and lighting in both laboratory and actual productions.

364 Stage Design I. *Fall term. Credit four hours. Prerequisite: Theatre Arts 361 or consent of the instructor. T Th 10:10. Laboratory to be arranged. Mrs. Churchill.* Stage scenery design from the specifics of mass, space, and color to the completed theatrical design. Laboratory work with the designer in rendering, scene painting, basic drafting, decor, and lighting.

365 Stage Design II. *Spring term. Credit four hours. Prerequisite: Stage Design I or consent of the instructor. T Th 10:10. Laboratory to be arranged. Mrs. Churchill.* Continuation of Stage Design I.

367 Costume Design I. *Fall term. Credit four hours. Prerequisite: consent of the instructor. T Th 12:20. Laboratory, M 2:00–4:25. Mr. Marme.* Stage costume design and construction. Practice in costume design,

period research, rendering techniques. Laboratory in practical costume construction.

368 Costume Design II. *Spring term. Credit four hours. Prerequisite: Costume Design I or consent of the instructor. T Th 12:20. Laboratory, M 2:00–4:25. Mr. Marme.* Continuation of Costume Design I.

467 Advanced Costume Design. *Either term. Credit and hours to be arranged. Prerequisite: consent of the instructor. Mr. Marme.* Projects in stage costume design and rendering techniques. Emphasis on design of total production. May be repeated for credit.

468 Advanced Costume Construction. *Either term. Credit and hours to be arranged. Prerequisite: consent of the instructor. Mr. Marme.* Projects in application of historical patterning for the stage. May be repeated for credit.

Playwriting

348 Playwriting. *Fall term. Credit four hours. Prerequisite: consent of the instructor. Previous study in play production recommended. M 1:25–4:25. Mr. States.* A laboratory for the discussion of student plays. Each student is expected to write two or three one-act plays, or one full-length play.

[349 **Advanced Playwriting.** *Not offered in 1971–72.*]

Theatre History, Literature, and Theory

109–110 Introduction to Theatre Art. *Throughout the year. Credit three hours a term. First term prerequisite to the second. M W F 11:15. Mr. Albright.* Study of the fundamental elements in theatrical production and of their interrelationships. The first term will be devoted primarily to the written script and its analysis for production, and to staging and design as they affect the work of actor and director.

In the second term the artistic choices of the actor and director in bringing a script to life on the stage will be given primary consideration. Material in both terms will be developed through lectures, readings, discussions, and demonstrations, as well as through individual and group exercises.

204 The Enchanted Island, Seven Days in May, 1664 (Also Music 204). *Spring term. Credit three hours. M W F 3:35. Messrs. Carlson, Seznec, and Zaslav.* For description, see *Interdisciplinary Studies in the Humanities*, (p. 00).

209 The Arts of the Theatre. *Fall term. Credit three hours. Not open to freshmen or to students who have taken Theatre Arts 109 or 110. M W F 12:20. Mr. Albright.* A survey of the elements of dramatic communication intended to develop appreciation and rational enjoyment of the theatre in all its forms. This is not a production course, and no experience in dramatic production is required. Lectures, readings, demonstrations.

300 Independent Study. *Throughout the year. Credit to be arranged. Individual study of special topics. Open to juniors and seniors with consent of the departmental member directing the study.*

333 History of the Theatre I. *Fall term. Credit four hours. M W F 11:15. Mr. Carlson.* A survey of the characteristics of primitive theatre and of theatrical styles and production modes in Classical Greece, Rome, Medieval Europe, India, China, and Japan, Renaissance England, and Spain.

334 History of the Theatre II. *Spring term. Credit four hours. M W F 11:15. Mr. Carlson.* A survey of theatrical styles and production modes since 1642.

Among the areas considered will be Renaissance France, the English Restoration, the eighteenth and nineteenth centuries in England, France, and Germany, and the modern international stage.

World Drama (Comparative Literature 325-326).

Greek and Roman Drama (Comparative Literature 400).

[European Drama, 1660-1800. *Not offered in 1971-72.*]

Representative English Dramas (English 339).

Elizabethan and Jacobean Drama (English 412).

[335 American Drama and Theatre. *Not offered in 1971-72.*]

Modern Drama (English 346 and 463, German Literature 412).

[Modern Dramatists (Comparative Literature 442). *Not offered in 1971-72.*]

[336-337 Survey of Theatrical Theory. *Not offered in 1971-72.*]

427 Honors Seminar. *Fall term. Credit four hours. Prerequisite: senior standing as a candidate for Honors. Hours to be arranged. Staff.*

428 Honors Research. *Spring term. Credit to be arranged. Prerequisite: Theatre Arts 427. Hours to be arranged. Staff.*

430 Literature and the Theatre. *Throughout the year. Credit four hours. M.F.A. candidates only. T Th 10:10. Mr. Clancy.* Analysis of various types of dramatic literature from the point of view of language as a theatrical medium.

433 Seminar in Theatre History. *Spring term. Credit four hours. Prerequisites: graduate standing or consent of the instructor. T Th 1:25-3:00. Mr. Carlson.* Backgrounds of the modern theatre; a study of the major trends in acting, playwriting, and production in the European and American theatre between 1850 and 1915.

438 Theatre Aesthetics. *Fall term. Credit four hours. Prerequisites: two 300-level or 400-level courses in drama. Th 2:00-4:25. Mr. Albright.* The chief theories of dramatic production in relation to aesthetic principles.

For complete descriptions of courses numbered 500 or above, see the *Announcement of the Graduate School: Humanities*. If a course is not included there, consult the Graduate Field Representative.

[500 Introduction to Research and Bibliography in Theatre Arts. *Not offered in 1971-72.*]

536 Seminar in Dramatic Criticism. *Spring term. Credit four hours. Prerequisite: graduate standing or consent of the instructor. W 1:30-4:30. Mr. States.*

[538 Seminar in Theatre Aesthetics. *Not offered in 1971-72.*]

690 Theses and Special Problems in Drama and the Theatre.

Cinema

253-254 Cinema Production. See listing under Theatre Laboratory.

375 History of the Cinema I. *Fall term. Credit four hours. T Th 2-4:25. Staff.* An introduction to the history and art of the cinema: its characteristic problems, devices, and development. Representative motion pictures will be studied. Lectures, demonstrations, and film viewings.

376 History of the Cinema II. *Spring term. Credit four hours. T Th 2-4:25. Staff.* An examination of the nonfiction film and the independent film. Attention is given to the film maker as artist, propagandist, and recorder. Representative examples will be studied. Lectures, demonstrations, and film viewings.

377 Fundamentals of Cinematography. *Fall term. Credit four hours. M W F 2-4:25. Staff.* Principles and methods of motion picture production with primary emphasis on creative techniques: script writing, photography, editing, special effects, and sound recording. Lectures, demonstrations, and special projects.

475 Seminar in the Cinema. *Spring term. Credit four hours. Prerequisites: Theatre Arts 375 and 376. W 2-4:25. Staff.* Selected topics in the history and aesthetics of the cinema.

Varieties of the French Film. (Romance Studies C399)

Center for International Studies

Mr. M. J. Esman, Director; Mr. G. Levine, Associate Director.

The purpose of the Center is to facilitate and encourage research and teaching dealing with international affairs and comparative studies and to serve as a focal point for their discussion. The Center's major effort is directed to strengthen the social sciences as they relate to international studies. To supplement the numerous courses in comparative and international studies offered in the regular teaching departments of the university, the Center offers interdisciplinary and other innovative courses at the undergraduate and graduate levels in those areas where it can usefully add to the regular offerings of separate colleges, schools, and departments.

Please refer to the *Announcements* of the various Cornell divisions for information about degree requirements and to the *Report and Announcement of the Center for International Studies* at Cornell for information about activities and interdisciplinary and departmental programs.

Courses and seminars offered in 1971-72 will include the following:

109-110 Interdisciplinary Undergraduate Program in International Affairs, I and II. *Throughout the year. Credit eight hours. Hours and instructors to be arranged.*

209-210 Interdisciplinary Undergraduate Program in International Affairs, III and IV. *Throughout the year. Credit eight hours. Hours and instructors to be arranged.*

Introduction to International Relations (Government 206).

Population Problems (Sociology 230).

Race in International Relations (Government 360).

Race and Politics: Comparative Studies (Government 361).

Theories of International Relations (Government 370).

Defense Policy and Arms Control (Government 371).

The Politics of Population (Government 374).

From Politics to Policy: the Political Economy of Choice (Government 410).

Elites and Society: the Political Economy of Power (Government 411).

Introduction to Social Demography (Sociology 530).

Seminar: Contemporary Research in Demography (Sociology 632).

Seminar: International Urbanization (Sociology 672).

The College Scholar Program

For a description of the Program see p. 21, under Special Programs. The Advisory Board: Messrs. D. Archibald, English; T. Brown, History of Art; Miss Patricia Carden, Russian Literature; Mr. D. Connor, Assistant Dean, German Literature; Mrs. Esther Dotson, History of Art; Messrs. D. Dowd, Economics; E. L. Elson, Chemistry; S. Emlen, Biological Science; C. F. Hockett, Modern Languages; M. Kammen, History; J. Kiefer, Mathematics; D. LaCapra, History; E. Lenneberg, Psychology; P. Lewis, Romance Studies; F. McConnell, English; S. McMillin, English; R. Parker, English; A. Rovine, Government; R. Scott, Associate Dean; A. Seznec, Associate Dean, Romance Studies; J. Siegel, Anthropology; C. Strout, English; J. Wilkins, Physics; A. Wood, Philosophy.

Courses of independent study designed to complement or amplify a particular program may be arranged with or through the student's adviser. Independent study will be granted to members of the program when there is no regular course available and it meets a clear curricular need.

398-399 Independent Study. *Throughout the year. Credit two hours a term. Primarily for upperclassmen. Prerequisite: consent of the adviser. Hours and instructor to be arranged.*

498-499 Independent Study. *Throughout the year. Credit four hours a term. Primarily for upperclassmen. Prerequisite: consent of the adviser. Hours and instructor to be arranged.*

The Female Studies Program

The purposes of the Female Studies Program are (1) to broaden teaching and research about women, drawing upon the resources of many related disciplines, (2) to expand research about the female/male dimension, and (3) to cooperate with Extension and public service activities of the University.

For information regarding courses, consult the various departmental listings and the *Announcements* of the Colleges of Agriculture and Human Ecology.

The Program in Greek Civilization

For a description of the Program see p. 23, under Special Programs. The following courses constitute the Program in Greek Civilization. When a course enrollment is large, students in the Program will meet in a small section. The Program taken as a whole satisfies all underclass requirements except the Distribution requirement in Science. Taken separately the following sequences satisfy the following requirements: Classical Civilization 119 and 122 satisfy the Distribution requirement in the Humanities; Classical Civilization 220 and Greek Civilization 212 satisfy the Distribution requirement in the Social Sciences; History 301 and Greek Civilization 210 satisfy the Distribution requirement in History. Alternatively, Classical Civilization 119 and 121 may be used toward satisfaction of the Freshman Humanities requirement.

101-103, 201-203 Greek Language. *Throughout the year. Credit three hours a term.* The introduction to ancient Greek is designed to allow for the reading of

important works beginning early in the second semester with Plato's *Euthyphro*. In the second year works will sometimes be chosen for simultaneous treatment in the language course, and in translation in another course so that contact with the original will allow a closer and fuller study of its meaning. The works chosen will vary from year to year, but will be drawn from such writers as Homer, Euripides, Plato, and Sophocles.

Freshman Seminar in Greek Literature (Classical Civilization 119). Ancient Greek History (History 301).

Introduction to Classical Art and Archaeology (Classical Civilization 220).

210 Greek Political Philosophy (Also Six-Year Ph.D. XO). *Fall term. Credit four or six hours as arranged. Hours to be arranged. Mr. Dannhauser.* The political philosophy of Plato and Aristotle. The course will consist of a close textual study of Plato's *Republic* and Aristotle's *Politics*. Among the questions to be articulated the following will be prominent: What is political philosophy? What is the best political order?

212 Greek Science. *Spring term. Credit three hours. Open by invitation to freshmen, sophomores, and juniors. Hours to be arranged. Mr. Williams.* Science began with the Greeks. Making extensive use of original sources, the students will trace the evolution of science from the early speculations of the Ionians through the mature philosophical systems of Plato and Aristotle and to its fragmentation into specialized sciences in the Hellenistic period. Particular attention will be paid to the kind of questions the Greeks asked of nature and to the metaphysical and mathematical instruments devised by them to find answers.

214 Greek Philosophy. *Fall term. Credit three hours. Open by invitation to freshmen, sophomores, and juniors. Mr. Stokes.* Dialectics: Plato's *Euthydemus* and Aristotle's *Topics*. The general theme will be on the rise and flowering in Greece of Dialectic, the art of out-arguing an opponent. Beginning with the first Western philosophical arguments in the sixth century B.C., the course will take in the main argumentative techniques of Zeno the Eleatic, Socrates and his circle, Plato and his Academy, and the young Aristotle. The core of the subject is the work of the great philosophers, but some notice will be taken also of the early development of law-court argument. Particular attention will be paid, through close interpretation of the texts, to the relationship between the theory and the practice of argument.

Interdisciplinary Studies in the Humanities

This Program is being offered for the first time in 1971-72. Its aim is to make available courses which will utilize a variety of approaches from the humanities and allied social sciences in order to study a single topic or a group of related topics. Each course will be taught by two or more instructors from different departments.

These courses are normally open to freshmen and sophomores. The Program is designed to introduce students at an early stage in their college work to the kinds of methodological issues that arise when the same subject is studied from the point of view of different disciplines. In each course students will be assigned to a section led by one of the instructors. At least once a week all of the sections of a course will meet together for a lecture and question period.

201 The Tradition of the New. *Fall term. Credit three hours. M W F 11:15. Messrs. Gellely and T. Brown.* One

of the most pervasive and influential attitudes of the past century has been the periodic rejection of the past, of traditional forms and conventions, in favor of some type of radical innovation. By concentrating on a few case studies (such as *Madame Bovary*, the *Communist Manifesto*, Impressionism, the Eiffel Tower) this course will investigate forms of social, political, literary, technological, and visual innovation from about the mid-nineteenth century to the early twentieth century. Sections limited to twenty students each.

202 Humanistic Applications of Ego-Psychology. Spring term. Credit three hours. Hours to be arranged. Mr. Strout and an instructor from the social sciences. The unifying theme of this course will be the concept of personal identity, in both its positive and negative meanings, as in "integration" and "alienation." We will begin by showing how Erik H. Erikson's psychobiographies have developed out of Freud but with revisionary formulations. We would then seek to use Erikson's life-cycle concepts in the interpretation of literature, history, and biography. Sections limited to twenty students.

204 *The Enchanted Island, Seven Days in May, 1664.* Spring term. Credit three hours. M W F 3:35. Messrs. Carlson, Seznec, and Zaslaw. A court entertainment which took place in the reign of Louis XIV will be studied from the perspective of such varied fields as music, history, theater, economics, literature, landscape architecture, mechanical engineering, and dance. This event will be used as a base from which to explore further questions regarding the style of the baroque and the culture of Seventeenth-century France. Sections limited to twenty students.

Latin American Studies

The Latin American Studies Program constitutes a minor field of concentration for graduate students. The Program's major purpose is the encouragement and coordination of faculty and student interests on Latin America. Special lectures, films, and seminars are sponsored by the Program in order to supplement the regular course offerings. Although the Program operates primarily for graduate students, many courses are open to undergraduates, and the possibility exists for the undergraduate to arrange a Latin American concentration in conjunction with an independent major.

In addition to language and literature courses, Latin American area courses offered by the College of Arts and Sciences include:

Ethnology of South America (Anthropology 332).

Ethnohistory (Anthropology 418).

Tribal Peoples of Lowland South America (Anthropology 532).

Economic History of Latin America (Economics 525).

Economic Problems of Latin America (Economics 565).

Imperialism (Government 337).

Government and Politics of Latin America (Government 340).

The Colonial Experience in Latin America (History 319).

Latin American History in the Nineteenth and Twentieth Centuries (History 320).

Seminar in the History of Brazil (History 488).

Seminar in Latin American History (History 687-688).

Latin American Art (History of Art 392).

Seminar in Pre-Columbian Art (History of Art 415).

After the Revolution: Mexico and Cuba (Sociology 367).

Contemporary Brazil (Sociology 368).

Other Latin American area courses are offered in the College of Agriculture; the College of Architecture, Art and Planning; the College of Human Ecology and the School of Industrial and Labor Relations.

For more detailed information concerning courses and other activities, contact the Latin American Studies Program office, 205 Rand Hall.

Program on Science, Technology, and Society

F. A. Long, director; R. Bowers, deputy director; Philip Bereano, executive secretary.

The purpose of the interdisciplinary Program on Science, Technology, and Society is to stimulate teaching and research on the interaction of science and technology with contemporary society. The Program is initiating a number of new research and teaching efforts and also plays a role in providing coherence and support to activities in this area which are already proceeding at the University.

The topics of concern to the Program are illustrated by the following examples: science, technology, and national defense; world population and food resources; legal and moral implications of modern biology and medicine; national policy for the development of science; sociology of science; and the ecological impact of developing technology.

The mechanisms for studying these problems will vary and will probably include courses, seminars, short workshops, and summer studies as well as individual research programs. The Program welcomes the participation of students and faculty from all colleges and schools. A list of relevant courses in all parts of the University may be obtained from the Program office, 628 Clark Hall (telephone 607-256-3810).

The Program sponsors the following courses jointly with other units of the University.

Issues and Methods in Applying Science (Applied Physics 8901).

Biology and Society (Biology 201-202).

Special Topics in Social Biology (Biology 203-204).

Biomedical Research and Development and the Delivery of Health Services (Business and Public Administration 461).

Science, Technology, and Public Policy (Business and Public Administration 559).

Social Implications of Technology (Engineering 205).

The Law and Environmental Control (Engineering 2605).

Technology Assessment (Engineering 2694).

The Impact and Control of Technological Change (Economics 302).

The Six-Year Ph.D. Program

This is the last year in which the Six-year Ph.D. Program will offer seminars. While preference will be given to students in the Program, students not in the Program may be admitted, as room permits, provided they have the instructor's consent.

Group A: Humanities

HO. Seminar in Literature. *Fall term. Credit four hours. Hours to be arranged. Phillip Marcus, assistant professor of English.* Topic: Politics and Literature in modern Ireland. This course will trace the development of the literary and national movements in nineteenth- and twentieth-century Ireland and explore the relationship between them. Authors emphasized will include Yeats, Joyce, Synge, and O'Casey. Readings and discussions will also examine such related areas as the reactionary politics of Lawrence, Eliot, and Pound and the emergence of Black nationalism in the U. S.

KO. Seminar in Ancient Greek History. *Spring term. Credit four hours. Two lectures and one discussion section per week. M W F 9:05. Alvin Bernstein, assistant professor of ancient history.* A survey of Greek civilization from its origins to the Roman conquest. Special attention will be given to the relation between intellectual trends and political development.

XO. Seminar in Greek Political Philosophy (Also Greek Civilization 210). *Fall Term. Credit four or six hours as arranged. Hours to be arranged. Werner J. Dannhauser, assistant professor of government.* Topic: The political philosophy of Plato and Aristotle. The course will consist of a close textual study of Plato's *Republic* and Aristotle's *Politics*. Among the questions to be articulated the following will be prominent: What is political philosophy? What is the best political order?

SO. Seminar in Modern Political Thought. *Fall term. Credit four or six hours as arranged. Hours to be arranged. Werner J. Dannhauser, assistant professor of government.* Topic: The political philosophy of Nietzsche. By way of a close textual study of *Thus Spoke Zarathustra* and other works of Nietzsche, the following questions, among others, will be considered: What is the connection between Nietzsche and existentialism? What are the social and political implications of existentialism? To what extent is Nietzsche a precursor of fascism? To what extent is Nietzsche's analysis of the crisis of his time a valid analysis of the crisis of our time?

YO. Seminar in the History of Art. *Throughout the year. Credit four hours a term. Hours to be arranged. Peter Kahn, lecturer in the history of art.* Topic: Conceptual foundations of modern art. An exploration in word and image, in theory and in practice, of the many positions, individual and in schools, that have shaped the visual forms of our time; studies in visual techniques leading to both written and actual performance, based primarily on interests and abilities of the individual students themselves.

Group B: Science and Mathematics

DO. Seminar in Physical Science. *Spring term. Credit four hours. Hours to be arranged. Prerequisite: consent of instructor. John Wilkins, associate professor of physics.* Topic: Physical and chemical organization of nerves and muscles. Increasingly, progress in any scientific discipline requires assistance from other, formerly quite distinct, fields. This change in scientific research will be illustrated by an examination of those aspects of physics, chemistry, and biology which bear on the functioning of nerves and muscles. All members of the seminar will be expected to prepare and present for discussion several areas within the general topic.

ZO. Seminar in Biological Science. *Spring term. Credit four hours. M F 11:15-1:10. Limited to 20 undergraduates. Jack W. Bradbury, assistant professor of neurobiology and behavior.* Topic: Animal Social Be-

havior. An introductory, but intensive examination of social evolution in animals. Topics range from social integration in bees to origins of human societies. Students are expected to prepare and present individual topics and participate actively in discussions.

Group C: Social Sciences

AO. Seminar in Anthropology. *Fall term. Credit four hours. Th 8:00-9:55. Robert J. Smith, professor of anthropology and James T. Siegel, associate professor of anthropology.* Topic: Style and culture. A consideration of forms of expression as clues to the structuring of reality, with emphasis on ways in which style shapes conceptions of the world in selected non-western cultures. As normally treated in western culture, style tends to be viewed either as regularity of form or reflection of psychological state. It is being suggested with increasing insistence that in non-western cultures, where often there is no conception of interiority, and where style appears to be so important in shaping conceptions of the world, that such reductionism is not possible. Recent developments in anthropology, particularly in the work of Godfrey Leinhardt, Claude Levi-Strauss, and Victor W. Turner, have pointed to the possibility of new interpretations of style, society, and culture.

Society for the Humanities

Henry Guerlac, director. Fellows (1971-72): Fu-mei Chang Chen (Harvard Law School), Joseph Harris (Harvard University), John T. H. Hsu (Cornell University), Dorothy Romano Koenigsberger (Wells College), Heinz Politzer (University of California, Berkeley), Cushing Strout (Cornell University).

The Society awards annual fellowships for research in the humanities in three categories: Senior Visiting Fellowships, Faculty Fellowships, Junior Postdoctoral Fellowships. The Fellows offer, in line with their research, informal seminars intended to be off the beaten track. Details about these seminars are circulated to interested departments.

Membership in the Society's seminars is open, upon special application, to graduate students and suitably qualified undergraduates. The College determines if a seminar may be taken for credit (see below). There are no examinations; only S/U grades are given; and it is at the discretion of the Fellow whether to require only oral reports, or, in addition, a research paper if credit is to be obtained. All seminars are held in the Society's house at 308 Wait Avenue. Persons other than those officially enrolled may attend as visitors, if specifically invited.

Unlike other courses, the Society's seminars begin the second week of each semester. A student wishing to attend any of these seminars should telephone the Secretary of the Society (256-4086) early in the first week of term to arrange a short interview with the Fellow offering the course. Students wishing credit for the course must formally register for it in their own College.

Seminars offered in 1971-72 will include:

409-410 Seminar on Austrian Drama and Theater of the Nineteenth and Twentieth Centuries. *Throughout the year. Credit four hours a term. Th 1:45-3:30. Open, upon special application, to graduate students and suitably qualified undergraduates. Mr. Politzer.* The seminar will examine the particular style of Austrian theater which distinguishes it from German drama. During the first semester, Austrian theatrical traditions will be examined, and a number of texts will be ex-

amined, beginning with *The Magic Flute* and concentrating on the dramas of Grillparzer, Raimund, and Nestroy. In the second semester the discussion will center on Hofmannsthal, Schnitzler, and *The Last Days of Mankind* by Karl Kraus. A fuller description of the course is available at the Society for the Humanities and at the Office of the Department of German Literature. Prerequisite for the course is a reading knowledge of German.

411 Seminar on Problems in Old Norse Historiography. *Fall term. Credit four hours. M 3:45-5:30. Open, upon special application, to upperclassmen and graduate students. Mr. Harris.* Readings in the historical and pseudo-historical literature of medieval Iceland: sagas of the kings of Norway, sagas of the Icelanders, and short narratives with historical content. The main "problem" to be considered will be the interpretation of the pre-Christian and conversion periods by the Christian historiographers of the high middle ages. Ability to read Old Norse is recommended, but students with a knowledge of medieval historiography could make a good contribution to the seminar without Old Norse.

412 Seminar: Theory in Folklore. *Spring term. Credit four hours. M 3:45-5:30. Open, upon special application, to upperclassmen and graduate students. Mr. Harris.* This informal seminar will center on the continuing dialectic between anthropological and literary-historical "theories" of folklore. A prior knowledge of one national folklore or one traditional culture is recommended, and the instructor is seeking a balanced cross section of students from the social sciences and from the humanities.

413 Seminar on Law in Traditional Chinese Society. *Fall term. Credit four hours. W 1:45-3:30. Open, upon special application, to graduate students and suitably qualified undergraduates. Mrs. Chen.* Students with knowledge of classical or modern Chinese will be guided in reading primary sources on various subjects relating to the role of law in traditional Chinese society. Imperial and local regulations, government manuals, clan rules, civil and criminal cases, legal commentaries, and essays dealing with social problems will be subjected to close scrutiny. The topic and the period covered depends largely on each individual's interest.

414 Seminar on Law and Society in Imperial China. *Spring term. Credit four hours. W 1:45-3:30. Open, upon special application, to graduate students and suitably qualified undergraduates. Mrs. Chen.* This seminar will treat such topics as the village and the family, informal dispute settlement, Confucianism of law; the legal profession, the status of women, slavery, sumptuary regulations, local control of petty criminals, and the treatment of foreigners. Ability to read Chinese is not required; besides reading assignments in English in various books and articles, translated source materials will be supplied by the instructor.

415-416 Seminar on Images of the Mind. *Throughout the year. Credit four hours a term. M 1:45-3:30. Open, upon special application, to graduate students and suitably qualified undergraduates. Mrs. Koenigsberger.* A comparative study of assumptions and theories about the human mind, feelings, and emotions during the period from the fifteenth through the seventeenth centuries. The seminar will try to view these things historically and to characterize shifts in men's apprehension of both the structure and action of thinking and feeling with relation to ideas current at the time, and to western society in general. Some fields under consideration will be philosophy, medicine and natural philosophy, and theories about the arts, including music and literature.

505 Seminar on the Solo Literature for Viola da Gamba of Seventeenth and Eighteenth-Century France. *Fall term. Credit four hours. Open, upon special application, to qualified undergraduate and graduate students. Prerequisite: some knowledge of harmony and ability to play figured-bass at the keyboard. W 1:45-3:30. Mr. Hsu.* The art of viola da gamba playing reached its apex in France in the first half of the eighteenth century. This study will examine the development of musical styles and technical skills which culminated in the works of the two greatest virtuosos, Marin Marais and Antoine Forqueray.

506 The Division and Lyra Viols. *Spring term. Credit four hours. Open, upon special application, to qualified undergraduate and graduate students. Prerequisite: some knowledge of harmony and counterpoint, and ability to read all clefs. W 1:45-3:30. Mr. Hsu.* A consideration of the importance of the viol as a solo instrument in seventeenth-century England and its influence on the development of the French School of viol playing. Attention will be given to the improvisatory aspect of the Division Viol and the use of tablature of the Lyra Viol.

507-508 Seminar on the Politics of Religion in America. *Throughout the year. Credit four hours a term. T 3:45-5:30. Open, upon special application, to graduate students and suitably qualified undergraduates. Mr. Strout.* Theoretical and historical exploration of Tocqueville's theme of "republican religion" in America with special attention to disestablishment, social reform, and the modern problems of pluralism. Texts from radical, liberal, and conservative movements, and analyses by historians, sociologists, theologians, and psycho-biographers will be considered from the point of view of religion as a historical force in a particular society.

Student-Initiated Courses

The student's academic experience at Cornell is by no means confined to the classroom, or to what he will learn in the formally-organized and conducted courses that he takes for credit. Students are encouraged, individually and in groups, to plan and to organize independent courses of study, of varying degrees of formality, with and without the advice or guidance of faculty members, on a noncredit basis. One purpose of a formal four-course load (in junior and senior years) is, precisely, to give students greater freedom to pursue their own intellectual inclinations.

Sometimes the proposed, student-initiated course of study may be so ambitious that it is unfeasible unless it can be taken for credit. Almost all departments already list courses designated as "independent study", "supervised reading", or "independent research", which may serve this purpose. In addition, the College encourages students to initiate proposals for new courses or modes of instruction which are not currently offered in the College, or elsewhere in the University. If such a proposed course falls within the jurisdiction of a particular department, the student should seek the advice of a faculty member in the department or of the chairman. If an interdisciplinary course is being considered, the student may seek the assistance of the Agency for Educational Innovation, established by the University Senate. The Agency is prepared to help students plan and organize innovative projects of all kinds. The Educational Policy Committee of the College must approve any course which is to count for academic credit.

For further information, students should consult with the Dean's Office, 159 Goldwin Smith Hall.



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1971-72

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Mark Barlow, Jr., Vice President for Student Affairs
Lisle C. Carter, Jr., Vice President for Social and Environmental Studies
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Professors-at-Large are distinguished nonresident members of the University faculty. During short visits to the campus, of up to a month's duration, made at irregular intervals, they hold seminars, give public lectures, and consult informally with students and faculty.

Pierre Aigrain
Raymond Aron
Sir Eric Ashby
Felix Candela
Elliott Carter
Daniel Cosío Villegas
Manfred Eigen
Northrop Frye
Ernst Gombrich
Ralph Gomory
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Sir Peter Medawar
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Douglas Nelson Archibald, Ph.D., Assistant Professor of English

*Numbers following names indicate: (1) leave of absence, fall term, 1971-72; (2) leave of absence, spring term, 1971-72; (3) leave of absence, 1971-72.

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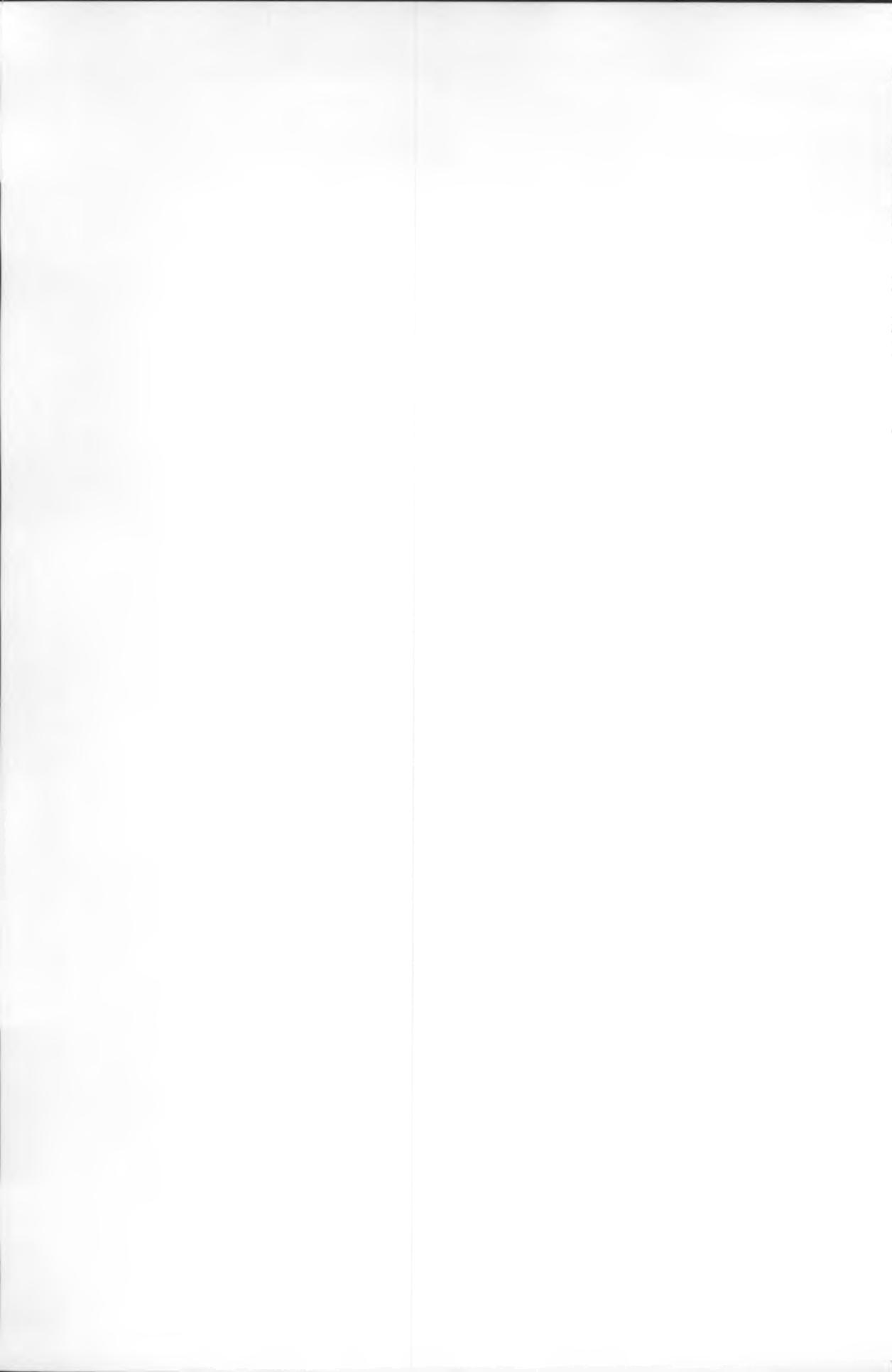
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